

THE EFFECT OF CARBON EMISSION DISCLOSURE, LEVERAGE, LIQUIDITY, AND PROFITABILITY ON COMPANY VALUE IN THE MINING SECTOR LISTED ON THE INDONESIAN STOCK EXCHANGE

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Abstract. This study was conducted to analyze the effect of carbon emission disclosure, leverage, liquidity, and profitability on company value. This study uses a quantitative approach with secondary data analysis from the annual reports of mining companies listed on the Indonesia Stock Exchange (IDX) during the period 2021-2023. The independent variables in this study are carbon emission disclosure, leverage, liquidity, and profitability, measured using the Carbon Emission Disclosure (CED), Debt Equity Ratio (DER), Current Ratio (CR), and Return on Assets (ROA). The dependent variable in this study is firm value, measured using the price-to-book value ratio. This study employs a quantitative approach. The results indicate a significant positive influence of profitability on firm value. Conversely, leverage shows a significant negative effect on company value. Liquidity and carbon emission disclosure do not affect company value.

Keywords: Carbon Emission Disclosure, Leverage, Liquidity, Profitability and Company Value

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Background

Companies in many industrial areas must undergo significant development in the age of globalization, which makes rivalry fierce. This encourages companies to focus more on achieving strategic objectives in order to improve competitiveness and global excellence. Shareholder welfare can be improved through the optimization of business value and performance in the capital market (Fauzi & Rasyid, 2019).

MIND ID data shows that the energy sector experienced a significant decline due to falling commodity prices at the beginning of the year. PT Bayan Resources Tbk (BYAN) led the way with a market capitalization of Rp516.667 trillion. However, on June 27, 2023, it dropped from Rp23,800 to Rp15,500. ADRO also saw a decline in its stock price by the end of June to Rp2,230, down from its previous price of Rp3,850 (Ariesta, 2023). Stock price fluctuations can reveal a company's valuation. Stock price fluctuations frequently reflect how the market views a company's potential and efficacy, which can affect investment choices.

High greenhouse gas emissions are a global warming problem caused by the negative impact of industrial operations, which will lead to climate change (Hardianti & Mulyani, 2023). Total global emissions in 2020 amounted to 1.69%, which means that Indonesia ranks among the top ten carbon emitters in the world according to data from the Global Carbon Project (Insight, 2022).

The use of debt to increase the potential return on investment is called leverage (Susilawati & Purnomo, 2023). Debt fluctuations can affect market valuation. The company's capacity to turn a profit may deteriorate if debt surpasses assets. Conversely, effective debt management for profitable projects has a positive impact and increases company profits (Sutama & Lisa, 2018).

The ability to settle debt with current assets, sell off assets that might reduce maintenance costs, and affect investor confidence in dividend payments are all signs of a company's liquidity (Nugroho & Arifin, 2022).

A financial matrix called profitability indicates how well a business manages its equity, assets, and sales (Ass, 2020). Businesses that have future financial potential attract investors. To ensure business continuity, a corporation has to be able to consistently turn a profit. Therefore, the ability to generate profits is an important aspect that needs to be considered (Chasanah, 2019).

Study Fitriana & Purwohandoko, (2022) aims to assess the relationship between the company's value and profitability, liquidity, and

leverage. Leverage dramatically raises a company's value, liquidity dramatically lowers it, and profitability has no bearing whatsoever on a company's value, the study's conclusions show. This research is the development of research Fitriana & Purwohandoko, (2022). The disclosure of carbon emissions, the year of the research sample, and the subject of the inquiry are distinct aspects that set this study apart from the others. Using IBM SPSS Statistics version 25, researchers examined a sample of mining firms that were listed on the IDX between 2021-2023.

Review Literatur

Theoretical Studies

Signalling Theory

Signaling theory according to Spence is to explain that the management of a company that is in good condition will use financial statements to inform the market or external parties about promising future prospects (Soly & Wijaya, 2017).

Legitimacy Theory

Legitimacy theory, according to Deegan, is a hypothesis that is frequently applied to explain why corporations disclose social and environmental information. By disclosing information in accordance with accepted social norms, values, and expectations, an organization seeks legitimacy or approval from society, according to this notion (Almuaromah & Wahyono, 2022).

