

Does Sustainability Risk and Corporate Governance Quality Matter to Investors' Level of Investment?

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Abstract

This research examines sustainability risk (SR) and corporate governance quality (CGQ) on investor investment (CG). The level of SR used uses SR with low and high conditions. Further, the level of CGQ uses good and bad CG implementation quality. This research method uses a website-based experimental approach. This experimental study used 2x2 between subjects, and participants were randomized into different groups. The results of this research show that companies with a low level of sustainability risk will be more attractive to investors when investing compared to companies with a high level of sustainability risk. Apart from the risk aspect, a good company's CG quality will provide investment guarantees for investors compared to a poor CG quality. This research demonstrates how the SR affects the Investment Judgment Level. In addition, SR and CGQ have an impact on the degree of investing judgment. This study supports the stakeholder theory by demonstrating that businesses can achieve long-term stability and profitability by controlling their sustainability risks. contribute to sustainability risk analysis as a critical factor in investment decisions, not just traditional financial factors. Research on the impact of SR and CGQ on investment decisions remains restricted. Previous research has limited the measurement of corporate governance to the governance structure. This research provides specific evidence by experimental method, where the Corporate Governance was treated differently in the experiment material as well as the Sustainability Risk to check whether those information impact on the level of investment.

Keywords: *Corporate Governance Quality, Investment Judgment Level, Stakeholder Theory, Sustainability Risk.*

Introduction

The phrase sustainability risk which refers to the potential negative impact on an organization, investment, or activity due to environmental, social, or governance (ESG) factors, has been discussed frequently since it has a direct impact on firm decision making (Arslan and Alqatan, 2020; Melina *et al.*, 2016; Raian *et al.*, 2022; Seddighi and Ahmadi-Javid, 2015; Hajmohammad and Vachon, 2016; Torinelli and Silva Júnior, 2021; Zhou and Yuen, 2024). It become significant concern in practice since the Indonesian government make it mandatory for some companies: financial sector companies and listed companies (eraturan Otoritas Jasa Keuangan (POJK) No. 51/POJK.03/2017), all companies which activities exposing to natural resources (Undang-Undang No. 40 Tahun 2007 tentang Perseroan Terbatas), and all big companies which activites affect to environment significantly UU No. 32 Tahun 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup).

Investors are also increasingly considering the capacity to reduce such risk (Chen and Ma, 2023; Erhart, 2022; Huang *et al.*, 2020; Löfgren and Nordblom, 2024; Negra *et al.*, 2020; Valinejad and Rahmani, 2018). Corporate governance quality enhances managerial decision-making control, restricts opportunistic conduct, and enhances the quality of information organizations disclose (Ben Amar and Chakroun, 2018). Effective corporate governance can provide guidance and build regulations that empower firms to effectively manage the various risks they face, going beyond just sustainability risk. Investors must be provided with governance information when they are involved in a decision-making process (Shahid and Abbas, 2019). This study examines the influence of corporate governance quality and sustainability risk on decision-making and precisely describes investors' behavior.

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This research is significant since it can shed light on the causal relationship between environmental and social governance (ESG), a standard of corporate governance, and sustainability risk within the context of investment decision-making. Sustainability risks are often intangible, interdependent, and difficult to measure objectively (Anagnostopoulos, Skouloudis, Khan, & Evangelinos, 2018; Shi et al., 2019). Existing assessment methods and tools have limitations in providing integrated, comprehensive, and reliable sustainability risk evaluations. Thus, this study tend to conduct an alternative assessment which allows for accurate control and testing of variable operationalization specifically. Unlike previous studies that included corporate governance structure, such as the number of boards, committees, and directors, this study looks at the quality of corporate governance as recognized by The Indonesian Institute for Corporate Governance (IICG), which consisted of three sub-index of assessments: transparency and disclosure, structure and mechanism, and chief executive responsibility (Setiawan & Phua, 2013). So that we can internalize the quality of corporate governance in Indonesia and obtain a view of the reputation of corporate governance from external parties.

This research uses a website-based experimental method with a 2x2 between-subjects design. The independent variables of this research consist of sustainability risk and corporate governance quality. In contrast, the dependent variable of this research is the investment decision-making process. The sustainability risk variable consists of two levels: high and low. This research's corporate governance variables consist of high-quality and low-quality. The dependent variable of this research consists of judgment investment (Widyatama and Narsa, 2022). The findings of this study indicate that companies with a low degree of sustainability risk will be more attractive to investors than those with a high level of sustainability risk. This situation is influenced by the type of investors in Indonesia, who are rational and cautious about investing. Furthermore, high-quality corporate governance will give investors' confidence that the funds invested in the company will be secure and provide returns.

This research provides a theoretical contribution. First, the results of this research provide a theoretical contribution to stakeholder theory (Carroll, 1999; Mitchell *et al.*, 1997; Orlitzky *et al.*, 2003; Rowley, 1997). These findings support stakeholder theory, which states that organizations that manage their sustainability risks will achieve long-term stability and profitability. This study's findings help establish sustainability risk analysis as a crucial aspect in investment decisions, in addition to traditional financial considerations. The stakeholder theory highlights the significance of trust among stakeholders (Mitchell *et al.*, 1997; Orlitzky *et al.*, 2003; Rowley, 1997); hence, to establish trust and reputation among stakeholders such as investors, employees, consumers, and the community, it is essential to have effective corporate governance as a kind of assurance. Furthermore, strong governance signifies that the organization exhibits elevated levels of transparency and accountability. In addition, good governance indicates a higher level of transparency and accountability (Almaqtari *et al.*, 2021; Ananzeh *et al.*, 2022; Andreou *et al.*, 2021; Anglin *et al.*, 2013; Armstrong *et al.*, 2015; Arslan and Alqatan, 2020; Ayoola *et al.*, 2023). This situation signifies that the company has adopted superior and more accountable management strategies, thereby demonstrating to other stakeholders, particularly investors, that the company deserves to be considered an investment opportunity. Ultimately, these findings contribute to the understanding that high sustainability risks and weak corporate governance quality might be decisive factors in investors' avoidance of investing in the company (Al-Gamrh *et al.*, 2020; Al-Haddad and Al-Ahmad, 2024; Almeida *et al.*, 2010; Chen *et al.*, 2020; Ellouze and Cherif, 2020; Jafeel *et al.*, 2024). Good governance quality can mitigate the risks of poor sustainability and management, as well as corruption or unethical conduct by management (Lombardo, *et al.*, 2019). Risk reduction is an attractive factor for investors to invest in companies with good long-term stability and performance, protecting the interests of stakeholders and investors and adding long-term economic value. In addition, a high investment interest can motivate companies to not only comply with corporate regulations and minimum standards but also pursue best practices, particularly in governance and sustainability, thereby making a significant contribution to all stakeholders, especially investors.

This article is divided into five sections. Section one, above, was the introduction. Section two of this article will explain the theoretical background and hypothesis development. Section three will describe the experimental procedure. Section four will discuss the analysis, and then section five will present the conclusions, research limitations, and potential for future research.

