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THE IMPACT OF SUSTAINABILITY REPORTING AND FINANCIAL PERFORMANCE ON FINANCIAL DISTRESS: THE MODERATING ROLE OF FIRM AGE

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Abstract

Financial distress occurs when companies face significant financial difficulties, potentially leading to insolvency due to the inability to meet short- and long-term obligations. This study investigates the effect of liquidity (current ratio), leverage (debt to equity ratio), and sustainability reporting on financial distress, with firm age as a moderating variable. Using a Systematic Literature Review (SLR) method, this research synthesizes findings from 30 high-quality peer-reviewed journal articles published between 2018 and 2024. The empirical context focuses on 23 land transportation and logistics companies listed on the Indonesia Stock Exchange (IDX) during 2020–2024, selected through purposive sampling. Panel data regression analysis was applied to assess the relationships among variables. The results indicate that sustainability reporting aligned with Global Reporting Initiative (GRI) standards significantly reduces the risk of financial distress by improving corporate transparency and operational efficiency. Liquidity shows a negative association with financial distress, highlighting its role in financial resilience, while the impact of leverage varies depending on how debt is managed within the firm. Moreover, firm age positively moderates the relationship between sustainability reporting and financial distress, suggesting that older firms are more capable of implementing effective sustainability practices. These findings provide valuable implications for managers and policymakers in the transportation and logistics sector to develop risk mitigation strategies that incorporate both financial performance and sustainability dimensions.

Keywords: Liquidity, Leverage, Sustainability Reporting, Financial Distress, Firm Age

INTRODUCTION

The land transportation and logistics sector in Indonesia is an important pillar that supports economic growth, contributing significantly to GDP (Coordinating Ministry for Economic Affairs of the Republic of Indonesia, 2025). However, the sector faces increased financial vulnerability due to fluctuations in demand, rising fuel costs, and regulatory dynamics (Supply Chain Indonesia, 2023). During the COVID-19 pandemic, the sector experienced a sharp contraction that exacerbated the risk of financial distress—which is defined as a phase of severe financial downturn before bankruptcy (Altman, 1968).

Previous studies have emphasized that liquidity measured through the current ratio plays an important role in maintaining financial stability. Companies with adequate liquidity tend to be more resilient, although an excessively high current ratio could signal inefficient use of assets (Vebrizha et al., 2024). Leverage, which is often proxied by the debt-to-equity ratio, has been shown to exacerbate distress when debt is excessive, but can support growth if managed wisely (Inggamal, 2022). Beyond these financial metrics, sustainability reporting emerges as a non- financial factor that increases transparency and stakeholder trust, thereby ultimately reducing the likelihood of distress (Orazalin et al., 2019; Zouaghi et al., 2024).

However, the role of company age in moderating this relationship is still rarely explored, especially in land transportation and logistics companies in Indonesia. Older companies are theoretically able to take advantage of experience and maturity, thereby strengthening the benefits of sustainability reporting in mitigating distress (Santi Octaviani, 2023). Despite the increasing number of studies, studies that specifically focus on Indonesia's land transportation and logistics sectors are still limited. In addition, the role of company characteristics such as age in moderating the relationship between sustainability practices and distress has not been comprehensively studied. This study aims to fill this gap through a Systematic Literature Review (SLR) that evaluates the existing evidence.

The methodology of this research is a key component. The development of new knowledge is primarily based on previous research. In conducting a systematic literature review, the researcher analyzes, interprets, and critically assesses the existing knowledge set. Through this process, researchers can find research gaps, identify patterns from previous research, and understand the scope and details of current knowledge.

The urgency of this research is relevant in bridging the following research gaps: (1) The lack of research that comprehensively examines the influence of sustainability reporting and financial performance on financial distress in Indonesia's land transportation and logistics sectors; (2) The role of firm age moderation in this relationship has not been widely explored in the empirical context of Indonesia; (3) The lack of studies that simultaneously combine financial and non- financial indicators in predicting distress; (4) The lack of research specifically highlighted the land transportation and logistics sectors, while most previous studies used cross-industry samples or the air and sea transportation sector, even though land transportation has unique structural and operational characteristics.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Financial Distress

Financial distress occurs when a company fails to meet its obligations (Natasya & Kristanti, 2019). Altman's Z-Score remains a powerful tool for predicting distress risk based on a matrix of liquidity, leverage, and profitability.

