

The Availability of Financial Resources Measured with Financial Slack for Exposing Carbon Emissions

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Abstract

Climate change affected by carbon emission which results from industry of each countries currently be concern around the world because it could be threatening continuity life on earth. Many corporates are not exposed carbon emissions because need a lot of cost. Financial slack is the condition of adequate financial corporate so that could fund activity out of their obligatory. This research purposed to know financial slack effect to expose carbon emissions. The sample of this research is 24 coal corporates already listed in Indonesia Stock Exchange year of 2021-2023 so that total of observation is 72 observation. Analytical technique used on this research with Linear Regression Test. The research showing that financial slack gives positive influence to expose carbon emission on coal corporate which listed in Indonesia Stock Exchange. Thus, higher ratio of financial slack on corporate will enhance exposing carbon emissions. Higher financial slack will encourage corporate to act exposing carbon emissions because corporate has enough financial resources to fund activity out of obligatory as a responsibility the utilization of principal fund.

Keywords: Exposing Carbon Emissions, Financial Slack, Profitability, and Leverage.

INTRODUCTION

Climate change affected by carbon emissions which result from industry on each countries currently be concern around the world because it could be threatening continuity life on earth (Pusparini et al., 2023). Carbon emissions is the release of gases which contain carbon to earth atmosphere layer affected by firing process from human activities or industry such as energy, raw materials, and utility (Wirawan & Setijaningsih, 2022). Data of World Resources Institute is showing Indonesia from year of 2019 until 2022 being big 10 country would become the world largest producer of carbon emission as below:

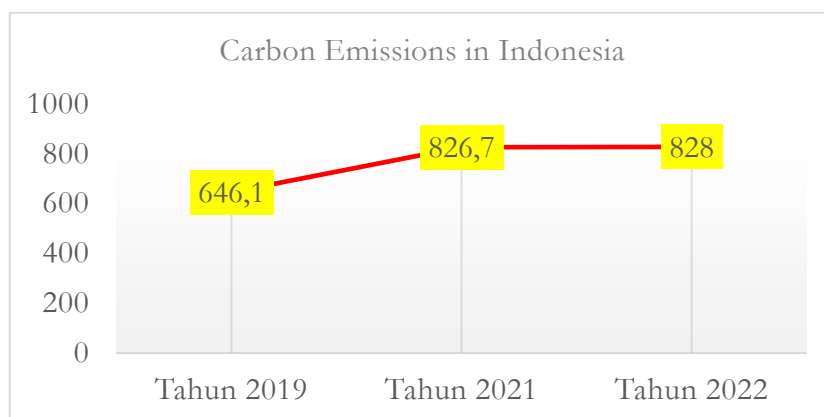


Figure 1. Numbers of Carbon Emissions in Indonesia

Source: *World Resources Institute* (2024)

According figure 1 showing that number of carbon emissions which produce in Indonesia every year has been increasing from year of 2019 as 646 equivalent ton become on year 2022 as 828

equivalent ton so that this thing put Indonesia at rank 8 would become the world largest producer of carbon emission and would become rank 1 in ASEAN. Energy sector would become focused the government with downstreaming program as one of the big carbon emissions producer in Indonesia, then from data of Asosiasi Produsen Biofuel Indonesia (Aprobi) year of 2024 showing sub sector energy of coals become the big carbon emissions producer are 41%. The coal sector has become the largest energy sector contributing to carbon emissions due to an increase in coal production in recent years. Data from the Ministry of Energy and Mineral Resources (ESDM) indicates that domestic coal production in 2023 reached 775.2 million tons, or 113% above last year's production of 687 million tons.

