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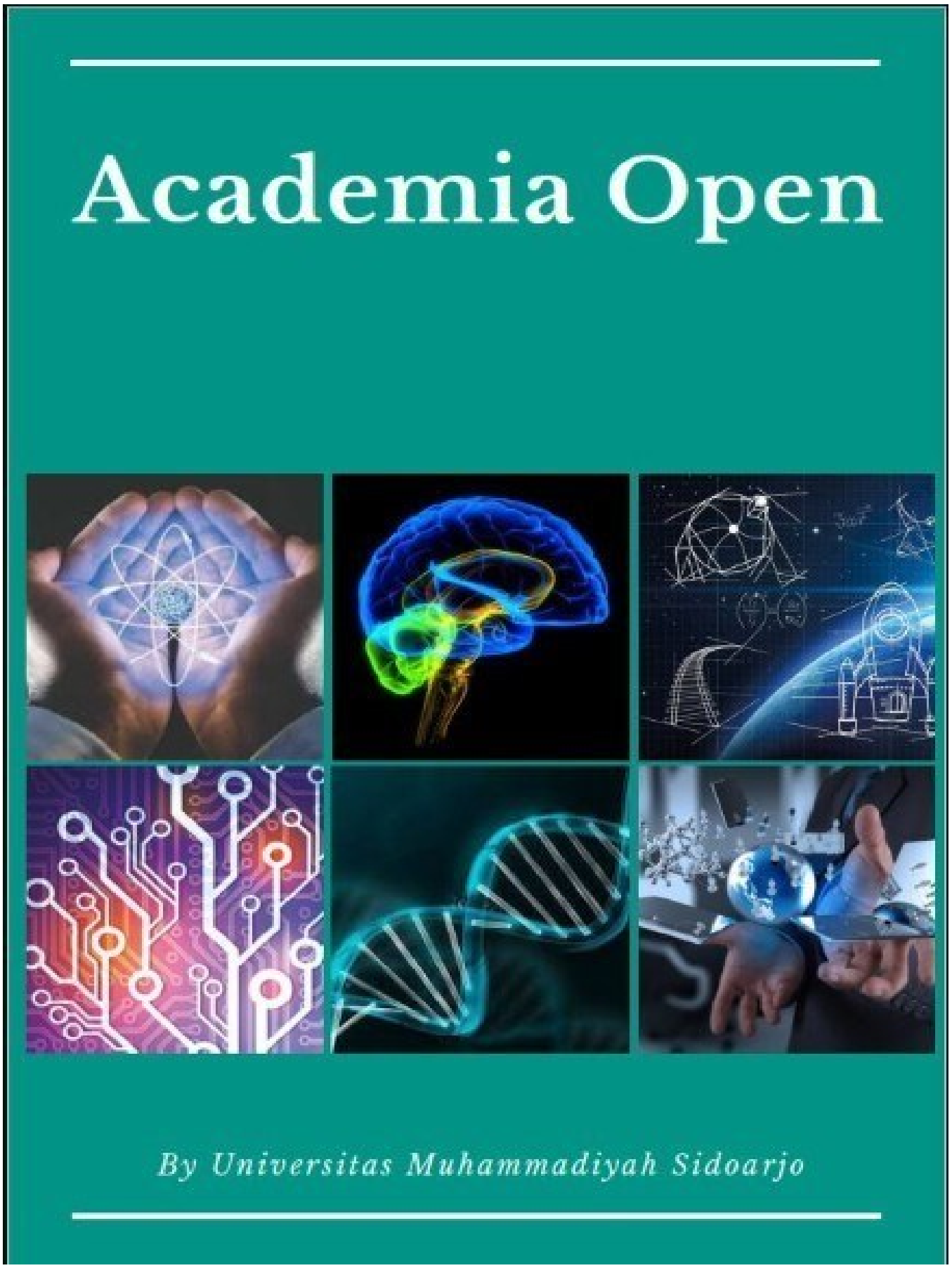

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DuPont and EVA Integration Reveals Four Years of Uninterrupted Value Destruction in Indonesia's State-Owned Forestry Enterprise, 2021–2025

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Abstract

General Background: Financial performance evaluation is essential for assessing accountability, efficiency, profitability, and long-term value creation in state-owned enterprises operating in strategic sectors. **Specific Background:** Company XYZ, an Indonesian state-owned forestry enterprise, maintained relatively high revenue during 2021–2025 while Net Profit Margin and Return on Equity showed a sustained decline. **Knowledge Gap:** Previous studies often examine DuPont Analysis and Economic Value Added separately and focus mainly on profit-oriented companies, leaving limited integrated evidence for forestry-based state-owned enterprises with social and ecological mandates. **Aims:** This study aimed to evaluate the financial performance of Company XYZ during 2021–2025 by integrating DuPont Analysis, Economic Value Added, and Root Cause Analysis using the 5 Whys approach. **Results:** Return on Equity rose temporarily from 3.72% in 2021 to 4.62% in 2022, then declined to 0.66% in 2025. Net Profit Margin fell from 11.43% in 2022 to 1.94% in 2025, while Total Asset Turnover weakened and Equity Multiplier remained relatively stable. Economic Value Added was positive only in 2021 and became negative from 2022 to 2025, reaching minus IDR 1.20 trillion in 2025. **Novelty:** This study combines DuPont Analysis, Economic Value Added, and 5 Whys Root Cause Analysis to assess accounting-based and economic-based performance. **Implications:** Company XYZ should integrate EVA with ROE, optimize NOPAT, control invested capital growth, improve operational efficiency, and diversify beyond primary commodities.

Highlights:

- Net Profit Margin decline drove the ROE fall from 4.62% to 0.66%.
- Capital Employed increased while NOPAT contracted after 2022.
- Commodity revenue dependence and underused assets were root causes.

