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Valuation of PT. Alamtri Resources Indonesia ("Adro") and Financial Feasibility Study of Mentarang Hydroelectric Power Plant

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Abstraact

Adaro Andalan Indonesia ("AADI") divestment, determine its company valuation, assess the financial implications of *Mentarang Hydroelectric Power Plant*, and propose strategies for future value optimization. The objectives of this study are to analyse and measure the financial condition of ADRO post-AADI divestment, analyse and assess the stock valuation of ADRO using various valuation methods, analyse the financial aspects of *Mentarang Hydroelectric Power Plant*, and analyse and develop strategies for ADRO to improve company performance. This study employed a mix of qualitative (*SWOT* and *PESTEL*) and quantitative (financial statement analysis, financial ratio analysis, financial modelling using Discounted Cash Flow (DCF), and financial feasibility study), relying on secondary data. Post-AADI divestment, ADRO experienced a significant decline in assets, liabilities, and equity. Despite this, ADRO maintains strong liquidity, high profitability, and low leverage within the industry. Results show that ADRO is still undervalued from both relative and absolute valuation perspectives. By the relative valuation using the *EV/EBITDA*, the implied share price is Rp6,124, and using the Unlevered Cash Flow (UCF) method, the valuation of ADRO ranges from Rp2,988 to Rp4,405. *Mentarang Hydroelectric Power Plant* demonstrates profitability based on the optimistic scenario with an 8 cents/kWh, 30-year contract. In conclusion, ADRO is well positioned for future growth due to developments and increasing demand in the global aluminium market and investments in green business. The divestment of its thermal coal energy is seen as a strategic move towards a more sustainable business in the future.

Keywords: Valuation, Discounted Cash Flow, Feasibility Study, Profitability

INTRODUCTION

Climate change is one of the main issues in the world today. The world leaders at the United Nations Climate Change Conference (COP21) held a summit to discuss this important issue. The summit which was held in Paris and attended by 195 countries, ended with the ultimate goal of holding the increase of global temperature to below 2 degree Celsius above pre-industrial level (Bakošová, 2023; Olabi & Abdelkareem, 2022; Rhodes, 2016; UN Climate Change Conference UK 2021, 2021; Wonneberger et al., 2020). This is due to the impact of crossing the threshold will generate a more severe impacts, including frequent heatwaves, rainfall, and droughts. One of the main causes of the climate change is the greenhouse gas (GHG) effects. Greenhouse effects is a process which heat is trapped in the Earth's surface. These greenhouse gases consist of carbon dioxide (CO2), methane (CH4), nitrous oxide (NO2), and water vapour, which will cause the Earth's temperature will rise if all of the substances are trapped (Agency, 2020; Ahmad et al., 2023; Himics et al., 2018; IPCC, 2018; Kumar, 2018).

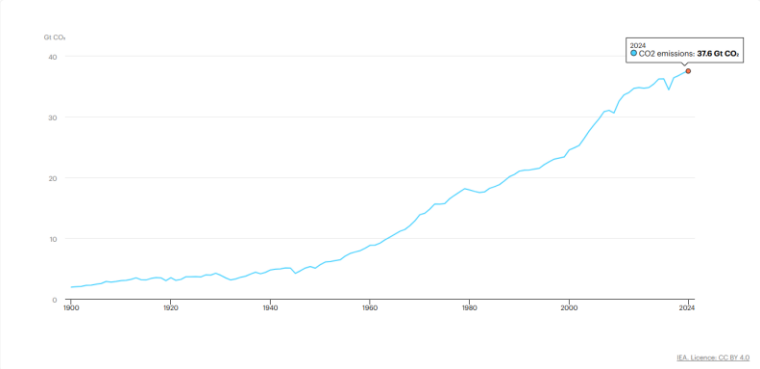

Figure 1 Global carbon dioxide emission from 1990 – 2024 (Taken from IEA)

From 1990 to 2024, the total emission of carbon dioxide increases annually with the highest amount of 37,6 Gt CO2 in 2024. This aligns with the increase of the global energy consumption as it impacts the number of carbon dioxide emitted to the atmosphere. This is a concerning number for global environment as this will lead to the greenhouse effect which increases the overall global temperature. This issue leads to the COP21 convention to tackle this energy and environmental concerns.

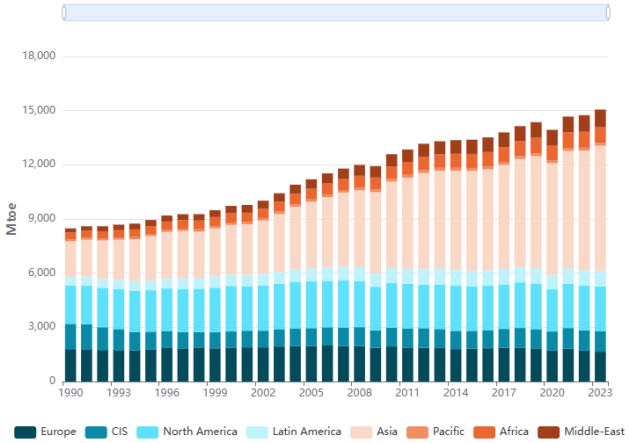

Figure 2 Worldwide Global Energy Consumption Development from 1990 – 2023 (Taken from Enerdata)

