The Moderating Role of Enterprise Risk Management on the Influence of Environmental Performance, Firm Size, and Managerial Ownership on Financial Performance: An Empirical Study in Indonesia

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Abstract *- This study aims to examine the effects of environmental performance, firm size, and managerial ownership on the financial performance of transportation and logistics companies listed on the Indonesia Stock Exchange (IDX), and to analyze the moderating role of Enterprise Risk Management (ERM) in these relationships. A quantitative study with a causal design was employed, utilizing Moderated Regression Analysis (MRA) on panel data with the Fixed Effect Model (FEM).The research was conducted using secondary data obtained from the annual reports and sustainability reports of transportation and logistics companies listed on the IDX, covering the period from January 2021 to December 2024. The sample consisted of 30 transportation and logistics companies that met the sampling criteria. Financial performance was measured using Return on Assets (ROA), environmental performance using the GRI 300 disclosure index, firm size using the natural logarithm of total assets, managerial ownership as the percentage of shares held by management, and ERM using the COSO ERM 2017 disclosure index. Firm size and managerial ownership have a positive and significant effect on financial performance, while environmental performance shows a significant negative effect. ERM significantly strengthens the influence of environmental performance on financial performance but does not significantly moderate the effect of firm size. Furthermore, ERM negatively moderates the effect of managerial ownership on financial performance.*

Keywords*: Environmental Performance; Firm Size; Managerial Ownership; Enterprise Risk Management (ERM); Financial Performance.*

I. INTRODUCTION

The transportation sector plays a pivotal role in supporting Indonesia's economic growth by facilitating trade, mobility, and infrastructure development. According to the Central Statistics Agency (BPS, 2021), the transportation and warehousing sector contributes more than 4% to Indonesia's Gross Domestic Product (GDP), underscoring its strategic importance. However, despite its considerable potential, the sector has experienced significant fluctuations in financial performance, particularly in Return on Assets (ROA), during the 2019–2024 period. This decline reflects underlying challenges in corporate financial health.

Externally, the COVID-19 pandemic caused severe disruptions to supply chains, mobility restrictions, and a sharp decline in transportation demand (Ministry of Transportation, 2020). For instance, in 2020, domestic air passenger numbers fell by 55.7% compared to the previous year (BPS, 2021). Internally, companies faced rising operating costs, including fuel, fleet maintenance, and employee wages, alongside substantial depreciation of fixed assets, all of which eroded profitability (Yusdianto & Ramadhoni, 2023).

In addition, the sector is under mounting pressure to address environmental issues. Transportation is a major contributor to greenhouse gas emissions, prompting calls for greater environmental accountability and compliance with sustainability reporting standards such as the Global Reporting Initiative (GRI) (Ministry of

Environment and Forestry, 2019). Studies by Fauziah et al. (2022), Limano et al. (2022), and Dita & Ervina (2021) indicate that strong environmental performance can attract sustainability-focused investors and mitigate reputational risks, ultimately enhancing financial performance. However, Rahmawati et al. (2023) and Hanif et al. (2020) found no significant relationship, suggesting that the financial benefits of environmental initiatives may not be immediately realized.

Firm size has also been identified as an important determinant of financial performance. Larger firms generally enjoy economies of scale, better market access, and stronger bargaining power with suppliers and customers (Meiyana & Aisyah, 2019; Aziza et al., 2020). Nevertheless, some studies have reported insignificant or even negative effects of firm size on profitability, particularly when large organizations suffer from bureaucratic inefficiencies (Syah et al., 2021; Dita & Ervina, 2021).

Managerial ownership is another governance factor that aligns managerial decision-making with shareholder interests. Jaya et al. (2019) and Sutrisno & Riduwan (2022) found a positive and significant relationship between managerial ownership and financial performance, suggesting that managers who hold equity stakes are more motivated to enhance firm value. Conversely, Nilayanti & Suaryana (2019) and Malau et al. (2024) reported no significant relationship, particularly when managerial ownership is too low to influence strategic decisions.

