

CARBON EMISSION DISCLOSURE AND GREEN INVESTMENT AS DETERMINANTS OF FIRM VALUE: THE MODERATING EFFECT OF GREEN INTELLECTUAL CAPITAL

Yunita Cahya Ningrum¹⁾, Anggita Langgeng Wijaya²⁾, Moh. Ubaidillah³⁾.

¹ Faculty of Economic and Business, Universitas PGRI Madiun
email: yunita_2203101004@mhs.unipma.ac.id

² Economics and Business Faculty, Universitas PGRI Madiun
email: gonggeng14@gmail.com

³ Faculty of Economic and Business, Universitas PGRI Madiun
email: Mohubaidillah@unipma.ac.id

Abstrak

Studi ini dilakukan guna menganalisis dampak pengungkapan emisi karbon serta green investment pada nilai perusahaan, sementara green intellectual capital ditempatkan sebagai variabel moderasi dalam perusahaan sektor energi yang tercatat di Bursa Efek Indonesia selama periode 2020–2024. Studi ini menerapkan metode kuantitatif dengan pengujian regresi melalui aplikasi SPSS. Dari total populasi sebanyak 73 perusahaan, diperoleh sebanyak 28 perusahaan yang sesuai dengan kriteria penelitian ditetapkan sebagai sampel. Temuan penelitian memperlihatkan bahwa tingkat keterbukaan informasi mengenai emisi karbon menunjukkan pengaruh negatif yang signifikan terhadap nilai perusahaan, sedangkan green investment menunjukkan pengaruh positif yang signifikan. Di samping itu, green intellectual capital diketahui mampu berperan sebagai moderator dalam keterkaitan antara pengungkapan emisi karbon dengan nilai perusahaan. Akan tetapi, variabel tersebut tidak menunjukkan kemampuan moderasi pada hubungan green investment terhadap nilai perusahaan.

Kata Kunci : nilai perusahaan, pengungkapan emisi karbon, green investment, green intellectual capital.

Abstract

The research investigates how carbon emission disclosure and green investment influence firm value, while considering green intellectual capital serving as a moderator factor. This analysis covers energy sector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 observation period. A quantitative research approach design was employed, using multiple regression analysis conducted using SPSS. The study involved a population of 73 firms, of which 28 met the criteria for inclusion in the sample. The results show that carbon emission disclosure significantly reduces company value, whereas green investment is statistically significant positive effect. Green intellectual capital moderates the relationship between carbon emission disclosure and firm value, while having no moderating effect on green investment and firm value.

Kata kunci : *firm value, carbon emission disclosure, green investment, green intellectual capital*

A. INTRODUCTION

The value assigned to a firm represents how investors assess its current performance and future potential, as indicated by measures such as share prices and financial ratios (Sinaga *et al.*, 2025). Amid growing attention to sustainability issues, the energy sector it represents a major source of carbon emissions worldwide. Indonesia faces a similar challenge, as it ranks eighth among the world's largest carbon-emitting countries and fifth in Asia (Yuliandhari *et al.*, 2023). In 2023, Indonesia was recorded as contributing 18.3% of global carbon emissions (Kristhalia & Setyowati, 2025). Meanwhile, During 2022, emissions generated by the energy industry reached 34.37 billion tons of CO₂, primarily due to the sector's dependence on fossil fuels (Pangestu & Hati, 2024). Under Presidential Regulation No. 98 of 2021, Indonesia aims to cut greenhouse gas emissions by 31.89% by 2030. (Chika & Widianingsih, 2024).