To response that phenomenon the government issued rule such UU number 7 year of 2021 which affirm that corporate must to reduce and expose carbon emissions produced as effort of steps to reduce carbon emissions. The research by Sekarini & Setiadi (2022) describe that many corporates has not exposed carbon emissions because need a lot of costs so as burdening the corporate. Exposing carbon emissions not burdening if corporate has been financial slacking. The financial slack showing availability of financial resources has enough so that can be using to out of operational corporate (Allam & Diyanty, 2020). Resource Based View Theory describe that corporate has financial resources advantage would act expose carbon emissions as competitive advantage of corporate with competitor (Kusumawardhani et al., 2023).

Research by Pahlevi et al., (2019) showing different result are financial slack has not influenced to expose carbon emissions. Based on Legitimacy Theory has resources advantage or corporate does not has resources advantage would be exposing carbon emissions because as normative that corporate would act expose carbon emission for gaining and keep legitimacy among stakeholder (Liu et al., 2023). According previous describe so this research has purpose to know influence of financial slack regarding expose carbon emissions.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Literature Review

Resource Based View Theory

Resource Based View Theory is describing corporate way or management strategic used resources advantage to enhance compete advantage (Wernerfelt, 1984; Dasuki, 2021; Haque, 2023) . Corporate has resources advantage tend to act activity would increase corporate competitive advantage with competitor (Bazhair et al., 2022; Khatib et al., 2023; Kusumawardhani et al., 2023).

Legitimacy Theory

Legitimacy Theory is describing corporate process to get and keep or even improve legitimacy with stakeholder (Dowling & Pfeffer, 1975; Sugeng, 2020; Rahmawati et al., 2024). Corporate has resources advantage or corporate does not has resources advantage tend to act as normatively for gaining and keep legitimacy on stakeholder perspective (Lau et al., 2023; Liu et al., 2023; Sun et al., 2024).

Exposing Carbon Emissions

Carbon emissions is releasing gases which contain carbon to earth atmosphere layer affected by firing process to carbon compounds (Maulidiavitasari & Yanthi, 2021). Exposing carbon emissions is part of additional report with purpose to reduce number of emissions already produced (Syahdanti & Marietza, 2024).

Financial Slack

Financial slack is corporate condition has been financial resources advantaging by own corporate out of short obligatory (Jermias & Yigit, 2023) . Financial slack showing fund advantage own by corporate could be using to operations out of corporate obligatory (Allam & Diyanty, 2019).

Hypothesis Development

Sekarini & Setiadi (2022) describing many corporates has not exposed carbon emissions because assume need a lot of costs and assume be corporate burdening. Exposing carbon emissions assume

be corporate burdening if corporate just limit financial resources, this thing different if corporate has been financial slacking. Corporate has been financial slacking has availability of financial slack over their needed, then the fund could be using to financing of corporate (Allam & Diyanty, 2020). Higher of financial slack by corporate own would be higher probability corporate would be exposing carbon emissions because more financial resources. Resource Based View Theory describing that corporate with adequate resources including financial resources would tend act exposing carbon emissions as competitive advantage. From that describing then it could be known higher financial slack level of corporate would be enhancing to expose carbon emissions of the corporates. Previous statement in line with the research (Vitale et al., 2023; Cavalcante dos Santos et al., 2024; Abd Rahman et al., 2024; Ansari et al., 2024) has expressed financial slack already positive influence to expose carbon emissions. From previous theory and empiric get the conclusion of hypothesis:

H1: Financial slack already positive influence to expose carbon emissions.

METHODS

Population on this research is using all coals corporate energy of sub sector already listed in Indonesia Stock Exchange are 51 corporates year of 2021-2023. From that population, the researcher is using sampling purposive technique with criteria as below:

1. Corporate which published annual year start from 2021 until 2023.
2. Corporate has data of research especially data regarding with exposing carbon emission indicator.

