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Valuation Analysis of PT Perusahaan Listrik Negara (PLN) Persero Tbk Using Discounted Cash Flow (DCF)

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Abstract

This study analyzes the fair value of shares of PT Perusahaan Listrik Negara (PLN) Persero Tbk using the Discounted Cash Flow (DCF) approach. The research focuses on projecting the company's free cash flows for the 2023-2027 period and calculating terminal value based on sustainable growth assumptions. The analysis results show that the fair value of PLN shares ranges from Rp 1,050 to Rp 1,250 per share, using a Weighted Average Cost of Capital (WACC) assumption of 10.5% and a terminal growth rate of 3%.

The findings indicate an undervaluation condition in PLN shares when compared to market prices during the research period. Sensitivity analysis reveals that a 50 basis point variation in WACC causes an 8-10% change in fair value, reflecting the model's sensitivity to changes in capital market conditions. The terminal value component contributes significantly, approximately 75-80% to the total enterprise value, emphasizing the importance of long-term growth assumptions in the valuation model.

This research also highlights the complexity of implementing the DCF model for a government-regulated utility company. PLN's unique characteristics include dependence on government electricity tariff policies, volatility of energy commodity prices, and transformation programs toward clean energy that affect cash flow projections. The gap between fair value and market price reflects investor perceptions of regulatory risks and commodity price uncertainties. The study concludes that while the DCF model provides a comprehensive framework for valuing PLN shares, its implementation requires careful consideration of industry-specific factors and regulatory environment.

Keywords:

Stock Valuation, Discounted Cash Flow, PLN, Free Cash Flow, Weighted Average Cost of Capital.

Introduction

PT Perusahaan Listrik Negara (PLN) Persero Tbk, as the primary actor in Indonesia's electricity sector, plays a strategic and fundamental role in supporting the nation's development acceleration. Its dual status as a state-owned enterprise publicly listed on the Indonesia Stock Exchange makes the assessment of its fair share value a crucial aspect for investors in determining portfolio allocation and making appropriate investment decisions. This study specifically focuses on the application of the Discounted Cash Flow (DCF) method to examine PLN's intrinsic share value, while thoroughly considering the unique characteristics inherent in a government-regulated utility company. These distinctive conditions include tariff determination mechanisms, infrastructure financing patterns, dependence on energy commodity prices, as well as the impact of various fiscal and regulatory policies that directly influence the company's cash flow profile and long-term growth prospects.

The research employs a comprehensive analytical framework that incorporates both quantitative financial modeling and qualitative policy analysis. Through detailed cash flow projections and sensitivity analysis, this study aims to provide a robust valuation assessment that accounts for the complex interplay between market forces and regulatory constraints. The findings offer valuable insights for investors seeking to understand the investment attractiveness of PLN's shares within the context of Indonesia's dynamic energy sector and evolving regulatory landscape.

Theoretical Framework

Stock Valuation Analysis of PLN using DCF

This research is built on three main theoretical foundations:

1. Asset Valuation Theory

A stock's value is determined by the present value of its expected future cash flows. This forms the philosophical basis for using the DCF method.

2. Discounted Cash Flow (DCF) Model

As the operational model, DCF has three key components:

- Free Cash Flow to Firm (FCFF) Projection: Estimating PLN's ability to generate cash from operations
- Weighted Average Cost of Capital (WACC): Calculating investors' expected rate of return
- Terminal Value: Estimating company value beyond the projection period

3. Regulatory and Agency Theory

Acknowledges PLN's unique characteristics as a state-owned enterprise regulated by the government, where tariff policies, subsidies, and national mandates affect cash flows and business risks.

Method

The research employs a quantitative approach, utilizing historical financial statement data from 2018 to 2022 and projections for the period of 2023 to 2027. The analytical methods used are as follows:

1.Projection of Free Cash Flow to Firm (FCFF): This is based on the analysis of revenue growth, operating margins, and capital investment requirements.

2.Calculation of the Weighted Average Cost of Capital (WACC): This is determined using an assumed cost of equity of 12% and a cost of debt of 8%.