Current Ratio

Liquidity, which is measured through the current ratio, reflects the company's ability to cover short- term liabilities (Hery, 2015). Empirical evidence suggests higher liquidity is negatively correlated with distress risk, although too much cash can reduce asset productivity (Vebrizha et al., 2024).

H1: Liquidity has a negative effect on financial distress.

Debt to Equity Ratio

Leverage describes the level of debt utilization. High DER often increases financial risk and possible distress (Brigham & Houston, 2019). However, the wise use of debt can strengthen access to capital (Inggamal, 2022).

H2: Leverage has a positive effect on financial distress.

Sustainability Reporting

Sustainability disclosures that are in line with GRI standards contribute to more positive market perceptions and financial resilience (Yang et al., 2021). This strengthens relationships with stakeholders, reduces reputational risks, and can cushion financial shocks (Apriliyani et al., 2021).

H3: Sustainability reporting has a negative effect on financial distress.

Firm Age as Moderator

The age of the company reflects the cumulative experience and capacity to implement more mature practices. Older companies can take advantage of organizational learning, thereby strengthening the impact of sustainability reporting in distress mitigation (Zahranie et al., 2024).

H4: Firm age positively moderates the relationship between sustainability reporting and financial distress.

RESEARCH METHODS

This study uses the Systematic Literature Review (SLR) method by conducting an article selection process based on predetermined criteria. This method is carried out to achieve research objectives, which include consolidating previous research, understanding thematic relationships among various studies, and examining various gaps to develop specific topics. This is done by placing a balanced emphasis on research characterization and content analysis.

This method can benefit academics, business practitioners, governments, and other related communities. This review helps accelerate the alignment of academic research agendas with the management agenda through understanding and catching up with this phenomenon.

The flowchart shown in Table 1 depicts the following stages of research: (1) Stage 1: Identify previous research from Google Scholar, the source includes all related articles from various publishers, including Scopus, Elsevier, Springer, ScienceDirect, Emerald, and others. The articles collected are dominated by international journals in the 2020–2024 period as shown in Table 4. The researcher determines keywords for database searches based on the research question; (2) Stage 2: Identify the selected articles by: (a) removing duplicate articles, (b) filtering based on suitability with the keywords Liquidity, Leverage, Sustainability Reporting, Financial Distress, Firm Age (c) screening articles with appropriate titles and abstracts, evaluating their relevance and methodological rigor and finally (d) selecting eligible articles based on the full text, thematic analysis that groups findings based on variables predictors and moderation effects; (3) Stage 3: In this final stage, the corresponding articles of the keyword are selected and then evaluated to formulate a high-level overview of each article.

RESULTS AND DISCUSSION

Liquidity, many studies confirm the negative relationship between liquidity and distress. Companies with higher current ratios show better solvency (Indah et al., 2023). Leverage, DER effects vary; some evidence suggests high leverage increases the risk of distress, while the efficient use of debt can stabilize cash flows (Vebrizha et al., 2024). Sustainability Reporting, consistently, disclosure of sustainability reduces the risk of distress by strengthening transparency and accountability (Orazalin et al., 2019). The Role of Age Moderation of Companies, older companies show a stronger moderation effect, where sustainability practices are more effectively institutionalized in distress mitigation (Santi Octaviani, 2023).

These findings validate theoretical frameworks such as Trade-Off Theory and Signaling Theory, confirming the importance of balanced liquidity, prudent leverage, and credible sustainability practices, especially for mature companies. This study uses the Systematic Literature Review (SLR) method. The search process was conducted through the Scopus, ScienceDirect, and Emerald databases, and supplemented by additional articles from grey literature and reference research. A total of 162 articles were successfully identified in the early stages. After the 32 duplicate articles were removed, 130 articles were filtered by title and abstract. This screening resulted in 80 articles being removed for not meeting the inclusion criteria. Furthermore, 50 articles were read in full to be assessed for eligibility. A total of 20 articles were then issued on the grounds that they were not empirical research, lacked methodological rigor, or were outside the scope of the research. Finally, 30 studies were included in this SLR. The selection of articles based on the objectives of this method resulted in 30 articles, with the distribution of the number of articles related to financial distress from 2020
to 2024 detailed in Table 2.