In line with these targets, an increasing number of companies have begun implementing various efforts to mitigate climate change through their operational activities. One widely adopted instrument is the Carbon Disclosure Project (CDP), a global platform that measures corporate transparency in disclosing environmental performance, including climate change, water security, and forests (Salim & Prasajo, 2025). This trend is reflected in the increasing number of companies reporting their environmental performance through the CDP, from 9,617 companies in 2020 to 23,293 companies in 2023. During this period, climate change reporting increased from 9,526 to 23,202 companies, water security reporting increased from 2,934 to 4,815 companies, and forest reporting increased from 687 to 1,152 companies (CDP, 2023). In 2025, the number of reporting companies reached 22,165, a slight decrease compared with 2023. However, water security reporting increased to 9,922 companies, while forest reporting increased to 3,826 companies, with climate change remaining the dominant reporting category (CDP, 2025). This phenomenon indicates that carbon emissions disclosure transparency is

increasingly becoming a key factor investors consider when evaluating a firm's future potential and worth.

This disclosure demonstrates corporate accountability to stakeholders and can enhance investors' trust and the extent to which investors recognize the company as legitimate (Sari *et al.*, 2025). To address the issue of carbon emissions, companies implement green investment, which represents a corporate strategy to support the shift toward a low-emission economy through investments in eco-friendly technologies, renewable energy, as well as sustainable waste management (Fauziah & Siregar, 2025). The implementation of this strategy can be strengthened through green intellectual capital, an intangible resource encompassing knowledge, development, human resources, as well as organizational capabilities in managing environmental aspects to create competitive advantages and enhance firm value (Tonay & Murwaningsari, 2022). Therefore, GIC not only can directly influence company value but may also amplify carbon effects emissions reporting and green investment on company value.

Nevertheless, previous previous research has demonstrated inconsistent findings. Carbon emissions disclosure has been found to have a positive effect according to Fauziah & Siregar (2025) and Fitriana *et al.* (2024), as environmental transparency can enhance stakeholder trust and corporate legitimacy. In contrast, Hadiwibowo *et al.* (2023), as well as Puspawati *et al.* (2026) reported a negative effect, as high levels of emissions may be perceived as environmental risks and burdens. Research on green investment has also produced mixed results. Nurjannah *et al.* (2025) as well as Lisandri *et al.* (2026) revealed that green investment positively affects because it can improve corporate reputation, operational efficiency, and investor confidence. Conversely, Fauziah & Siregar (2025) and Maulana (2024) reported a negative effect, as the benefits of environmental investments may not yet be sufficient to offset the costs incurred by companies. Meanwhile, green intellectual capital (GIC) has been positively influences firm value (Maryanti *et al.*, 2025), as it can strengthen corporate image and

legitimacy. However, Astuti *et al.* (2022) revealed that GIC exhibits no significant effect, the findings suggest that green intellectual capital does not yet a key consideration for investors.

These inconsistencies suggest a research gap, particularly regarding the influence of GIC as a moderating variable. Most previous studies have positioned GIC as an independent variable, even though GIC can strengthen the efficacy of sustainability approaches to creating firm value (Pratama & Astuti, 2024). Therefore, this study investigates whether green intellectual capital moderates the associations among carbon emission disclosure, green investment, and firm value within the energy sector. This study highlights how sustainability strategies can enhance investor confidence, competitiveness, and firm value.

1. Theoretical review

a. Stakeholder Theory

According to Stakeholder Theory, as proposed by Freeman (1984), corporate responsibility extends beyond merely beyond shareholders to encompass a wider group of stakeholders, such as surrounding communities and the natural environment (Afifah *et al.*, 2021).

2. Signaling Theory

Spence (1973) explains through Signaling Theory that firms convey relevant information to outside stakeholders as a means of minimizing information asymmetry and signaling their quality and future prospects (Putri & Rosia, 2025).

3. Firm Value

Company value depends on financial performance and effective ESG management (Alfayrds & Setiawan, 2021). Firm value is assessed using Tobin's Q based on its market valuation (Mediyanti *et al.*, 2021).