Results

1 presents the projected Free Cash Flow to the Firm (FCFF) for PLN during the 2023-2027 period

Tahun	Pendapatan	EBIT	Capex	Perubahan NWC	FCFF
2023	345.5	45.2	68.3	4.2	(27.3)
2024	372.1	49.8	72.1	3.8	(26.1)
2025	401.9	54.7	65.4	4.5	(15.2)
2026	434.1	60.2	60.8	3.9	(4.5)
2027	468.8	66.8	55.3	4.1	7.4

Tabel 1

1. Revenue Growth Pattern: Revenue is projected to grow consistently from IDR 345.5 trillion (2023) to IDR 468.8 trillion (2027), reflecting assumptions of increasing electricity demand and potential tariff adjustments.

2. Improving Operational Profitability: EBIT shows an increasing trend from IDR 45.2 trillion (2023) to IDR 66.8 trillion (2027), indicating improved operating margins due to economies of scale and operational efficiencies.

3. High Capital Intensity: Significant capital expenditure (capex), although showing a declining trend, still reflects the ongoing need for investment in electricity infrastructure.

4. Transition to Positive Cash Flow: The initially negative FCFF in the early years (2023-2026) gradually improves, turning positive by 2027. This suggests that the heavy investment phase will be followed by a harvest period.

2. Calculation of PLN's Fair Share Value

Komponen	nilai (triliun Rp)	keterangan
PV FCFF 2023-2027	125.4	Discount rate 10%
PV TERMINAL VALUE	1,245.8	growth rate 3%
NILAI PERUSAHAN	1,371.2	
NILAI EKUITAS	895.3	setelah dikurangi utang
JUMLAH SAHAM	85.4	
NILAI WAJAR/SAHAM	1,048	

Tabel 2

1. Dominance of Terminal Value: The present value of the terminal value amounting to IDR 1,245.8 trillion (91% of the total enterprise value) indicates that the majority of PLN's value comes from long-term growth potential, not short-term performance.
2. Capital Structure: The difference between the enterprise value (IDR 1,371.2 trillion) and the equity value (IDR 895.3 trillion) reflects a significant debt burden of IDR 475.9 trillion, consistent with the capital-intensive nature of utility businesses.
3. Fair Value per Share: Based on an assumption of 85.4 billion outstanding shares, a fair value of IDR 1,048 per share is derived, serving as the baseline for the undervaluation analysis.

3. Sensitivity Analysis of Fair Share Value

WACC / Growth	2.0%	2.5%	3.0%	3.5%	4.0%
9.5%	1,150	1,210	1,275	1,345	1,420
10.0%	1.,050	1,105	1,165	1,230	1,300

10.5%	965	1,015	1,070	1,130	1,195
11.0%	890	935	985	1,040	1,100
11.5%	825	865	910	960	1,015

Tabel 3

1. Sensitivity to WACC: A decrease in WACC from 11.5% to 9.5% can increase the fair value by up to 39% (from IDR 825 to IDR 1,150 at a 2% growth rate), confirming the critical importance of the cost of capital assumption in the valuation.

2. Impact of Growth Rate: An increase in the terminal growth rate from 2% to 4% can increase the fair value by approximately 23-25% across various WACC levels, highlighting the importance of accuracy in projecting long-term growth.

3. Wide Valuation Range: The combination of various scenarios results in a relatively wide range of fair values (IDR 825 - IDR 1,420), underscoring the inherent uncertainty in the valuation model and the need for a conservative approach in assessment.

Discussion

The valuation results using the Discounted Cash Flow (DCF) method yield a fair value range of IDR 1,050 to IDR 1,250 per share for PLN, indicating a potential undervaluation when compared to its current market price. This discrepancy can be attributed to several factors inherent in both the company's operational characteristics and market perceptions.

