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Analysis of the Implementation of Discounted Cash Flow and Multiple Methods in Determining the Fair Value of Company Shares Related to the Initial Public Offering (IPO) Plan Case Study: PT XYZ

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ABSTRACT

Indonesia's infrastructure development sector faces significant challenges in accessing capital markets, particularly for state-owned construction enterprises planning Initial Public Offerings (IPOs). This study aims to explore and analyze the implementation of Discounted Cash Flow (DCF) and Multiples Valuation methods to determine the intrinsic value of PT XYZ shares in preparation for its planned IPO, while examining the effectiveness of scenario analysis and sensitivity testing in construction sector valuations. This research employs a qualitative approach using an exploratory case study methodology. The study analyzes PT XYZ, a state-owned construction company specializing in toll road and bridge construction. The DCF method yielded intrinsic share values ranging from IDR 6,627 (pessimistic scenario) to IDR 28,239 (optimistic scenario) per share, with the moderate scenario at IDR 15,880. The multiples valuation produced values between IDR 15,786 (EV/EBITDA method) and IDR 16,868 (P/E method). The convergence of the moderate DCF scenario with multiples valuation results demonstrates strong methodological consistency and validates the robustness of the valuation framework. This study provides practical valuation guidelines for state-owned construction companies preparing for IPOs in Indonesia's infrastructure sector. The findings offer strategic insights for management in setting realistic IPO pricing, emphasize the critical importance of cost efficiency in construction valuations, and contribute to the limited literature on pre-IPO valuations in Indonesia's strategic sectors.

KEYWORDS *Stock Valuation, IPO, Discounted Cash Flow, Multiples Valuation, Sensitivity Analysis*

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INTRODUCTION

Infrastructure development is a key pillar in accelerating Indonesia's economic growth, particularly through strategic projects such as the *Trans Sumatra Toll Road* (*JTTS*), which aims to improve connectivity, reduce logistics costs, and strengthen national competitiveness. PT XYZ, a subsidiary of a state-owned enterprise (*SOE*), was established in 2015 to support the acceleration

of *JTTS* development in accordance with Presidential Regulation No. 42 of 2024. PT XYZ plays a major role as the main contractor in this project and has constructed approximately 411.96 km of the 863.41 km of *JTTS* completed by the end of 2024.

PT XYZ's performance has shown positive and stable growth, with a revenue *CAGR* of 11.3% and net profit growth of 60.4% over the past five years. In 2024, PT XYZ recorded revenue of IDR 15.8 trillion and a net profit of IDR 2 trillion, demonstrating strong competitiveness compared to other state-owned construction companies, even amid the challenges of the pandemic. However, PT XYZ's dependence on internal *JTTS* projects presents a challenge for business sustainability, considering the increasingly competitive landscape of the national construction industry.

Looking ahead, infrastructure development faces greater challenges, especially with the infrastructure budget for 2025 reduced to IDR 400.3 trillion. The government is now encouraging private sector participation through the *Public-Private Partnership* (*PPP*) scheme to fund strategic projects. The *PPP* model demands strong capital readiness and high competitiveness from construction companies, as risks and responsibilities are proportionally shared between the government and private entities. This indicates the need for construction companies like PT XYZ to strengthen their capital structure and improve efficiency to continue contributing to national development.

Public-Private Partnership (*PPP*) projects represent both an opportunity and a challenge for PT XYZ. The opportunity lies in expanding to external markets, while the challenge involves strengthening the capital structure. To address this, PT XYZ is planning a long-term strategy through an *initial public offering* (*IPO*) as an alternative source of external funding (Harahap, Hasibuan, & Candanni, 2020). An *IPO* is considered effective for increasing equity, reinforcing the capital structure, expanding market reach, and reducing reliance on bank loans due to its lower cost of funds (BEI, 2024). However, executing an *IPO* requires comprehensive readiness, including determining an accurate stock valuation as a basis for investor assessment.

Stock valuation is the process of determining the fair value of a company, which is crucial for decision-making from both managerial and investor perspectives (Le, 2024). For the company, valuation can serve as a reference for evaluating profitability and business strategy, while for investors, it helps assess the feasibility and potential returns of an investment (Konek & D, 2021). Common valuation methods include absolute approaches such as *Discounted Cash Flow* (*DCF*) and relative approaches (*multiples valuation*), each with its own strengths and limitations in reflecting a company's intrinsic value.