From 1990 until 2023, global energy consumption experienced a consistent increase, with an average annual growth up to 2% from 2010-2019, with an exception in 2020 due to the Covid-19 pandemic. In 2023, the global consumption accelerated with 2,2% growth, surpassing the average of 1,5% from 2010 until 2019. Asia leads the global energy consumption, with China and India contributed with an increase of 6,6% and 5,1% growth in 2023 respectively. Nearly all of the BRICS countries contributed 42% of global energy contribution in 2023. For the European states, energy consumption had declined to 1,5% due to the slow economic and weak industrial activities. In summary, the global energy growth is still increasing each year.

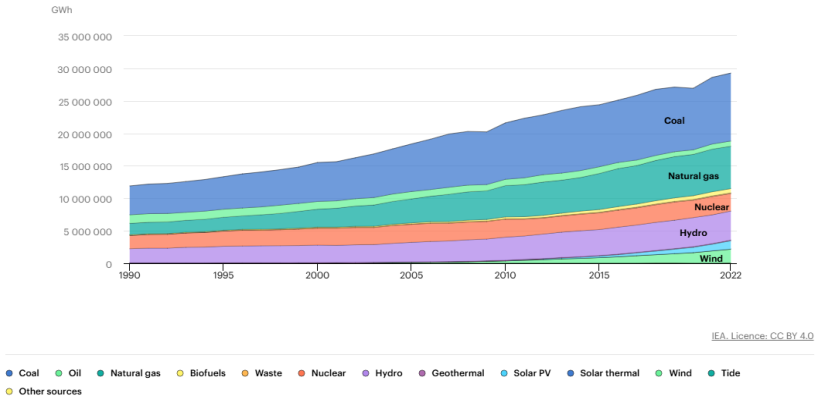

Figure 3 Global Energy Sources from 1990-2022 (Taken from International Energy Agency (IEA)

To supply these energy needs, there are many energy sources that can be used, ranging from clean energy to dirty energies. As of now, the global energy sources were dominated by fossil fuels, such as coal, oil, and natural gas for the majority of the supply. Coal has been the global energy production source for decades, especially for electricity supplies. The Figure 1.3 shows that according to the International Energy Agency (IEA) the coal consumption increases

every year from 1990 and the biggest contributor compared to other resources such as oil, natural gas. In Indonesia, the energy supply increased 1,55% from the previous year and reached its highest value in the last six years, amounting to nearly 1,853 million Barrel Oil Equivalent (BOE) in total. These energies are supplied from four main sources, which are coal, crude oil, natural gas, and renewable sources. Coal is the highest contributor of energy amounting to 40% of the total energy supply.

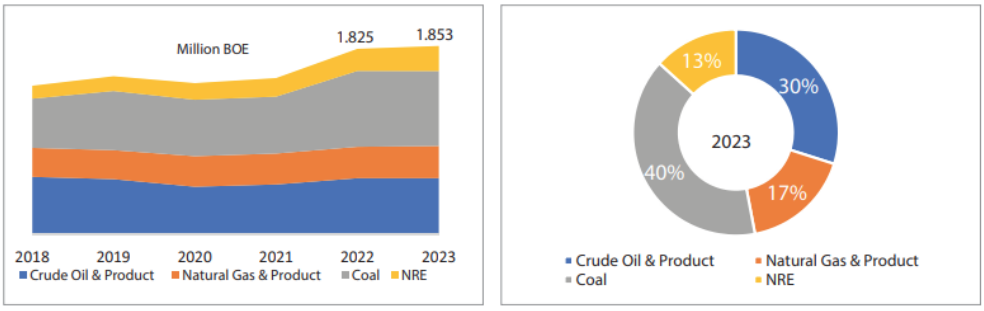

Figure 4 Indonesia's Energy Supply in 2023 (Taken from Esdm.go.id)

While being the most reliable source of energy, the usage of coal has many environmental repercussions as it releases many pollutants which will harm the environment, such as carbon dioxide, sulphur dioxide, and nitrogen dioxide, leading to decrease of air quality and many health issues. In response to this harmful usage of coal, the initiation of United Nations Framework Convention on Climate Change (COP27) created several initiatives for the Net Zero target to handle these environmental issues. The term Net Zero defined by the ISO Net Zero Guidelines is to achieve a condition where human-caused residual greenhouse gas emission (GHG) is balanced by human-led removals for a specific period of time within specific boundaries. This initiation can be achieved by reducing emissions of GHGs, such as carbon dioxide, and other substances that traps more heat than carbon dioxide (A, 2015; Environmental Protection Agency, 2019; EPA, 2020; United States Environmental Protection Agency, 2019; US-EPA, 2020). Other than efforts of reducing GHG emissions, organizations must create a clear transition plan and initiate a plan to phase out fossil fuel usage and scale up their renewable energy usage.