Keywords: DuPont Analysis, Economic Value Added, Financial Performance

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Introduction

As the country with the third-largest area of tropical forest in the world, Indonesia has positioned the forestry sector as a central element of its national agenda for global climate change mitigation. This commitment is embodied in Indonesia's FOLU Net Sink 2030 target, which aims to achieve a negative greenhouse gas emission value of 140 million tonnes of CO_2e [1], [2]. Within this framework, Company XYZ holds a strategic role as a state-owned enterprise (SOE) in the form of a Public Corporation (Perusahaan Umum), mandated to manage and utilize forest products across Indonesia. Accordingly, the company is required to maintain a balance among economic efficiency, environmental sustainability, and social responsibility simultaneously [3], [4].

Table 1. Summary of Financial Data 2021–2025

Year	Revenue (in IDR million)	Net Income for the Year (in IDR million)	Net Profit Margin (in %)
2021	4.596.534	427.874	9,31
2022	4.812.351	550.271	11,43
2023	4.776.816	501.926	10,51
2024	4.558.004	302.779	6,64
2025	4.214.844	81.786	1,94

The financial performance of the State-Owned Forestry Enterprise (hereafter "Company XYZ") during the 2021–2025 period demonstrates a substantial deterioration in profitability despite relatively stable revenue levels. Revenue initially increased from approximately IDR 4.60 trillion in 2021 to IDR 4.81 trillion in 2022, before continuously declining to approximately IDR 4.21 trillion in 2025. Over the same period, net income for the year experienced a far sharper decline, falling significantly from approximately IDR 427.87 billion in 2021 to only IDR 81.79 billion in 2025 This condition indicates that the company has faced increasing difficulties in maintaining profitability and operational efficiency, as the decline in earnings occurred at a much faster rate than the decrease in revenue. Such a condition reflects an unfavorable operating leverage, wherein the business activity is accompanied by a contraction in profit margins [5]. As an SOE in the form of a Public Corporation, Company XYZ does not have a share market mechanism that can directly reflect changes in the company's performance. Consequently, financial analysis becomes the primary instrument for the government and stakeholders to assess the effectiveness of state asset management [3]. Financial performance reflects management's capacity to manage assets, liabilities, and equity in order to generate economic value added for the company and its stakeholders [6]. In the context of SOEs, the assessment of corporate soundness also functions as a mechanism of public accountability, ensuring that the management of state wealth remains efficient and does not suffer value erosion due to operational inefficiencies or suboptimal risk management practices [7], [8].

The DuPont Analysis is used to break down Return on Equity (ROE) into profit margin, total asset turnover, and equity multiplier, thereby allowing changes in ROE to be traced back to operational efficiency, the effective use of assets, or the company's financing strategy [9], [10]. EVA, in contrast, is employed to assess whether the company genuinely creates economic value after accounting for the cost of capital. A positive EVA indicates that operating profit exceeds the cost of capital, whereas a negative EVA signals the occurrence of value destruction [11], [12].

Huaman-Roque et al. reported that ROE has a positive relationship with EVA, with a coefficient of 46.19 units for every one-unit increase in ROE, while WACC exhibited a negative relationship of 206.17 units in industrial companies in Peru during the period 2013 to 2022 [13]. Qin et al. applied DuPont Analysis to Amazon to explain changes in ROE during the COVID-19 pandemic. Their findings indicated that the increase in ROE was primarily driven by an improvement in Net Profit Margin, while Total Asset Turnover declined as a result of large-scale asset acquisitions [14]. Utomo and Ulpah, as well as Tripathi et al., also demonstrated that an increase in Total Asset Turnover does not necessarily correspond with a positive EVA, and a bibliometric review of more than 200 publications indexed in Scopus revealed that EVA continues to be used as a value creation indicator, although empirical results remain inconsistent when applied without complementary indicators [12], [15].

A number of prior studies have generally focused on profit-oriented public companies and have not extensively examined the characteristics of SOEs in the form of Public Corporations that carry a social-ecological mandate. Furthermore, studies combining DuPont Analysis and EVA within the forestry sector remain limited. Therefore, this study aims to analyze and evaluate the financial performance of Company XYZ for the period 2021–2025 in a comprehensive manner through the application of DuPont Analysis and Economic Value Added (EVA), with the objective of identifying the sources of performance formation, the level of efficiency in asset and capital utilization, and the company's capacity to create sustainable economic value amid the social and environmental responsibilities inherent to its role.

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Method

Data were collected through documentation of the Annual Reports and Financial Statements of Company XYZ for the years 2021 through 2025. The data encompass net income, total revenue, total assets, total equity, total interest-bearing debt, and annual interest expenses as of December 31 of each year. The sectoral unlevered beta for paper and forest products and the equity risk premium for Indonesia were obtained from the Damodaran database [16],], while the risk-free rate was proxied using the 10-year United States government bond yield sourced from the Federal Reserve Economic Data (FRED) St. Louis [17]. Indonesian inflation data were obtained from Bank Indonesia, and United States inflation data were sourced from Trading Economics; both datasets were employed in the process of converting the cost of equity into Indonesian Rupiah denomination [18], [19]. The corporate tax rate applied throughout the calculations is 22 percent. The analytical procedure of this descriptive quantitative study is presented in Figure 1.

The research commenced with a literature review and field study, followed by the collection of financial statement data encompassing the variables of sales, net income, total assets, total equity, and cost of capital components. These data were subsequently processed to calculate Net Profit Margin, Total Asset Turnover, and Equity Multiplier as the constituent components of Return on Equity through the DuPont Analysis framework. The subsequent stage involved the estimation of the cost of capital using the Capital Asset Pricing Model (CAPM) and the calculation of the Weighted Average Cost of Capital (WACC) based on the financing structure. The Economic Value Added (EVA) was computed by subtracting the cost of capital from NOPAT for each observation period and employed as the basis for economic performance evaluation. The study then presents findings and discussion, from which conclusions and recommendations are drawn.