The inconsistencies in prior findings highlight the need for a moderating factor to better explain these dynamics. Enterprise Risk Management (ERM) is a strategic framework designed to identify, assess, and manage risks across an organization by integrating risk management into decision-making processes (COSO, 2017). Beasley et al. (2005), Farrell & Gallagher (2019), and Karina et al. (2023) suggest that ERM can enhance organizational resilience, improve resource allocation, and potentially strengthen the relationship between corporate strategies—such as environmental initiatives or governance structures—and financial performance. However, the moderating effects of ERM remain underexplored in emerging market contexts, particularly in high-risk, asset-intensive industries such as transportation and logistics.

Against this backdrop, this study aims to examine the influence of environmental performance, firm size, and managerial ownership on financial performance, with ERM as a moderating variable. Using panel data from transportation and logistics companies listed on the Indonesia Stock Exchange (IDX) between 2021 and 2024, this research contributes to the literature by addressing the empirical gap regarding ERM's moderating role in emerging market settings. It also offers practical insights for managers, investors, and regulators on enhancing financial outcomes while advancing sustainability practices.

Research Framework. The research framework is an overview of the relationships between variables that are compiled based on theories and previous research results, and are the basis for hypothesis formulation (Ghozali, 2016). The research framework is a logical and rational flow of thinking that connects theories with the variables being studied (Sugiyono, 2019). The research in this study is as follows.

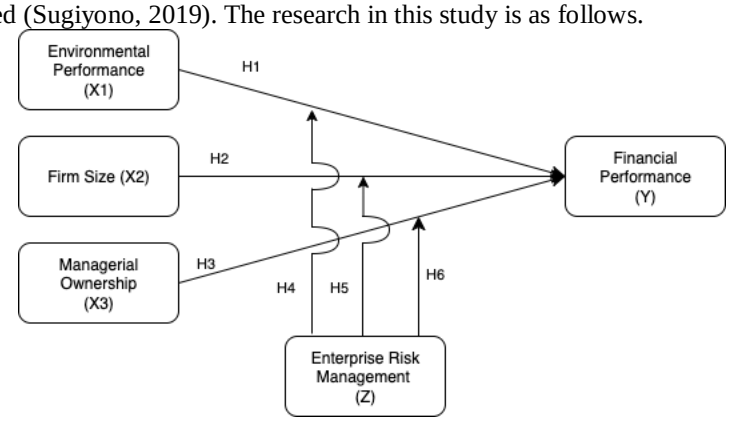

Figure 1. Research Framework

H1: Positive Effect of Environmental Performance on Financial Performance

Strong environmental performance has the potential to enhance a company's reputation, reduce legal costs, and mitigate risks associated with environmental issues (Fauziah et al., 2022). Companies that actively manage their environmental impacts are more likely to attract sustainability-conscious investors, which in turn can contribute to improved financial performance (Rizka Annisya Putri Latifah & Nikmah, 2024). Furthermore, good environmental performance is often linked to Corporate Social Responsibility (CSR), which can strengthen customer loyalty and enhance market positioning (Angelina & Nursasi, 2021). Previous studies by Limano et al.

(2022) and Dita & Ervina (2021) found that environmental performance positively influences financial performance.

H2: Positive Effect of Firm Size on Financial Performance

Firm size often serves as an indicator of a company's ability to access resources, secure capital, and achieve operational efficiencies. Larger companies tend to benefit from economies of scale, broader market access, and higher investment capacity, all of which can enhance financial performance (Meiyana & Aisyah, 2019). This finding is supported by Aziza et al. (2020), who observed that larger firms generally demonstrate stronger financial performance. However, Syah et al. (2021) also note that a large firm size does not necessarily guarantee superior financial outcomes, as large organizations may face bureaucratic inefficiencies and reduced flexibility.