Literature Review and Hypothesis Development

Sustainability Risk and Investor-Level Investment

Investment decision-making involves the allocation of cash to different investment products. This decision-making variable involves judgment investment (Widyatama and Narsa, 2022). The company's sustainability risk exerts an effect on the investment decision-making process. Sustainability risk refers to the likelihood and impact of events that affect an organization's ability to achieve sustainable development (Du and Xu, 2017). Sustainability risk refers to an event or circumstance related to the environment, society, or governance that, if it happens, could significantly negatively impact the value of investments made by investors. Sustainability risk assessments are intricate and can rely on ESG data that is challenging to get, incomplete, approximated, outdated, and significantly wrong. Hence, when investors encounter information with a significant sustainability risk, it diminishes their inclination toward the investment, resulting in a lower allocation of funds compared to when they receive information about sustainability with minimal risk (Brogi, *et al*, 2022; Sutrisno and Kumar, 2022; Villamil *et al*, 2022). Sustainability risks encompass physical risks associated with climate change events and transition risks arising from society's response to climate change (Agarwala *et al*, 2021; Gambhir *et al*, 2021; Luiz, 2024; Warren-Myers & Craddock, 2023). These risks can potentially cause unanticipated losses that can impact the investments of relevant investors and financial circumstances (Agarwala *et al*, 2021; Gambhir *et al*, 2021). The corporation strives to minimize this risk to ensure its survival in the business industry. The initial hypothesis put up is as follows:

H1: Subjects given high sustainability risk information will invest less than subjects given low sustainability risk information.

Corporate Governance Quality and Investor Level Investment

Corporate Governance Quality (CGQ) is one aspect that can reduce information asymmetry for companies and other stakeholders in decision-making (Jensen, and Meckling, 1976; McWilliams, 2016). CGQ can be used as a form of accountable supervision and management of the company so that the company's overall performance can meet the targets achieved. Corporate governance guidelines are fundamental for stakeholders to assess whether this company has quality and transparency in company management. This condition can influence investor decision-making. Studies have shown that companies with stronger corporate governance, as indicated by factors such as effective board oversight, CEO-chair separation, and shareholder rights, tend to have lower risk of stock price crashes (Choi, Choi, Choi, & Chung, 2020). In contrast, when the quality of implementation and disclosure of CGQ is weak, it can be interpreted that the resulting information asymmetry will be high so that it can influence decision-making (Landi, Iandolo, Renzi, & Rey, 2022). Therefore, the hypothesis proposed is as follows:

H2: Subjects with high corporate governance quality will have higher investments than those with low corporate governance quality.

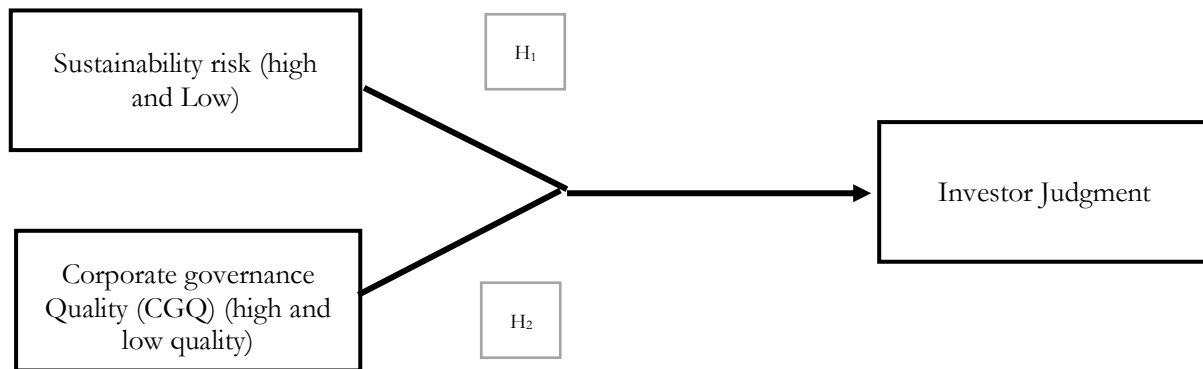


Figure 1

Research Model

Method

Experiment Design

This study employs an online experimental design utilizing Zoom sessions to convene participants simultaneously. The experimental design employed in this study is a 2x2 between-subjects design (Chong & Suryawati, 2011; Widyatama & Narsa, 2022), as indicated in Table 1. This study examines sustainability risk, categorized as either Low or High. The second variable is corporate governance, which encompasses both high and low levels of corporate governance. These two elements will be employed to evaluate their impact on investment decision-making. Variables unrelated to the research will be controlled by a participant randomization method, ensuring that individuals are randomly assigned to each group. Researchers employ measurements, namely the assessment of each investor's judgment, to evaluate their investing decision-making (Bucaro, *et al.*, 2020; Dilla, *et al.*, 2019; Haji, *et al.*, 2021; Reimsbach, *et al.*, 2018; Reimsbach, *et al.*, 2019; Widyatama and Narsa, 2022).

Table 1. Experiment Design

		Sustainability Risk	
		High	Low
Corporate Governance Quality	High Quality of Corporate Governance	High Sustainability risk with high Quality of corporate governance (I)	Low Sustainability Risk with high Quality of corporate governance (II)
	Low Quality of Corporate Governance	High Sustainability Risk with Low Quality of Corporate Governance (III)	Low Sustainability Risk with low Quality of corporate governance (IV)

Preparing this experimental scenario entails multiple procedures to guarantee high validity. Initially, researchers generate scenarios by utilizing secondary data or other available documentation. Next, after developing the initial scenario, the researcher sought the input of scholars, professionals in corporate social responsibility (CSR) within companies, and investors to ensure that the participants could understand the content and that the scenarios accurately reflected real-world circumstances. Next, after preparing the scenario, the researcher performed a pilot test on students not participating in the study to evaluate the participants' comprehension of the developed scenario. Suppose the pilot test results reveal many participants failing to answer at least 50% of the manipulation questions correctly. In that case, we will

modify the scenario and carry out additional trials until participants achieve a success rate of over 50%. Additionally, we can employ the scenario with actual people if it successfully passes the manipulation test (see Appendix 1). Figure 2 illustrates the comprehensive process for constructing the scenario.