4. Carbon Emissions Disclosure

Carbon emission disclosure involves reporting information related to corporate carbon emissions in annual or sustainability reports to demonstrate environmental

transparency and corporate responsibility (Kurnia *et al.*, 2021). The level of carbon emission disclosure is evaluated using a checklist based on the Carbon Disclosure Project criteria, using a dichotomous scoring approach that assigns a value of 1 to each item reported by the company, while 0 is assigned otherwise to each undisclosed item, with a total of 18 items (Alfayerds & Setiawan, 2021). The index covers five main categories: climate-related risks and opportunities, carbon emission reporting, energy use, initiatives, and expenditures of emissions reduction, and corporate responsibility for emissions and global warming (Fitriana *et al.*, 2024).

5. Green Investment

Green investment reflects a firm's sustained efforts to reduce its environmental footprint, improve operational efficiency, enhance its corporate image, build competitive strength, and ultimately increase firm value (Huang & Lei, 2021). Green investment is measured by its ratio to the company's total assets (Chen & Ma, 2021).

6. Green Intellectual Capital

At the organizational level, green intellectual capital represents a non-physical resource that integrates employees' expertise, skills, and competencies, organizational infrastructure, and stakeholder connections to encourage environmentally oriented innovation and sustainable operations (Sukirman & Dianawati, 2023). Its measurement covers three principal components: Green Human Capital, represented by five indicators; Green Structural Capital, measured through eight indicators; and Green Relational Capital, assessed using five indicators (Tonay & Murwaningsari, 2022).

2. Research Hypothesis

Drawing on the theoretical review, this study proposes the following hypotheses:

H1: Carbon emissions disclosure positively affects firm value

H2: Green investment positively affects firm value

H3: Green Intellectual Capital Moderates Carbon Disclosure's Effect on Firm Value

H4: Green Intellectual Capital Moderates Green Investment's Impact on Firm Value

B. RESEARCH METHOD

The present research employed an empirical quantitative approach drawing on secondary information retrieved obtained through the official Indonesia Stock Exchange (IDX) website. The study covered all energy-sector firms listed on the IDX, with 28 eligible companies chosen through purposive sampling based on predetermined criteria for the 2020–2024 observation period. The sample generated 140 firm-year observations across the five-year study period.

C. RESULTS AND DISCUSSION

1. Descriptive Statistics

The research data are summarized through descriptive statistical analysis by reporting the mean, minimum, maximum, and standard deviation of each variable. The descriptive results for the variables examined in this study are displayed in Table 1.

Table 1. Descriptive Statistics Results

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pengungkapan Emisi Karbon	140	0,111	0,944	0,54241	0,228642
<i>Green Investment</i>	140	0,000	0,095	0,00554	0,013020
Nilai Perusahaan	140	0,457	12,918	1,50810	1,819171
<i>Green Intellectual Capital</i>	140	0,167	0,889	0,55361	0,153207
Valid N (listwise)	140				

Source: Processed Data, 2026

2. Classical Assumption Tests

a. Normality Test

Table 2. Results of the Normality Test

N	Unstandardized Residual
Asymp . Sig. (2- tailed)	0,200 ^{c,d}

Source: Processed Data, 2026

The Kolmogorov–Smirnov test was employed to examine whether the regression errors from the regression model were follow a normal distribution Ghozali (2021). A significance level above 0,05 suggests normality. The analysis yielded an Asymp. Sig. (2-tailed) value of 0,200, thereby is above the 0,05 significance criterion, confirming indicating that the residuals follow a normal distribution.

b. Multicollinearity Test

Table 3. Results of the Multicollinearity Test

Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	Pengungkapan Emisi Karbon	0,686	1,458
	<i>Green Investment</i>	0,997	1,003
	<i>Green Intellectual Capital</i>	0,687	1,457

Source:

Processed Data, 2026

Multicollinearity is examined to detect possible associations among the predictors included within the regression framework (Ghozali, 2021). All independent variables exhibit the analysis reveals that the tolerance measures for all variables are greater than 0,10, while the corresponding VIF values remain below 10, indicating that no multicollinearity is present within the regression framework.