DuPont Analysis is employed to decompose Return on Equity (ROE) into three primary components through a structured mathematical relationship. Formally, ROE is expressed as the product of Net Profit Margin (NPM), Total Asset Turnover (TAT), and Equity Multiplier (EM), as shown in the following equation [9]:

$$ROE = NPM \times TAT \times EM \quad (1)$$

The NPM component is calculated as the ratio of net income to sales [9][10][16]:

$$NPM = \frac{Net\ Income}{Sales} \quad (2)$$

Asset utilization efficiency is represented by TAT, formulated as follows [9], [10], [20]:

$$TAT = \frac{Sales}{Total\ Assets} \quad (3)$$

The company's capital structure is reflected in the EM, calculated through [9], [10], [20]:

$$EM = \frac{Total\ Assets}{Total\ Equity} \quad (4)$$

The results of these three components are then analyzed comparatively across periods to identify the dominant factors influencing the dynamics of ROE during the period 2021 to 2025.

The cost of equity is estimated using the Capital Asset Pricing Model (CAPM) denominated in United States dollars, which is mathematically formulated as follows [21], [22], [23]:

$$E(R_i) = R_f + \beta_i(E(R_m) - R_f) \quad (5)$$

Where:

- $E(R_i)$= expected return
- R_f= risk-free rate
- β_i= beta
- $E(R_m)$= expected market return

The unlevered beta obtained is subsequently adjusted to a relevered beta using the Hamada equation to reflect the effect of the company's capital structure [22], [24], [25]:

$$\beta_L = \beta_U\,[1 + (1 - T)\,(\frac{D}{E})] \quad (6)$$

Where:

- β_L= levered beta
- β_U= unlevered beta
- T= Tax rate
- D/E= debt to equity ratio

The cost of equity in US dollars is then converted to Indonesian Rupiah by accounting for the differential in inflation rates between the two countries through the following equation [22]:

$$K_e(IDR) = [\frac{(1+K_e(USD))(1+inflation_{IDR})}{(1+inflation_{USD})}] - 1 \quad (7)$$

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Subsequently, the Weighted Average Cost of Capital (WACC) is calculated by combining the after-tax cost of debt and the cost of equity, weighted according to the proportion of each source of financing [13], [20], [22], [23]:

$$WACC = (W_d \times K_d(1-T)) + (W_e \times K_e) \quad (8)$$

Where:

- W_d= proportion of debt
- W_e= proportion of equity
- K_d= cost of debt
- K_e= cost of equity

Economic Value Added (EVA) is used to measure the economic value creation of the company by comparing the after-tax operating profit against the cost of capital employed. Mathematically, EVA is formulated as follows [10], [15], [26]:

$$EVA = NOPAT - (WACC \times Capital\ Employed) \quad (9)$$

In this context, Capital Employed is defined as total interest-bearing debt plus total equity utilized by the company in each observation period. NOPAT in this study is proxied by net income after tax as reported in the annual financial statements of Company XYZ. A positive EVA value indicates that the company is capable of generating profit that exceeds the cost of capital, thereby creating economic value added for capital owners. Conversely, a negative EVA value indicates that the profit generated has not been sufficient to cover the total cost of capital. Under such conditions, the analysis is extended using Root Cause Analysis with a 5 Whys approach to identify the primary causes and formulate corrective measures.

The Root Cause Analysis (RCA) method using the 5 Whys approach is used to trace the chain of cause and effect from negative EVA to its fundamental cause. The Root Cause Analysis (RCA) method using the 5 Whys approach was chosen because it can systematically and thoroughly identify the root cause of a problem by tracing cause-and-effect relationships. This method is considered effective because it not only focuses on symptoms or impacts visible on the surface but also helps identify the primary factors triggering the problem. Additionally, the 5 Whys approach offers the advantage of a simple, easy-to-apply analysis process that provides a more structured understanding of complex issues [27], [28].

Results and Discussion

A. Dupont Analysis

1. Net Profit Margin

The results of the Net Profit Margin calculation using formula (2), based on financial statement data for the 2021 to 2025 period, are presented in Table 2.

Table 2. Summary of Net Profit Margin (NPM) of Company XYZ, 2021-2025

Year	Net Income (Rp million)	Sales (Rp million)	NPM (%)
2021	427.874	4.596.534	9,31
2022	550.271	4.812.351	11,43
2023	501.926	4.776.816	10,51
2024	302.779	4.558.004	6,64
2025	81.786	4.214.844	0.0194

2. Total Asset Turnover

The results of the Total Asset Turnover calculation using formula (3), based on financial statement data for the 2021 to 2025 period, are presented in Table 3.

Table 3. Summary of Total Asset Turnover (TAT) of Company XYZ, 2021-2025

Year	Sales (Rp million)	Total Assets (Rp million)	TAT (times)
2021	4.596.534	17.044.733	0,2697
2022	4.812.351	17.319.903	0,2779
2023	4.776.816	17.966.455	0,2659
2024	4.558.004	18.302.002	0,2490
2025	4.214.844	18.415.390	0.2289

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3. Equity Multiplier

The results of the Equity Multiplier calculation using formula (4), based on financial statement data for the 2021 to 2025 period, are presented in Table 4.

Table 4. Summary of Equity Multiplier (EM) of Company XYZ, 2021-2025

Year	Total Assets (Rp million)	Total Equity (Rp million)	EM (times)
2021	17.044.733	11.490.719	1,4833
2022	17.319.903	11.920.825	1,4529
2023	17.966.455	12.144.330	1,4794
2024	18.302.002	12.355.161	1,4813
2025	18.415.390	12.358.205	1,4901

4. Return on Equity and Comparative DuPont Analysis

The results of the Return on Equity calculation using formula (1), based on financial statement data for the 2021 to 2025 period, are presented in Table 5.