Several previous studies have applied these valuation methods to companies across various sectors. For instance, the valuation of PT Widodo Makmur Perkasa

Tbk indicated a tendency toward overvaluation (Semeru & Murtaqi, 2024), while the valuation of PT Angkasa Pura II Persero showed higher results using the absolute method compared to the relative one (Muhammad Faidz Yasser & Asep, 2019). Other studies suggest that combining the *DCF* and multiples methods, along with growth scenario approaches, can provide a more realistic and accurate picture of value, especially in a pre-*IPO* context (Hanggara Tri Poetra & Noveria, 2023). Meanwhile, the valuation of a cable company in Indonesia highlights the importance of considering growth scenarios (optimistic, moderate, pessimistic) in determining intrinsic value (Harjono & Hendrawan, 2023). In the technology sector, combining internal–external analysis and multiple valuation methods yields more accurate pre-*IPO* stock estimates (Wardy & Sudrajad, 2023).

However, significant research gaps exist in the current literature. First, most previous studies focus on the financial, retail, and technology sectors, which have fundamentally different operational characteristics, risk profiles, and capital structures compared to the construction sector. Second, valuation research specifically targeting state-owned construction enterprises (*BUMN Karya*) remains severely limited, despite this sector's unique challenges, including heavy dependence on government projects, cash flow volatility, and distinct regulatory environments. Third, existing literature lacks comprehensive frameworks that integrate both *DCF* and multiples methods specifically tailored for infrastructure companies in emerging markets like Indonesia.

This study addresses these gaps by providing several novel contributions to the literature. First, it develops a comprehensive valuation framework specifically designed for state-owned construction companies by integrating *DCF* and multiples methods with scenario and sensitivity analyses tailored to the construction sector's unique characteristics. Second, this research contributes to the limited body of knowledge on pre-*IPO* valuations in Indonesia's strategic infrastructure sector, providing empirical evidence from a real-world case study. Third, the study introduces a sector-specific approach to terminal value estimation using construction sector GDP growth patterns, offering a more accurate reflection of long-term industry trends.

This study aims to explore the *DCF* and multiples valuation methods in depth within the context of state-owned construction companies, while also analyzing scenarios and sensitivity to produce a more accurate, relevant, and practically useful stock value estimation from both theoretical and applied perspectives. The research objectives include: (1) analyzing the implementation effectiveness of *DCF* and multiples valuation methods for state-owned construction companies, (2) examining the impact of scenario and sensitivity analyses on valuation robustness, and (3) developing practical guidelines for *IPO* pricing in Indonesia's construction sector.

The benefits of this research extend to multiple stakeholders. For PT XYZ management, the study provides evidence-based valuation frameworks for strategic decision-making regarding *IPO* timing and pricing. For potential investors, it offers insights into appropriate valuation methodologies for assessing infrastructure investments in emerging markets. For academia, the research contributes to the limited literature on construction sector valuations and emerging market *IPO* practices. For policymakers, the findings provide insights into capital market development for strategic infrastructure sectors.

RESEARCH METHOD

This study employs a qualitative approach using a case study method, as it is considered effective for exploring phenomena within a real-life context in a deep and comprehensive manner through various data sources and perspectives (Baxter & Jack, 2010; Creswell, 2014; Yin, 2009; Kaarbo & Beasley, 2002). The study adopts a single holistic case study design, which is one type of case study research design. The research stages follow the design proposed by Cooper & Schindler (2014), starting from the literature review, development of the exploratory case study design, and continuing with data collection, analysis, and reporting of findings.

The object of this study is PT XYZ, a strategic entity in the toll road and bridge construction services sector that operates as a subsidiary of a state-owned enterprise (*SOE*). This study utilizes three data sources: in-depth interviews with key informants, non-participatory observation, and document analysis from various written references and official sources, in order to obtain valid and relevant data in the context of the research.

The study involves four informants from PT XYZ who play a direct role in financial projection, valuation, strategic corporate planning, and decision-making processes. Table 1 summarizes the information about the respondents.

Table 1. Respondent Information

Code	Position	Status
Interviewee 1	President Director	Top Management
Interviewee 2	Group Head Corporate Planning	Strategic Managerial
Interviewee 3	Vice President Corporate Planning Division	Expert
Interviewee 4	Vice President Risk Management Division	Expert

The selection was based on the informants' expertise and experience in corporate financial planning and valuation, as well as their roles at the strategic management level, which directly contribute to long-term investment decision-making within the company. Strategic-level managers, such as directors and department heads, were selected due to their involvement in corporate-level decision-making, particularly in financial planning, valuation practices, and capital

structure formulation. Informants at the expert level, such as vice presidents, provided insights into the company's financial projections, scenario planning, and project feasibility analysis. All selected informants have direct experience in applying the *discounted cash flow* (*DCF*) and *multiples valuation* methods, with their credibility verified through internal company confirmation and their official positions.