c. Heteroscedasticity Test

Table 4. Results of the Heteroscedasticity Test
Coefficients^a

	Model	t	Sig.
1	(Constat)	4.837	0,000
	Pengungkapan Emisi Karbon	0,050	0,960
	<i>Green Investment</i>	-0,606	0,546
	<i>Green Intellectual Capital</i>	0,854	0,395

a. Dependent Variable: ABS_RES

Source: Processed Data, 2026

According to Ghozali (2021), Heteroscedasticity can be identified through the Glejser test, where a significance level below 0,05 suggests its occurrence, whereas a value exceeding 0,05 indicates otherwise indicates that heteroscedasticity is absent. The findings showed that the significance values for carbon emission disclosure, green investment, and green intellectual capital were 0,960, 0,546, and 0,395, respectively. Since all significance values were $> 0,05$, the regression model was concluded to be do not exhibit heteroscedasticity.

d. Autocorrelation Test

Table 5. Results of the Autocorrelation Test
Model Summary^b

Model	DU	Durbin-Watson	4-DU
1	1,766	2,158	2,234

Source: Processed Data, 2026

According to Ghozali (2021), the Durbin-Watson (DW) test is applied to identify autocorrelation within the regression framework with multiple independent variables. The absence of autocorrelation is established when the obtained Durbin–Watson (DW) value

lies within the dU range and $4 - dU$, satisfying the condition $dU < DW < 4 - dU$. The test yielded a DW value of 2,158, with dU recorded at 1,766 and $4 - dU$ at 2,234. Since the DW statistic meets the condition $1,766 < 2,158 < 2,234$, the regression model shows no evidence of autocorrelation.

3. Multiple Regression Analysis Procedure

Table 6. Multiple Linear Regression Analysis Results

Coefficients ^a				
Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	0,668	0,030	
	Pengungkapan Emisi Karbon	-0,625	0,083	-0,575
	<i>Green Investment</i>	4,908	1,697	0,221

Source: Processed Data, 2026

Regression analysis involving multiple independent variables is used to assess how several independent variables are associated with a single dependent variable and to evaluate their respective effects on the outcome (Ghozali, 2021). The regression analysis involving multiple independent variables produces the following equation model: $Y = 0,668 - 0,625X_1 + 4,908X_2 + \epsilon$. The constant value of 0,668 indicates that when carbon emissions disclosure and green investment are held at zero, the estimated firm value is 0,668. The regression analysis shows a negative coefficient of $-0,625$ for carbon emissions disclosure, indicating a decline in firm value as disclosure increases. Conversely, green investment has a positive coefficient of 4,908, suggesting that higher investment is associated with greater firm value. Thus, a one-unit increase in each independent variable is expected to change firm value according to its respective coefficient, with carbon emissions disclosure producing a decrease and green investment generating an increase.

4. F-Test

Table 7. F-Test Results

ANOVA^a

Model		F	Sig.
1	Regression	31,900	0,000 ^b
	Residual		
	Total		

a. Dependent Variable: Nilai Perusahaan

Source: Processed Data, 2026

Ghozali (2021) explains that the f-test is applied to assess the overall performance within the regression framework by determining whether the predictor variables simultaneously explain changes in the outcome variable. The analysis yielded an f-statistic of 31,900 and a significance level of 0,000, which falls below the 0,05 threshold. The results obtained demonstrate that the regression model is statistically valid and suitable for analysis, with carbon emissions disclosure and green investment jointly showing a significant effect on firm value.

5. T – test

Table 8. T-Test Results

Coefficients^a

	Model	t	Sig.
1	(Constant)	22,267	0,000
	Pengungkapan Emisi Karbon	-7,530	0,000
	<i>Green Investment</i>	2,892	0,005

a.

