



I-SMART

*International Seminar and Conference
on Management, Research, and Transformation*

THE EFFECT OF ESG PERORMANCE ON INVESTMENT EFFICIENCY MEDIATED BY FINANCING CONSTRAINS: EVIDENCE FROM INDONESIA

Rela Al-zahra Salsabila

Faculty of Economics and Business, Universitas Siliwangi, Tasikmalaya, Indonesia
223402185@student.unsil.ac.id

Abstract. This study examines whether and how environmental, social, and governance (ESG) performance improves firms' investment efficiency through the channel of financing constraints. Addressing a key gap most prior evidence comes from developed markets, we focus on Indonesia's institutional setting where capital market frictions and disclosure practices differ meaningfully. The sample comprises non-financial firms listed on the Indonesia Stock Exchange (IDX) on 2024, selected using purposive sampling based on criteria such as data availability and sector representation. We estimate panel regressions with firm and year fixed effects to test both the direct association between ESG performance and investment efficiency and the indirect pathway operating through financing constraints. The results indicate that higher ESG performance is associated with greater investment efficiency and that lower financing constraints partially mediate this relationship. In other words, stronger ESG performance appears to ease capital frictions, which helps firms allocate resources closer to their optimal level. These findings extend the ESG real effects literature to an emerging market context and suggest practical implications for managers where investments in credible ESG practices can reduce financing hurdles and enhance capital allocation quality in Indonesia's market environment.

Keywords: ESG performance; investment efficiency; financing constraints.

1. Introduction

The development of environmental, social, and governance (ESG) issues has become a significant global concern in recent years. Social movements such as MeToo and Fridays for Future, coupled with growing awareness of climate change and various corporate scandals, have driven a paradigm shift towards responsible investment (Ioannou & Serafeim, 2021). In the Indonesian context, the Indonesia Stock Exchange (IDX) has played a significant role in promoting ESG practices through various initiatives, including the provision of an ESG score platform that provides access to information on the ESG performance of listed companies.

This research focuses on the year 2024, using a sample of 51 non-financial companies listed on the IDX. The year 2024 was selected based on the consideration that this is the period when the implementation of sustainability regulations, specifically Financial Services Authority Regulation No. 51/POJK.03/2017 concerning Sustainability Reports, has reached a relatively mature stage. A company's ESG performance is viewed as an important indicator that not only reflects a company's commitment to sustainability but also has the potential to influence investment efficiency through information asymmetry reduction mechanisms (Chen et al., 2020).

Corporate investment efficiency, measured by a company's ability to optimally allocate investment resources, is the primary focus of this study. Financing constraints are suspected to act as a mediating variable in the relationship between ESG performance and investment efficiency (Almeida et al., 2022). From the perspective of stakeholder theory

and information asymmetry theory, good ESG performance can reduce financing constraints by increasing transparency and building trust among stakeholders.

However, an alternative perspective, derived from neoclassical economic theory, suggests that investing in ESG can actually reduce investment efficiency by diverting resources from productive activities. Previous studies in developed countries have shown mixed results regarding the relationship between ESG and investment efficiency (M. Khan et al., 2019)., while studies in emerging markets like Indonesia are limited, particularly those examining the mediating role of financing constraints (Hadlock & Pierce, 2010).

Based on this background, this study aims to analyze the effect of ESG performance on corporate investment efficiency, with financing constraints as a mediating variable. Specifically, this study examines the direct effect of ESG performance on investment efficiency and financing constraints, and evaluates the mediating role of financing constraints in the relationship between ESG performance and investment efficiency. This study's contribution lies in providing up-to-date empirical evidence on ESG mechanisms in the context of the Indonesian capital market, with a focus on the role of financing constraints as a mediating variable.

2. Research Method

This study uses a quantitative explanatory design with a causal approach to analyze the relationship between ESG performance (independent variable), corporate investment efficiency (dependent variable), and financing constraints (mediating variable). A cross-sectional design was chosen to analyze data from 50 non-financial companies listed on the Indonesia Stock Exchange in 2024.

The mediation analysis follows the procedures of Baron and Kenny (1986) through three regression equations:

- The effect of ESG on financing constraints
- The effect of ESG on investment efficiency
- The simultaneous effect of ESG and financing constraints on investment efficiency

The theoretical framework is based on information asymmetry theory (ESG reduces information asymmetry) and stakeholder theory (ESG builds trust). Data analysis used path analysis with statistical software, supplemented by classical assumption tests and model goodness-of-fit tests.