This study employed an in-depth interview approach with a semi-structured design, using a pre-prepared interview protocol combined with open-ended questions to allow for broader exploration during the discussions. All interview sessions were recorded using audio devices and transcribed for further analysis. Data were analyzed using a thematic coding approach to identify key themes from interview transcripts and relevant documents (Creswell, 2014). The stock valuation methods used in this study are the *Discounted Cash Flow* (*DCF*) and *Multiples* models, applied to determine the intrinsic value of PT XYZ's pre-*IPO* shares (Damodaran, 2006). In addition, scenario analysis and sensitivity testing of key financial variables were conducted to simulate the impact of changes in revenue and cost assumptions on the intrinsic value of the shares (Dong, Schoups, & van de Giesen, 2013; Saltelli, 2002). Data triangulation across interview findings, company documents, and public records was carried out to ensure the credibility and robustness of the research findings (Stake, 1995; Patton, 2004; Ridder, 2014; Harvey, 2015).

RESULT AND DISCUSSION

Implementation of the Discounted Cash Flow (DCF) Method in Valuing PT XYZ's Share

The analysis of applying the Discounted Cash Flow (DCF) method in this study is conducted to determine the intrinsic value of PT XYZ's shares using the Free Cash Flow to the Firm (FCFF) approach. The free cash flow projections are calculated for the period 2025–2029 based on PT XYZ's historical financial data (2019–2024), the 2025 Work Plan and Budget (RKAP), and insights from interviews with key informants used to develop the financial projection assumptions. The projection stages include estimating revenues, operating expenses, capital expenditures, changes in working capital, and taxes. All FCFFs during the projection period are discounted to present value using the Weighted Average Cost of Capital (WACC). The firm value is calculated by summing the present value of FCFF and the terminal value, then the intrinsic stock value is obtained by adding cash, subtracting net debt, and dividing by the number of outstanding shares.

In projecting PT XYZ's income statement, the initial and most critical step is to establish realistic revenue growth assumptions based on the company's internal

and external conditions. Based on interviews with informants, the revenue projection consists of two main components: carry-over contracts (existing contracts) and new contracts. Revenue from carry-over contracts comes from ongoing projects that have not been fully recognized as revenue in previous years. To estimate the portion of revenue from carry-over contracts, the company refers to the historical burn rate to revenue, which is the company's ability to convert contract value into revenue within a period. If historically PT XYZ can absorb a maximum contract value of IDR 1 trillion per year, the projection assumption should adhere to this actual capacity to avoid overestimation unsupported by operational performance and relevant operating expenses.

For new contracts, the projection is based on two main revenue sources: internal (projects from the parent company or affiliates such as the Trans Sumatra Toll Road project - JTTS) and external (projects from the government, state-owned enterprises, and private sectors). Each source is analyzed both historically and prospectively. For internal projects, indicators include the trend of State Capital Participation (Penyertaan Modal Negara, PMN) budget disbursement to PT XYZ's parent company. This study assumes 50% of PMN funds are allocated to projects handled by PT XYZ. Revenue from the JTTS project is expected to continue at least until the completion of the main segment to Pekanbaru. This indicates that carry-over revenue will remain significant until the end of 2026 and must be combined with strategies for securing new contracts to sustain revenue continuity.

For external projects, the projection approach is based on historical analysis of government infrastructure budgets from 2019 to 2024, which show fluctuating growth year-to-year. Therefore, the average annual growth rate is used as the basis for projections. Additionally, macroeconomic indicators such as construction sector GDP growth and the manufacturing PMI index are considered. Indonesia's construction sector GDP has grown at an average of 2.7% over the last five years, while the Manufacturing PMI reached 53.60 in February 2025, indicating increased economic activity and opportunities for new construction projects, especially in the industrial sector and manufacturing support areas.