As environmental concerns get more attention from investors, businesses may show that their management is capable by disclosing carbon emissions, which can raise the company's worth (Gunawan & Berliyanda, 2024). Legitimacy theory states that people's concern for the environment creates new expectations for companies, so it is necessary to integrate environmental and social issues to gain legitimacy and increase company value. According to study by Yuliandhari et al., (2023) and Kurnia et al., (2021), the explanation supports the idea that a company's value is impacted by its disclosure of carbon emissions. Thus, the following is the hypothesis put forth

H1: Carbon emission disclosure has a significant effect on the value of the company

Based on research findings Sutama & Lisa, (2018) companies need to improve operations easily, one of which is by using debt as financing, which makes the process easier. Signal theory states

that management reflects their assessment of the company's opportunities. Companies with positive projections tend to choose debt to improve capital structure rather than sell shares. The explanation is in accordance with Fitriana & Purwohandoko, (2022) dan Rutin et al., (2019) which states leverage affects the value of the company. Therefore, the hypothesis offered is:

H2: Leverage significantly affects the value of the company

The capacity of a business entity to meet its immediate needs with its current assets is known as liquidity. According to signal theory, a business with a lot of liquidity is often regarded as having good financial standing, which increases market trust (Chasanah, 2019). The explanation is in accordance with research Mahardikari, (2021) dan Angeline & Tjohyiono, (2020) which asserts that the company's value is impacted by liquidity. Therefore, the hypothesis offered is:

H3: Liquidity significantly affects the value of the company

Investors feel comfortable making investments in a company because they think it will be profitable and provide large returns. The signal theory states that a company's high profitability may be seen as a predictor of its performance and prospects in the future. That idea is consistent with this premise. The explanation is in accordance with research Rutin et al., (2019) dan Osesoga & Maria, (2023) The impact of profitability on the company's worth. Therefore, the hypothesis offered is:

H4: Profitability significantly affect the value of the company

Research Method

This research uses secondary data by collecting company annual reports from 2021 to 2023 on 52 mining companies listed on the IDX. Purposive sampling, which selects samples according to predetermined standards established by the researcher, is the method used in this study. During the three years of observation, 90 study data were collected from just 30 organizations that satisfied the

In this study, the value of the firm is the dependent variable, whereas leverage, profitability, liquidity, and disclosure of carbon emissions are all independent factors. The definition of operational variables is as follows:

Table 1
Definition Of Operational Variables

Variabel	Indicators
CED	<u>Number of items disclosed</u> Total disclosure items
DER	<u>Total Debt</u> Total Ekuity
CR	<u>Current Assets</u> Short-Term Liabilities
ROA	<u>Net Profit</u> Total Assets
PBV	<u>Market price per share</u> Book value per share

Results and Discussion

For the variables in the research, Table 2 offers descriptive statistics that provide light on the characteristics of the data.

Table 2

Descriptive Analysis

	N	Min	Max	Mean	Std. Dev
CED	90	0.22	0.72	0.58	0.10
DER	90	0.00	10.7	1.22	1.87
CR	90	0.27	5.65	1.93	1.07
ROA	90	-25.9	121.4	15.1	19.8
PBV	90	0.38	12.8	2.20	2.32

In the initial stage, classical assumptions were tested, including normality, multicollinearity, heteroscedasticity, and autocorrelation, to ensure data validity before further analysis.

Table 3

Normality Test

	Unstandar dized Residual	Unstandar dized Residual	Unstandar dized Residual
Asymp. (2- tailed)	0.078	0.078	0.078

According to Table 3, the residual value is more than 0.05, indicating that the model contributes properly, and the Asymp. Sig value is 0.078.

Table 4
Multicollinearity Test
Collinearity Statistics

Model	Tolerance	VIF
CED	0.91	1.09
DER	0.68	1.45
CR	0.71	1.40
ROA	0.95	1.04

Each variable's regression model is explained in Table 4, which demonstrates that the tolerance value is greater than 0.10 and the VIF value is less than 10. These numbers show that multicollinearity is not present in the regression model in use.