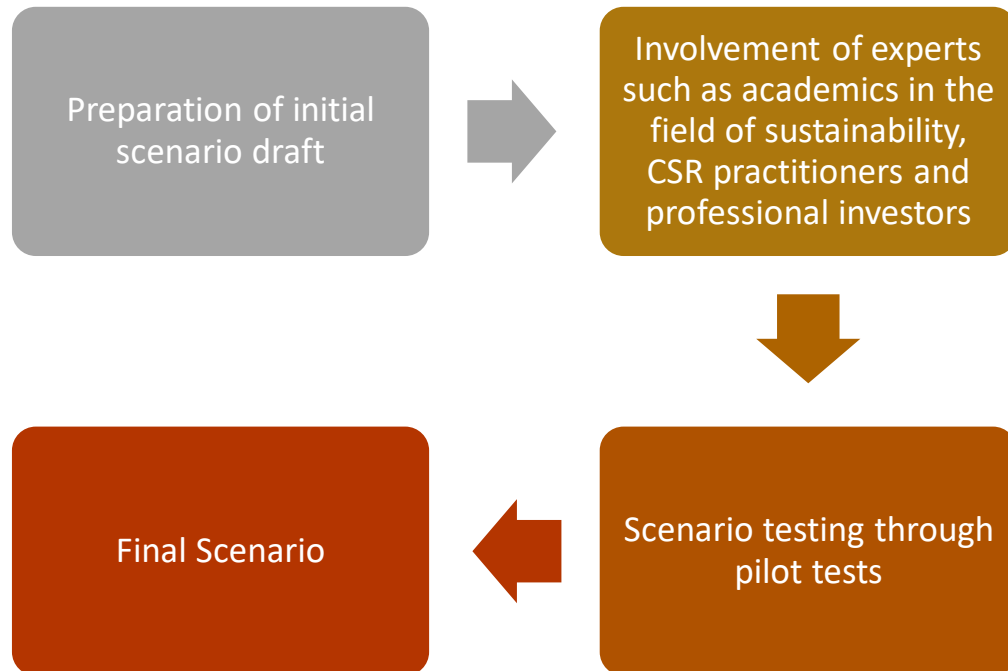


Figure 2. Procedure for Preparing Experimental Scenarios

Participant

The participants in this research are final year accounting students who have gone through financial and investment management courses, so each student has the same knowledge and competencies. Students are used as participants or surrogate investors because students are considered to have no difference from investors if they are used as participants (Ashton and Kramer, 1980; Chan, *et al.*, 1999; Liyanarachchi and Milne, 2005; Remus, 1986). Apart from that, another consideration from researchers is that if they use professional investors, the sample obtained will not be as homogeneous as students because professional investors have different experiences and competencies from one another (Chong & Suryawati, 2011; Hughes & Gibson, 1991). . Students participating in this experiment were invited to voluntarily participating in the experiment by announcing in student group whatsapp and inviting them in a zoom meeting to start join the experiment. The experiment was conducted online through a Zoom meeting, where the experiment materials were uploaded through Google Form. This research carried out manipulation check testing, through two manipulation questions. Manipulation checks must be passed to test the experiments' consistency and reliability (Fiedler, McCaughey, & Prager, 2021). Seventy participants took part in the experimental activities, but only 56 (80%) completed the manipulation questions created (appendix 1). There were 14 male participants (25%) and 42 female participants (75%). Table 2 summarizes demographic information about the participants.

Table 2. Descriptive Statistics for Participants

	Frequency	Percent
The final number of participants	56	100
Gender distribution of participants		
Male	14	25,0
Female	42	75,0
Age distribution of participants		
19,00	4	7,1
20,00	28	50,0
21,00	21	37,5
22,00	2	3,6
23,00	1	1,8
GPA distribution of participants		
2,60 - 2,80	1	1,79
> 2,80 - 3,00	1	1,79
> 3.00 - 3.2	7	12,50
>3.2 - 3.4	11	19,64
>3.4 - 3.6	22	39,29
>3.6 - 3.8	13	23,21
>3.8 - 4.00	1	1,79

Experiment Procedure

This research uses an online experimental approach, since it enhance the data collection (Genovese, F., et al. 2024), supports time and cost effectiveness (Yashoda et al 2022), and provides access to diverse participant pool (Fink, 2022). Participants selected through a selection process and in the WhatsApp group are then invited at a predetermined time to participate in experimental activities in figure 3. Each participant will be invited to the WhatsApp group for a Zoom meeting during the experimental activity. Next, each participant will be randomly assigned to the Zoom breakout room and assigned to each group in Table 1, assisted by a research assistant in each group. Randomizing participants is a step that must be taken to obtain homogeneous participants and prevent variables outside the research model from interfering with the research model. (Field and Graham, 2013) so that the research results become more robust. Participants in each room will be given a link in the form of a research instrument and given 20 minutes to answer. After the time ends, each participant will enter the main room and be debriefed by explaining the purpose of the research scenario and giving rewards to participants who have fulfilled the manipulation test.

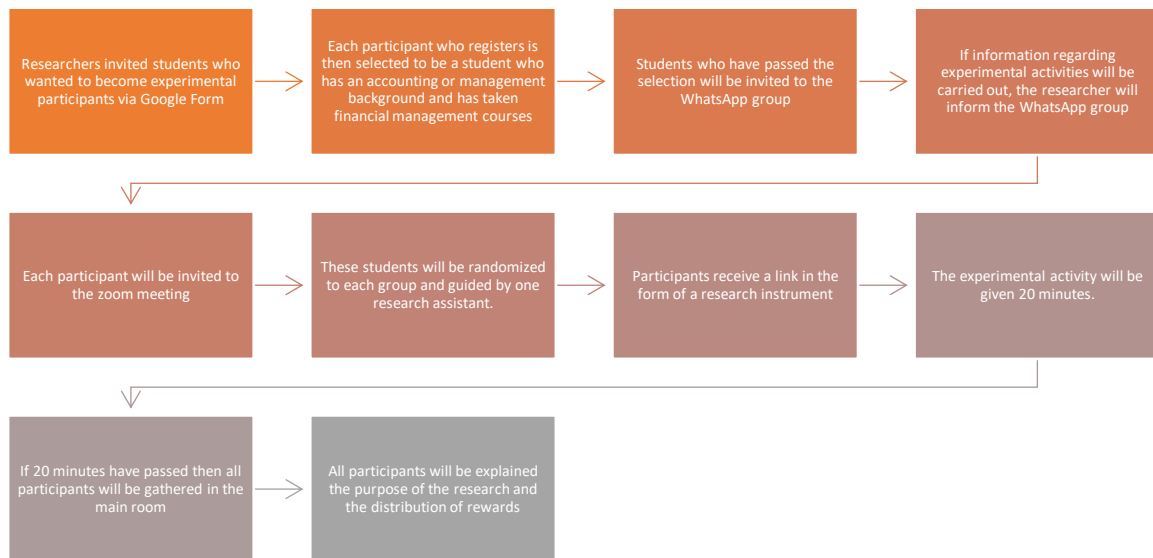


Figure 3. Experimental Procedures

Result and Discussion

Descriptive Statistics

Table 3 shows the descriptive statistics of this study. The mean value for the group that has high sustainability risk and corporate governance is 7.00, the group that has high sustainability risk but has low quality of corporate governance is 3.23, the group that has low sustainability risk but has high quality of corporate governance is amounting to 7.07 and groups that have low sustainability risk and corporate governance amounting to 5.64.