H3: Positive Effect of Managerial Ownership on Financial Performance

Managerial ownership, defined as the percentage of shares held by managers or company executives, can reduce agency conflicts and align the interests of management with those of shareholders. According to agency theory (Jensen & Meckling, 1976), when managers hold equity in the company, they are more motivated to improve corporate performance since they directly benefit from increases in firm value. Studies by Jaya et al. (2019) and Sutrisno & Riduwan (2022) found that managerial ownership has a positive impact on financial performance. Managers who are also shareholders are more likely to make prudent decisions that protect and enhance firm value.

H4: The Moderating Role of Enterprise Risk Management (ERM) on the Relationship between Environmental Performance and Financial Performance

ERM is a systematic approach to identifying, managing, and monitoring risks that may affect the achievement of corporate objectives. In the context of environmental performance, ERM enables companies to manage environmental risks more effectively, thereby strengthening the positive impact of environmental performance on financial performance. Research by Karina et al. (2023) and Hakim & Suardi (2023) shows that companies with strong ERM systems can respond to environmental risks more quickly and efficiently, which reinforces the relationship between environmental performance and financial performance. In other words, ERM can enhance transparency and risk governance, which in turn positively influences financial outcomes (Pérez-Cornejo & de Quevedo-Puente, 2023).

H5: The Moderating Role of ERM on the Relationship between Firm Size and Financial Performance

While larger firms benefit from greater resource capacity, they also face more complex and substantial risks. ERM can help large companies manage these risks more effectively, thereby strengthening the positive influence of firm size on financial performance. According to Syafitri et al. (2023), ERM can enhance corporate performance by proactively managing larger-scale risks. Similarly, Yang et al. (2018) found that large firms with well-implemented ERM systems can achieve better financial performance, as ERM facilitates more efficient handling of complex risks.

H6: The Moderating Role of ERM on the Relationship between Managerial Ownership and Financial Performance

Although managerial ownership can improve financial performance, overly strict or inappropriate ERM implementation may restrict managerial flexibility in making strategic, risk-related decisions, potentially weakening the positive effects of managerial ownership on financial performance. Ida Ayu Cahaya Dewanti et al. (2025) found that managers with greater equity stakes tend to have stronger incentives to improve firm performance. However, rigid ERM policies may reduce managerial discretion, thereby diminishing the beneficial effects of managerial ownership on financial performance (Al Matari & Hussein Mgammal, 2019).

II. METHOD

This study employs a quantitative approach with a causal design to examine the effects of environmental performance, firm size, and managerial ownership on financial performance, with Enterprise Risk Management (ERM) as a moderating variable.

The research population consists of all transportation and logistics companies listed on the Indonesia Stock Exchange (IDX), totaling 57 companies during the 2019–2024 period. The sample was determined using purposive sampling with the following criteria: (1) companies consistently listed on the IDX during the 2021–2024 period; (2) complete publication of annual reports and sustainability reports during the observation years; and (3) availability of data on environmental performance, firm size, managerial ownership, and ERM. Based on these criteria, 30 companies met the sample requirements.

Operational Definition and Measurement of Variables

Financial Performance (ROA)

Financial performance reflects a company's ability to generate profits from its total assets. It is measured using the Return on Assets (ROA) ratio, calculated by dividing net income by total assets. ROA is widely used as a profitability indicator because it measures how efficiently management utilizes assets to generate earnings (Gitman & Zutter, 2015).

Environmental Performance (EP)

Environmental performance represents the company's achievement in managing environmental aspects and minimizing negative environmental impacts. In this study, environmental performance is measured using the Global Reporting Initiative (GRI) 300 disclosure index, which covers indicators related to raw materials, energy use, water consumption, biodiversity, emissions, waste, and environmental compliance. The GRI framework ensures standardized and comparable measurements across companies (GRI, 2020; Epstein & Buhovac, 2014).

Firm Size (SIZE)

Firm size refers to the scale of operations and the company's resource capacity. It is measured as the natural logarithm of total assets. Larger companies generally have greater access to capital, economies of scale, and stronger market positioning, although they may also face bureaucratic inefficiencies (Aziza et al., 2020).