PT XYZ's forward strategy remains focused on strengthening core competencies in roads and bridges. Although the company is beginning to explore opportunities beyond the JTTS project, such as other road investment projects through Public-Private Partnership (KPBU) schemes, it does not plan to enter other infrastructure sectors like energy or food due to limited experience and technical certification. Thus, the projected revenue of PT XYZ is compiled based on carry-over and new contracts according to internal and external sources as follows:

Table 2. PT XYZ Revenue Projection for 2025-2029

Revenue Sources	2025	2026	2027	2028	2029
Carry-over Contracts	**11,986,035**	**5,659,318**	**2,697,215**	**550,000**	**155,000**
Internal Projects	11,597,568	5,659,318	2,697,215	550,000	155,000
External Projects	388,466	-	-	-	-
New Contracts	**3,492,562**	**9,801,004**	**9,806,728**	**5,858,601**	**6,003,901**
Internal Projects	2,772,562	7,921,004	5,844,728	3,372,301	3,144,656
External Projects	720,000	1,880,000	3,962,000	2,486,300	2,859,245
Total Revenue	**15,478,596**	**15,460,322**	**12,503,943**	**6,408,601**	**6,158,901**

Source: Author's Processing (2025)

Based on interviews with informants, the company's Cost of Goods Sold (COGS) projection includes four main components: materials, equipment, labor, and vendors/subcontractors. All four contribute significantly to the COGS in construction projects. PT XYZ has an efficiency advantage due to long-term partnerships with material suppliers, ownership of equipment, and competent human resources. This enables the company to maintain cost stability and project execution efficiency. Such efficiency is especially important as the company increasingly handles external projects, which have higher competition levels compared to internal projects.

In forming the COGS projection, it is important to consider the company's revenue structure and benchmark it against similar companies. PT XYZ's COGS is projected at 85% of revenue, lower than the industry average of 88%. This is based on past project experience and improvements in control systems, including centralized procurement through the supply chain directorate and periodic evaluation systems using SAP. These strategies allow PT XYZ to tightly control costs and maintain efficiency across various projects. Another factor influencing the COGS projection is inflation. Rising prices of materials, labor wages, and logistics costs due to inflation are important variables in cost projections. Therefore, the cost projection adopts reasonable annual inflation assumptions and considers market price volatility. PT XYZ's long-term efficiency strategies provide a strong foundation to keep COGS within reasonable limits.

Meanwhile, the projection for general and administrative expenses is based on historical trends and interviews. These expenses are assumed to be 2.5% of revenue, consistent with the five-year average. Informants emphasized that the percentage of revenue is the main reference, and if revenue decreases, general expenses will proportionally adjust to maintain operational efficiency.

Based on the findings from the interviews above, the following assumptions relate to the projections of cost of goods sold and general and administrative expenses of PT XYZ as a percentage of revenue.

Table 3. Projected Expense Data for PT XYZ

Description	2025	2026	2027	2028	2029
Cost of Goods Sold	85%	85%	85%	85%	85%
General and Administrative Expenses	2.5%	2.5%	2.5%	2.5%	2.5%

Source: Author's Processing (2025)

The projection of depreciation and amortization at PT XYZ needs to consider three main factors: asset ownership structure, economic lifespan and asset divestment cycle, and the depreciation method used. PT XYZ has minimal fixed assets, primarily lacking land assets, with main assets consisting of construction equipment. Amortization is not a significant component and can be projected minimally. The average economic life of equipment is 4–8 years, and equipment with a book value remaining of about 15–20% is usually sold and replaced periodically, so fluctuations in annual depreciation expenses need to be accounted for in the projection. The depreciation method used is the straight-line method, where the asset value is evenly allocated over its useful life.

For the projection of depreciation and amortization at PT XYZ, the approach used is the cost of fixed assets depreciated using the straight-line method based on their economic useful life, with details as follows:

Table 4. Depreciation Expense Projection of PT XYZ

Description	2025	2026	2027	2028	2029
Depreciation Expense – Fixed Assets	155,270	155,270	155,270	155,270	155,270
Depreciation Expense – Right-of-Use Assets	44,396	44,396	44,396	44,396	44,396
Total Depreciation	199,666	199,666	199,666	199,666	199,666

Source: Author's Processing (2025)

PT XYZ's Capital Expenditure (CAPEX) projection consists of two main components: equipment investment and investment in Public-Private Partnership (PPP) projects. As a pure contractor, PT XYZ does not own many fixed assets such as land or buildings, so operational CAPEX is focused on the purchase and renewal of heavy equipment. The average economic life of the equipment is 4–8 years, with an estimated annual budget for new equipment purchases of around IDR 40–50 billion, depending on replacement needs and project volume. However, most equipment such as excavators and bulldozers are leased due to their common availability in the community, while specialized equipment like mini excavators are purchased according to project needs.