Table 3. Statistic Descriptive

Mean (SD) (sample Size)	Investors Judgment		
	High Quality of Corporate Governance	Low Quality of Corporate Governance	Overall
High Sustainability Risk	7 (1,84) [n=14]	3,23 (2,28) [n=13]	6,34 (1,93) [n=29]
Low Sustainability Risk	7,07 (1,33) [n=15]	5,64 (2,24) [n=14]	5,19 (2,79) [n=27]
Overall	7,035 (1,585) [n=29]	4,435 (2,26) [n=27]	5,74 (1,92) [n=56]

Hypothesis Testing

This study tests the research hypothesis using ANOVA and will then be tested using the Post Hoc Test. The ANOVA test can be seen in Table 4. Table 4 shows that the influence of Sustainability Risk (SR) significantly influences the investment judgment level of each investor with a significance value of $0.021 < 5\%$. This condition indicates that the sustainability risk of each company can influence investors in the decision-making process. Next, the results were post hoc tested using LSD, which can be seen in Table 5. The post hoc test results show that investors' investment judgment level will be more significant when faced with sustainability cases with low risk (6.355) compared to high risk (5.11) with a significance value of 0.021, so H1a is supported.

Table 4. ANOVA Test Results for Testing Sustainability Risk and Corporate Governance on Investor Judgment

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Panel A: Investment Judgment Level					
SR	21,450	1	21,450	5,678	0,021**
CG	94,145	1	94,145	24,919	0,000***
SR * CG	19,204	1	19,204	5,083	0,028**
Error	196,455	52	3,778		

Note(s): SR = Sustainability Risk, CG = Corporate Governance

***significant at the level 1%; ** significant at the level 5%; * significant at the level 10%

The plot results for the (combined) effects of sustainability risk and corporate governance on non-professional investors' judgment amount is shown in Figure 4, which supports the ANOVA test for hypotheses H1, and H2.

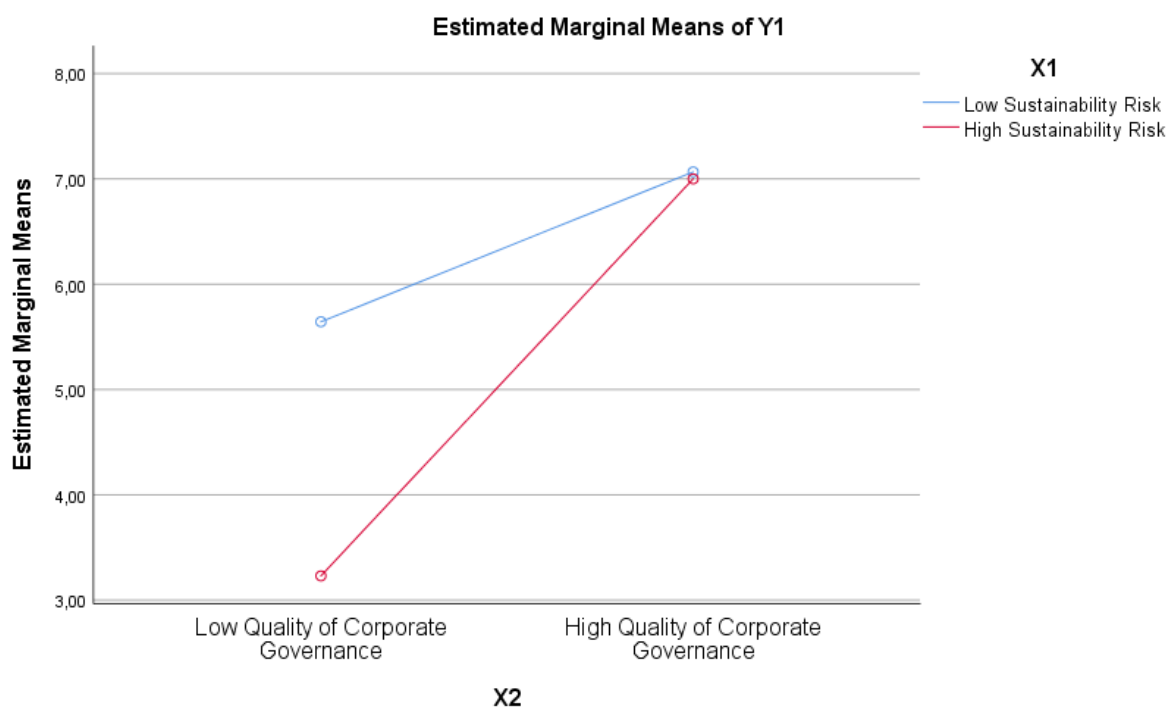


Figure 4. Plotted Results for the (Joint) Effects of Sustainability Risk and Corporate Governance on Professional Investors' Judgment

Low sustainability risk will increase investors' decisions to invest in the company. Companies with a low level of risk sustainability tend to have more sustainable, safe and socially responsible business models compared to companies with a high level of risk sustainability. (Naqvi, *et al.*, 2022; Oduoza, 2020; Qazi, *et al.*, 2023; Torinelli and Silva Júnior, 2021; Warasthe, *et al.*, 2022; Wassmann *et al.*, 2019; Wöhler and Haase, 2022). A company's low sustainability risk will result in a low probability of a crisis occurring, which could damage the company's value and reputation in the future. Apart from that, companies that have low sustainability will have good resilience and stability so that the potential for scandals in the future will be minimized. Low sustainability risk will make investors' view of the company optimistic (Anand, *et al.*, 2023; Fan, *et al.*, 2021; Huang *et al.*, 2020; Kouaib and Amara, 2022; Toumi and Hamrouni, 2023; Warasthe *et al.*, 2022). When investing, investors will consider the various risks posed by the company, including the company's sustainability risk. Companies with a high level of sustainability risk tend to have a high environmental impact compared to those with low risk. Companies with high sustainability risk must consider all aspects, namely regulatory compliance, governance, and fundamental aspects of company finance.

Then, the results of testing the Corporate Governance variable in Table 4 show significant results with a significance value of $0.000 < 1\%$. These results indicate that corporate governance variables significantly influence investor decision-making. Next, a post hoc test was carried out with results showing that the Investment Judgment Level would invest more in companies that have high-quality corporate governance compared to low quality with a mean value of 7.033 and 4.43 with a significance value of $(0.000 < 1\%)$ so H2 is supported (table 5).