Managerial Ownership (MOWN)

Managerial ownership measures the proportion of a company's shares held by management. This variable reflects the alignment of managerial and shareholder interests, where higher managerial ownership is expected to reduce agency conflicts and improve decision-making quality. Managerial ownership is calculated by dividing the number of shares owned by management by the total number of outstanding shares, then multiplying by 100% (Sutrisno & Riduwan, 2022).

Enterprise Risk Management (ERM)

Enterprise Risk Management is an integrated framework used by companies to identify, assess, and manage risks in alignment with corporate strategy. In this study, ERM is measured using a disclosure index based on the COSO ERM 2017 framework, which includes governance and culture, strategy and objective setting, performance, review and revision, as well as information, communication, and reporting. Effective ERM implementation is expected to enhance resilience and support the achievement of strategic and financial objectives (COSO, 2017; Hoyt & Liebenberg, 2011a).

Table 1. Operational Definition of Variables

No	Variable	Definition	Indicator	Measurement Scale
1	Financial Performance	Efficiency of a company in generating profits from its assets (Gitman & Zutter, 2015).	ROA = (Net Income / Total Assets) × 100%	Ratio
2	Environmental Performance	The company's ability to manage the environmental impact of its operations sustainably (GRI, 2020; Epstein & Buhovac, 2014).	GRI 300 Environmental Disclosure Index	Ratio
3	Firm Size (Independent Variable 2)	The size of the organization based on total assets.	Ln (Total Assets)	Ratio

No	Variable	Definition	Indicator	Measurement Scale
4	Managerial Ownership (Independent Variable 3)	Percentage of company shares owned by management.	(Shares owned by management / Total outstanding shares) × 100%	Ratio
5	Enterprise Risk Management (Moderator Variable)	Systematic approach to identifying and managing corporate risks based on the COSO framework.	COSO ERM 2017 Disclosure Index	Ratio

III. RESULT AND DISCUSSION

A. Result

Descriptive Statistics Test

Descriptive statistics aim to understand the characteristics of each variable in the research sample. Table 2 presents the descriptive statistics results:

Table 2. Descriptive Statistics Results

Statistik	ROA (%)	EDI	Size (Million Rp)	MOWN (%)	ERM
Mean	0,0429	0,5084	5.293.567	64,8582	0,5991
Maksimum	2,0718	1,0000	106.599.335	100,0000	1,0000
Minimum	-0,9603	0,0890	27.204	0,0005	0,2210
Standar Deviasi	0,2616	0,3147	17.928.774	26,4094	0,2525

Source: Data processed by the author, 2025

Table 2 presents the descriptive statistics of the research variables. The average financial performance (ROA) of transportation and logistics companies during 2021–2024 was 4.29%, with a maximum of 207.18% and a minimum of –96.03%, indicating substantial variation in profitability across firms. The mean environmental performance (EP), measured using the Environmental Disclosure Index (EDI), was 0.5084, suggesting that on average, companies disclosed around 50.84% of the GRI 300 environmental indicators. Firm size showed a wide range, with an average total asset value of IDR 5.29 trillion, a maximum of IDR 106.6 trillion, and a minimum of IDR 27.2 million. Managerial ownership averaged 64.86%, ranging from almost zero (0.0005%) to full ownership (100%). Enterprise Risk Management (ERM) disclosure averaged 0.5991, with a minimum of 0.2210 and a maximum of 1.0000, indicating differences in ERM implementation levels among companies.

Data Analysis Result

Selection of Panel Data Regression Model – Equation I

Table 3. Model Selection Tests for Equation I

Test	Test Criteria	Prob.	Conclusion
Chow	Cross-section F	0.0347	FEM
Hausman	Chi² Statistic	0.0139	FEM

Source: Data processed using EViews 12 (2025)

The Chow test was conducted to compare the Common Effect Model (CEM) with the Fixed Effect Model (FEM). The test produced a probability value of 0.0347 (< 0.05), indicating that the FEM is preferred over the CEM. Subsequently, the Hausman test was performed to choose between the FEM and the Random Effect Model (REM), yielding a probability value of 0.0139 (< 0.05). This result confirms that the FEM is the most appropriate model for Equation I.