Table 5. Summary of ROE Decomposition of Company XYZ, 2021-2025

Tahun	NPM (%)	TAT (Kali)	EM (Kali)	ROE (%)
2021	9.31%	0.2697	1.4833	0.0372
2022	11.43%	0.2779	1.4529	0.0462
2023	10.51%	0.2659	1.4794	0.0413
2024	6.64%	0.2490	1.4813	0.0245
2025	1,94%	0,2289	1,4901	0,0066

Net Profit Margin measures the portion of net income generated from each unit of sales. Based on Table 5, NPM increased from 9.31 percent in 2021 to 11.43 percent in 2022, indicating an improvement in the company's ability to generate profit from revenue. However, after 2022, NPM continuously declined to 10.51 percent in 2023, 6.64 percent in 2024, and sharply decreased to only 1.94 percent in 2025. This downward trend was accompanied by a similar pattern in ROE, which increased from 3.72 percent in 2021 to 4.62 percent in 2022, before declining to 4.13 percent in 2023, 2.45 percent in 2024, and 0.66 percent in 2025. Within the DuPont framework, NPM reflects the effectiveness of cost control and operational profitability. Therefore, the substantial decline in NPM indicates weakening profitability performance, which became the primary factor contributing to the deterioration of ROE during the observation period [9], [10].

Total Asset Turnover reflects the effectiveness of the company in utilizing its total assets to generate revenue. Based on Table 5, TAT increased from 0.2697 times in 2021 to 0.2779 times in 2022, indicating improved asset utilization efficiency. However, this ratio gradually declined to 0.2659 times in 2023, 0.2490 times in 2024, and 0.2289 times in 2025. These changes indicate that the company's ability to optimize asset utilization weakened toward the end of the observation period. Compared with NPM, the contribution of TAT to changes in ROE was relatively smaller because the fluctuation in TAT values was more moderate. Nevertheless, the continuous decline in TAT after 2022 still contributed to the weakening of ROE by indicating lower efficiency in generating sales from the company's asset base. Within the DuPont framework, TAT serves as an important indicator for evaluating asset management effectiveness, particularly in capital-intensive enterprises [29], [30].

Equity Multiplier describes the degree of financial leverage used in the company's capital structure. Based on Table 5, EM remained relatively stable throughout the observation period, increasing slightly from 1.4833 times in 2021 to 1.4901 times in 2025. The values fluctuated only marginally, namely 1.4529 times in 2022, 1.4794 times in 2023, and 1.4813 times in 2024. This stability indicates that the company did not implement significant changes in its financing structure policy during the study period. Within the DuPont framework, EM can increase ROE through leverage effects when returns generated from assets exceed financing costs. However, in this case, the relatively stable EM indicates that changes in ROE were not primarily driven by leverage, but rather by the substantial decline in profitability and the weakening efficiency of asset utilization [20], [31].

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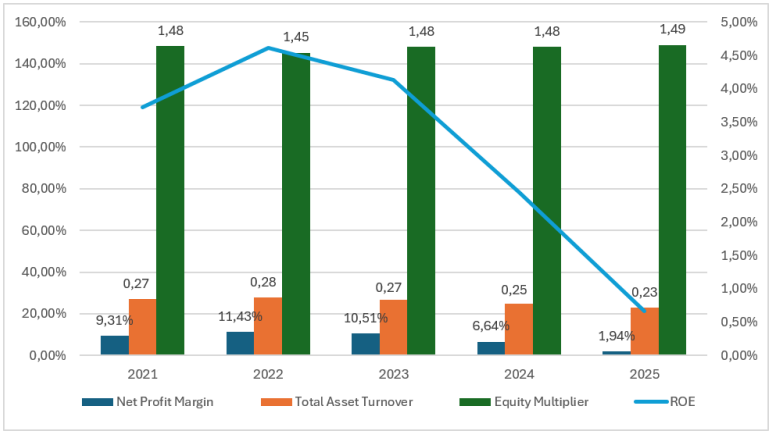

Figure 1. ROE Determination Chart through DuPont Analysis

Based on Figure 1, the increase in ROE in 2022 occurred when NPM rose from 9.31 percent to 11.43 percent, and TAT increased from 0.27 to 0.28, even as EM declined from 1.48 to 1.45. This condition indicates that improved operational profitability was the primary factor driving the increase in ROE. Contrarily, the decline in ROE in 2023 and 2024 occurred when both NPM and TAT declined while EM remained stable. This indicates that the leverage effect did not offset the decline in profitability and asset efficiency. In the DuPont perspective, this condition reflects a trade-off among profitability, asset efficiency, and leverage, where a decline in one component is not always compensated by another [9], [31].

On an annual basis, ROE demonstrates a clear downward trend throughout the 2021–2025 period. Based on Figure 1, ROE initially increased from 3.72 percent in 2021 to 4.62 percent in 2022, but subsequently declined to 4.13 percent in 2023, 2.45 percent in 2024, and drastically to only 0.66 percent in 2025. This pattern indicates that the improvement achieved in 2022 was temporary and unable to sustain long-term financial performance. The trend is consistent with a sharper decline in NPM compared to the changes in TAT and EM. The weakening of operational profitability is therefore the primary factor explaining the ROE declining trend, while asset efficiency and leverage did not change sufficiently to alter the overall trend direction.

B. Economic Value Added (EVA)

This study estimates the Economic Value Added (EVA) of Company XYZ for the period 2020–2024 by integrating the Capital Asset Pricing Model (CAPM), Weighted Average Cost of Capital (WACC), and EVA into a unified analytical framework. EVA is defined as the surplus of Net Operating Profit After Tax (NOPAT) over the total Cost of Capital, calculated as the product of WACC and Capital Employed. A positive EVA indicates that operational returns exceed the cost of capital deployed, while a persistently negative EVA signals structural value destruction that warrants strategic intervention. As presented in Table 6, the resulting CAPM-IDR estimates exhibit considerable variability across the observation period, ranging from a trough of 2.90% in 2021 to a peak of 9.94% in 2025.