Table 5. Post Hoc Test Result for Sustainability Risk and Corporate Governance on Investor Judgment

Investment Judgment					
Sustainability (H_{1a})	Mean	Sig	Corporate Governance (H_{2a})	Mean	Sig
Low	6,355	0,021**	High	7,033	0,000***
High	5,115		Low	4,437	

Note(s): SR = Sustainability Risk, CG = Corporate Governance

***significant at the level 1%; ** significant at the level 5%; * significant at the level 10%

Corporate governance has an essential role for companies in attracting investors to invest in their companies (Al-Haddad and Al-Ahmad, 2024; Bātae, *et al.*, 2021; Koerniadi, *et al.*, 2014; Schiehl, *et al.*, 2019). Therefore, the quality of corporate governance implementation is important in demonstrating reputation to stakeholders, especially investors. In Indonesia, the quality of corporate governance can be seen in the corporate governance report published by the Indonesian Institute for Corporate Governance (IICG) on the Corporate Governance Perception Index (CGPI) every year. Besides IICG, companies can publish their corporate governance performance through sustainability reports (SR). This condition can made to attract investors to invest. Effective corporate governance ensures the company has transparent and accountable practices in its operational activities to assure investors they will invest. (Ali, *et al.*, 2018; Black, *et al.*, 2015; Cheung, *et al.*, 2015; Habib and Hasan, 2019; Ho, *et al.*, 2023; Li, *et al.*, 2024; Stevens, 2023). As an external party, the Indonesian Institute for Corporate Governance ensures that corporate governance has been implemented by providing an independent assessment of the company to become a basis for investors' consideration in making decisions. Additionally, solid corporate governance involves effective oversight of management and procedures to prevent fraud and mismanagement.

Supplementary Analysis

This research also provides additional analysis in Table 6 to explain further how the combination of sustainability risk and the quality of corporate governance can influence investors' decisions to invest. Companies with a high sustainability risk but, on the other hand, have a high quality of corporate governance will tend to be chosen by investors to invest compared to companies with a low sustainability risk but with a low quality of corporate governance. These findings indicate that implementing corporate governance is very important because at the sustainability level a high level of risk can make investors believe that these conditions do not negatively affect company performance. Companies with good governance indicate that the company has a competent management team and a good system for managing risks, including sustainability risks (Almeida *et al.*, 2010; Jafeel *et al.*, 2024; Ribeiro and de Souza, 2023; Yahya *et al.*, 2023). This condition makes investors believe the company can better overcome challenges and mitigate long-term risks. Furthermore, companies that are managed through suitable governance mechanisms will have a more solid long-term strategy so that even though the company faces high sustainability risks, investors believe that with good governance, the company will be able to overcome these risks and grow better in the future long-term.

This finding also proves that investors prefer to invest in companies with a low level of sustainability and good governance quality compared to those with high sustainability risk but low governance quality. These findings prove that good governance indicates that companies manage resources more efficiently and effectively to reduce waste and increase productivity. This result provides an excellent competitive

advantage, especially when facing high sustainability risks. In addition, these results assure investors that high sustainability risks but good governance quality will be easily measured and assessed compared to risks arising from poor governance management. The risks resulting from poor governance can have broader implications and have a higher negative impact on investors.

Table 6. Supplementary Analysis

Supplementary Analysis Result			
Dependent Variable	Group	mean	mean difference
Investor judgment	High sustainability risk and high corporate governance quality	7,00	3,77***
	Sustainability risk is low, and the quality of corporate governance is low	3,23	
Investor judgment	Sustainability risk is high, and the quality of corporate governance is low	3,23	-3,84***
	Low sustainability risk and high corporate governance	7,07	
Investor Judgment	Sustainability risk is high, and the quality of corporate governance is low	3,23	-2,41**
	Sustainability risk is low and has low corporate governance	5,64	

Note(s): *** significant at the level 1% , **significant at the level 5%;

Further findings prove that high sustainability risk and low corporate governance quality are less attractive to investors than those with low sustainability risk and low corporate governance. The results of this research have implications for decreasing investor confidence in the company's ability to manage all risks, including high sustainability risks. This condition makes investors hesitate to invest because the risks faced by the company are too high and not well managed. Therefore, investors will own companies with low sustainability risk despite poor governance rather than high sustainability risk and poor governance. This condition is a safer choice compared to companies. Investors may prefer companies with low sustainability risk and poor governance because even if their governance is poor, low sustainability risk reduces the potential for significant losses. It is considered a safer option than companies facing considerable risks in both aspects. Poor corporate governance reduces investor confidence in a company's ability to manage all risks, including high sustainability risks. This combination can make investors hesitant to invest because the risks become too large and unmanageable.

Conclusions, Limitations, and Future Research

In this research, we investigate the influence of sustainability risk and corporate governance quality on investor decision-making. The results of this test show that companies that have low sustainability risk and high-quality corporate governance are more attractive for investors to invest in. Furthermore, companies that have low sustainability risk will be chosen by investors compared to companies that have high sustainability risk. This condition indicates that investors believe more that managers can organize the risks they face. Then, companies that have high-quality corporate governance will be more attractive to investors compared to companies that have low-quality corporate governance. The results of this research support stakeholder theory, which states that organizations that manage their sustainability risks will achieve long-term stability and profitability. This study's findings help establish sustainability risk analysis as a crucial aspect in investment decisions, in addition to traditional financial considerations. The stakeholder theory highlights the significance of trust among stakeholders (Mitchell *et al.*, 1997; Orlitzky *et al.*, 2003; Rowley, 1997); hence, to establish trust and reputation among stakeholders such as investors, employees, consumers, and the community, it is essential to have effective corporate governance as a kind of assurance.

The results of this research provide practical implications for business globally as well as supporting data for government policy making regarding the important role of corporate governance in increasing investor

confidence. High-quality corporate governance guarantees investors that the company can manage the risks it faces, thereby creating trust for stakeholders, especially investors. Hence, companies do not only focus on paying attention to assessments of the quality of corporate governance carried out personally but need to pay attention to the impact of corporate governance assessments produced by external parties. This condition can be a suggestion for further research to further examine investors' assessments from the perspective of assessing corporate governance internally, governmentally, and externally.

Author Contributions

- Rindah Febriana Suryawati (first and corresponding author): conceptualization, literature review, responsible to writing the whole manuscript, and seek for research funding
- Amaliyah: data collection and experiment administration
- Arif Widyatama: original draft preparation, literature review, and data analysis
- Mazni Abdullah: research methodology, review and editing

All authors have read and agreed to the published version of the manuscript.