Table 4. FEM Regression Results for Equation I

Variable	Coefficient	t-Statistic	Probability
C	-0.6715	-3.392	0.0000
EDI	-0.1710	-0.550	0.5837
SIZE	0.2360	3.397	0.0000
MOWN	0.0060	0.928	0.3559
F-statistic		**1.630**	**0.0386**

Variable	Coefficient	t-Statistic	Probability
R^2	**0.374**		

Source: Data processed using EViews 12 (2025)

The Fixed Effect Model (FEM) regression results for Equation I are presented in Table X. The model examines the direct effects of environmental performance (EDI), firm size (SIZE), and managerial ownership (MOWN) on financial performance (ROA). The findings indicate that firm size has a positive and significant effect on ROA ($\beta = 0.236$, $t = 3.397$, $p < 0.01$), suggesting that larger companies tend to achieve higher profitability. Environmental performance (EDI) shows a negative but insignificant effect ($\beta = –0.171$, $t = –0.550$, $p = 0.5837$), while managerial ownership (MOWN) also has an insignificant positive effect ($\beta = 0.006$, $t = 0.928$, $p = 0.3559$). The model's F-statistic is significant at the 5% level ($F = 1.630$, $p = 0.0386$), and the coefficient of determination (R^2) is 0.374, indicating that 37.4% of the variation in ROA is explained by the independent variables in the model.

Selection of Panel Data Regression Model – Equation II

Table 5. Model Selection Tests for Equation II

Test	Test Criteria	Prob.	Conclusion
Chow	Cross-section F	0.0000	FEM
Hausman	Chi² Statistic	0.0000	FEM

Source: Data processed using EViews 12 (2025)

The Chow test was carried out to compare the Common Effect Model (CEM) and the Fixed Effect Model (FEM). The test yielded a probability value of 0.0000 (< 0.05), indicating that the FEM is preferred over the CEM. Subsequently, the Hausman test was conducted to choose between the FEM and the Random Effect Model (REM), producing a probability value of 0.0000 (< 0.05). This confirms that the FEM is the most appropriate model for Equation II.

Table 6. Model Selection Tests for Equation II

Test	Test Criteria	Prob.	Conclusion
Chow	Cross-section F	0.0000	FEM
Hausman	Chi² Statistic	0.0000	FEM

Source: Data processed using EViews 12 (2025)

The Chow test was carried out to compare the Common Effect Model (CEM) and the Fixed Effect Model (FEM). The test yielded a probability value of 0.0000 (< 0.05), indicating that the FEM is preferred over the CEM. Subsequently, the Hausman test was conducted to choose between the FEM and the Random Effect Model (REM), producing a probability value of 0.0000 (< 0.05). This confirms that the FEM is the most appropriate model for Equation II.

Table 7. FEM Regression Results for Equation II

Variable	Coefficient	t-Statistic	Probability	Significance
C	-0.938	-1.1279	0.2625	
EDI	-0.072	-1.4043	0.1638	
SIZE	0.059	2.0100	0.0476	**
MOWN	0.002	1.9195	0.0582	*
ERM	-1.253	-2.1900	0.0312	**
F-statistic		**7.8749**	**0.0000**	
R^2	**0.7513**			

Source: Data processed using EViews 12 (2025)

Notes: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.

Firm size has a positive and significant effect on ROA at the 5% level, while managerial ownership shows a positive effect significant at the 10% level. Environmental performance has a negative but insignificant effect. ERM has a negative and significant effect at the 5% level, suggesting that higher ERM disclosure is associated

with lower short-term profitability. The model is significant overall (F = 7.8749, p < 0.01) and explains 75.13% of the variation in ROA.