The shift from coal to renewable energy is one of the important factors for Indonesia's commitment to achieve Net Zero emission by 2060. As one of the world's biggest coal producers, Indonesia are currently facing a challenge in reducing its coal dependency while still maintaining the energy supply and the economic growth. To accommodate the nation's commitment, businesses in dirty energy sectors, such as coal, geothermal, and oil companies planned to develop on green energy sectors. This development helps to decrease carbon footprints through renewable energy usage, leading to a lowered national carbon emissions and aligning with Indonesia's long-term goal of Net Zero Emission by 2060.

Transition to clean energy helps businesses to prepare for regulation changes as government will constantly push the Net Zero agenda. Carbon pricing, emission reduction goals, and incentives for green companies will be more applicable and relevant in the near

future. Companies that shift towards this green energy may benefit from the policy shift and may avoid potential penalties related to carbon emissions. This approach ensure business comply with future regulations while still maintaining their economic productivity. From the investment perspective, aligning with net zero regulations attracts more investors and international partners. Worldwide investors and partner are prioritizing more on companies that promotes sustainable practices. By reducing coal dependency and developing in their renewables, the companies may attract more capital from environmentally concerned potential investors.

Several Indonesia companies are now actively working towards the nation's goal, focusing on renewable energy, low-carbon technologies, and many strategic partnerships with international organizations. Pertamina, as the largest State-Owned Enterprise in oil sector, emphasizes decarbonizing through biofuel production, clean hydrogen, and solar panel expansion across its operational sites. While Perusahaan Listrik Negara (PLN), the State-Owned Electricity Company, is also pivotal in this transition, by mixing their energy usage. PLN's Net Zero Roadmap includes by halting new coal-based projects, increasing the renewable energy usage by 48% capacity by 2030.

PT Alamtri Resources Indonesia (ADRO), formerly known as PT. Adaro Energy Indonesia Tbk. is one of the largest coal companies in Indonesia planned to reduce its coal production gradually. By 2030, ADRO targets the contribution from non-coal sector by 50%, by not increasing the number of coal mine, but only by optimizing the stock and reserve coal resource owned by the company. ADRO's business transformation aims to increase its capital toward clean energy investments, aligning with the Indonesia's Net Zero Emission by 2060. One of the initiatives taken by ADRO is by divesting one of its subsidiaries named PT Adaro Andalan Indonesia ("AADI").

In 2022, ADRO established the "Adaro Green" pillar, which focuses on renewable energy ventures. This initiative included projects in solar, hydro, wind, biomass, and waste-to-energy sectors. ADRO has committed a numerous number of investments in its renewable energy portofolio. One of the most significant projects is the upcoming Mentarang Hydroelectric Power Plant which is based in Kalimantan. In this final project, the aim will be focused on the future projections of ADRO post the divestment of AADI, which will eventually be more focused as a green company and a more sustainable business and the financial feasibility study of the Mentarang Induk Hydroelectric Power Plant (MIHEP).

Based on the background above the objectives of this study are to analyse and measure the financial condition of ADRO post AADI divestment, analyse and assess the stock valuation of ADRO using various valuation methods, analyse the financial aspects of Mentarang Hydroelectric Power Plant, and analyse and make strategies for ADRO to improve the company performance.

MATERIALS AND METHODS

This research was quantitative with qualitative considerations. The qualitative aspect included *SWOT* and *PESTEL* analyses to understand the macroeconomic situation and the

company's internal strengths and weaknesses. For the quantitative part, the research included financial statement analysis, financial ratio analysis, financial modelling, and a financial feasibility study to estimate the intrinsic value of the company and the project's feasibility. The combination of both methods enabled a comprehensive assessment of the company's valuation and project analysis, as well as providing valuable insights for the company and investors.

In conducting the research, data collection was one of the most important parts of the process. There were two types of data: primary and secondary. Primary data were obtained through interviews, questionnaires, and observations. Secondary data were gathered from publications, journals, articles, and books. Due to the high involvement between the researcher and the interviewee, primary data provided more detailed and specific information relevant to the researcher's needs.

This research aimed to understand the company's valuation following the divestment of one of its largest businesses. The study assessed the valuation of the company using financial modelling techniques to forecast revenue and costs based on the available data. The quantitative analysis was conducted using the DCF model, mainly the FCFF and UCF methods, and relative valuation through comparisons with industry peers. The qualitative research was conducted by performing *PESTEL* and *SWOT* analyses to understand external situations. In addition to company valuation, this research aimed to assess the financial feasibility of a project and how it could affect the company's cash flow in the future. By using financial metrics such as NPV, IRR, ROI, PBP, and PI, the company could measure how viable an investment would be.

RESULTS AND DISCUSSION

Financial Statement Analysis

Financial statement analysis is a process to assess the financial health of a company. It is done by doing analysis of these financial statements:

Balance Sheet

ADRO's cash and cash equivalent shows a fluctuation from 2018 until 2024. In 2022, the amount of cash and cash equivalents is at the highest due to commodity boom of coal with the amount of cash of $4.2 Billion. The effect of AADI divesment occurred on 2024, resulting in a drop of cash from $3,3 Billion to $2 Billion. For trade receivables, 2020 was the lowest level of trade receivables amounting to $249 Million, this happened due to reduced economic activities. However, in 2021, there was a sharp increase of trade receivable with significant increase of coal sales, amounting to a receivable of $509 Million.