Meanwhile, for PPP project investments, PT XYZ targets at least one major project annually, with project values ranging between IDR 2–3 trillion. Equity

participation is limited to a maximum of 10%, except for projects executed jointly with the parent company, which may allow for a larger equity contribution. Therefore, the CAPEX projection for PPP projects can reach approximately IDR 300 billion per year, depending on the project type (availability payment or user charge), as well as the risks and financial capacity of the company. A selective and cautious approach in choosing PPP projects is key in determining the annual investment amount.

Discussion on the Calculation of Weighted Average Cost of Capital (WACC)

WACC is calculated based on the weighted average of the Cost of Equity and the Cost of Debt, taking into account the proportion of each funding source within the company's capital structure.

Cost of Equity represents the expected return investors seek from a company's equity investment and is calculated using the Capital Asset Pricing Model (CAPM), which includes the Risk-Free Rate, Beta, and Equity Risk Premium. Based on interviews, the Risk-Free Rate is derived from Indonesia's 10-year government bond yield at 6.60%, preferred for its liquidity and stability over the 30-year bond. Beta, reflecting the stock's market sensitivity, is calculated by unleveraging and then releveraging the average beta of comparable construction companies, resulting in a beta of 1.103 for PT XYZ.

Table 5. Calculation of PT XYZ Beta Value

Name	Code	Levered Beta	D/E	Tax Rate	Unlevered Beta
PT Adhi Karya (Persero) Tbk	ADHI	1.64	0.92	22%	0.95
PT Wijaya Karya (Persero) Tbk	WIKA	1.79	1.26	22%	0.90
PT Pempangunan Perumahan (Persero) Tbk	PTPP	0.96	0.08	22%	0.90
PT Total Bangun Persada Tbk	TOTL	1.55	0.11	22%	1.43
PT Acset Indonusa Tbk	ACST	2.78	3.86	22%	0.69
Industry Average					**0.98**
Debt to Equity PT XYZ	0.17				
Beta PT XYZ	**1.103**				

Source: Author's Processing (2025)

The Equity Risk Premium, representing the market return over the risk-free rate, is taken from reputable market research sources such as Aswath Damodaran's reports and is set at 6.87%. This detailed approach ensures an accurate and context-specific estimation of PT XYZ's Cost of Equity.

The Cost of Debt reflects the expense incurred by the company for utilizing debt, comprising two key components: the interest rate on debt, taken from the investment banking rate of 9.21% as reported in Bank Indonesia's Financial Economic Statistics (SEKI BI) in December 2024, and the corporate tax rate, which

reflects the tax benefit from interest expense deductibility, set at 22% in accordance with prevailing regulations in Indonesia. Based on these assumptions, the Cost of Equity and Cost of Debt are calculated, followed by the WACC computation, considering the optimal capital structure between debt and equity for PT XYZ as shown in the table below.

Table 6. Calculation of WACC Value

Description	Value	Data Source
Risk Free Rate (Rf)	6.60%	IBPA 30 December 2024, Tenor 10th
Risk Premium Market (Rm-Rf)	6.87%	Damodaran January 2025
Beta Coefficient (β)	1.103	Investing.com (processing)
Cost of Equity (CoE)	14.18%	
Cost of Debt (CoD)	9.21%	SEKI BI (December 2024)
Tax Rate (T)	22%	Corporate Tax
Cost of Debt after Tax (CoD*(1-T))	7.18%	
Weight of Debt (Wd)	70.94%	Financial Statement of PT XYZ
Weight of Equity (We)	29.06%	Financial Statement of PT XYZ
Debt to Equity Ratio	244.06%	
Wd x CoD(1-T)	5.10%	
We x CoE	4.12%	
WACC	9.22%	

Source: Author's Processing (2025)

So, based on the calculations above, the WACC value obtained is 9.22%. This WACC is used as the discount rate in calculating the intrinsic value of PT XYZ's shares.