Selection of Panel Data Regression Model – Equation III

Table 8. Model Selection Tests for Equation III

Test	Test Criteria	Prob.	Conclusion
Chow	Cross-section F	0.0000	FEM
Hausman	Chi² Statistic	0.0000	FEM

Source: Data processed using EViews 12 (2025)

The Chow test was conducted to compare the Common Effect Model (CEM) with the Fixed Effect Model (FEM), producing a probability value of 0.0000 (< 0.05), indicating that FEM is preferred. The Hausman test was then performed to choose between the FEM and the Random Effect Model (REM), yielding a probability value of 0.0000 (< 0.05). These results confirm that the FEM is the most appropriate estimation method for Equation III.

Table 9. FEM Regression Results for Equation III

Variable	Coefficient	t-Statistic	Probability	Significance
C	-5.485	-2.325	0.0225	**
EDI	-1.293	-5.184	0.0000	***
SIZE	0.130	1.579	0.1181	
MOWN	0.049	8.463	0.0000	***
ERM	6.704	2.089	0.0398	**
EDI×ERM	1.515	4.326	0.0000	***
SIZE×ERM	-0.126	-1.140	0.2575	
MOWN×ERM	-0.075	-9.946	0.0000	***
F-statistic		**21.663**	**0.0000**	
R²	**0.903**			

Source: Data processed using EViews 12 (2025)

Notes: *** significant at 1% level; ** significant at 5% level; * significant at 10% level.

EDI negatively affects ROA, while MOWN positively influences it; SIZE has no significant impact. ERM has a positive direct effect and strengthens the EDI–ROA relationship but weakens the MOWN–ROA relationship. SIZE–ERM interaction is not significant. The model explains 90.3% of ROA variation.

B. Discussion

H1: Environmental Performance Significantly Affects Financial Performance

The results indicate that environmental performance has a negative effect on financial performance. This suggests that increased environmental disclosure and related activities have not yet translated into short-term profitability gains. This finding aligns with the view that environmental initiatives often require substantial upfront investments, such as eco-friendly technologies and waste management systems, which can suppress short-term earnings. However, previous studies have noted that the benefits may materialize in the long term through enhanced corporate reputation and reduced environmental risk (Hanif et al., 2020; Handoko & Santoso, 2023; Rizka A. P. Latifah & Nikmah, 2024). These results are consistent with Legitimacy Theory, in which environmental activities are more aimed at maintaining public legitimacy than directly increasing profits.

H2: Firm Size Significantly Affects Financial Performance

Firm size was found to have a positive effect on financial performance in the initial model, supporting the Resource-Based View (RBV) that larger firms possess more resources, economies of scale, and market influence. However, when the moderating variable was introduced, the effect became insignificant, indicating that firm size alone does not necessarily determine profitability. This finding is consistent with studies showing that large firms may face bureaucratic inefficiencies that offset potential advantages (Aziza et al., 2020; Dita & Ervina, 2021).

H3: Managerial Ownership Significantly Affects Financial Performance

The effect of managerial ownership varied, being insignificant in the initial model but significant in the moderated model. This supports Agency Theory, which posits that managerial shareholding aligns the interests of managers and shareholders, potentially enhancing firm performance. Previous studies by Jaya et al. (2019) and Sutrisno & Riduwan (2022) also found that managerial ownership can improve profitability, particularly when combined with effective governance mechanisms.

H4: ERM Moderates the Relationship between Environmental Performance and Financial Performance

The findings show that ERM strengthens the relationship between environmental performance and financial performance. Companies with robust ERM systems are better able to integrate environmental strategies into their risk management frameworks, thereby minimizing costs and maximizing long-term value. This supports the notion that ERM is a strategic capability that can transform environmental initiatives into a competitive advantage (Karina et al., 2023; Junaidi & Hanggraeni, 2024).

H5: ERM Moderates the Relationship between Firm Size and Financial Performance

The interaction between firm size and ERM was found to be insignificant, indicating that ERM does not significantly influence the relationship between firm size and profitability. This suggests that although larger firms may have more resources to implement ERM, organizational complexity can reduce the effectiveness of such moderation. This finding is consistent with Sekerci & Pagach (2020), who reported that the moderating role of ERM on the size–performance relationship is often weak or inconsistent.