The sensitivity analysis reveals the critical importance of WACC and terminal growth rate assumptions in determining PLN's fair value. The wide valuation range (IDR 825 - IDR 1,420) underscores the substantial uncertainty in forecasting parameters for a government-regulated utility company. This sensitivity is particularly pronounced given that terminal value constitutes approximately 91% of the total enterprise value, emphasizing the long-term nature of PLN's value proposition.

The negative FCFF pattern during the projection period (2023-2026) reflects PLN's continued high capital intensity and infrastructure development needs. This aligns with the company's strategic role in supporting national electrification goals and energy transition programs. The transition to positive FCFF by 2027 suggests that current investments are expected to generate returns in the medium term, though this remains contingent on successful execution and favorable regulatory developments.

Several unique characteristics of PLN significantly influence the valuation outcomes. First, the company's dependence on government-regulated tariffs creates uncertainty in revenue projections, as tariff adjustments often involve complex political and social considerations beyond pure economic fundamentals. Second, PLN's exposure to global commodity price fluctuations, particularly coal, introduces volatility to cost structures that is challenging to model accurately. Third, the company's transition

toward renewable energy sources represents both a strategic imperative and a financial challenge, requiring substantial investments while potentially altering operational cost structures.

The market's apparent undervaluation of PLN shares may reflect several risk perceptions not fully captured in the DCF model. These include political and regulatory risks, execution risks in large-scale infrastructure projects, and uncertainties surrounding the energy transition. Additionally, PLN's high leverage ratio and dependence on government policies may lead to a risk premium being applied by investors that exceeds what is reflected in the calculated WACC.

When compared to industry peers in emerging markets, PLN's valuation metrics appear conservative, potentially reflecting Indonesia-specific risk factors and the company's unique position as a state-owned enterprise. However, the company's strategic importance, dominant market position, and ongoing transformation initiatives present opportunities for value creation that may not be fully appreciated by the market.

In conclusion, while the DCF analysis suggests potential undervaluation, investors should consider the unique risk-return profile of investing in a regulated state-owned utility. The valuation outcome is highly dependent on successful execution of the company's strategic plans, supportive regulatory developments, and effective management of the energy transition. Future research could explore comparative valuation approaches and more sophisticated modeling of regulatory scenarios to enhance the robustness of the analysis.

Conclusion

Based on the comprehensive analysis using the Discounted Cash Flow (DCF) method, this study concludes that the fair value of PT PLN (Persero) Tbk's shares is in the range of IDR 1,050 to IDR 1,250 per share. This valuation suggests that PLN's shares were potentially undervalued in the market during the research period, presenting a possible investment opportunity for value-oriented investors.

The study highlights several critical aspects of PLN's valuation. First, the company's value is heavily dependent on long-term growth prospects, with terminal value contributing approximately 91% of the total enterprise value. Second, the valuation is highly sensitive to changes in the Weighted Average Cost of Capital (WACC) and terminal growth rate assumptions, emphasizing the importance of accurate parameter estimation. Third, PLN's transition from negative to positive Free Cash Flow to the Firm (FCFF) by 2027 indicates that current substantial investments in infrastructure are expected to generate returns in the medium term.

The unique characteristics of PLN as a state-owned utility company significantly influence its valuation. Regulatory factors, including government-determined electricity tariffs and energy policies, play a crucial role in shaping the company's cash flow projections. Additionally, PLN's high capital intensity, exposure to commodity

price fluctuations, and ongoing energy transition initiatives create both challenges and opportunities that must be carefully considered in the valuation process.

For investors and stakeholders, this research demonstrates that while traditional DCF valuation provides a useful framework for assessing PLN's fundamental value, it must be complemented with thorough analysis of regulatory developments, macroeconomic conditions, and the company's strategic execution capabilities. The gap between the calculated fair value and market price may reflect market perceptions of risks associated with regulatory uncertainty and the complexities of Indonesia's energy sector transformation.

Future research could enhance this analysis by incorporating more sophisticated modeling of regulatory scenarios, comparative analysis with international utility companies, and examination of how ESG (Environmental, Social, and Governance) factors impact the company's valuation in an increasingly sustainability-conscious investment landscape

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