From previous sample technique for taking so that got sample on this research totally 24 corporates during 2021-2023 so that number of observations is 72 observation. Variable measurement within research is using formula as below:

1. Exposing Carbon Emissions.

Exposing Carbon Emissions measured with formula according to (Wirawan & Setijaningsih, 2022; Syahdanti & Marietza, 2024; Ezekiel et al., 2024) as below:

$$\text{Exposing Carbon Emissions} = \frac{\text{Number of items exposed}}{\text{Number all of items}}$$

2. Financial Slack

Financial slack measured by formula according to (Allam & Diyanti, 2019; Jermias & Yigit, 2023; Ahmar et al., 2024) as below:

$$\text{Financial Slack} = \frac{\text{Cash} + \text{equal to cash}}{\text{Current liabilities}}$$

3. Return on Asset

Return on asset measured by formula according to (Desai, 2022; Lehenchuk et al., 2023; El Abiad et al., 2024) as below:

$$\text{Return on Asset} = \frac{\text{Net income}}{\text{Asset}}$$

4. Leverage

Leverage measured by formula according to (Sixpence et al., 2019; Desai, 2022; Amoa-Gyarteng & Dhliwayo, 2022) as below:

$$\text{Debt to Equity Ratio} = \frac{\text{Debt}}{\text{Equity}}$$

According previous describing and operational definition, then could be creating conceptual flowchart within this research as below:

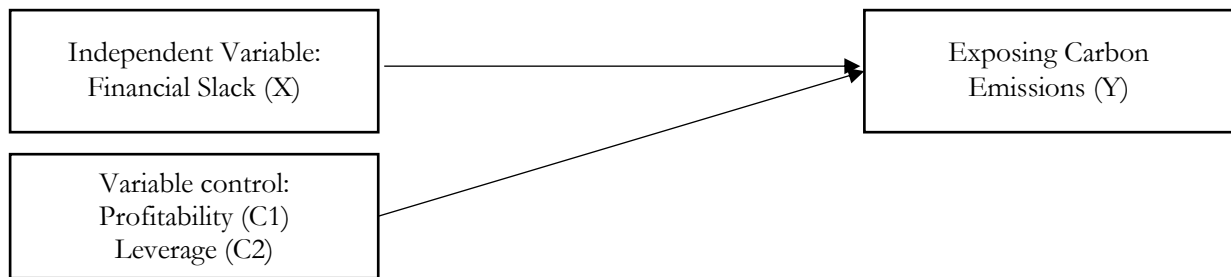


Figure 2. Conceptual Flowchart

RESULT AND DISCUSSION

RESULT

Descriptive Test

Descriptive Test purposed to describe minimum value, maximum, average, and deviation standard variable within research as below:

Table 1. Descriptive Test

	N	Minimum	Maximum	Mean	Std. Deviation
Exposing carbon emission	72	.00	0.83	.4004	.2900
Financial slack	72	.003	11.89	1.197	2.006
Profitability	72	-354.00	61.76	9.280	46.07
Leverage	72	-198.50	1079.10	1.481	196.2

According previous table 1, result of Descriptive Test show that exposing carbon emissions has minimum value is 0.00, maximum value is 0.83, average value is 0.4004, and deviation standard value is 0.2900. Financial slack has minimum value is 0.003, maximum values is 11.89, average value is 1.197, dan deviation standard value is 2.006. Profitability has minimum value is -354.00, maximum values is 61.76, average value is 9.280, and deviation standard value is 46.07. Leverage values has minimum value is -198.50, maximum value is 1079.10, average value is 1.481, and deviation standard value is 196.2.