Table 5
Heteroscedasticity Test

model	Standardized Coefficients Beta	sig.
(Constant)		0.286
CED	-0.007	0.957
DER	-0.206	0.156
CR	0.234	0.102
ROA	-0.068	0.575

Given that each regression model's sig value is greater than 0.05 by the Breusch-Pagan test for heteroscedasticity, Table 5 shows that there is no evidence of heteroscedasticity.

Table 6
Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.533	0.284	0.237	0.85026	1.287

Since the Durbin-Watson values in Table 6's regression analysis vary from -2 to +2, autocorrelation is not present (Santoso, 2019).

Next is hypothesis testing conducted statistically using partial samples.

Table 7
Hypothesis Test

Model	B	Std. Error	Beta	t	Sig.
(Constant)	3.112	0.933		3.337	0.001
CED	-2.427	1.304	-0.211	-1.861	0.068
DER	-0.777	0.305	-0.333	-2.545	0.013
CR	0.064	0.155	0.053	0.414	0.681
ROA	0.022	0.007	0.325	2.933	0.005

The carbon emission disclosure variable, as can be seen, has a t value of -1.861 and a sig value of 0.068, which means that the two do not correlate. The t value of -2.546 and the sig value of 0.013 show that leverage significantly reduces the value of the firm. With a t value of 0.414 and a sig value of 0.681, it is evident that liquidity has no bearing on the firm's worth. As demonstrated by its t value of 2.933 and sig value of 0.005, the profitability variable positively affects company value.

Test findings on how disclosure of carbon emissions affects Company Value

The first hypothesis examines how disclosure of carbon emissions may affect company value as determined by CED. Based on the results of the hypothesis test, which indicate a sig value of $0.068 > 0.05$, hypothesis 1 is rejected since there is no discernible relationship between carbon emission disclosure and business valuation. The degree of disclosure is still rather low in Indonesia as businesses still choose whether or not to disclose their carbon emissions. In addition, companies, especially in the mining sector, currently use conventional energy sources such as coal and petroleum, which generate higher carbon emissions during the production process. This situation puts companies under greater pressure to disclose their carbon emissions, as the process is quite costly. Examining Publishing carbon footprints has little influence on a company's worth, according to Rizki & Taufiq, (2016) This is because investors frequently prioritize financial information or considerations, even if disclosure of carbon emissions is viewed as a non-financial aspect. Furthermore, the government continues to lack clear oversight and control of businesses involved in emissions generation. This justifies the conclusion that investors' perceptions of a company's value are

not significantly impacted by disclosure of carbon emissions. The study's findings are consistent with those of studies by Gunawan & Berliyanda, (2024) ; Pangestu et al., (2025) dan Banjari, (2023).

Test findings on how leverage affects Company Value

The second hypothesis looks into how leverage could affect DER's assessment of business value. The results of the hypothesis test showed a t value of -2.546 and a sig value of $0.013 < 0.05$. The second hypothesis is accepted as it can be shown that leverage considerably lowers the firm's worth. One technique that investors use to assess a company's success is leverage. For investors, a firm that uses a lot of leverage is also utilizing a lot of debt, which might be a red flag (Markonah et al., 2020). Bad signals received by investors will cause them to hesitate to invest their capital. High leverage levels indicate high debt and interest payments for companies, which means that they are unable to pay their obligations, which can affect a company's value. Excessive reliance on debt financing will also increase financial risk, which may ultimately reduce profitability. This logic implies that leverage drastically lowers a company's worth. The investigation's findings are consistent with other studies by Alfiah & Hermanto, (2024) & Al-Slehat, (2019), which discusses the detrimental impact and importance of leverage on a firm's worth

Test findings on how liquidity affect Company Value

The third hypothesis looks at the relationship between liquidity and corporate value as determined by DER. Since there is no visible relationship between liquidity and company value, hypothesis 3 is rejected, according to the results of the hypothesis test (sig value of $0.681 > 0.05$). A high liquidity ratio can be interpreted as an indication of unused funds within the company, which may indicate potential for further investment. On the other hand, a low liquidity ratio may reflect difficulties in the liquidation process, which could be a warning sign for certain parties (Nashar et al., 2022). However, many investors aren't very concerned about a company's liquidity ratio. The reason for this is because investors are most concerned about the company's capacity to provide steady, long-term earnings. Furthermore, because liquidity ratios are more closely linked to the company's internal state in fulfilling short-term commitments than they are to indicating more substantial long-term development and profitability prospects, they are sometimes viewed as less appealing to investors (Komala et al., 2023).