CONCLUSION

This study concludes that Liquidity significantly reduces the probability of financial distress. Leverage has a dual effect depending on debt management. Sustainability Reporting strengthens organizational resilience. The age of the company positively moderates the impact of sustainability practices on distress. These findings provide insights for managers in designing integrative risk management strategies by blending financial prudence and sustainable business practices.

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List of Table and Captions

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Table 1	Prisma 2020 Flow Diagram for Systematic Reviews
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Table 3	Number of Publications by Years
Table 4	Factors Identified

Table 1. Prisma 2020 Flow Diagram for Systematic Reviews

Phase	Description	Count
Identification	Records identified (databases)	152
	Records identified (other sources)	10
	Total records identified	162
	Duplicates removed	32
	Records after duplicates removed	130
Screening	Records screened (title and abstract)	130
	Records excluded	80
Eligibility	Full-text articles assessed for eligibility	50
	Full-text articles excluded	20
	Reasons: Not empirical, lacking rigor, out of scope	
Included	Studies included in SLR	30

Source: (Maniah et al., 2022; Page et al., 2021)

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Table 2. The Number of Articles Published

No	Database	Number of Articles	Percent (%)
1	Scopus	19	63
2	Google Scholar	6	20
3	ScienceDirect	6	17
	Total	30	100

Table 3. Number of Publications by Years

Year	2019	2020	2021	2022	2023	2024
Number	3	1	8	4	4	10
Percent	10%	3%	27%	13%	13%	33%

Table 4. Factors Identified

Factor	Reference	(%)
Financial Distress	(Abdelkader & Wahba, 2024; Abdi et al., 2020; Aduku & Onuora, 2024; Balasubramanian et al., 2019; Brigham & Houston, 2019; Ceylan, 2021; Eugenio et al., 2023; Gavalas, 2024; Hidayat & Yuniati, 2024; Indah et al., 2023; Inggamal, 2022; Isayas, 2021; Jessie & Tannia, 2024; Karina & Soenarno, 2022; Kebede et al., 2024; Lawita & Binangkit, 2022; Li et al., 2021; Maghfiroh et al., 2024; Natasya & Kristanti, 2019; Ningsih & Asandimitra, 2023; Orazalin et al., 2019; Sariroh, 2021; Sehgal et al., 2021; Shi & Li, 2021; Tarighi et al., 2022; Vebrizha et al., 2024; Wibowo et al., 2024; Yang et al., 2021; Zahranie et al., 2024; Zouaghi et al., 2024)	100%
Liquidity (Current Ratio)	(Brigham & Houston, 2019; Indah et al., 2023; Inggamal, 2022; Jessie & Tannia, 2024; Maghfiroh et al., 2024; Natasya & Kristanti, 2019; Ningsih & Asandimitra, 2023; Sariroh, 2021; Vebrizha et al., 2024)	30,0%
Leverage (Debt to Equity)	(Abdelkader & Wahba, 2024; Aduku & Onuora, 2024; Brigham & Houston, 2019; Ceylan, 2021; Hidayat & Yuniati, 2024; Indah et al., 2023; Inggamal, 2022; Jessie & Tannia, 2024; Lawita & Binangkit, 2022; Maghfiroh et al., 2024; Natasya & Kristanti, 2019; Ningsih & Asandimitra, 2023; Orazalin et al., 2019; Sariroh, 2021; Sehgal et al., 2021; Shi & Li, 2021; Vebrizha et al., 2024; Lambey et al., 2021) .	60,0%
Sustainability Reporting	(Abdi et al., 2020; Apriliyani et al., 2021; Edmans, 2023; Karina & Soenarno, 2022; Orazalin et al., 2019; Tarighi et al., 2022; Vallet-Bellmunt et al., 2023; Yang et al., 2021; Zahranie et al., 2024; Zouaghi et al., 2024)	33,3%
Firm Age (Moderating)	(Aduku & Onuora, 2024; Karina & Soenarno, 2022; Kebede et al., 2024; Lambey et al., 2021; Lawita & Binangkit, 2022)	16,7%