Table 6. CAPM Input Variables and Cost of Equity Estimates, 2020–2024

Variable	2021	2022	2023	2024	2025
D/E Ratio	48,33%	45,29%	47,94%	48,13%	49,01%
Unlevered Beta	0,86	0,68	0,60	0,51	0,56
Corporate Tax Rate	22%	22%	22%	22%	22%
Relevered Beta (βL)	1,184 (118%)	0,920 (92%)	0,824 (83%)	0,701 (70%)	0,777 (78%)
Equity Risk Premium — Indonesia	5,60%	7,96%	5,59%	5,54%	5,83%
Risk-Free Rate (U.S. 10-yr Treasury)	1,63%	3,79%	3,95%	4,57%	4,19%
CAPM (USD)	8,26%	11,09%	8,57%	8,47%	8,72%
Inflation — Indonesia	2,18%	5,28%	2,57%	0,76%	3,55%
Inflation — United States	7,50%	6,40%	3,10%	3,00%	2,4%
CAPM (IDR / Local Currency)	2,90%	9,92%	8,02%	6,11%	9,94%

The findings reveal two analytically significant episodes. First, the anomalously low CAPM-IDR of 2.90% in 2021 was the lowest in the study period, which is attributable to an elevated U.S. inflation rate of 7.50% that mechanically compresses the inflation-adjusted cost of equity despite an increase in both the USD-denominated CAPM (8.26%) and the relevered beta (1.184). This inflation-driven distortion underscores the sensitivity of local-currency cost of equity estimates to macroeconomic conditions external to the firm. Second, the peak CAPM-IDR of 9.92% in 2022 coincides with simultaneous pressures from the sharp rise in the U.S. risk-free rate to 3.79% and a surge in Indonesia's Equity

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Risk Premium to 7.96%, reflecting heightened perceived country risk during a period of global monetary tightening. The subsequent moderation in CAPM-IDR to 6.11% by 2024, driven by declining relevered beta (0.701) and subdued domestic inflation (0.76%), indicates a reduction in the firm's systematic risk profile, though this structural improvement did not translate into EVA recovery due to concurrent NOPAT deterioration.

WACC was derived by weighting the after-tax cost of debt and the CAPM-derived cost of equity by their respective capital structure proportions, as presented in Table 7. Company XYZ maintains a predominantly equity-financed capital structure throughout the study period, with equity weights ranging from 91.99% to 95.68%. Consequently, WACC fluctuations are primarily driven by cost-of-equity dynamics rather than changes in the debt-equity mix.

Table 7. WACC Input Variables and Weighted Average Cost of Capital, 2020–2024

Variable	2021	2022	2023	2024	2024
Cost of Equity IDR (Ke, %)	2,90%	9,92%	8,02%	6,11%	9,94%
Interest-Bearing Debt (IDR million)	558.097	538.405	783.900	1.075.771	1.064.889
Interest Expense (IDR million)	27.648	21.330	47.849	69.191	70.391
Gross Cost of Debt (Kd, %)	4,95%	3,96%	6,10%	6,43%	6,61%
After-Tax Cost of Debt [Kd(1–T), %]	3,86%	3,09%	4,76%	5,02%	5,16%
Total Equity (IDR million)	11.490.719	11.920.825	12.144.330	12.355.161	12.358.205
Capital Employed / D+E (IDR million)	12.048.816	12.459.230	12.928.230	13.430.932	13.423.094
Equity Weight (We, %)	95,37%	95,68%	93,94%	91,99%	92,07%
Debt Weight (Wd, %)	4,63%	4,32%	6,06%	8,01%	7,93%
WACC (%)	2,95%	9,63%	7,82%	6,02%	9,56%

The results indicate that WACC follows a pattern closely mirroring CAPM-IDR, with the lowest in 2021 (2.95%) and a peak in 2022 (9.63%). The progressive increase in the debt weight from 4.32% in 2022 to 8.01% in 2024 signals a modest but notable shift toward debt financing. Concurrently, the after-tax cost of debt rose from 3.09% to 5.16% over the same sub-period, reflecting higher borrowing costs against a backdrop of rising market interest rates. Although this structural shift marginally dampens WACC through greater reliance on lower-cost debt, the effect is insufficient to offset the persistent decline in NOPAT.

The EVA results, synthesising NOPAT, WACC, and Capital Employed, are presented in Table 3. Company XYZ generated a positive EVA exclusively in 2021 (IDR 72,434 million), with four of the five observation years recording negative values. The magnitude of value destruction intensified markedly in 2022–2025, representing a structural deterioration rather than cyclical volatility.

Table 8 . Economic Value Added Results, 2020–2024

Year	NOPAT (IDR million)	WACC (%)	Capital Employed (IDR million)	Cost of Capital (IDR million)	EVA (IDR million)
2021	427.874	2,95	12.048.816	355.214	72.434
2022	550.271	9,63	12.459.230	1.199.630	-649.553
2023	501.926	7,82	12.928.230	1.010.826,49	-509.062
2024	302.779	6,02	13.430.932	808.876,24	-505.763
2025	81.786	9,94	13.423.094	1.283.878	-1.202.092

The findings reveal three interconnected patterns that collectively explain the persistent deterioration in EVA performance during the 2021–2025 period. First, NOPAT exhibited a significant declining trend after amounting to IDR 427.87 billion in 2021 and increasing temporarily to IDR 550.27 billion in 2022. However, NOPAT subsequently declined to IDR 501.93 billion in 2023, fell sharply to IDR 302.78 billion in 2024, and further decreased drastically to only IDR 81.79 billion in 2025. Overall, this decline represents a compound annual growth rate (CAGR) of approximately minus 33.9 percent during the 2021–2025 period. This pattern indicates a substantial weakening in the company's operating profitability, reflecting declining operational efficiency and reduced ability to generate returns from core business activities. Although revenue remained relatively stable during the earlier years of the observation period, the sharp decline in NOPAT suggests that increasing operational costs and weakening margins became the primary factors reducing financial performance.