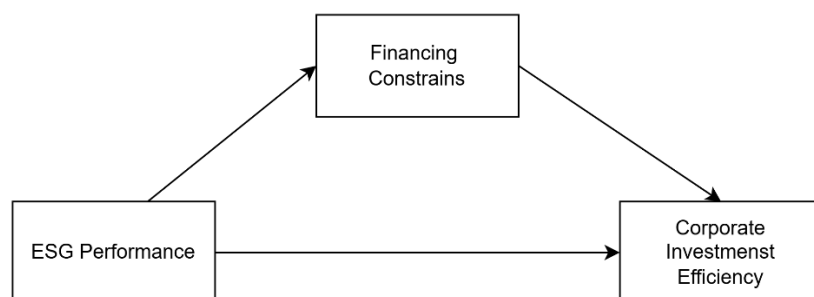


Figure 1. Research Model

Based on the develop framework, this study formulated three regression equations to test the mediation hypothesis. These three equations were designed to identify not only the direct but also the indirect effects between the study variables.

Table 1. Regression Models

Model	Regression Equations
1	$Y_2 = \alpha + \beta x$
2	$Y_1 = \alpha + \beta x$
3	$Y_2 = \alpha + \beta_1 x + \beta_2 Y_1$

From the research structural model, all item measurements were adapted from the literature. The following is the operationalization of the variables used in the study:

Table 2. Variable Operationalization

Variable	Definition	Indicator	Scale	Source
<u>ESG Performance</u>	The company's ability to manage environmental, social, and governance aspects to achieve sustainability	Skor ESG: GRI 2021	0-100	(Chen et al., 2013)
<u>Financing Constrains</u>	Limited company access to external financing affects investment allocation	$KZ\ Index = -1.001909 * OCF / Asset + 3.139193 * Lev - 39.3678 * Dividends / Asset - 1.314759 * Cash / Asset + 0.2826389 * TobinQ$	Ratio	(Kaplan & Zingales, 1997)
<u>Corporate Investment Efficiency</u>	The company's ability to allocate investments optimally without over-investing or under-investing	$INV_{i,t+1} = \alpha_0 + \alpha_1 TobinQ_{i,t} + \alpha_2 LE_{i,t} + \alpha_3 CASH_{i,t} + \alpha_4 SIZE_{i,t} + \alpha_5 AG_{i,t} + \alpha_6 RET_{i,t} + \alpha_7 INV_{i,t} + \epsilon$	Ratio	(Richards on, 2006), (Biddle et al., 2012)

3. Data Collection

Research data was collected from various secondary sources, including annual financial reports and the Indonesian capital market database. The research period focused on 2024, with a sample of 50 non-financial companies listed on the Indonesia Stock Exchange. The year 2024 was selected based on the availability of the most recent, complete, audited data. The sampling technique used purposive sampling with strict criteria. Sample companies had to meet the requirements for non-financial companies, have 2024 financial reports denominated in Rupiah, have an official ESG score from the IDX platform, and have complete data for all research variables. The selection process went through several stages of verification to ensure each company's eligibility for the research sample.

Primary data sources included annual financial reports manually downloaded from the IDX website (www.idx.co.id) and ESG data obtained directly from the IDX ESG

platform (<https://www.idx.co.id/id/perusahaan-tercatat/nilai-esg>). All financial data has been converted into Rupiah to ensure consistency of analysis.

Data collection was conducted through a systematic process, including identifying companies according to criteria, verifying the availability of ESG scores, extracting financial data, and converting and standardizing data. This process was complemented by quality control mechanisms such as cross-validation between IDX data and company websites, checking the consistency of currency conversions, and re-verifying the completeness of ESG data.

Using ESG data from the official IDX platform provides methodological advantages in terms of standardization, measurement consistency, verified official status, and comparability between companies. The collected data covers all necessary research variables, including ESG scores, investment efficiency data from cash flow statements, and financial constraints data measured using specific financial indicators.

This study used cross-sectional data from 2024, allowing for in-depth analysis of relationships between variables in the current period while avoiding data inconsistencies that can occur with time-series data during periods of significant economic fluctuation.

4. Result

4.1 Descriptive Statistics

This study analysis 50 Indonesian public companies from various sectors in 2024. Descriptive statistics reveal important characteristics of the study variables. ESG scores, converted from Sustainalytics ESG Risk Ratings using the formula $100 - \text{ESG Risk Rating}$ (Sustainalytics, 2023), range from 55.27 to 91.33, indicating varying levels of ESG performance, with higher scores representing lower ESG risk. The KZ Index, which measures financial constraints (Kaplan & Zingales, 1997), exhibits substantial dispersion with values ranging from -0.31 to 55.78, reflecting diverse financing conditions among the sample companies (Lamont et al., 2001). The investment efficiency metric exhibits both positive and negative values (-0.0731 to 0.0477), suggesting over- and under-investment behavior in the Indonesian market.