H6: ERM Moderates the Relationship between Managerial Ownership and Financial Performance

The results indicate that ERM weakens the positive influence of managerial ownership on financial performance. This may be due to additional controls and procedures within ERM that restrict managerial flexibility, thereby reducing the benefits typically associated with managerial shareholding. Studies by Rasmini (2019) and Al Matari & Hussein Mgammal (2019) also found that certain governance mechanisms can diminish the positive effects of managerial ownership on performance.

IV. CONCLUSION

This study investigates the effects of environmental performance, firm size, and managerial ownership on the financial performance of transportation and logistics companies listed on the Indonesia Stock Exchange, with Enterprise Risk Management (ERM) as a moderating variable. The findings reveal that environmental performance has a negative effect on financial performance, suggesting that environmental initiatives can impose substantial short-term costs. Firm size has a positive effect on financial performance in the absence of moderation; however, the effect becomes insignificant when ERM is introduced. Managerial ownership shows a positive effect consistent with Agency Theory, and this effect becomes more evident when moderated by ERM.

ERM itself has a direct positive impact on financial performance and strengthens the effect of environmental performance on financial outcomes, underscoring its role as a strategic capability. However, ERM does not significantly moderate the firm size–financial performance relationship and weakens the positive influence of managerial ownership. Overall, this study highlights the importance of integrating ERM into corporate strategy to enhance the benefits of environmental initiatives while maintaining managerial flexibility.

REFERENCES

Al Matari, E. M., & Hussein Mgammal, M. (2019). The effect of ownership structure, audit committee and board characteristics on firm performance in Oman: An empirical study. *European Journal of Accounting, Auditing and Finance Research*, *7*(4), 45–72.

Angelina, & Nursasi, E. (2021). Corporate social responsibility and its effect on customer loyalty. *Jurnal Manajemen*, *25*(1), 45–58.

Aziza, N., Syafitri, L., & Permata, D. (2020). Firm size and profitability: Evidence from manufacturing companies in Indonesia. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, *4*(3), 245–254.

Beasley, M. S., Clune, R., & Hermanson, D. R. (2005). Enterprise risk management: An empirical analysis of factors associated with the extent of implementation. *Journal of Accounting and Public Policy*, *24*(6), 521–531. https://doi.org/10.1016/j.jaccpubpol.2005.10.001

COSO. (2017). *Enterprise Risk Management—Integrating with strategy and performance*. Committee of Sponsoring Organizations of the Treadway Commission.

Dita, A., & Ervina, D. (2021). The influence of firm size, leverage, and environmental performance on profitability. *Jurnal Ilmu dan Riset Akuntansi*, *10*(5), 1–20.

Epstein, M. J., & Buhovac, A. R. (2014). *Making sustainability work: Best practices in managing and measuring corporate social, environmental, and economic impacts* (2nd ed.). Berrett-Koehler Publishers.

Fauziah, F., Hidayati, T., & Rahmawati, R. (2022). Environmental performance and its impact on financial performance. *Jurnal Akuntansi Multiparadigma*, *13*(2), 325–337.

Farrell, M., & Gallagher, R. (2019). Moderating influences on the ERM maturity–performance relationship. *Risk Management*, *21*(1), 1–22. https://doi.org/10.1057/s41283-018-0033-5

Gitman, L. J., & Zutter, C. J. (2015). *Principles of managerial finance* (14th ed.). Pearson Education.

GRI. (2020). *GRI 300: Environmental standards*. Global Reporting Initiative.

Hanif, A., Cahyani, D., & Nugroho, R. (2020). Environmental performance and firm profitability: Evidence from Indonesia. *Jurnal Akuntansi dan Keuangan Indonesia*, *17*(1), 56–72.

Handoko, T., & Santoso, R. (2023). Sustainability practices and financial outcomes: Evidence from Indonesian listed firms. *Jurnal Ekonomi dan Bisnis*, *26*(3), 345–359.