According to this theory, liquidity has no bearing on the company's worth. The results of the study are in line with other research that found no relationship between liquidity and firm value Gultom & Anggraeni, (2024) ; Willyanto & Setyawan, (2022)

Test findings on how profitability affects Company Value

The fourth hypothesis examines the relationship between a company's profitability, ROA, and value. The findings of the hypothesis test show a T value of 2.993 and a sig value of $0.005 < 0.05$. Since it is evident that profitability significantly increases the firm's worth, Hypothesis 4 is approved. In essence, a company's profitability is determined by how successfully it uses its resources to generate net income from all sales operations. Furthermore, profitability evaluates how well the management of the business can minimize expenses and optimize income while conducting day-to-day operations. This can increase valuation and strengthen its appeal to potential investors. These results also align with signal theory, which maintains that successful companies tend to have bright prospects, which entices many investors to buy shares (Osesoga & Maria, 2023). This hypothesis suggests that profitability significantly raises the value of a firm. The results of this inquiry align with research conducted by Akmalia & Aliyah, (2022) dan Osesoga & Maria, (2023) which states that profitability has a significant positive effect on company value.

CONCLUSION AND RECOMMENDATIONS

Conclusion

As the aforementioned numbers and discussion make evident, ROA metrics show that profitability dramatically raises a company's value. Additionally, DER measurements show a large detrimental impact from the leverage component. Meanwhile, neither the carbon emission disclosure variable (as evaluated by CED) nor the liquidity variable (as measured by CR) had an impact on the business value. One of the study's shortcomings is that it only examined mining companies that were listed on the Indonesia Stock Exchange (IDX) between 2021-2023. Therefore, it is not possible to extrapolate the results of this study to all industries or publicly traded corporations. Second, not all factors that might influence a company's worth are taken into account in this study. Due to the relatively low Adjusted R2 value of (23,7%).

Recomendations

The results of the study that has been done allow for the formulation of a number of suggestions. First, since profitability as determined by Return On Assets (ROA) significantly increases firm value, prospective investors are encouraged to give this metric top priority. Second, to increase the representativeness of the research findings, further research is advised to lengthen the study time and include a wider variety of businesses. Furthermore, the researchers propose the inclusion of independent variables that might impact the value of the firm.