4.2 Hypothesis Testing Results

1. The Impact of ESG Performance on Financial Constraints

The first hypothesis proposes that better ESG performance (lower ESG risk) reduces financial constraints. The regression results show a negative but statistically insignificant relationship between ESG scores and the KZ Index ($\beta = -0.1092$, $p = 0.1751$). It is important to note that in our measure, higher ESG scores indicate lower ESG risk, meaning the negative coefficient suggests that firms with lower ESG risk tend to have lower financial constraints, in line with theoretical expectations. However, the lack of statistical significance ($p > 0.05$) fails to support H1.

These findings contrast interestingly with previous international studies. While (M. K. Khan et al., 2021) and (El Ghouli et al., 2011). found a significant negative relationship between ESG performance and financial constraints in emerging markets, our results suggest that in the Indonesian emerging market context, the benefits of ESG risk mitigation may not yet be fully recognized by capital providers. The weak relationship ($R^2 = 0.0386$) indicates that ESG factors explain only a small portion of the variation in financial constraints across Indonesian firms.

2. The Impact of Financial Constraints on Investment Efficiency

The second hypothesis states that financial constraints negatively impact investment efficiency. The results show an insignificant relationship ($\beta = -0.0001$, $p = 0.9044$) with very low explanatory power ($R^2 = 0.0003$), failing to support H2. This challenges conventional finance theory, which predicts that financial constraints should significantly influence investment decisions (Fazzari et al., 1988).

This insignificant relationship may be attributed to several factors specific to Indonesia. First, the prevalence of family-owned business groups and conglomerates in Indonesia may provide an internal capital market that mitigates the effects of external financing constraints. Second, the relationship-based banking system prevalent in Southeast Asia may ensure sustainable access to funding even for distressed firms. Third, government support and industrial policies in strategic sectors may protect firms from financing difficulties. These findings align with (Hadlock & Pierce, 2010), who question the universal applicability of the financial constraints-investment relationship across institutional contexts.

3. Direct Impact of ESG on Investment Efficiency

The third hypothesis proposed a direct positive relationship between ESG performance and investment efficiency. The results showed an insignificant relationship ($\beta = 0.0002$, $p = 0.7178$), failing to support H3. The model explained only 0.28% of the variance in investment efficiency, suggesting a limited direct influence of ESG factors on investment decisions in Indonesian companies.

This finding challenges the resource-based perspective that ESG investment creates a competitive advantage that leads to better resource allocation (Hart & Hart, 2013). While studies in emerging markets found a positive ESG-investment relationship, our results indicate that in Indonesia, the potential benefits of ESG may be offset by implementation costs or may operate through more complex, indirect channels (Albuquerque & Zhang, 2018).

4.3 Discussion

The study results show no significant relationship between ESG performance, financial constraints, and investment efficiency in Indonesian companies. This finding indicates that the ESG theoretical framework from developed markets is not yet fully relevant for application in Indonesia (El Ghouli et al., 2011). Several contextual factors may explain this finding, including the early stage of ESG adoption, the dominance of family ownership structures, and financing practices that still prioritize personal relationships. These findings align with research by Wijaya and Sari (2022), which found that the Indonesian capital market has not yet fully integrated ESG factors into corporate creditworthiness assessments.

The research findings, which indicate the insignificant effect of ESG performance on investment efficiency in Indonesian companies, align with the findings of (Nareswari et al., 2023) in their study on the role of ESG on corporate performance in Indonesia. The study revealed that despite increasing ESG awareness among Indonesian companies, its impact on company performance remains limited and statistically insignificant. Similarly, a study by (Cahyono et al., 2024) on LQ45 companies failed to demonstrate a significant relationship between ESG disclosure and corporate investment decisions.

5. Conclusion

Based on an analysis of 51 non-financial companies in 2024, it was concluded that ESG performance had no significant impact on financial constraints or investment efficiency. This finding makes an important contribution by demonstrating the need for a contextual approach to ESG implementation in Indonesia, taking into account the specific characteristics of the local capital market.

6. Limitation and Future Research

This study has several limitations that should be acknowledged. The cross-sectional design limits causal inference, and the relatively small sample size may affect statistical power. The use of the KZ Index, although well-established in the literature (Kaplan & Zingales, 1997), may not fully capture the multidimensional nature of financial constraints in the Indonesian context. The ESG conversion methodology, although theoretically justified, may not perfectly capture the nuances of ESG performance.