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Second, Capital Employed increased continuously from IDR 12.05 trillion in 2021 to IDR 13.42 trillion in 2025. This continuous increase enlarged the company's Cost of Capital burden, particularly when accompanied by higher WACC values in several periods. The Cost of Capital rose significantly from IDR 355.21 billion in 2021 to IDR 1.20 trillion in 2022, remained above IDR 800 billion in 2023 and 2024, and reached IDR 1.28 trillion in 2025. The expansion of Capital Employed without proportional growth in NOPAT indicates weakening asset productivity and inefficient utilization of invested capital, which became a major structural factor contributing to the company's inability to create economic value.

Third, the company only recorded positive EVA in 2021, amounting to IDR 72.43 billion. In subsequent years, EVA turned negative and continued to deteriorate, reaching negative IDR 649.55 billion in 2022, negative IDR 509.06 billion in 2023, negative IDR 505.76 billion in 2024, and sharply worsening to negative IDR 1.20 trillion in 2025. The positive EVA achieved in 2021 was primarily supported by a relatively low WACC of 2.95 percent, which suppressed the Cost of Capital to a level lower than NOPAT. However, this condition did not persist in the following years as WACC increased significantly, causing the Cost of Capital to substantially exceed operating profit. Therefore, the persistent negative EVA after 2021 indicates that the company consistently failed to generate returns above its cost of capital, demonstrating an ongoing destruction of shareholder value rather than value creation.

Taken together, the persistent negative EVA implies that Company XYZ systematically consumes economic value, with the gap between operational returns and capital cost widening as Capital Employed grows. The absence of proportional NOPAT growth alongside expanding asset deployment represents the central structural challenge to long-term value creation and operational sustainability [32].

C. Improvement Strategy Based on Root Cause Analysis

To identify the structural precursor of the persistent negative EVA, this study applies a Root Cause Analysis (RCA) using the 5 Whys methodology. This method is considered effective because it not only focuses on symptoms or visible surface-level impacts but also helps identify the primary factors that trigger the emergence of the problem. Additionally, the 5 Whys method offers the advantage of a simple, easy-to-apply analysis process that provides a more structured understanding of a complex problem [27], [28]. The analysis traces the causal chain from the symptomatic EVA deficit to its underlying operational and strategic determinants, as summarised in Table 9.

Table 9. Root Cause Analysis (5 Whys): Persistent Negative EVA

Level	Question	Finding
Core Problem	Why does EVA remain negative?	NOPAT persistently falls below Cost of Capital, generating a structural value gap.
Why 1	Why does NOPAT not cover Cost of Capital?	NOPAT declined while Capital Employed expanded continuously, widening the gap each year.
Why 2	Why has NOPAT declined?	Operating margin contraction driven by falling export prices and global commodity market volatility.
Why 3	Why does operating margin continue to erode?	Revenue structure is heavily concentrated in primary commodity exports (e.g., resin, turpentine), which are fully price-exposed to international markets.
Why 4	Why does this commodity dependence persist?	Downstream processing and high-value product development programmes remain underutilised relative to targets.
Why 5	Why has downstream integration not been fully realised?	Factory utilisation remains below the 60–80% target; new business lines (agro-forestry, biomass co-firing, nature-based carbon credits) are still in early-stage implementation.
Root Cause	Structural dependence on low-value-added commodity export revenue, compounded by Capital Employed growth that is not matched by proportional gains in asset productivity (NOPAT).	

The RCA identifies two mutually reinforcing structural root causes. First, Company XYZ exhibits a structural dependence on the export of low-value-added primary forestry commodities such as resin and turpentine, whose prices are entirely determined by international market mechanisms. This exposes NOPAT to commodity price volatility without managerial alternative to pricing power, as evidenced by the sustained margin compression from 2021 to 2025. Second, Capital Employed has grown by approximately IDR 1.56 trillion over the study period, but factory utilisation remains below the 60–80% operational target, and newly developed business lines, including agro-forestry, biomass co-firing for power generation, and nature-based carbon credits under the NEBS framework, remain in early-stage implementation. The combination of underutilised capital and stagnant productivity generates a structural Cost of

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Capital burden that operational income is consistently unable to absorb. These two root causes are interdependent: commodity dependence suppresses NOPAT growth while capital expansion elevates the cost hurdle, creating a self-reinforcing cycle of negative EVA.

Based on these findings, Table 10 presents targeted strategic interventions aligned with the identified root causes, organised around two overarching strategic priorities: (i) revenue diversification and downstream value-chain integration, and (ii) asset productivity optimisation and operational efficiency improvement.

Table 10. Evidence-Based Improvement Recommendations

No.	Root Cause	EVA Impact	Recommended Intervention	KPI
1	Structural dependence on primary commodity exports reducing operating margin	Low NOPAT relative to Cost of Capital	Accelerate downstream product integration; develop processed, high-value-added forestry goods to reduce raw commodity revenue share	Declining proportion of primary commodity exports to total revenue
2	Insufficient revenue diversification amplifying NOPAT volatility	Periodic EVA deterioration from single-segment price shocks	Develop eco-tourism, biomass co-firing, and nature-based carbon credit (NEBS) segments as alternative revenue streams	New segment contribution ≥15% of total revenue within three years
3	Capital Employed growth unmatched by proportional asset productivity gains	High Cost of Capital relative to NOPAT constrains EVA recovery	Optimise factory utilisation to 60–80% target; revitalise or divest non-productive assets	Reduction in non-productive asset share; improved NOPAT-to-capital ratio
4	Disproportionate operating cost burden relative to revenue generated	NOPAT compressed by non-value-adding expenditures	Implement operational efficiency through business process digitalisation and elimination of non-value-adding activities	Operating cost ratio reduced by ≥2% p.a.; EBITDA margin approaching 15%

The recommended interventions are designed to address both dimensions of the EVA deficit concurrently. On the revenue side, accelerating downstream product integration and diversifying into higher-margin segments such as eco-tourism, renewable energy, and carbon markets would reduce NOPAT exposure to commodity price cycles and improve the quality of earnings. On the capital efficiency side, achieving factory utilisation targets and rationalising non-productive assets would improve the NOPAT-to-Capital-Employed ratio, directly relieving the structural Cost of Capital burden. Implementing business process digitalisation is identified as a cross-cutting enabler capable of simultaneously reducing operating costs and improving asset utilisation monitoring. Collectively, these interventions target an EBITDA margin trajectory approaching 15% and a reduction of the primary commodity revenue share, providing measurable benchmarks for EVA recovery and long-term value creation.