Classic Assumption Test

Classic Assumption Testing purposed to ensure research model is avoiding from error or bayes (Ghozali, 2021). Classic Assumption Test within this research consist of Normality Testing, Multicollinearity Testing, Heteroscedasticity Testing, and Autocorrelation Testing. Normality Testing within this research is using tool of One Sample Kolmogorov Smirnov. Result of Normality Testing showing Asymp. Sig 0.200 > 0.05 (alpha) then from that result getting conclusion data of residual distribute normally. Multicollinearity Testing ensure within this research is using tolerance value > 0.10 and VIF < 10 then from that result getting conclusion does not happen correlate between independent variable. Heteroscedasticity Testing purposed to ensure variance data. Heteroscedasticity Testing within this research is using Glejser Testing tool. Result of Heteroscedasticity Testing showing significant value > 0.05 (alpha) then from that result getting conclusion does not happen heteroscedasticity. Autocorrelation Testing purposed to ensure mistaken on previous year before repeating the mistake on next year. Autocorrelation Testing within this research is using Durbin value. Autocorrelation Testing showing Du value is 1.709, Dw is 1.880, and 4-Du is 2.291 as equal with equal $Du < Dw < 4-Du$ so that from that result getting conclusion does not Autocorrelation.

Hypothesis Testing

Hypothesis Testing within in this research purposed to know independent variable ability to describe dependent and also know independent variable influence to dependent as simultaneously and partially.

Hypothesis Testing within this research consist of Coefficient Determinations Testing, Simultaneous F Testing, and Partial T Testing as below:

Coefficient Determinations Testing to describe independent variable ability within brief dependent. Coefficient Determinations Testing within this research using Adjusted R Square values as below:

Table 2. Coefficient Determinations Testing

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.598 ^a	.357	.324	.23861

Based on table 2 previously result of Coefficient Determinations Testing showing Adjusted R Square value is 0.324 so that financial slack ability, profitability, and leverage within describing expose carbon emissions is 32,4% and 67,6% left brief by another variables.

F Testing (properly model testing) purposed to know financial slack influence, profitability, and leverage as simultaneously to expose carbon emissions. Here result of Simultaneous F Testing:

Table 3. F Testing (properly model testing)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.805	3	.602	10.565	.000 ^b
	Residual	3.245	57	.057		
	Total	5.050	60			

According to table 3 result of F Testing (properly model testing) showing F value significantly is $0.000 < 0,05$ which means overall models already good to be basic or decision or forecast. Partial T Testing purposed to know financial slack influence, profitability, and leverage as partially for exposing carbon emissions. Here result of Partial T Testing.

Table 4. Partial T Testing

	Coefficient	Significant	Alpha	Describing
Financial slack	.004	.006	0.05	Hypothesis accepted
Profitability	.093	.000	0.05	Hypothesis accepted
Leverage	-.035	.017	0.05	Hypothesis accepted

According to table 4 result of Partial T Testing showing partial financial slack, profitability, leverage to expose carbon emissions as below:

1. Financial slack variable has coefficient value is 0.004 and significant value is $0.006 < 0.05$ which means financial slack has positive influence for exposing carbon emissions.
2. Profitability variable has coefficient value is 0.093 and significant value is $0.000 < 0.05$ which means profitability has been controlling financial slack influence for exposing carbon emissions.
3. Leverage variable has coefficient value is -0.035 and significant value is $0.017 < 0.05$ which means leverage has been controlling financial slack influence for exposing carbon emissions.

DISCUSSION

Result of Hypothesis Testing showing financial slack has positive influence for exposing carbon emissions. Higher the financial slack would be enhancing expose carbon emissions to corporate. High financial showing that corporate has adequate financial resources to act activity out of their obligatory. Adequate financial resources have been encouraging corporate to expose carbon emissions as voluntary as competitive advantage with competitors. Corporate strategic is using financial resources to get competitive advantage as Resource Based View Theory.

Currently resources advantage happened on coals corporate energy sector because according on Ministry of Energy and Mineral Resources showing domestic coals production year of 2023 achieved 775,2millions ton or 113% over last year production achieved 687millions ton. Result of production has been enhancing makes coals corporate sector has adequate financial resources. An increase in production can indicate the advantages of financial resources if efficient financial management is

applied. Efficient financial management consists of several stages, such as thorough planning, cost efficiency, and good capital management. The advantages of financial resources through efficient financial management can provide financial stability, enabling companies to strengthen their competitive position by disclosing carbon emissions.