Hoyt, R. E., & Liebenberg, A. P. (2011a). The value of enterprise risk management. *Journal of Risk and Insurance*, *78*(4), 795–822. https://doi.org/10.1111/j.1539-6975.2011.01413.x

Jaya, I. G. N. M., Dewi, N. L. P. S., & Purnama, I. G. (2019). Managerial ownership and firm performance: Evidence from Indonesia. *Jurnal Manajemen dan Kewirausahaan*, *21*(1), 1–8.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Junaidi, & Hanggraeni, D. (2024). Enterprise risk management and firm performance: Evidence from emerging markets. *Asian Journal of Business and Accounting*, *17*(2), 145–165.

Karina, D., Suryanto, T., & Rahman, A. (2023). Enterprise risk management as a strategic capability for sustainability. *Journal of Risk and Financial Management*, *16*(2), 85. https://doi.org/10.3390/jrfm16020085

Malau, J., Hutapea, T., & Simanjuntak, D. (2024). Managerial ownership and company performance: Evidence from Indonesia Stock Exchange. *Jurnal Akuntansi dan Keuangan*, *26*(1), 44–59.

Meiyana, N., & Aisyah, S. (2019). Firm size, profitability, and firm value: Empirical evidence from manufacturing sector. *Jurnal Ilmu dan Riset Manajemen*, *8*(3), 1–15.

Ministry of Environment and Forestry. (2019). *Laporan kinerja Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia*.

Ministry of Transportation. (2020). *Laporan tahunan Kementerian Perhubungan Republik Indonesia*.

Nilayanti, N. M., & Suaryana, I. G. N. A. (2019). Managerial ownership, leverage, and firm performance. *E-Jurnal Akuntansi Universitas Udayana*, *26*(3), 1782–1808.

Pérez-Cornejo, C., & de Quevedo-Puente, E. (2023). Risk governance and financial performance: The moderating role of ERM. *Journal of Business Research, 154*, 113–124. https://doi.org/10.1016/j.jbusres.2022.113324

Rahmawati, I., Hidayat, M., & Prasetyo, A. (2023). Environmental responsibility and corporate financial performance: Evidence from Indonesian manufacturing companies. *Jurnal Akuntansi Multiparadigma*, *14*(1), 98–113.

Rasmini, N. (2019). Managerial ownership, corporate governance, and firm value. *Jurnal Akuntansi*, *23*(2), 234–247.

Rizka Annisya Putri Latifah, & Nikmah, N. (2024). The role of environmental disclosure on firm value and financial performance. *Jurnal Manajemen Bisnis*, *21*(1), 45–56.

Sekerci, N., & Pagach, D. (2020). The relationship between firm size and firm performance: The moderating effect of ERM. *Journal of Risk Finance, 21*(4), 379–395. https://doi.org/10.1108/JRF-11-2019-0215

Sugiyono. (2019). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta.

Sutrisno, & Riduwan, A. (2022). Managerial ownership and firm performance in Indonesia. *Jurnal Ilmu dan Riset Akuntansi*, *11*(4), 12–24.

Syafitri, A., Utami, D., & Firmansyah, A. (2023). The role of enterprise risk management in enhancing firm performance. *Journal of Applied Accounting and Taxation, 8*(1), 45–56.

Syah, A., Prasetyo, H., & Nugraha, D. (2021). Firm size, profitability, and firm value: Evidence from Indonesian manufacturing companies. *Jurnal Manajemen Strategi dan Aplikasi Bisnis, 4*(2), 265–276.

Yang, M., Ishtiaq, M., & Anwar, M. (2018). Enterprise risk management practices and firm performance: Evidence from emerging market. *International Journal of Business Performance Management, 19*(1), 1–21.

Yusdianto, & Ramadhoni, M. (2023). Operational costs and profitability in transportation companies. *Jurnal Ekonomi dan Bisnis*, *26*(1), 78–92.