The divestment of AADI dropped the number of receivables to $434,6 Million. With AADI no longer consolidated, a large portion of receivables from the coal sales is no longer accounted. As for inventories, the highest level of inventory is on 2022 reflecting the surge of global demand with a total of $199 Million. The inventory post AADI divestment is only $99 Million. Without the thermal coal from AADI the consolidated value of the inventory

dropped accordingly. Prepaid expenses represent the operational costs. In relation to the commodity spike in 2022, the prepaid expenses and advances also rose to $199.2 Million and due to the divestment of AADI, the large portion of the expenses for ADRO dropped to $31 Million. Lastly, the other current asset of the company stood only at $2 Million.

In the non-current asset part, the trade receivables of ADRO shows an upward historical trajectory. Starting from a negligible amount in 2018, it has increased progressively throughout the years. In 2024, it is recorded a total amount of $1,1 Billion of non-current trade receivables. This may indicate there are a possibly large outstanding payments due from strategic transactions, including the AADI divestment. The significant decrease of joint venture investments of over $700 Million in 2024 most likely occurred due to the divestment of the AADI business.

Prepaid expenses and advances show the highest increase in 2023, with an amount of $187 Million before settling in at $152 Million in 2024. As a capital-intensive business, property, plant, and equipment shares the highest amount of ADRO's non-current asset. There is a consistent decline from 2018 onwards, with a substantial drop of nearly $672 Million in 2024 which strongly points out the effect of the AADI divestment. This reduction in reflects the sale of the physical assets, machinery and land which indicates a major shift in ADRO's asset. Same as the property, plant, and equipment, the goodwill of the company also declined in significantly in 2024. The divestment of AADI resulted in an ending goodwill balance of $39 Million in 2024, with a significant decrease of $700 Million in previous year. Finally, the divestment of AADI resulted in a decrease of another non-current asset from $677 Million in 2023 to $65 Million in 2024.

As for the current liabilities section, the trade payables of ADRO rose to the highest in 2023, with a total amount of $344 Million then dropped the next year to $158 Million in 2024. With a reduction of more than 50% from the previous year, this could be the direct result of the divestment, implying that the big portion of the trade payables are associated with the thermal coal business. Account payables and accrued expenses experienced a significant increase from $124 Million to $1,8 Billion in 2022, followed by a massive decrease in the next two consecutive years which result in an ending balance of $377 Million in 2024. The massive decrease signifies the clearing of outstanding payables and accrued expenses due to the divestment of AADI.

Maturities of financial obligations also shown a massive decrease in 2024, with an ending balance of $58 Million. This substantial number of short-term debts or financial obligations are likely associated with the divested thermal coal business and was either repaid or restructured dutring the process. This strengthens ADRO's financial liquidity position. Other liabilities remained low and stable compared to other current liabilities items. This lower value suggests the miscellaneous short-term obligations that are less directly impared due to the divestment process. Long-term financial obligation of ADRO experienced fluctuations across the periods. The highest amount of long-term financial obligations is on 2022 amounting to $1,4 Billion. In 2023, the amount decreased to $487 Million and increased to $521 Million in the following year. This amount strongly suggests a major repayment or restructuring of the

long-term debt utilized the funds from the divestment process and used to de-leverage its balance sheet which reduces the long-term financial burden. Other non-current liabilities show a more fluctuative pattern, with the highest amount of $1,3 Billion in 2019. In 2024, the balance only left with $162 Million. Share capital of the company remained relatively stable until 2024, starting from $1,4 Billion in 2018 then experienced an increase in 2022. However, in 2023 and 2024, there was a decrease in amount resulting in an ending balance of $1,5 Billion.

This decrease resulted due to the share buybacks of the company which is common practice for companies to maintain its company value. Retained earnings showed a substantial amount of decrease in 2024 due to the divestment of AADI. In 2024, ADRO paid a substantial amount to its shareholders in relation to the divestment and there was also a significant write-off due to the divested operations. Other components of equity started with a negative balance of $8 Million in 2018 and turned positive in 2023 amouting to $213 Million. The ending amount in 2024 is $382 Million. The notable increase in 2024 occurred due to the adjustments related to the divestment, such as recognitions of gains on disposal or changes in hedging reserves tied to the divested company.

Non-controlling interest or minority interest respresents the portion of equity in subsidiary which are not attributable to the parent company. The most significant decrease occurred between 2018 and 2019 and ended with a balance of $443 Million in 2024. Due to the divestment, the sale of the business will naturally lead to a reduction of the non-controlling interests in ADRO's balance sheet, as the minority stakes are no longer consolidated in ADRO's balance sheet.