References

- Akmalia, A., & Aliyah, S. A. (2022). The Role of Financial Performance in Mediating The Effect of Institutional Ownership, Company Size and Sales Growth on Firm Value. *Jurnal Manajemen Bisnis*, 9(2), 274–288.
- Al-Slehat, Z. A. F. (2019). Impact of Financial Leverage, Size and Assets Structure on Firm Value: Evidence from Industrial Sector, Jordan. *International Business Research*, 13(1), 109. <https://doi.org/10.5539/ibr.v13n1p109>
- Alfiah, S., & Hermanto, H. (2024). Pengaruh Current Ratio, Leverage, Profitability, Inventory Turnover, Cash Flow Dan Total Assets Terhadap Nilai Perusahaan. *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA)*, 8(1), 79–106. <https://doi.org/10.31955/mea.v8i1.3628>
- Almuaromah, D. A., & Wahyono. (2022). Pengaruh Kinerja Lingkungan, Kepemilikan Institusional, Kepemilikan Manajerial, Profitabilitas dan leverage. *Jurnal Ekonomi Dan Bisnis*, 10(10), 578–586.
- Angeline, Y. R., & Tjohyono, R. (2020). Tata Kelola Perusahaan Dan Rasio Keuangan Terhadap Nilai Perusahaan Manufaktur. *Jurnal Bisnis Dan Akuntansi*, 22(2), 305–312. <https://doi.org/10.34208/jba.v22i2.473>
- Ariesta, A. (2023). *Enam Indeks Sektoral Saham dengan Kinerja Terburuk di 2023*. <https://www.idxchannel.com/market-news/enam-indeks-sektoral-saham-dengan-kinerja-terburuk-di-2023>
- Ass, S. B. (2020). Analisis Rasio Profitabilitas Dan Solvabilitas Pada PT. Mayora Indah Tbk. *Jurnal Brand*, 2(2020), 195–206. <https://ejournals.umma.ac.id/index.php/brand>
- Banjari, N. (2023). Pengaruh Green Accounting Dan Carbon Emission Disclosure terhadap Nilai Perusahaan Melalui Maqashid Syariah. *Jurnal Riset Akuntansi Politala*, 6(2), 386–403. <http://jra.politala.ac.id/index.php/JRA/index>
- Chasanah, A. N. (2019). Pengaruh Rasio Likuiditas, Profitabilitas, Struktur Modal Dan Ukuran Perusahaan Terhadap Nilai Perusahaan Pada Perusahaan Manufaktur Yang Terdaftar Di Bei Tahun 2015-2017. *Jurnal Penelitian Ekonomi Dan Bisnis*, 3(1), 39–47. <https://doi.org/10.33633/jpeb.v3i1.2287>
- Fauzi, A. R., & Rasyid, R. (2019). Pengaruh Ukuran Perusahaan, Struktur Modal, Likuiditas dan Profitabilitas terhadap Nilai Perusahaan (Studi Pada Perusahaan Telekomunikasi yang Terdaftar Di Bursa Efek Indonesia Periode Tahun 2010-2017). *Jurnal Kajian Manajemen Dan Wirausaha*, 01(02), 2655–6499.
- Fitriana, N. L., & Purwohandoko, P. (2022). Pengaruh Leverage, Likuiditas dan Profitabilitas terhadap Nilai Perusahaan pada Airlines Company Listed IDX 2011-2020. *Jurnal Ilmu Manajemen*, 10(1), 39–50. <https://doi.org/10.26740/jim.v10n1.p39-50>
- Gultom, C. L., & Anggraeni, D. (2024). *Pengaruh Current Ratio , Deb to Equity Ratio , Profitability dan Total Assets Turnover terhadap Nilai Perusahaan (Studi Empiris pada Perusahaan Sub Sektor Farmasi yang Terdaftar di Bursa Efek Indonesia Tahun 2019-2023) Dalam Bursa Efek Indonesia industri*. 2(4).
- Gunawan, B., & Berliyanda, K. L. (2024). Pengaruh Green Accounting, Pengungkapan Emisi Karbon, dan Kinerja Lingkungan Terhadap Nilai Perusahaan. *Reviu Akuntansi Dan Bisnis Indonesia*, 8(1), 33–50. <https://doi.org/10.18196/rabin.v8i1.22027>
- Hardianti, T., & Mulyani, S. (2023). Pengaruh Carbon Emission Disclosure dan Ukuran Perusahaan Terhadap Nilai Perusahaan dengan Kinerja Lingkungan sebagai Variabel Moderasi. *Jurnal Ilmiah Wahana Pendidikan*, 9(9), 275–291. <https://doi.org/10.5281/zenodo.7951766>
- Insight, K. (2022). *INDONESIA CARBON TRADING*.
- Komala, P. S., Endiana, I. D. M., Kumalasari, P. D., & Rahindayati, N. M. (2023). Pengaruh Profitabilitas Likuiditas Keputusan Investasi