Free Cash Flow to the Firm (FCFF) and Terminal Value Analysis

The intrinsic value of the company is determined by discounting projected Free Cash Flow to the Firm (FCFF), which accounts for operating profit after tax, depreciation, capital expenditures, and changes in net working capital over a 5-year projection period. At the end of this projection, the calculation continues with the estimation of the Terminal Value, reflecting the company's future operational continuity. The terminal growth rate is determined by considering key factors such as national construction industry trends, infrastructure budgets, and government infrastructure policies. This analysis uses the historical 10-year average GDP growth of the construction sector as a reference to estimate the terminal value growth rate.

Table 7. Average GDP Growth of the Construction Sector

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Avg.
GDP Construction Sector	7.0%	6.4%	5.2%	6.8%	6.1%	5.8%	-3.3%	2.8%	2.0%	4.9%	7.0%	**4.6%**

Source: Author's Processing (2025)

Thus, the terminal value growth rate for PT XYZ is assumed to be 4.6%, based on the 10-year average GDP growth of the construction sector. Next, the calculation of FCFF (Free Cash Flow to the Firm) is carried out as shown in the table below:

Table 8. Free Cash Flow to the Firm Calculation for PT XYZ (in IDR. Million)

Year	EBIT (1-Tax)	Add: Depreciation	Less: Capex	Less: NWC	FCFF	Terminal Value FCFF	PV @9,22%
2025F	1,199,719	199,666	300,000	(399,601)	1,498,986		1,372,484
2026F	1,198,303	199,666	300,000	116	1,097,853		920,373
2027F	969,159	199,666	300,000	18,699	850,126		652,548
2028F	496,720	199,666	300,000	38,554	357,832		251,488
2029F	477,366	199,666	300,000	1,579	375,452	8,521,744	241,603
						Terminal Value PV	5,483,738
						Value of The Firm	**8,922,234**

Source: Author's Processing (2025)

Based on the projected Free Cash Flow to the Firm (FCFF) of PT XYZ for the period 2025–2029, the firm's value is estimated at Rp8,922,234 million. The FCFF projection shows a declining trend due to a projected decrease in revenue resulting from a shrinking internal market. The Terminal Value is calculated at Rp8,521,744 million, representing the company's residual value beyond 2029, and discounted to Rp5,483,738 million using a discount rate of 9.22%. When combined with the present value of FCFF from 2025 to 2029, the total firm value reaches Rp8,922,234 million.

Intrinsic Value Analysis of PT XYZ Shares Using the DCF Method

After obtaining the value of the firm, the next step is to calculate the intrinsic value of PT XYZ's shares by adding cash and cash equivalents and then subtracting total net debt. The following presents the results of the intrinsic value calculation of PT XYZ shares using the DCF method.

Table 9. Intrinsic Value of PT XYZ Shares

Description	Value (IDR Million)
Value of the Firm	8,922,234
Cash & Equivalent	3,624,866
Debt Value	613,053
Intrinsic Value	**11,934,047**
Book Value	3,680,704
Intrinsic Value to Book Value	3.24
Total Outstanding Common Shares	751,503,760
Initial Price per Share	**15,880**

Source: Author's Processing (2025)

Using the Discounted Cash Flow (DCF) method, the estimated intrinsic value of PT XYZ was calculated at Rp11,934,047 million. Based on this valuation, the initial share price was determined by dividing the intrinsic value by the number of existing shares, totaling 751,503,760 shares, resulting in an initial pricing of Rp15,880 per share. This valuation yields an Intrinsic Value to Book Value ratio of 3.24 times, reflecting strong market confidence in the company's growth potential and business prospects. The intrinsic share price of Rp15,880 represents PT XYZ's fundamental position based on projected future cash flows and the company's actual financial condition.

Scenario Analysis on the Estimated Intrinsic Value of Shares Using the DCF Method

Scenario analysis is conducted to understand how various potential future conditions may impact the intrinsic value of PT XYZ shares. This analysis supports managerial decision-making amid uncertainties. Based on interviews with informants, several key variables significantly affect the company's valuation namely revenue, cost of goods sold (COGS), and terminal growth rate. External factors like COVID-19 and recent government budget efficiency policies, such as budget cuts for the Ministry of Public Works, have notably influenced revenue. Additionally, as a construction services company with thin margins due to competitive bidding, PT XYZ must efficiently control costs. The terminal growth rate and discount rate should also be projected conservatively to reflect realistic long-term expectations. Detailed information from the scenario analysis can be found in Table 10.