Conclusion

The integration of DuPont Analysis and EVA results shows that ROE increased temporarily from 3.72 percent in 2021 to 4.62 percent in 2022, but subsequently declined sharply to only 0.66 percent in 2025, mainly due to the continuous decrease in Net Profit Margin (NPM). In 2022, ROE was recorded at 4.62 percent, yet EVA reached its most negative value at Rp649,553 million, indicating that accounting profit does not always reflect economic value creation for capital owners when the cost of capital is excluded from the assessment [10]. This condition also reflects an inconsistency between accounting-based profitability indicators and actual economic value, where a still-positive ROE does not consistently indicate the creation of economic added value [15]. The integration of DuPont Analysis and EVA therefore provides a more comprehensive performance assessment than the application of either method in isolation.

The findings also show that relatively stable Total Asset Turnover (TAT) and Equity Multiplier (EM) were insufficient to offset the decline in NOPAT and the continuous increase in Capital Employed. This condition indicates that asset expansion and financing structure stability were not followed by proportional improvements in profitability and

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economic value creation. Conceptually, EVA will be positive only when Return on Invested Capital consistently exceeds WACC, so performance improvement must focus on NOPAT optimization and control of invested capital growth [13]. Improvements in asset efficiency alone are insufficient to generate positive EVA without concurrent improvements in profit margin and effective cost of capital management [15]. Consequently, the company experienced a persistent decline in both accounting-based performance and economic-based performance.

The findings of this study carry managerial and policy implications. From a managerial perspective, Company XYZ needs to integrate EVA as a complementary indicator to ROE within the internal performance assessment system so that the capacity to create economic value can be detected more accurately in each period. From a policy perspective, the government as the capital owner needs to consider a proportional compensation mechanism for the social and ecological burdens carried by the company, because these burdens directly compress operating margins and hinder the achievement of positive EVA. The dominance of equity exceeding 93 percent of Invested Capital also increases sensitivity to fluctuations in the Indonesian equity risk premium, which directly affects the magnitude of WACC and lies outside management's control. In this context, the relevance of EVA as a value creation indicator remains high, but its interpretation needs to be combined with other performance indicators to avoid distortion from temporary capital cost dynamics [12]. Subsequent research is recommended to use longer observation periods and a broader sample of state-owned enterprises to differentiate the effects of short-term WACC fluctuations from long-term structural performance changes.

References

1. N. E. N. I. Budiana, H. Dewajani, A. Chumaidi, A. R. Salsabila, A. R. J. Alfajri, and M. N. Sandifa, “Seleksi Proses dan Penentuan Lokasi Produksi pada Prarancangan Pabrik Disproportionated Rosin dari Gondorukem Grade WG dengan Kapasitas 3000 Ton/Tahun,” *DISTILAT: Jurnal Teknologi Separasi*, vol. 10, no. 1, pp. 81–90, Mar. 2024, doi: 10.33795/distilat.v10i1.4949.
2. H. Parimita and F. U. Najicha, “Kebijakan Sustainable Forest Management sebagai Bagian Indonesia FOLU Net Sink 2030,” *Simbur Cahaya*, pp. 45–65, Jul. 2023, doi: 10.28946/sc.v30i1.2831.
3. R. Fathurrahman, “Analisis Perbandingan Struktural dan Karakteristik Badan Usaha Milik Negara Indonesia dengan Malaysia,” *Jurnal Hukum & Pembangunan*, vol. 54, no. 3, Sep. 2024, doi: 10.21143/jhp.vol54.no3.1615.
4. R. Junarto, “Mitigasi Perubahan Iklim dan Dampak Pengelolaan Sumber Daya Agraria: Wawasan dari Indonesia,” *Tunas Agraria*, vol. 6, no. 3, pp. 237–254, Sep. 2023, doi: 10.31292/jta.v6i3.219.
5. M. Sapiri, “Understanding Financial Leverage: The Effect of Operating Leverage and Financial Leverage on EPS in Property and Real Estate Companies on the Indonesia Stock Exchange,” *Atestasi: Jurnal Ilmiah Akuntansi*, vol. 6, no. 1, pp. 53–66, Mar. 2023, doi: 10.57178/atestasi.v6i1.598.
6. N. N. Sajidah, I. Setyaningsih, and Z. Zuliyati, “Financial Statement Analysis Using the Du Pont System at PT Mayora Indah Tbk,” *Jurnalku*, vol. 3, no. 2, pp. 196–202, Jul. 2023, doi: 10.54957/jurnalku.v3i2.394.
7. E. O. D. Danendra, T. Widuri, and U. Nadhiroh, “Analisis Kinerja BUMN dari Aspek Keuangan Berdasarkan Rasio Keuangan yang Tertuang di Dalam SK Menteri No. KEP-100/MBU/2002 pada PT Adhi Karya (Persero) Tbk Periode 2019–2023,” *Jurnal Ekonomi Bisnis dan Manajemen*, vol. 4, no. 3, pp. 300–321, Sep. 2025, doi: 10.58192/ebismen.v4i3.3712.
8. O. M. Galane, P. L. Makoni, and C. N. Chikutuma, “Developing a Compliance Index to Improve the Performance of Major State-Owned Enterprises: An Analysis of South Africa,” *Administrative Sciences*, vol. 15, no. 9, p. 356, Sep. 2025, doi: 10.3390/admsci15090356.
9. E. F. Brigham and M. C. Ehrhardt, *Financial Management: Theory & Practice*, 17th ed. Boston, MA, USA: Cengage, 2024.
10. R. C. Higgins, J. L. Koski, and T. Mitton, *Analysis for Financial Management*, 13th International Student ed. New York, NY, USA: McGraw-Hill, 2022.
11. P. Lewin and N. Cachanosky, *Capital and Finance: Theory and History*. Abingdon, U.K.: Routledge, Taylor & Francis Group, 2021.
12. P. M. Tripathi, V. Chotia, U. Solanki, R. Meena, and V. Khandelwal, “Economic Value Added Research: Mapping Thematic Structure and Research Trends,” *Risks*, vol. 11, no. 1, p. 9, Dec. 2022, doi: 10.3390/risks11010009.
13. J. Huaman-Roque, P. Cuyate-Reque, J. Cueva-Ruesta, and F. Cordova-Buiza, “Impact of Weighted Average Cost of Capital and Profitability on Economic Value Added of Firms in the Industrial Sector,” *Journal of Risk and Financial Management*, vol. 18, no. 11, p. 650, Nov. 2025, doi: 10.3390/jrfm18110650.
14. Z. Qin, A. Hassan, and M. Adhikariparajuli, “Direct and Indirect Implications of the COVID-19 Pandemic on Amazon’s Financial Situation,” *Journal of Risk and Financial Management*, vol. 15, no. 9, p. 414, Sep. 2022, doi: 10.3390/jrfm15090414.
15. P. Utomo and M. Ulpah, “Assessing Financial Synergies through DuPont Analysis and Economic Value Added in the Post-Acquisition Integration of PT Petronesia Benimel,” *Eduvest – Journal of Universal Studies*, vol. 5, no. 8, pp. 10642–10653, Aug. 2025, doi: 10.59188/eduvest.v5i8.51260.
16. Damodaran, “Data archives.” Accessed: Apr. 29, 2026. [Online]. Available: https://pages.stern.nyu.edu/~adamodar/
17. Federal Reserve Bank of St. Louis, “Market Yield on U.S. Treasury Securities at 10-Year Constant Maturity, Quoted on an Investment Basis.” Accessed: Apr. 29, 2026. [Online]. Available: https://fred.stlouisfed.org/series/DGS10
18. Bank Indonesia, “Data Inflasi.” Accessed: Apr. 27, 2026. [Online]. Available: https://www.bi.go.id/id/statistik/indikator/data-inflasi.aspx