From the previous explanation, it can be concluded that adequate financial resources encourage coal sector companies to engage in activities beyond their obligations, such as disclosing carbon emissions. That statement is in line with the research (Vitale et al., 2023; Cavalcante dos Santos et al., 2024; Abd Rahman et al., 2024; Ansari et al., 2024) which express that financial slack has positive influence for exposing carbon emissions.

CONCLUSION

According to the result of research showed financial slack has a positive influence for exposing carbon emissions on coal corporates already listed in Indonesia Stock Exchange so that higher financial slack ratio of corporates would be enhancing exposing carbon emissions. Higher financial slack would encourage corporates act for exposing carbon emissions because it has adequate financial resources for funding activity out of their obligatory as their responsibility utilization of principal fund, this thing happened coal corporates showing production on year of 2023 has been increasing so that exposing carbon emissions also increased. Independent variable ability brief dependent just 32,4% is lacking of research because there another independent variable outside research that brief exposing carbon emissions is 67,6%. Advice for next research hope to get additional moderation variable because utilization of adequate financial resources for exposing carbon emissions under audit committee supervision and commissioner that had financial understanding.

REFERENCES

- Abd Rahman, N. R., Mustapa, S. I., Jaaffar, A. H., Othman, N. S., Mohamad, M., & Atif, M. (2024). Unveiling the influence of financial slack on carbon performance: insights from firms in Malaysia's smart cities. *IOP Conference Series: Earth and Environmental Science*, 1395(1), 1–8. <https://doi.org/10.1088/1755-1315/1395/1/012038>
- Ahmar, N., Rahmah, L. Al, & Darminto, D. P. (2024). Green banking disclosure from the perspective of corporate governance, financial slack and human resource slack in Indonesia. *Banks and Bank Systems*, 19(2), 101–114. [https://doi.org/10.21511/bbs.19\(2\).2024.08](https://doi.org/10.21511/bbs.19(2).2024.08)
- Allam, G. A., & Diyanty, V. (2020). Determinants of Carbon Emission Disclosure. *Journal of Economics, Business, & Accountancy Ventura*, 22(3), 333–346. <https://doi.org/10.14414/jebav.v22i3.1207>
- Amoa-Gyarteng, K., & Dhlwayo, S. (2022). The Impact of Capital Structure on Profitability of Nascent Small and Medium Enterprises in Ghana. *African Journal of Business and Economic Research*, 17(2), 275–291. <https://doi.org/10.31920/1750-4562/2022/v17n2a12>
- Ansari, M. A. A., Sajid, M., Khan, S. N., Antohi, V. M., Fortea, C., & Zlati, M. L. (2024). Unveiling the effect of renewable energy and financial inclusion towards sustainable environment: Does interaction of digital finance and institutional quality matter? *Sustainable Futures*, 7(January), 100196. <https://doi.org/10.1016/j.sftr.2024.100196>
- Cavalcante dos Santos, J. G., Carvalho de Vasconcelos, A., & Mendes De Luca, M. M. (2024). Financial slack and environmental expenditures: Value relevance in the Brazilian stock market. *Revista Contabilidade e Finanças*, 35(94). <https://doi.org/10.1590/1808-057x20231721.en>
- Desai, R. (2022). Determinants of corporate carbon disclosure: A step towards sustainability reporting. *Borsa Istanbul Review*, 22(5), 886–896. <https://doi.org/10.1016/j.bir.2022.06.007>
- Dowling, J., & Pfeffer, J. (1975). Pacific Sociological Association Organizational Legitimacy: Social Values and Organizational Behavior. *Source: The Pacific Sociological Review*, 18(1), 122–136.