Dependent Variable: Nilai Perusahaan

Source: Processed Data, 2026

The t-statistical the test represents performed to identify each individual contribution individual impact of each predictor regarding the outcome variable. Ghozali

(2021) states that an effect shows statistical significance when the significance value is below 0,05, whereas a value above 0,05 indicates an insignificant effect. The analysis reveals that carbon emissions disclosure negatively and significantly affects firm value, as reflected in a t-statistic of $-7,530$ and a significance level of value of 0,000. Conversely, green investment exerts a significant positive effect on firm value, as reflected by a t-statistic of $2,892$ and a significance value of 0,005. Thus, H1 is rejected, while H2 is accepted.

6. Moderated Regression Analysis Test

Table 9. Moderated Regression Analysis Results

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0,508	0,038		13,466	0,000
	Pengungkapan Emisi Karbon	-1,024	0,090	-0,942	-11,428	0,000
	Green Investment	6,003	1,842	0,270	3,259	0,002
	Green Intellectual Capital	0,244	0,167	0,128	1,461	0,147
	Pengungkapan Emisi Karbon*Green Intellectual Capital	0,675	0,134	0,525	5,044	0,000
	Green Investment*Green Intellectual Capital	-4,936	3,330	-0,129	-1,483	0,141
a. Dependent Variable: Nilai Perusahaan						

Source: Processed Data, 2026

Moderated Regression Analysis is applied to assess whether the presence of a moderator changes the association between the predictor and outcome variables. A moderating relationship is considered significant when the significance level falls below 0.05 (Ghozali, 2021). GIC has a statistically significant moderating effect on the connection between carbon emissions disclosure and firm value ($t = 5,044$; $\text{sig.} = 0,000 < 0,05$),

supporting H3 and indicating a quasi-moderating role. However, GIC does not exert a moderating influence on the relationship involving green investment and firm value ($t = -1,483$; sig. = $0,141 > 0,05$), leading to the rejection of H4 and its classification as a predictor moderator.

D. CONCLUSION

The analysis demonstrate that carbon emissions disclosure has a significant lowers company value, whereas green investment contributes positively and significantly to company value. Green intellectual capital is also found to moderate the association between carbon emissions disclosure and company value, although its the moderating influence on the association involving green investment and firm value is statistically insignificant. The results imply that inadequate carbon emissions disclosure may lead investors to perceive higher environmental costs and risks, while green investment can demonstrate a company's dedication to sustainability and consequently improve its worth. Furthermore, while green intellectual capital can support more effective environmental disclosure, its intangible nature and difficulties in measurement may constrain its the potential to improve the impact of green investment on firm value

E. RECOMMENDATIONS

Subsequent studies could broaden the sample to additional industries, including manufacturing and banking, and incorporate variables including environmental performance, CSR, green innovation, and ESG disclosure. Researchers may also examine green intellectual capital as a mediator or use alternative measurement proxies to gain broader insights into the relationships studied.