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References

- Agarwala, M., Burke, M., Klusak, P., Mohaddes, K., Volz, U., & Zenghelis, D. (2021). Climate Change and Fiscal Sustainability: Risks and Opportunities. *National Institute Economic Review*, 258, 28–46. <https://doi.org/10.1017/nie.2021.37>
- Al-Gamrh, B., Ku Ismail, K. N. I., Ahsan, T., & Alquhaif, A. (2020). Investment opportunities, corporate governance quality, and firm performance in the UAE. *Journal of Accounting in Emerging Economies*, 10(2), 261–276. <https://doi.org/10.1108/JAEE-12-2018-0134>
- Al-Haddad, L., & Al-Ahmad, A. (2024). Does foreign ownership affect corporate cash holdings? Evidence from Amman Stock Exchange. *International Journal of Business Governance and Ethics*, 18(3), 297–312. <https://doi.org/10.1504/IJBGE.2024.138185>
- Ali, S., Liu, B., & Su, J. J. (2018). Does corporate governance quality affect default risk? The role of growth opportunities and stock liquidity. *International Review of Economics and Finance*, 58(April), 422–448. <https://doi.org/10.1016/j.iref.2018.05.003>
- Almaqtari, F. A., Hashed, A. A., & Shamim, M. (2021). Impact of corporate governance mechanism on IFRS adoption: A comparative study of Saudi Arabia, Oman, and the United Arab Emirates. *Heliyon*, 7(1), e05848. <https://doi.org/10.1016/j.heliyon.2020.e05848>
- Almeida, M. A., dos Santos, J. F., de Ferreira, L. F. V. M., & Torres, F. J. V. (2010). Quality determinants of corporate governance practices of brazilian companies of traded that have public investment. *Revista Brasileira de Gestao de Negocios*, 12(37), 369–387. <https://doi.org/10.7819/rbgn.v12i37.706>
- Anagnostopoulos, T., Skouloudis, A., Khan, N., & Evangelinos, K. (2018). Incorporating Sustainability Considerations Into Lending Decisions and the Management of Bad Loans: Evidence From Greece. *Sustainability*, 10(12), 4728. <https://doi.org/10.3390/su10124728>
- Anand, A., Vanpée, R., & Lončarski, I. (2023). Sustainability and sovereign credit risk. *International Review of Financial Analysis*, 86(July 2022). <https://doi.org/10.1016/j.irfa.2023.102494>
- Ananzeh, H., Al Amosh, H., & Albitar, K. (2022). The effect of corporate governance quality and its mechanisms on firm philanthropic donations: evidence from the UK. *International Journal of Accounting and Information Management*, 30(4), 477–501. <https://doi.org/10.1108/IJAIM-12-2021-0248>
- Andreou, P. C., Lambertides, N., & Philip, D. (2021). Corporate governance transformation: Editorial review. *British Accounting Review*, 53(4). <https://doi.org/10.1016/j.bar.2021.101020>
- Anglin, P., Edelstein, R., Gao, Y., & Tsang, D. (2013). What is the Relationship Between REIT Governance and Earnings Management? *Journal of Real Estate Finance and Economics*, 47(3), 538–563. <https://doi.org/10.1007/s11146-012-9367-y>
- Archie B. Carroll. (1999). Evolution of a Definitional Construct of Corporate Social Responsibility. *Business & Society*, 38(3), 268–295.

- Armstrong, C. S., Blouin, J. L., Jagolinzer, A. D., & Larcker, D. F. (2015). Corporate governance, incentives, and tax avoidance. *Journal of Accounting and Economics*, 60(1), 1–17. <https://doi.org/10.1016/j.jacceco.2015.02.003>
- Arslan, M., & Alqatan, A. (2020). Role of institutions in shaping corporate governance system: evidence from emerging economy. *Heliyon*, 6(3), e03520. <https://doi.org/10.1016/j.heliyon.2020.e03520>
- Ashton, R. H., & Kramer, S. S. (1980). Students As Surrogates in Behavioral Accounting Research: Some Evidence. *Journal of Accounting Research*, 18(1), 1. <https://doi.org/10.2307/2490389>
- Ayoola, T. J., Olasanmi, O. O., Inneh, E. G., Ayoola, A. O., & Ehiobuche, C. (2023). Corporate governance quality, corporate life cycle and investor confidence in commercial banks: Evidence from Nigeria. *Banks and Bank Systems*, 18(3), 136–146. [https://doi.org/10.21511/BBS.18\(3\).2023.12](https://doi.org/10.21511/BBS.18(3).2023.12)
- Bai, L., Li, Y., Du, Q., & Xu, Y. (2017). A fuzzy comprehensive evaluation model for sustainability risk evaluation of PPP projects. *Sustainability (Switzerland)*, 9(10). <https://doi.org/10.3390/su9101890>
- Bătae, O. M., Dragomir, V. D., & Feleagă, L. (2021). The relationship between environmental, social, and financial performance in the banking sector: A European study. *Journal of Cleaner Production*, 290. <https://doi.org/10.1016/j.jclepro.2021.125791>
- Ben Amar, A., & Chakroun, S. (2018). Do dimensions of corporate social responsibility affect earnings management?: Evidence from France. *Journal of Financial Reporting and Accounting*, 16(2), 348–370. <https://doi.org/10.1108/JFRA-05-2017-0033>
- Black, B. S., Kim, W., Jang, H., & Park, K. S. (2015). How corporate governance affect firm value? Evidence on a self-dealing channel from a natural experiment in Korea. *Journal of Banking and Finance*, 51, 131–150. <https://doi.org/10.1016/j.jbankfin.2014.08.020>
- Broggi, M., Lagasio, V., & Porretta, P. (2022). Be good to be wise: Environmental, Social, and Governance awareness as a potential credit risk mitigation factor. *Journal of International Financial Management and Accounting*, 33(3), 522–547. <https://doi.org/10.1111/jifm.12156>
- Bucaro, A. C., Jackson, K. E., & Lill, J. B. (2020). The Influence of Corporate Social Responsibility Measures on Investors' Judgments when Integrated in a Financial Report versus Presented in a Separate Report. *Contemporary Accounting Research*, 37(2), 665–695. <https://doi.org/10.1111/1911-3846.12542>
- Chan, C. C. C., Milne, M. J., Chan, C. C. C., & Milne, M. J. (1999). Investor reactions to corporate environmental saints and sinners: an experimental analysis. *Accounting and Business Research*, 29(4), 265–279. <https://doi.org/10.1080/00014788.1999.9729588>
- Chen, R. (Ryan), Guedhami, O., Yang, Y., & Zaynutdinova, G. R. (2020). Corporate governance and cash holdings: Evidence from worldwide board reforms. *Journal of Corporate Finance*, 65(March), 101771. <https://doi.org/10.1016/j.jcorpfin.2020.101771>
- Chen, X., & Ma, L. (2023). Lead investors' insider ownership and crowd investors' agency concerns in investor-led equity crowdfunding. *Pacific Basin Finance Journal*, 78(February). <https://doi.org/10.1016/j.pacfin.2023.101978>
- Cheung, W. M., Chung, R., & Fung, S. (2015). The effects of stock liquidity on firm value and corporate governance: Endogeneity and the REIT experiment. *Journal of Corporate Finance*, 35, 211–231. <https://doi.org/10.1016/j.jcorpfin.2015.09.001>
- Choi, D., Choi, P. M. S., Choi, J. H., & Chung, C. Y. (2020). Corporate Governance and Corporate Social Responsibility: Evidence From the Role of the Largest Institutional Blockholders in the Korean Market. *Sustainability*, 12(4), 1680. <https://doi.org/10.3390/su12041680>
- Chong, V. K., & Suryawati, R. F. (2011). The effect of job rotation policy in preventing managerial escalation of commitment. *International Journal of Accounting, Auditing and Performance Evaluation*, 7(3). <https://doi.org/10.1504/IJAAPE.2011.040833>
- Dilla, W., Janvrin, D., Perkins, J., & Raschke, R. (2019). Do environmental responsibility views influence investors' use of environmental performance and assurance information? *Sustainability Accounting, Management and Policy Journal*, 10(3), 476–497. <https://doi.org/10.1108/SAMPJ-12-2018-0357>
- Ellouze, D., & Cherif, W. (2020). Corporate governance and investment cash-flow sensitivity: Evidence from Tunisia. *Afro-Asian Journal of Finance and Accounting*, 10(2), 168–183. <https://doi.org/10.1504/AJFA.2020.106254>
- Erhart, S. (2022). Take it with a pinch of salt—ESG rating of stocks and stock indices. *International Review of Financial Analysis*, 83(July), 102308. <https://doi.org/10.1016/j.irfa.2022.102308>
- Fan, D., Lo, C. K. Y., & Zhou, Y. (2021). Sustainability risk in supply bases: The role of complexity and coupling. *Transportation Research Part E: Logistics and Transportation Review*, 145. <https://doi.org/10.1016/j.tre.2020.102175>
- Fiedler, K., McCaughey, L., & Prager, J. (2021). Quo Vadis, Methodology? The Key Role of Manipulation Checks for Validity Control and Quality of Science. *Perspectives on Psychological Science*, 16(4), 816–826. <https://doi.org/10.1177/1745691620970602>
- Field, A., & Graham, H. (2013). How to design and report experiment. SAGE Publication Ltd.
- Gambhir, A., George, M., McJeon, H., Arnell, N. W., Bernie, D., Mittal, S., ... Monteith, S. (2021). Near-Term Transition and Longer-Term Physical Climate Risks of Greenhouse Gas Emissions Pathways. *Nature Climate Change*, 12(1), 88–96. <https://doi.org/10.1038/s41558-021-01236-x>
- Habib, A., & Hasan, M. M. (2019). Corporate life cycle research in accounting, finance and corporate governance: A survey, and directions for future research. *International Review of Financial Analysis*, 61(November 2018), 188–201. <https://doi.org/10.1016/j.irfa.2018.12.004>
- Haji, A. A., Coram, P., & Troshani, I. (2021). Effects of integrating CSR information in financial reports on investors' firm value estimates. *Accounting and Finance*, 61(2), 3605–3647. <https://doi.org/10.1111/acfi.12713>