- El Abiad, Z., Abraham, R., El-Chaarani, H., Skaf, Y., Binsaddig, R. O., & Jafar, S. H. (2024). The Impact of CEO Characteristics on the Financial Performance of Family Businesses Listed in the Euronext Exchange. *Journal of Risk and Financial Management*, 17(3). <https://doi.org/10.3390/jrfm17030129>
- Elya Dasuki, R. (2021). Manajemen Strategi : Kajian Teori Resource Based View. *Coopetition : Jurnal Ilmiah Manajemen*, 12(3), 447–454. <https://doi.org/10.32670/coopetition.v12i3.710>
- Ezekiel, O., Olugbenro, S., Omojola, S., Wright, O., & Aregbesola, O. (2024). Influence of Board Characteristics on Carbon Emission Disclosure: Evidence from the Nigerian Oil and Gas Sector. *International Journal of Energy Economics and Policy*, 14(5), 582–592. <https://doi.org/10.32479/ijeep.16666>
- Ghozali, I. (2021). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 26 Edisi 10*. Badan Penerbit Universitas Diponegoro.
- Haque, A. (2023). The impact of the COVID-19 pandemic on employee motivation and organisational resilience and the role of strategic HRM: renewal of a resource-based conceptual model. *Management Matters*, 20(2), 117–133. <https://doi.org/10.1108/manm-02-2022-0022>
- Jermias, J., & Yigit, F. (2023). Investigating the effects of innovation intensity and lenders' monitoring on the relation between financial slack and performance. *Journal of Accounting and Organizational Change*, 19(3), 494–512. <https://doi.org/10.1108/JAOC-05-2022-0078>
- Khatib, S. F. A., Ismail, I. H. M., Salameh, N., Abbas, A. F., Bazhair, A. H., & Sulimany, H. G. H. (2023). Carbon Emission and Firm Performance: The Moderating Role of Management Environmental Training. *Sustainability (Switzerland)*, 15(13), 1–20. <https://doi.org/10.3390/su151310485>
- Kusumawardhani, A., Thenardi, C. M., & ... (2023). ESG (Environmental, Social And Governance) Memoderasi Kinerja Keuangan Terhadap Nilai Perusahaan. *Jurnal Riset Akuntansi ...*, 10(November), 15–26. <https://doi.org/10.55963/jraa.v10i3.589>
- Lau, K. H., Yadlapalli, A., Abdulrahman, M. D. A., Chhetri, P., & Thai, V. (2023). Disclosure index development for sustainable procurement: An australian perspective. *Journal of Cleaner Production*, 420(August), 138357. <https://doi.org/10.1016/j.jclepro.2023.138357>
- Lehenchuk, S., Chyzhevskaya, L., Meluchova, J., Zdyrko, N., & Voskalo, V. (2023). Determinants of agricultural companies' financial performance: The experience of Poland, Slovakia and Ukraine. *Investment Management and Financial Innovations*, 20(1), 99–111. [https://doi.org/10.21511/imfi.20\(1\).2023.10](https://doi.org/10.21511/imfi.20(1).2023.10)
- Liu, Y. S., Zhou, X., Yang, J. H., Hoepner, A. G. F., & Kakabadse, N. (2023). Carbon emissions, carbon disclosure and organizational performance. *International Review of Financial Analysis*, 90(July), 102846. <https://doi.org/10.1016/j.irfa.2023.102846>
- Maulidiavitasari, J., & Yanthi, M. D. (2021). Pengaruh Kinerja Lingkungan Terhadap Carbon Emission Disclosure Dengan Dewan Komisaris Independen Sebagai Variabel Moderasi. *Akuntabilitas*, 15(1), 1–18. <https://doi.org/10.29259/ja.v15i1.11849>
- Pahlevi, R. P., Mahardika, P., & Kawedar, W. (2019). Pengaruh Faktor-Faktor Ekonomi Greenhouse Gas Emission Disclosure Dan Pengaruhnya Terhadap Reaksi Saham. *Diponegoro Journal of Accounting*, 8(3), 1–11. <http://ejournal-s1.undip.ac.id/index.php/accounting>
- Putu Dian Pusparini, I Gede Widayana, Salsabila Zera Pharresia, & M. Hit Fawlung. (2023). Analisis Penerapan Pajak Karbon Dan Ulez Terhadap Penurunan Emisi Karbon Di Indonesia. *Jurnal Pajak Indonesia*, 7(1), 57–66.
- Rahmawati, R., Setiawan, D., Aryani, Y. A., & Kiswanto, K. (2024). Role Environmental Performance on Effect Financial Performance to Carbon Emission Disclosure. *International Journal of Energy*