Table 10. Scenario Analysis of PT XYZ's Financial Projections

Scenario	Pessimistic	Moderate	Optimistic
Revenue			
Acquisition of New Internal Contracts (%)	0%	50%	100%
Parent company as project owner applies for State Capital Injection (PMN) to the Government to continue JTTS development	PMN not provided — no new contracts derived from internal JTTS projects	PMN provided — PT XYZ obtains 50% of new contracts derived from internal JTTS projects	PMN provided — PT XYZ obtains 100% of new contracts derived from internal JTTS projects
Growth of New External Contracts (%)	5.0%	15.0%	20%
COGS			
% COGS to Revenue	88%	85%	85%
COGS Calculation	Average COGS of construction service companies — SOEs and private	5-year average COGS of PT XYZ	5-year average COGS of PT XYZ

Scenario	Pessimistic	Moderate	Optimistic
Terminal Value Growth			
% Terminal Value Growth Rate	2.0%	4.6%	6.0%
PT XYZ's terminal value growth rate	Lowest growth rate of construction sector GDP post-COVID-19	10-year average growth rate of construction sector GDP	Target growth of construction sector GDP based on Government Work Plan/RKP 2025

Source: Author's Processing (2025)

Based on the sensitivity analysis according to the scenarios, the intrinsic value of PT XYZ's shares is as follows:

Table 11. Intrinsic Value of PT XYZ Shares Based on Scenario Analysis

Description	Pessimistic	Moderate	Optimistic
Intrinsic Value	4,980,040	11,934,047	21,221,779
Book Value	3,680,704	3,680,704	3,680,704
Intrinsic Value to Book Value	1.4	3.2	5.8
Total Outstanding Common Shares	751,503,760	751,503,760	751,503,760
Initial Price per Share	6,627	15,880	28,239

Source: Author's Processing (2025)

Based on the scenario analysis, PT XYZ's intrinsic stock value varies across three scenarios: a pessimistic scenario at IDR 4,980,040 million (IDR 6,627 per share, PBV 1.4x), a moderate scenario at IDR 11,934,047 million (IDR 15,880 per share, PBV 3.2x), and an optimistic scenario at IDR 21,221,779 million (IDR 28,239 per share, PBV 5.8x). This intrinsic value range from IDR 6,627 to IDR 28,239 per share reflects the impact of key variables such as revenue growth, cost of goods sold, and terminal growth rate. It can serve as a reference for determining the IPO price, considering the construction industry dynamics, government infrastructure budget policies, and PT XYZ's future potential through Public-Private Partnership (KPBU) projects.

Sensitivity Analysis

In financial projections, sensitivity analysis is crucial to assess the potential impact of changes in key variables specifically revenue (new contracts) and cost of goods sold (COGS) on the stock value of PT XYZ. The goal is to measure how vulnerable the stock value is to changes in assumptions, reflecting valuation risks. Revenue sensitivity was tested assuming a ±5% change from the actual value, based on the government's average infrastructure budget allocation. The results show a linear effect on stock value, where a 5% increase in revenue raises the stock price

by 3.74%, and a 5% decrease lowers it by the same percentage. COGS sensitivity was analyzed with a ±1% change assumption, since COGS is highly influenced by inflation and material costs. Changes in COGS have a significant impact, with a 5% decrease boosting stock value by 37.1%, while a 5% increase reduces it by 37.1%. Among these variables, COGS is the most sensitive factor affecting stock value, making cost efficiency and revenue realization critical focuses in PT XYZ's financial strategy ahead of the IPO.

Implementation of the Multiples Method in PT XYZ Share Valuation

Market-based valuation or multiples method is compares the company's valuation ratios with those of similar companies operating in the same industry, providing a more realistic market-aligned stock value estimate. According to interviewee 4 (2025), EV/EBITDA is often preferred as it directly reflects operational performance before depreciation and interest, while P/E ratio is also used. The main challenge lies in finding truly comparable companies with similar business models and project scales, suggesting combining local and international peers for a balanced benchmark.

The multiples analysis begins with identifying comparable companies in Indonesia's construction sector that have similar scale, business models, and funding structures. Selected comparable include four state-owned construction firms and one private company: PT Adhi Karya, PT Pembangunan Perumahan, PT Total Bangun Persada, and PT Wijaya Karya Bangunan Gedung.