- Ho, K. C., Yan, C., Mao, Z., & An, F. J. (2023). Corporate sustainability policies and corporate investment efficiency: Evidence from the quasi-natural experiment in China. *Energy Economics*, 127(PB), 107050. <https://doi.org/10.1016/j.eneco.2023.107050>
- Huang, J., Liu, J., Zhang, H., & Guo, Y. (2020). Sustainable risk analysis of China's overseas investment in iron ore. *Resources Policy*, 68(July), 101771. <https://doi.org/10.1016/j.resourpol.2020.101771>
- Hughes, C. T., & Gibson, M. L. (1991). Students as surrogates for managers in a decision-making environment: An experimental study. *Journal of Management Information Systems*, 8(2), 153–166. <https://doi.org/10.1080/07421222.1991.11517925>
- J D, M., & P, W. J. (2003). Misery Loves Rethinking Companies : Social Initiatives. *Administrative Science Quarterly*, 48, 268–305.
- Jafeel, A. Y., Chu, E. Y., & Abdalla, Y. A. (2024). Board effectiveness and corporate investment in emerging markets: evidence from the gulf cooperation council countries. *Journal of Accounting in Emerging Economies*. <https://doi.org/10.1108/JAEE-04-2023-0111>
- Koerniadi, H., Krishnamurti, C., & Tourani-Rad, A. (2014). Corporate governance and the variability of stock returns. *International Journal of Managerial Finance*, 10(4), 494–510. <https://doi.org/10.1108/IJMF-08-2012-0090>
- Kouaib, A., & Amara, I. (2022). Corporate Social Responsibility Disclosure and Investment Decisions: Evidence from Saudi Indexed Companies. *Journal of Risk and Financial Management*, 15(11). <https://doi.org/10.3390/jrfm15110495>
- Landi, G. C., Iandolo, F., Renzi, A., & Rey, A. (2022). Embedding Sustainability in Risk Management: The Impact of Environmental, Social, and Governance Ratings on Corporate Financial Risk. *Corporate Social Responsibility and Environmental Management*, 29(4), 1096–1107. <https://doi.org/10.1002/csr.2256>
- Li, Z., Liu, C., Ni, X., & Pang, J. (2024). Stock market liberalization and corporate investment revisited: Evidence from China. *Journal of Banking and Finance*, 158(November 2023), 107053. <https://doi.org/10.1016/j.jbankfin.2023.107053>
- Liyanarachchi, G. A., & Milne, M. J. (2005). Comparing the investment decisions of accounting practitioners and students: an empirical study on the adequacy of student surrogates. *Accounting Forum*.
- Löfgren, Å., & Nordblom, K. (2024). Reconciling sustainability preferences and behavior — The case of mutual fund investments. *Journal of Behavioral and Experimental Finance*, 41(November 2023), 100880. <https://doi.org/10.1016/j.jbef.2023.100880>
- Lombardo, G., Mazzocchetti, A., Rapallo, I., Tayser, N., & Cincotti, S. (2019). Assessment of the economic and social impact using SROI: An application to sport companies. *Sustainability (Switzerland)*, 11(13), 1–21. <https://doi.org/10.3390/su11133612>
- Luiz, E. (2024). Assessment of Climate Change Risk on Insurance Portfolios. *Journal of Actuarial Research*, 2(1), 54–67. <https://doi.org/10.47941/jar.1760>
- Melina, G., Yang, S. C. S., & Zanna, L. F. (2016). Debt sustainability, public investment, and natural resources in developing countries: The DIGNAR model. *Economic Modelling*, 52, 630–649. <https://doi.org/10.1016/j.econmod.2015.10.007>
- Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review*, 22(4), 853–886. <https://doi.org/10.5465/AMR.1997.9711022105>
- Naqvi, B., Rizvi, S. K. A., Hasnaoui, A., & Shao, X. (2022). Going beyond sustainability: The diversification benefits of green energy financial products. *Energy Economics*, 111(May), 106111. <https://doi.org/10.1016/j.eneco.2022.106111>
- Negra, C., Remans, R., Attwood, S., Jones, S., Werneck, F., & Smith, A. (2020). Sustainable agri-food investments require multi-sector co-development of decision tools. *Ecological Indicators*, 110(December 2019), 105851. <https://doi.org/10.1016/j.ecolind.2019.105851>
- Oduoza, C. F. (2020). Framework for sustainable risk management in the manufacturing sector. *Procedia Manufacturing*, 51(2019), 1290–1297. <https://doi.org/10.1016/j.promfg.2020.10.180>
- Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate Social and Financial Performance: A Meta-analysis. *Organization Studies*, 24(3), 403–441.
- Qazi, A., Simsekler, M. C. E., & Al-Mhdawi, M. K. S. (2023). Exploring network-based dependencies between country-level sustainability and business risks. *Journal of Cleaner Production*, 418(May), 138161. <https://doi.org/10.1016/j.jclepro.2023.138161>
- Raian, S., Ali, S. M., Sarker, M. R., Sankaranarayanan, B., Kabir, G., Paul, S. K., & Chakraborty, R. K. (2022). Assessing sustainability risks in the supply chain of the textile industry under uncertainty. *Resources, Conservation and Recycling*, 177(October 2021), 105975. <https://doi.org/10.1016/j.resconrec.2021.105975>
- Reimsbach, D., Hahn, R., & Gürkürk, A. (2018). Integrated Reporting and Assurance of Sustainability Information: An Experimental Study on Professional Investors' Information Processing. *European Accounting Review*, 27(3), 559–581. <https://doi.org/10.1080/09638180.2016.1273787>
- Reimsbach, D., Schiemann, F., Hahn, R., & Schmiedchen, E. (2019). In the Eyes of the Beholder: Experimental Evidence on the Contested Nature of Materiality in Sustainability Reporting. *Organization and Environment*, 1–28. <https://doi.org/10.1177/1086026619875436>
- Remus, W. (1986). Graduate students as surrogates for managers in experiments on business decision making. *Journal of Business Research*, 14(1), 19–25. [https://doi.org/10.1016/0148-2963\(86\)90053-6](https://doi.org/10.1016/0148-2963(86)90053-6)
- Ribeiro, J. E., & de Souza, A. A. (2023). Corporate governance index and market performance: evidence in the Brazilian stock market. *Revista Contabilidade e Finanças*, 34(92). <https://doi.org/10.1590/1808-057x20231756en>
- Rowley, T. J. (1997). Moving Beyond Dyadic Ties: A Network Theory of Stakeholder Influences. *Academy of Management Review*, 22(4), 887–910.