REFERENCES

- Afifah, N., Astuti, S. W. W., & Irawan, D. (2021). Pengaruh Corporate Social Responsibility (CSR) dan Reputasi Perusahaan terhadap Nilai Perusahaan. *Ekuitas: Jurnal Ekonomi dan Keuangan*, 5(3), 346–364. <https://doi.org/10.24034/j25485024.y2021.v5.i3.4644>
- Alfayerds, W. D., & Setiawan, M. A. (2021). Pengaruh Pengungkapan Emisi Karbon dan Annual Report Readability terhadap Nilai Perusahaan. *Jurnal Eksplorasi Akuntansi*, 3(2), 349–363. <https://doi.org/10.24036/jea.v3i2.363>
- Astuti, T., Ambarwati, S., & Wibowo, F. D. (2022). The Influence Of Green Intellectual Capital, Dividend Policy, Profitability Ratio and Activity Ratio on Company Value. *INQUISITIVE: International Journal of Economic*, 3(1), 55–65. <https://doi.org/10.35814/inquisitive.v3i1.4055>
- CDP. (2023). *CDP 2023 Disclosure Data Factsheet*. CDP <https://www.cdp.net/en/insights/cdp-2023-disclosure-data-factsheet>
- CDP. (2025). *Keeping Pace: Disclosure Data Factsheet 2025*. CDP Worldwide. <https://www.cdp.net/en/insights/keeping-pace-disclosure-data-factsheet-2025>
- Chen, Y., & Ma, Y. (2021). Does Green Investment Improve Energy Firm Performance?. *Energy Policy*, 153, 112252. <https://doi.org/10.1016/j.enpol.2021.112252>
- Chika, J., & Widianingsih, L. P. (2024). Board Characteristics dan Carbon Emission Disclosure: Studi Pada Perusahaan Sektor Energi dan Agrikultur di Indonesia. *Berkala Akuntansi dan Keuangan Indonesia*, 9(1), 1–17. <https://doi.org/10.20473/baki.v9i1.45808>
- Fauziah, H., & Siregar, I. W. (2025). Carbon Emission Disclosure, Green Investment, and Firm Value: The Moderating Role of Profitability. *Jurnal Akademi Akuntansi*, 8(4), 531–551. <https://doi.org/10.22219/jaa.v8i4.42754>
- Fitriana, A., Maharani, D. A., Amelia, S. R., & Pangestika, L. W. (2024). Pengungkapan Emisi Karbon Untuk Meningkatkan Nilai Perusahaan: Apakah Kinerja Keuangan Mampu Memoderasi?. *Akurasi: Jurnal Studi Akuntansi dan Keuangan*, 7(2), 407–420. <https://doi.org/10.29303/akurasi.v7i2.587>
- Ghozali, I. (2021). *Aplikasi Analisis Multivariate dengan Program IBM SPSS 26*. Semarang: Badan Penerbit Universitas Diponegoro

- Hadiwibowo, I., Limarty, D., & Azis, M. T. (2023). Pengungkapan Emisi Karbon, Penerapan Green Accounting dan Kinerja Lingkungan pada Nilai Perusahaan. *Jurnal Riset Akuntansi Mercu Buana*, 9(2), 142–152. <https://doi.org/10.26486/jramb.v9i2.3458>
- Huang, L., & Lei, Z. (2021). How Environmental Regulation Affects Corporate Green Investment: Evidence from China. *Journal of Cleaner Production*, 279, 123560. <https://doi.org/10.1016/j.jclepro.2020.123560>
- Kristhalia, P., & Setyowati, L. (2025). Pengaruh Ukuran Perusahaan, Profitabilitas, Leverage dan Kinerja Lingkungan terhadap Pengungkapan Emisi Karbon. *Permana: Jurnal Perpajakan, Manajemen, dan Akuntansi*, 17(3), 1085–1101. <https://doi.org/10.24905/permana.v17i3.1012>
- Kurnia, P., Nur, D. P. E., & Putra, A. A. (2021). Carbon Emission Disclosure and Firm Value: A Study of Manufacturing Firms in Indonesia and Australia. *International Journal of Energy Economics and Policy*, 11(2), 83–87. <https://doi.org/10.32479/ijeeep.10730>
- Lisandri, L., Syam, A. Y., Ruwanti, G., Syahdan, S. A., & Fahrianta, R. Y. (2026). Pengaruh Green Investment dan Tata Kelola terhadap Nilai Perusahaan. *Owner: Riset dan Jurnal Akuntansi*, 10(1), 854-863. <https://doi.org/10.33395/owner.v10i1.3064>
- Maryanti, E., Biduri, S., & Sari, H. M. K. (2025). Carbon Emission Disclosure, Green Intellectual Capital terhadap Kinerja. *Owner: Riset dan Jurnal Akuntansi*, 9(1), 290-302.
- Maulana, I. (2024). Intellectual Capital Memoderasi Hubungan Green Investment dan Green Strategic terhadap Nilai Perusahaan. *PESHUM: Jurnal Pendidikan, Sosial dan Humaniora*, 4(1), 1149–1163. <https://doi.org/10.56799/peshum.v4i1.7034>
- Mediyanti, S., Kadriyani, E., Sartika, F., Astuti, I. N., Eliana, E., & Wardayani, W. (2021). Tobin's Q Ratio sebagai Alat Ukur Nilai Perusahaan Bank Syariah. *JUPIIS: Jurnal Pendidikan Ilmu-Ilmu Sosial*, 13(1), 242–247. <https://doi.org/10.24114/jupiis.v13i1.24193>
- Nurjannah, S., Indriyani, R., & Sari, F. (2025). Pengaruh Green Investment, Pengungkapan Emisi Karbon, Green Innovation terhadap Nilai Perusahaan. *Permana: Jurnal Perpajakan, Manajemen, dan Akuntansi*, 17(3), 1151–1161. <https://doi.org/10.24905/permana.v17i3.1089>
- Pangestu, J. C., & Hati, D. P. (2024). Determinan Pengungkapan Emisi Karbon Perusahaan Sektor Energi di BEI Periode 2020–2022. *Jurnal Ekonomi Bisnis, Manajemen dan Akuntansi (JEBMA)*, 4(1), 321–331. <https://doi.org/10.47709/jebma.v4i1.3658>