Financial Ratio Analysis

Financial ratio analysis is used to assess the health of a company. By doing a comparison analysis, author can assess which company has a better performance and health compared to its peers in the same industry. In this comparision analysis, author used the following mining companies which are also listed in the Indonesia Stock Exchange, namely: ADRO, ANTM, MDKA, INCO, TINS, NCKL, MBMA.

For the relative valuation, the selected companies are ANTM, MDKA, INCO, TINS, NCKL, and MBMA. PT. Aneka Tambang Tbk, (ANTM) is a State-owned Enterprise (SOE) engaged in diversified mining, notably in gold, nickel, and bauxite. PT. Merdeka Copper Gold Tbk. (MDKA) focuses on copper and gold and is currently expanding to nickel market. PT. Vale Indonesia (INCO) which is backed by Vale S.A., is specializing in nickel production with strong ESG credentials. PT. Timah Tbk, is one of Indonesia's largest tin producers, with vital role in electronics sector. PT. Trimegah Bangun Persada (NCKL) which is part of Harita Group, focuses on downstream nickel processing. Lastly, PT. Merdeka Battery Materials (MBMA) focusing on producing nickel-based battery materials. Similarly, all of the above companies are not engaged in the coal sector, which is similar to ADRO.

Liquidity Ratio

Liquidity ratio measures a company's ability to meet their short-term obligations. A

higher ratio in liquidity ratios indicates a stronger financial flexibility. ADRO has the highest current ratio compared to its peers, amounting to 402%. This signals that ADRO's current assets is four times its short-term liabilities, signaling a strong liquidity. ADRO exceeds all peers and MDKA has the lowest current ratio with only 1.Quick ratio measured by comparing company's assets without their inventory to its current liabilities. ADRO still has the highest quick ratio among its peers, with a ratio of 387%, which shows that ADRO can still cover its short-term liabilities even without relying to its inventory. The lowest quick ratio is MBMA with a quick ratio of 70%. Last liquidity ratio is the cash ratio. Cash ratio is measured to assess how the company's short-term liabilities can be covered by only the company's cash. ADRO has the highest cash ratio amounting to 217%, which means that ADRO can cover its short-term obligations by only using their cash. In conclusion from these three ratios, ADRO has a strong liquidity compared to its peers.

Profitability Ratio

This ratio measures a company's ability to generate profit from their operations. The first profitability ratio is the net profit margin. Net income margin derived from the net income divided by its revenue. ADRO has a net profit margin of 8% which are behind INCO and TINS in 11%. This suggest that ADRO needs a better operational efficiency.

Return on Equity (ROE) measures a company's net income relative to its shareholder equity. ADRO has the highest ROE of 29% which are a relatively good number compared to its peers. The lowest ROE is MDKA with -6% ROE.

Return on Assets (ROA) indicates the efficiency of company's asset to generate profit. ADRO has a ROA of 23% which indicates an efficient asset utilization and is the highest among its peers. From these three ratios, the author can conclude that ADRO is the most profitable among its peers, especially in ROA and ROE.

Solvency Ratio

Debt to Equity Ratio (DER) is used to assess a company's ability to meet its long-term obligations. This ratio is measured by dividing the total debt to the total equity of the company. ADRO has a DER of 25% which shows that ADRO maintains a conservative capital structure and using low amount of debt and leverage. MDKA has the highest DER of 252% which reflects a higher level of risk and a significant financial leverage. In summary, although ADRO has divested its thermal coal business, ADRO is still strong in terms of fundamental and financial stability. It still excels most of its competitors in the non-thermal coal industry. The exceptional liquidity and highly productive usage of company assets and equity, along with its low level of leverage, strengthens ADRO position, especially in an industry which are transitioning towards a greener business which requires a capital-intensive operation.

Relative Valuation

To assess whether a company is undervalued or overvalued in the market, a relative valuation is used by comparing it with its competitors in the same industry especially in the

non-thermal coal mining sector. The primary valuation multiple used is the EV/EBITDA ratio. EV/EBITDA ratio is a widely used multiple in a capital-intesive industries since it measures company's valuation relative to the cash flow of the company. A lower EV/EBITDA may indicate a potentially undervalued company.

Table 1. EV/EBITDA Valuation of Industry

Company Name	Market Data (19 May 2025)			Financial Data		Valuation
	Price (Rp)	Market Cap (B Rp)	EV (B Rp)	Sales (B Rp)	EBITDA (B Rp)	EV/EBITDA
ADRO	2.370	72.898	71.603	31.541	15.651	4,57
ANTM	2.710	65.123	59.285	86.723	2.737	21,66
MDKA	2.050	50.170	102.963	35.488	5.258	19,58
INCO	2.990	31.514	21.671	14.850	3.678	5,89
TINS	1.190	8.863	8.366	10.898	2.038	4,11
NCKL	730	46.062	55.704	28.059	8.918	6,25
MBMA	364	39.310	57.560	29.238	2.302	25,00
					Average	12,44