- Schiehll, E., Gerhard, M., & Macagnan, C. B. (2019). Institutional investors' response to improved corporate governance: Evidence from the Brazilian capital market. *Contaduria y Administracion*, 64(4). <https://doi.org/10.22201/FCA.24488410E.2018.1869>
- Seddighi, A. H., & Ahmadi-Javid, A. (2015). A sustainable risk-averse approach to power generation planning with disruption risk and social responsibility considerations. *Journal of Cleaner Production*, 105, 116–133. <https://doi.org/10.1016/j.jclepro.2014.12.029>
- Setiawan, D., & Phua, L. K. (2013). Corporate Governance and Dividend Policy in Indonesia. *Business Strategy Series*, 14(5/6), 135–143. <https://doi.org/10.1108/bss-01-2013-0003>
- Shahid, M. S., & Abbas, M. (2019). Does corporate governance play any role in investor confidence, corporate investment decisions relationship? Evidence from Pakistan and India. *Journal of Economics and Business*, 105(March), 105839. <https://doi.org/10.1016/j.jeconbus.2019.03.003>
- Shi, J., Wang, Y., Ma, Q., Fan, S., Jin, H., Liu, H., & Liu, H. (2019). A Social Sustainability Assessment Model for Manufacturing Company Based on S-Lca. *International Journal of Sustainable Development and Planning*, 14(02), 172–182. <https://doi.org/10.2495/sdp-v14-n2-172-182>
- Stevens, D. E. (2023). Revising the Theory Behind Corporate Governance and Management Control: A Reflection and Roadmap. *Management Accounting Research*, (xxxx), 100877. <https://doi.org/10.1016/j.mar.2023.100877>
- Sutrisno, A., & Kumar, V. (2022). Supply chain sustainability risk assessment model using integration of the preference selection index (PSI) and the Shannon entropy. *International Journal of Quality and Reliability Management*. <https://doi.org/10.1108/IJQRM-06-2021-0191>
- Torinelli, V. H., & Silva Júnior, A. F. de A. da. (2021). Environmental risk analysis (ERA) in the strategic asset allocation (SAA) of the international reserves (IRs) managed by central banks (CBs). *Latin American Journal of Central Banking*, 2(1), 1–17. <https://doi.org/10.1016/j.latcb.2021.100021>
- Toumi, K., & Hamrouni, A. (2023). Islamic corporate governance quality and value relevance of accounting information in Islamic banks. *Journal of Financial Reporting and Accounting*. <https://doi.org/10.1108/JFRA-04-2023-0183>
- Valinejad, F., & Rahmani, D. (2018). Sustainability risk management in the supply chain of telecommunication companies: A case study. *Journal of Cleaner Production*, 203, 53–67. <https://doi.org/10.1016/j.jclepro.2018.08.174>
- Villamil, C., Schulte, J., & Hallstedt, S. (2022). Sustainability risk and portfolio management—A strategic scenario method for sustainable product development. *Business Strategy and the Environment*, 31(3), 1042–1057. <https://doi.org/10.1002/bse.2934>
- Warasthe, R., Brandenburg, M., & Seuring, S. (2022). Sustainability, risk and performance in textile and apparel supply chains. *Cleaner Logistics and Supply Chain*, 5(May), 100069. <https://doi.org/10.1016/j.clscn.2022.100069>
- Warren-Myers, G., & Craddock, L. (2023). Tackling the Wicked Challenge Of climate Change Risks to Property: Are Australian Valuers Prepared? *Journal of Property Investment & Finance*, 41(4), 429–452. <https://doi.org/10.1108/jpif-12-2022-0090>
- Wassmann, R., Phong, N. D., Tho, T. Q., Hoanh, C. T., Khoi, N. H., Hien, N. X., ... Tuong, T. P. (2019). High-resolution mapping of flood and salinity risks for rice production in the Vietnamese Mekong Delta. *Field Crops Research*, 236(March), 111–120. <https://doi.org/10.1016/j.fcr.2019.03.007>
- Widyatama, A., & Narsa, I. M. (2022). The use of visual presentations for integrated reports in the investment decision-making process. *Journal of Applied Accounting Research*. <https://doi.org/10.1108/JAAR-09-2021-0238>
- Wöhler, J., & Haase, E. (2022). Exploring investment processes between traditional venture capital investors and sustainable start-ups. *Journal of Cleaner Production*, 377(September). <https://doi.org/10.1016/j.jclepro.2022.134318>
- Yahya Jafeel, A., Abdelbagi Abdalla, Y., Amin Abdalla, A., & Hersi Warsame, M. (2023). How corporate governance quality affects investment efficiency? An empirical analysis of nonfinancial companies in the Gulf Cooperation Council 2015–2020. *Cogent Business and Management*, 10(1). <https://doi.org/10.1080/23311975.2023.2198061>
- Zhou, Y., & Yuen, K. F. (2024). A Bayesian network model for container shipping companies' organisational sustainability risk management. *Transportation Research Part D: Transport and Environment*, 126(November 2023), 103999. <https://doi.org/10.1016/j.trd.2023.103999>