- Dan Keputusan Pendanaan Terhadap Nilai Perusahaan. *Jurnal Ekonomi Trisakti*, 3(1), 1871–1880.
<https://doi.org/10.25105/jet.v3i1.16445>
- 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*. 11(2), 83–87.
- Mahardikari, A. K. W. (2021). Pengaruh profitability, liquidity, leverage, dividend policy, firm size, dan firm growth terhadap nilai perusahaan. *Jurnal Ilmu Manajemen Volume 9 Nomor 2 Jurusan Manajemen Fakultas Ekonomika dan Bisnis Universitas Negeri Surabaya*. *Jurnal Ilmu Manajemen*, 9(2), 399–411.
<https://journal.unesa.ac.id/index.php/jim/article/download/12731/pdf/45163>
- Markonah, M., Salim, A., & Franciska, J. (2020). Effect of Profitability, Leverage, and Liquidity To the Firm Value. *Dinasti International Journal of Economics, Finance & Accounting*, 1(1), 83–94.
<https://doi.org/10.38035/dijefa.v1i1.225>
- Nashar, M., Tartilla, N., & Wahyuni Rossa Putri, W. (2022). Pengaruh Tax Planning, Profitabilitas, Dan Likuiditas Terhadap Nilai Perusahaan Dengan Bod Diversity Sebagai Variabel Moderasi. *Solusi*, 20(3), 290.
<https://doi.org/10.26623/slsi.v20i3.5062>
- Nugroho, C., & Arifin, A. (2022). Perusahaan dengan Kualitas Laba sebagai Variabel Moderating (Studi Kasus pada Perusahaan Manufaktur Sektor Makanan dan Minuman yang terdaftar di Bursa Efek Indonesia Periode 2019-2021). *Jurnal Ekonomi Dan Bisnis*, 11(2), 32–41.
- Osesoga, S., & Maria, F. (2023). Firm Value Analysis in Indonesia Manufacturing Companies. *Ultima Accounting Jurnal Ilmu Akuntansi*, 15(1), 62–74.
<https://ejournals.umn.ac.id/index.php/Akuna/article/view/3112/1395>
- Pangestu, A. D., Ekonomi, F., Islam, U., Maulana, N., Ibrahim, M., & Author, C. (2025). *Carbon Emission Disclosure , Corporate Social Responsibility , Green Accounting : Firm Value Moderated by Profitability*. 9(April), 1175–1186.
- Rizki, D., & Taufiq, E. (2016). *PENGARUH BIAYA LINGKUNGAN, UKURAN PERUSAHAAN DANPENGUNGKAPAN EMISI GAS RUMAH KACA (GRK) PADA NILAIPERUSAHAAN*. 1(2018), 1–23.
- Rutin, Triyonowati, & Djawoto. (2019). Pengaruh Kinerja Keuangan Perusahaan Terhadap Nilai Perusahaan Dengan Kebijakan Deviden Sebagai Variabel Variabel Pemoderasi. *Prosiding FRIMA (Festival Riset Ilmiah Manajemen Dan Akuntansi)*, 6(2), 27–37.
<https://doi.org/10.55916/frima.v0i2.14>
- Santoso, S. (2019). *Mahir Statistik Parametik*.
<https://library.bpk.go.id/koleksi/detil/jkpkbpkpp-e-8iaSJlb9ow>
- Soly, N., & Wijaya, N. (2017). Faktor-Faktor Yang Mempengaruhi Kualitas Laba Pada Perusahaan Manufaktur. *Jurnal Bisnis Dan Akuntansi*, 19(2), 209–218.
<https://doi.org/10.34208/jba.v19i2.273>
- Susilawati, E., & Purnomo, A. K. (2023). Pengaruh Leverage dan Pertumbuhan Perusahaan Terhadap Profitabilitas. *Owner*, 7(2), 955–964.
<https://doi.org/10.33395/owner.v7i2.1417>
- Sutama, D. R., & Lisa, E. (2018). Pengaruh Leverage dan Profitabilitas terhadap Nilai Perusahaan (Studi pada Perusahaan Sektor Manufaktur Food and Beverage yang terdaftar di Bursa Efek Indonesia). *Sains Manajemen Dan Akuntansi*, 10(2), 65–85.
- Willyanto, V. F., & Setyawan, I. R. (2022). Pengaruh Liquidity, Profitability, dan Dividend Policy terhadap Firm Value. *Jurnal Manajerial Dan Kewirausahaan*, 4(3), 597–606. <https://doi.org/10.24912/jmk.v4i3.19675>
- Yuliandhari, W. S., Saraswati, R. S., & Rasid Safari, Z. M. (2023). Pengaruh Carbon Emission Disclosure, Eco-Efficiency dan Green Innovation Terhadap Nilai Perusahaan. *Owner*, 7(2), 1526–1539.
<https://doi.org/10.33395/owner.v7i2.1301>