ISSN 2714-7444 (online), https://acopen.umsida.ac.id, published by Universitas Muhammadiyah Sidoarjo

19. Trading Economics, "United States Inflation Rate." Accessed: Apr. 27, 2026. [Online]. Available: https://tradingeconomics.com/united-states/inflation-cpi
20. J. M. Wahlen, S. P. Baginski, and M. Bradshaw, *Financial Reporting, Financial Statement Analysis, and Valuation: A Strategic Perspective*, 10th ed. Boston, MA, USA: Cengage, 2022.
21. V. Aguilar, F. Naula, and F. Cabrera, "Cost of Capital in the Energy Sector, in Emerging Markets, the Case of a Dollarized Economy," *Energies*, vol. 17, no. 19, p. 4782, Sep. 2024, doi: 10.3390/en17194782.
22. Damodaran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, 4th ed. Hoboken, NJ, USA: Wiley, 2025.
23. T. Koller, M. Goedhart, and D. Wessels, *Valuation: Measuring and Managing the Value of Companies*, 8th ed. Hoboken, NJ, USA: Wiley, 2025.
24. P. Brusov and T. Filatova, "Capital Structure Theory: Past, Present, Future," *Mathematics*, vol. 11, no. 3, p. 616, Jan. 2023, doi: 10.3390/math11030616.
25. K. Topyan, "Levered-Beta and Cost of Capital Sensitivities: An Experimental Investigation in Capital Structure," *Journal of Risk and Financial Management*, vol. 14, no. 4, p. 152, Apr. 2021, doi: 10.3390/jrfm14040152.
26. M. B. Tudose, V. D. Rusu, and S. Avasilcai, "Performance Management for Growth: A Framework Based on EVA," *Journal of Risk and Financial Management*, vol. 14, no. 3, p. 102, Mar. 2021, doi: 10.3390/jrfm14030102.
27. R. Keyser and P. Pooyan, "Lean at Home: Applying 5 Whys and Lean PFMEA to Home Projects," *Journal of Applied Research on Industrial Engineering*, Mar. 2022, doi: 10.22105/jarie.2022.320848.1410.
28. G. A. Mohammed, D. K. Jaf, and A. Oztas, "An Investigation of Lean Application Challenges in Construction Projects by Root Cause Analysis," *Engineering, Technology & Applied Science Research*, vol. 15, no. 6, pp. 29919–29928, Dec. 2025, doi: 10.48084/etasr.14111.
29. Kusz, I. Bąk, B. Szczecińska, L. Wicki, and B. Kusz, "Determinants of Return-on-Equity (ROE) of Biogas Plants Operating in Poland," *Energies*, vol. 16, no. 1, p. 31, Dec. 2022, doi: 10.3390/en16010031.
30. Parzonko, A. J. Parzonko, P. Bórawski, and L. Wicki, "Return on Equity in Dairy Farms from Selected EU Countries: Assessment Based on the DuPont Model in Years 2004–2020," *Agriculture*, vol. 13, no. 7, p. 1403, Jul. 2023, doi: 10.3390/agriculture13071403.
31. S. A. Ross, R. Westerfield, J. F. Jaffe, and B. D. Jordan, *Corporate Finance*, 13th International Student ed. New York, NY, USA: McGraw-Hill, 2022.
32. Kurniatin, "The Effect of Economic Value Added, Market Value Added and Stock Price on Stock Return (Literature Review)," *Dinasti International Journal of Economics, Management and Social Science*, vol. 4, no. 5, Jun. 2023, doi: 10.31933/dijemss.v4i5.1907.

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