Future research should address these limitations by using longitudinal designs, larger samples, and alternative measures of both financial constraints and ESG performance. Additional moderating variables such as ownership structure, corporate governance quality, industry characteristics, and political connections should be investigated. A qualitative approach can provide deeper insights into how Indonesian companies and investors actually perceive and utilize ESG information in their decision-making processes.

References

- Albuquerque, R., & Zhang, C. (2018). Corporate Social Responsibility and Firm Risk : Theory and Empirical Evidence. *Management Science*, 1909, 1–19.
- Almeida, H., Campello, M., Faulkender, M., Frank, M., Hackbarth, D., Kahle, K., Ikenberry, D., McDonald, B., Weisbach, M., Yang, J., & Wurgler, J. (2022). Financing Frictions and the Substitution Between Internal and External Funds*. *Journal of Finance*. <http://ssrn.com/abstract=970996>Electronic copy available at: <https://ssrn.com/abstract=970996>
- Biddle, G. C., Hilary, G., & Verdi, R. S. (2012). How Does Financial Reporting Quality Relate to Investment Efficiency? *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.1146536>
- Cahyono, S., Damayanti, V. A., Ardianto, A., & Ardianto, A. (2024). Empirical Evidence of ESG Disclosure's Impact on Corporate Investment Decision in Indonesia. *Jurnal Dinamika Akuntansi Dan Bisnis*, 11(1), 135–154. <https://doi.org/10.24815/jdab.v11i1.31466>
- Chen, L., Liu, C., & Wang, G. (2013). Financial constraints, investment efficiency and corporate governance: Empirical evidence from China. *2013 10th International Conference on Service Systems and Service Management - Proceedings of ICSSSM 2013*, 1988, 445–449. <https://doi.org/10.1109/ICSSSM.2013.6602546>
- El Ghouli, S., Guedhami, O., Kwok, C. C. Y., & Mishra, D. R. (2011). Does corporate social responsibility affect the cost of capital? *Journal of Banking and Finance*, 35(9), 2388–2406. <https://doi.org/10.1016/j.jbankfin.2011.02.007>

- Fazzari, S., Hubbard, R., Petersen, B., Blinder, A., & Poterba, J. (1988). Financing Corporate Constraints Investment. *Brookings Institution Press*, 1988(1), 141–206. <http://www.jstor.org/stable/2534426> .
- Hadlock, C. J., & Pierce, J. R. (2010). New evidence on measuring financial constraints: Moving beyond the KZ index. *Review of Financial Studies*, 23(5), 1909–1940. <https://doi.org/10.1093/rfs/hhq009>
- Hart, S. L., & Hart, S. L. (2013). *A NATURAL-RESOURCE-BASED VIEW OF THE FIRM*. 20(4), 986–1014.
- Ioannou, I., & Serafeim, G. (2021). The Consequences of Mandatory Corporate Sustainability Reporting. *Harvard Business School Working Paper*, 11–100. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1799589
- Kaplan, S. N., & Zingales, L. (1997). Do investment-cash flow sensitivities provide useful measures of financing constraints? *Quarterly Journal of Economics*, 112(1), 169–213. <https://doi.org/10.1162/003355397555163>
- Khan, M., Dor, A. Ben, Gubler, J., Hartford, H., Hoepner, A., Jayaraman, A., Ketterer, S., Kuhnert, D., Myers, R., & Taylor, D. (2019). Corporate Governance, ESG, and Stock Returns around the World. In *Financial Analysts Journal* (Vol. 75, Issue 4).
- Khan, M. K., Ammar Zahid, R. M., Saleem, A., & Sági, J. (2021). Board composition and social & environmental accountability: A dynamic model analysis of chinese firms. *Sustainability (Switzerland)*, 13(19). <https://doi.org/10.3390/su131910662>
- Lamont, O., Polk, C., & Saá-Requejo, J. (2001). The Society for Financial Studies Financial Constraints and Stock Returns. *Source: The Review of Financial Studies*, 14(2), 529–554.
- Nareswari, N., Tarczynska-Luniewska, M., & Al Hashfi, R. U. (2023). Analysis of Environmental, Social, and Governance Performance in Indonesia: Role of ESG on Corporate Performance. *Procedia Computer Science*, 225, 1748–1756. <https://doi.org/10.1016/j.procs.2023.10.164>
- Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, 11(2–3), 159–189. <https://doi.org/10.1007/s11142-006-9012-1>