Next, relevant valuation multiples are calculated based on the latest financial data and market prices of these peers uses Price-to-Earnings (P/E) and EV/EBITDA ratio. From the calculations, median multiples are used to value PT XYZ's stock, with P/E at 6.56 times and EV/EBITDA at 5.28 times. Each multiple is multiplied by the company's financial variable net profit for P/E and EBITDA for EV/EBITDA to determine the company's operational value. From this, interest-bearing debt is subtracted to arrive at the intrinsic value, which is then divided by the total outstanding shares (751,503,760 shares). Using the P/E method, the stock price per share is estimated at IDR 16,868, while the EV/EBITDA method results in IDR 15,786 per share.

Table 12. Calculation of PT XYZ's Intrinsic Share Value Using the Multiples Method

Description	P/E	EV/EBITDA
Financial Variable	2,027,402	2,362,939
Multiple	6.56	5.28
Indicated Operational Value	13,289,620	12,476,318
Interest Bearing Debt	613,053	613,053
Intrinsic Value	12,676,567	11,863,265
Book Value	3,680,704	3,680,704

Intrinsic Value to Book Value	3.4	3.2
Total Outstanding Common Shares	751,503,760	751,503,760
Initial Price per Share	16,868	15,786

Source: Author's Processing (2025)

Comparative Analysis of DCF Valuation Results with Market Data (Multiples)

The results from both valuation methods are visually presented in a Football Field chart, clearly illustrating the valuation range and making it easier to identify PT XYZ's estimated IPO stock price relative to the market valuation.

Based on the DCF method and scenario analysis, the estimated stock price per share ranges are: IDR 6,627 for the pessimistic scenario, IDR 15,880 for the moderate scenario, and IDR 28,239 for the optimistic scenario. Meanwhile, the multiples valuation based on comparable construction companies shows stock prices of IDR 15,786 (EV/EBITDA) and IDR 16,868 (P/E).

Thus, it can be concluded that the market-based stock valuation (multiples valuation) shows a tendency to closely align with the DCF-based valuation under the moderate scenario. This comparison helps reinforce the validity of internal projections and provides a credible external benchmark for assessing the fairness of stock valuation in construction service companies that have not yet gone public.

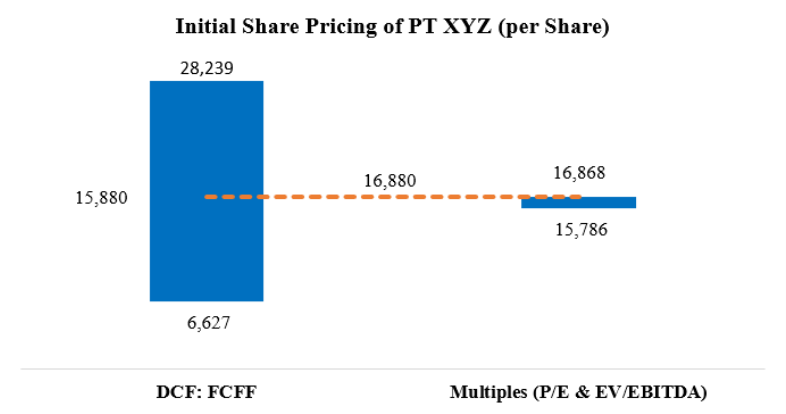

Figure 1. Initial Pricing of PT XYZ Shares Using a Football Field Chart

CONCLUSION

This study explores the implementation of *Discounted Cash Flow* (*DCF*) and *Multiples* valuation methods to determine the intrinsic value of PT XYZ shares ahead of its *IPO*. The *DCF* valuation results show a share value range from IDR 6,627 to IDR 28,239 per share, with a moderate scenario at IDR 15,880. Meanwhile, the *Multiples* method estimates the value between IDR 15,786 and IDR 16,868 per share. The closeness of the moderate *DCF* scenario to the *Multiples* valuation strengthens the validity of the projections and offers a realistic assessment aligned with the company's actual conditions as a

construction firm preparing to go public.

The managerial implications of this research are significant for company management, regulators, and investors in setting a fair share price. Management can use these valuation results as a basis for determining a realistic *IPO* price range and focus on cost efficiency—particularly controlling the *cost of goods sold* (*COGS*)—which strongly affects the share value, especially in capital-intensive, long-term infrastructure projects.

This study also acknowledges certain limitations, such as its focus on a single case in the road and bridge construction sector, and its reliance on internal company data and expert interviews. For future research, it is recommended to conduct multiple case studies across different sectors and to apply quantitative methods such as panel regression or *Monte Carlo* simulations to better handle uncertainties in financial projections. Expanding the scope and methodological approaches will enrich the literature on *IPO* valuations in Indonesia's strategic sectors.

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