- Puspawati, I. G. M., Dewi, N. W. Y., & Dewi, P. E. D. M. (2026). Pengaruh Green Accounting, Pengungkapan Emisi Karbon dan Struktur Modal terhadap Nilai Perusahaan. *JIMAT (Jurnal Ilmiah Mahasiswa Akuntansi) Undiksha*, 17(01), 1-15. <https://doi.org/10.23887/jimat.v17i01.109134>
- Putri, J. E., & Rosia, R. (2025). Efek Carbon Emission Disclosure dan Green Intellectual Capital terhadap Nilai Perusahaan dengan Moderasi Environmental Performance. *AKTSAR: Jurnal Akuntansi Syariah*, 8(1), 38–59. <https://doi.org/10.21043/aktsar.v8i1.32617>
- Salim, Q., & Prasajo, P. (2025). Environmental Performance Ratings, Carbon Disclosure, and Firm Value: Evidence From Indonesia. *Jurnal Dinamika Ekonomi Pembangunan*, 8(2), 115–126. <https://doi.org/10.14710/jdep.8.2.115-126>
- Sari, N. M., Indriasih, D., & Firmansyah, F. (2025). Carbon Emission Disclosure, Green Innovation, Stakeholder Pressure, ISO 14001, dan GCG terhadap Nilai Perusahaan. *Jurnal Keuangan dan Bisnis*, 23(2), 137–157. <https://doi.org/10.32524/jkb.v23i2.1545>
- Sinaga, P., Simanjuntak, A., Sagala, F., & Ginting, M. C. (2025). The Effect of Environmental, Social and Governance Disclosure on Firm Value in Energy Sector Companies Listed on The Indonesia Stock Exchange in The Period 2021–2023. *Jurnal Ilmiah Accusi*, 7(1), 113–124. <https://doi.org/10.36985/94t7h561>
- Sukirman, A. S., & Dianawati, W. (2023). Green Intellectual Capital and Financial Performance: The Moderate of Family Ownership. *Cogent Business & Management*, 10(1), Article 2200498. <https://doi.org/10.1080/23311975.2023.2200498>
- Tonay, C., & Murwaningsari, E. (2022). Pengaruh Green Innovation dan Green Intellectual Capital terhadap Nilai Perusahaan dengan Ukuran Perusahaan sebagai Moderasi. *Jurnal Bisnis dan Akuntansi*, 24(2), 283–294. <https://doi.org/10.34208/jba.v24i2.1484>
- Yuliandhari, W. S., Saraswati, R. S., & Rasid Safari, Z. M. (2023). Pengaruh Carbon Emission Disclosure, Eco-Efficiency dan Green Innovation terhadap Nilai Perusahaan. *Owner: Riset dan Jurnal Akuntansi*, 7(2), 1526–1539. <https://doi.org/10.33395/owner.v7i2.1301>