- Economics and Policy*, 14(1), 196–204. <https://doi.org/10.32479/ijcep.15031>
- Sekarini, L. A., & Setiadi, I. (2022). Pengaruh Leverage, Profitabilitas, Ukuran Perusahaan Dan Kinerja Lingkungan Terhadap Pengungkapan Emisi Karbon Perusahaan (Studi Empiris Pada Perusahaan Pertambangan Yang Terdaftar Di Bursa Efek Indonesia Periode 2014-2018). *Kompartemen : Jurnal Ilmiah Akuntansi*, 19(2), 83. <https://doi.org/10.30595/kompartemen.v19i2.8627>
- Sixpence, A., Adeyeye, O. P., & Rajaram, R. (2019). The nexus between share prices and financial risk in South Africa: A comparative analysis of high and low risk firms. *African Journal of Business and Economic Research*, 14(4), 155–173. <https://doi.org/10.31920/1750-4562/2019/14n4a7>
- Sugeng, A. (2020). Pengaruh Ukuran Perusahaan, Leverage, Ukuran Dewan Komisaris Dan Profitabilitas Terhadap Pengungkapan Corporate Social Responsibility (Studi Empiris Pada Perusahaan Pertambangan Yang Go Public Tahun 2016-2018 Di Bursa Efek Indonesia). *Going Concern : Jurnal Riset Akuntansi*, 15(3), 405. <https://doi.org/10.32400/gc.15.3.29211.2020>
- Sun, Y., Zhao, D., Cao, Y., & Xu, C. (2024). New trends in sustainability reporting: Exploring the online sustainability reporting practices by Irish universities. *Journal of Innovation and Knowledge*, 9(3), 100529. <https://doi.org/10.1016/j.jik.2024.100529>
- Syahdanti, A. D., & Marietza, F. (2024). The Influence Of Profitability, Company Size, Media Exposure, And Leverage On Carbon Emissions Disclosure. *EKOMBIS REVIEW: Jurnal Ilmiah Ekonomi Dan Bisnis*, 12(1), 1095–1108. <https://doi.org/10.37676/ekombis.v12i1.5304>
- Vitale, G., Cupertino, S., & Taticchi, P. (2023). Analysing the role of available organisational slack resources in affecting environmental performance. A structural equation modelling approach. *Measuring Business Excellence*, 27(3), 341–363. <https://doi.org/10.1108/MBE-09-2022-0110>
- Wernerfelt, B. (1984). A Resource-Based View of the Firm. *Strategic Management Journal*, 5(2), 171–180. <https://www.jstor.org/sici?sici=0143-2095%28198404%2F06%295%3A2%3C171%3AARVOTF%3E2.0.CO%3B2-L>
- Wirawan, J., & Setijaningsih, H. T. (2022). Analisis Pengungkapan Emisi Karbon Di Indonesia. *Jurnal Muara Ilmu Ekonomi Dan Bisnis*, 6(1), 235. <https://doi.org/10.24912/jmieb.v6i1.18398>
- https://www.wri.org/insights/history-carbon-dioxide-emissions?utm_campaign=socialmedia&utm_source=facebook&utm_medium=worldresources#:~:text=As%20of%202022%20%E2%80%94%20the%20latest,the%20highest%20emission%20per%20person
- <https://www.aprobi.or.id/id/darurat-emisi-co2-global-terus-meningkat/>