Based on this the table above, INCO has the highest share price of Rp2.990 compared to its peers while ADRO's share price is Rp2.370. The price is used to calculate the market capitalization of the company which is derived from multiplying the current price to its shares outsanding. Market capitalization calculates how much money investors are giving to the company. ANTM also has the highest market capitalization among its peer. Enterprise Value is the total economic value of the company by measuring its equity, debt, and cash. The EV/EBITDA of ADRO is 4,57 which is far below the industry average of 12,44 and the highest multiple is MDKA amounting to 19,58. This low multiple shows that ADRO is likely undervalued and the market has not priced in its transition into non-thermal and renewable business sectors. To calculate the implied share value, the first step is to calculate the estimated enterprise value based on the EV/EBITDA market average:

$$Estimated\ Enterprise\ Value = EBITDA\ x \frac{EV}{EBITDA}\ Industry\ Average$$

ADRO Estimated EV = 15.651 x 12,44 = Rp 194.665B

After calculating the estimated enterprise value based on the industry multiplier, the next step is to calculate the complete equity value of ADRO where debt and cash are considered. Based on the table above, the market capitalization of Adaro is Rp72.898 Billion and the current enterprise value of ADRO is Rp71.603 Billion. By substracting the current market capitalization of ADRO to the current enterprise value of ADRO, the net cash of the company can be calculated and the amount is Rp1.295B. Then, the net cash is added to calculated the total estimated enterprise value from the

multiplier.

$$Est.Equity\ Value\ = Est.Enterprise\ Value + Cash - Debt$$

ADRO Estimated Equity Value = Rp194.665B + Rp1.295B = Rp195.960B

To calculate the implied share price based on the multiplier, the enterprise value can be divided by the total of the shares outsanding in the market. The total outsanding shares of ADRO in the market are 30.758.665.900 shares. The implied share price will be:

$$Share\ Price = \frac{Estimated\ Equity\ Value}{Total\ Outstanding\ Shares}$$

ADRO Implied Share Price = Rp195.960B / 30B Shares Outstanding =

= Rp6.532

After calculating the implied share price, the margin of safety of ADRO can be calculated as shown below:

ADRO Margin of Safety = $\frac{6.532-2100}{2100}\ x\ 100\% = 211\%$

Other than relative valuation using the EV/EBITDA, the valuation can be done by using the price to earnings ratio (PER) and the price to book value ratio. The PER is used to measure the proportion of the company's share price to its earning per share. A high PE ratio can be implied that the investors are expecting a high growth rate. The price to book value ratio is measured by dividing its current stock price to the company's book value. This helps investors to assess if a company is overvalued based on its equity.

Table 2. PER Valuation of Industry

	ADRO	ANTM	MDKA	INCO	TINS	NCKL	MBMA	Average
PER	4,13	11,80	-56,21	26,82	1,86	6,46	112,45	9,04
PBV	0,91	1,94	3,33	0,69	1,18	1,39	1,62	1,71

Based on the table above, the PER average of the non-thermal coal companies is 9,04 and the EPS of ADRO is Rp563. The share price of ADRO based on the PER analysis is:

ADRO Fair Price = PER Average x ADRO EPS = 9,04 x Rp563

= Rp5.088

The margin of safety of ADRO based on the PER analysis is:

ADRO Margin of Safety = $\frac{5.088 - 2100}{2100}\ x\ 100\% = 142\%$

From the PBV perspective, ADRO is considered as undervalued because the PBV ratio of ADRO is 0,91 which is below 1. A company that has a PBV lower than 1 is considered as undervalued since the share price is lower than the intrinsic value of the company. Based on all these relative valuation assessments, ADRO is still considered as an undervalued company.

Absolute Valuation of ADRO

Absolute valuation analysis is conducted to analyze the company's fair price without any peer's comparison. The method that used for the absolute valuation is the Unlevered Cash Flow and the analysis is conducted by calculating the absolute valuation of ADRO by using these assumptions:

Table 3 Revenue growth

Scenario	Growth Rate	Assumptions
Optimistic	8%	Based on the industry analysis of metallurgical and mining industry growth report from Technavio and Fortune Business Insights
Conservative	6%	
Pessimistic	3%	

2. Total days in year : 360 days
3. Income Tax Rate : 22%
4. Terminal Growth Rate : 2% (Lower than the average of Indonesia inflation)
5. Income statement assumption

Cost of Goods Sold : 54,6% of revenue from 7 years average
SG&A : 5,5% of revenue from 7 years average

Balance sheet assumption

Depreciation : 7% of beginning PPE balance from 7 years average
Maintenance CapEx : 3% (2025-2029) and 5% (2031-2034) of beginning PPE
Growth CapEx : 19% (2025-2029) and 3% of revenue (2030-2034) of revenue
Forecasted year from 2025 – 2034
1 $= Rp16.859

To calculate the absolute valuation using the Unlevered Cash Flow method, the Weighted Average Cost of Capital (WACC) is required. WACC consists of two parts, which are the cost of debt and cost of equity. Credit spread data are obtained through interest coverage ratio calculation which then converted through rating based on the value of the coverage ratio. In this case, the interest coverage ratio of ADRO is 21,56

and the rating is AAA. Corporate tax is the tax rate for corporations in Indonesia which is 22%. The latest beta of ADRO is taken from valueinvesting.com and therefore the complete WACC calculation. After completing the WACC calculation, the UCF of ADRO can be calculated to forecast the cash-flow of the company based on the WACC and the assumptions above. The WACC will be used as the discount rate for the present value and the terminal value calculation.

After we calculate the unlevered cash flow, present value, and terminal value of each scenario, the next step is to calculate the equity value. From the UCF calculation above, the summary of the implied share price and the margin of safety are stated. Based on the table above, in can be concluded that the AADI divestment is good initiative taken by ADRO to ensure the sustainability of the business by transitioning into a more harmless energy. It can be shown that in the optimistic case, the margin of safety is 110%. For the conservative case the margin of safety is 79%. Lastly for the pessimistic case, the margin of safety is 42%. In conclusion, in the 10-year forecast of ADRO, with the current share price of Rp2.100, ADRO is still considered as an undervalued company.

Mentarang Hydroelectric Power Plant Financial Assessment

ADRO is the part of PT Kayan Hydropower Nusantara ("KHN"), a joint venture consisting of PT Kayan Patria Pratama, Sarawak Energy Berhad, and PT Alamtri Resource Indonesia to construct a 1.375 MW hydroelectric power plant located in Mentarang. This hydroelectric power plant will be the largest hydroelectric power plant in Indonesia with a total investment of around $2,6 billion. The dam will be a Concrete Face Rockfill Dam ("CFRD") and is planned to be the second highest in the world, with a height of 235 meters and length of 815 meters. The groundbreaking of this hydroelectric power plant was held in Malinau, North Kalimantan on 1st March 2023 and the construction of the power plant has been on going and targeted to be finished in 2030. The Mentarang Hyrdoelectric Power Plant will be the key part of providing a reliable and sustainable energy and will be integrated with Kalimantan Industrial Park Indonesia ("KIPI"). This initiative is part of the support of Indonesian government towards a greener economy and is part of the Proyek Strategis Nasional ("PSN") as stated in Regulation No. 21 Year 2022 by the Coordinating Ministry for Economic Affairs.

1) Annual Production and Revenue Analysis

Until today, the power purchase agreement ("PPA") has not yet been declared between KHN and Perusahaan Listrik Negara ("PLN"). The financial study of the Mentarang hydroelectric power plant will be conducted based on the Presidential Regulation Number 112 Year 2022 regarding the Acceleration of Renewable Energies Development for Electrical Supply and the PLN Statistics 2023. The price of the electricity purchase by PLN from hydroelectric powerplant as stated on the Presidential Regulation is differentiated based on the capacity of the power plant and the location

The amount of F factor is different for each location, in this case, the for

hydroelectric power plants located in Kalimantan will have the F factor of 1,10. Thus, for the year 1 until 10 of operation, the price will be 5,93 cent $/kWh and for the year 11 until 30 will be priced at 3,37 cent $/kWh. This will be the base price for the conservative scenario of the financial calculation. There will be two tariffs, which are optimistic and conservative price. Based on the previous PPA of hydroelectric power plant between PT Rajamandala Electric Power and PLN, which signed a PPA for 30 years with a price of 8,6616 cent $/kWh. This price is relatively higher than the conservative price determined by the Presidential Regulation. The hydroelectric power plant is assumed to be working for 365 days and 24 hours with an 80% factor capacity. Thus, the estimated electricity production of the annual revenue of the 1.375 mW hydroelectric power plant are as follows:

1.375.000 kW x 80% x 365 days x 24 hours= 9.636.000.000 kWh/year

From the annual estimated electricity production, the estimated annual revenue based on the conservative and the optimistic tariff rate will be as follows:

Table 4. Estimated Annual Revenue of Optimistic and Pessimistic Scenario

Scenario	Tariff	Estimated Annual Revenue
Conservative	1. 5,93 cent $/kWh for year 1-10	1. $571.530.432
	2. 3,36 cent $/kWh for year 11-30	2. $324.540.480
Optimistic	8 cent $/kWh	$770.880.000

Operating Expenses Analysis

Based on the PLN Statistik 2023, the average expenses of hydroelectric power plants consisting of:

Table 5 Annual Operating Cost of Hydroelectric Power Plant

Expense	Average Cost (Rp/kWh)	Average Cost ($/kWh)
Fuel	37,05	0,00220
Maintenance	58,38	0,00346
Labor	25,3	0,00150
Other Expenses	138,57	0,00822

The depreciation of the hydroelectric power plant will be based on the PLN's Independent Power Producer ("IPP") Power Purchase Agreement ("PPA") guidebook, which are 30 years for hydroelectric power plant. Thus, the depreciation expense per year will be:

$$\text{Depreciation} = \frac{USD 1.300.000.000}{30\ years} = \$43.333.333 \text{ per year}$$

Since the project is a joint venture between three companies, the capital expenditure, revenue, and the expenses of the project will be divided based on the

ownership of the company. ADRO holds 50% of the total KHN, with Sarawak Energy Berhad and PT Kayan Patria Pratama Indonesia each owns 25%.

Cash Flow Projetion and Project Feasbility

Based on the revenue and expense assumptions above, the cash flow projection and the project financial feasibility study can be conducted. Below are the summart of conservative and optimistic case cash flow projection of the Mentarang Hydroelectric Power Plant with a 30-year and 25-year PPA contract:

financial feasibility study analysis of the Mentarang Hydroelectric Power Plant under two scenarios, which are the optimistic and conservative approach and analyzed under two approaches, which are 30 years and 25 years of contract life. In the optimistic scenario, the project shows a profitability for both contract lengths, the 30 years contract generates a NPV of $615.033.229,97, 17,07% IRR, 718% ROI, and a PI of 1,18, which indicates that the project's returns exceed its costs in the long term. Similar with the 25 years scenario, the result shows a lower NPV, IRR ROI, and PI but still can be deemed as profitable. The payback period of both contract life is 5 years which indicates the swift recovery of the investments. The IRR of both scenario is above the WACC which means that the project is expected to generate returns according to this scenario. However, the conservative scenario offers a different result. Both of the contract life results in a negative NPV which means that the project will not create any value for the company. The ROI dropeed significantly and the PI is lower than 1, which means that the project lacks profitability. In this conservative case, the project is financially unattractive, as it doesn't create any value. These projections show the impact of assumptions and how contract durations affect a project's viability. While the optimistic scenario offers a strong financial return, the conservative scenario reveals that the project may become a burden in the future if continued under these conditions. The 30-year contract also offers a stronger project resilience due to the longer cash inflows. Estimation of the cash flow effect from the project to the company can be calculated in the table below, by using the conservative growth rate of the previous DCF projection. With the optimistic pricing scheme, the implied share price will be at 4.533 based on the 10 years projection with the first 5 years of the hydropower electric power plant operation, while the conservative pricing yields a lower implied share price of 4.284 with a margin of safety of 104%. This shows that the ADRO green business project initiated by ADRO will generate a higher return and will increase the share price of the company.

Carbon Credit Assessment

Based on the project feasilibty above, the estimated carbon credit from the

MIHEP can be calculated. According to the Intergovernmental Panel on Climate Change (IPCC), the average CO_2 emssion from the hydroelectric power plant is approximately 24 grams CO_2-eq/kWh. As a comparison, a coal fired power plant has an average emission of 820 grams CO_2-eq/kWh. Based on this information, the total emission that can be avoided is around 796 grams CO_2-eq per kWh. The approximate annual emission avoided from the 9.636.000.000 kWh is 7.664.256.000.000 gCO_2-eq per kWh or 7.664.256 tonne CO_2-eq. In Indonesia, through the IDXCarbon, the price of the carbon credit is roughly at Rp 144.000 per tonne from renewable energy projects. In total, the carbon credit from this project is:

$$7.664.256 \text{ tonne } CO^2 - \text{eq x Rp } 144.000 = \text{Rp } 1.103.652.864.000{,}00$$

Business Solution

Due to the regulatory and global initiative pressures, ADRO faced a decision to divest their coal business, which resulted in a change of business and financial strength. This strategy is beneficial for the future of ADRO to focus on a more sustainable business in the future, while also minimizing exposure on commodity which are high in volatility, such as thermal coal. Based on the future projection of ADRO, the author can conclude that the divestment is a good decision, backed with future prospects and the development of ADRO's business portofolio.

The business solution proposed to ADRO based on the financial feasibility study analysis is to focus on the optimistic scenario pricing for the PPA. With a 30-year contract and a pricing of $8 cent/kWh this scenario yields a NPV of $615.033.229,97, an IRR of 17,07%, and payback period of o 5 years. More importantly, this scenario exceeds the company's WACC of 11,34% which means the project is not only creates value but also offer a return above the company's cost of financing. While offering a better profitability, securing a 30-year contract over 25-year contract gives a long-term financial stability. Focusing on this scenario supports ADRO's long-term growth objetives, this project capitalizes on Indonesia's growing demand for a more sustainable energy.

CONCLUSIONS

Following the divestment of AADI, ADRO experienced a notable reduction in assets, liabilities, and equity due to the removal of a major subsidiary, yet maintained strong financial fundamentals and continued to outperform industry peers thanks to its diversified portfolio. Both relative and absolute valuation analyses revealed that ADRO's shares remained undervalued, with fair prices and significant upside potential, particularly as global aluminum demand increases and the company invests in sustainable initiatives. The Mentarang

Hydroelectric Power Plant project demonstrated strong financial viability under optimistic scenarios, contributing positively to ADRO's long-term value. Strategically, it is recommended that ADRO optimize value by reinvesting green projects, leveraging ESG-aligned financing, and focusing on high-NPV investments, in line with Damodaran's corporate finance principles, to enhance financial resilience and ESG performance. For future research, it is suggested to explore the long-term impact of ADRO's transition to clean energy on its competitive positioning and stakeholder value, as well as assess the effectiveness of ESG strategies in driving sustainable growth within the mining sector.

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