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LEGAL CERTAINTY IN GREEN BONDS: THE ROLE OF COHERENCE, LEGITIMACY, ECONOMIC BENEFITS, AND GOVERNMENT AUTHORITY

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ABSTRACT

This study explores the critical factors shaping legal certainty in green bond issuance, focusing on the roles of coherence in bond issuance objectives, legislative legitimacy, economic benefits, and governmental authority. Legal certainty is essential in fostering investor confidence, reducing risks such as greenwashing, and ensuring compliance with environmental and regulatory standards. The research employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze data collected from institutional investors with a recommended sample of 300 participants, revealing that economic benefits have the most significant impact on legal certainty, followed by governmental authority, legislative legitimacy, and coherence of objectives. The results underscore the importance of clear and measurable objectives in green bond issuance, transparency in the legislative process, and consistent governmental oversight. These findings highlight the need for robust legal frameworks that ensure both environmental sustainability and financial stability. The study's implications suggest that policymakers and regulators must prioritize the harmonization of green bond regulations to promote cross-border investments and long-term market growth.

1. Introduction

The escalating urgency to combat climate change and the accelerating pace of environmental degradation have catalyzed a global shift toward sustainable finance. Among various financial instruments designed to support this transition, green bonds have emerged as a key vehicle for mobilizing capital toward projects

with substantial environmental benefits.[1] Unlike traditional bonds, green bonds are distinct in that their proceeds are exclusively allocated to initiatives such as renewable energy, energy efficiency, sustainable waste management, and biodiversity conservation. The capacity of green bonds to attract significant investment for environmentally sustainable projects has garnered considerable interest from governments, financial institutions, and private investors.[2] However, the effectiveness of green bonds in driving sustainable development relies heavily on establishing a clear and coherent framework that ensures legal certainty.[3]

Legal certainty is a fundamental element for the success of green bonds, as it provides clarity and confidence to issuers and investors regarding the eligibility criteria for projects, the allocation of funds, and compliance with environmental objectives.[4] Legal Certainty refers to the clarity and predictability of laws and regulations, enabling stakeholders to understand their rights and obligations. In the context of green bonds, legal certainty ensures that issuers and investors can trust that the instruments meet established environmental and regulatory standards, thereby reducing risks such as disputes or allegations of greenwashing. The European Green Bond Standard (EUGBS) exemplifies efforts to enhance legal certainty by providing clear guidelines for green bond issuance, aiming to prevent greenwashing and promote transparency in the market.[5] Without a robust regulatory framework, there is an increased risk of greenwashing**,** where projects marketed as environmentally friendly fail to deliver genuine sustainability outcomes.[6] Such practices not only undermine the integrity of the green bond market but also erode investor trust, thereby stalling further market growth. Thus, a legally sound framework is crucial to ensure that green bonds fulfill their intended role in supporting sustainable development.

Greenwashing refers to the practice of making misleading claims about the environmental benefits of a project or investment, often to appear more sustainable than it truly is.[7] In the context of green bonds, this occurs when proceeds are allocated to projects that fail to meet rigorous environmental standards or when sustainability claims lack verifiable data. Greenwashing undermines the credibility of the green bond market, erodes investor trust, and hinders progress toward genuine sustainability goals.

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[1] Muhammad Alamgir and Ming-Chang Cheng., Do green bonds play a role in achieving sustainability?, *Sustainability*, Vol.15, no.13, 2023, page.10177.

[2] Lin Lin and Yanrong Hong., Developing a green bonds market: lessons from China, *European Business Organization Law Review*, Vol.23, no.1, 2022, page.181.

[3] Ryan Chan., Ensuring impactful performance in green bonds and sustainability-linked loans, *The Adelaide Law Review*, Vol.42, no.1, 2021, page.253.

[4] Mashuril Anwar and Rini Fathonah., Quo Vadis: Legal certainty of environmental protection in investment activities post job creation law, *International Journal on Social Science, Economics and Art*, Vol.14, no.1, 2024, page.95.

[5] Michal Pyka., The EU Green Bond Standard: a plausible response to the deficiencies of the EU green bond market?, *European business organization law review*, Vol.24, no.4, 2023, page.641.

[6] Yousen Jin, He Li, and Juan Lu., How does energy policy uncertainty perception affect corporate greenwashing behaviors? Evidence from China's energy companies, *Energy*, Vol.306, 2024, page.132403.

[7] Ugur Korkut Pata., Does energy policy uncertainty matter for renewable energy and energy efficiency technologies? An affordable and clean energy perspective, *Geoscience Frontiers*, Vol.15, no.6, 2024, page.101932.

This issue is particularly prevalent in regions with less stringent regulatory oversight. For example, studies have shown that a significant proportion of green-labelled projects fail to provide transparency or measurable outcomes, raising questions about their actual environmental impact.[8] Emerging markets like Indonesia, where the adoption of frameworks such as the Green Taxonomy is voluntary, are particularly susceptible to greenwashing due to the lack of enforceable compliance measures.

Identifying greenwashing requires a careful evaluation of several factors. Transparency is crucial, as the absence of detailed disclosures regarding the use of bond proceeds and project outcomes can indicate potential greenwashing. Similarly, compliance with recognized frameworks, such as the Green Bond Principles or the EU Taxonomy, is essential to ensure the authenticity of green claims. Projects must also provide verifiable metrics demonstrating environmental benefits, such as reductions in carbon emissions or improvements in biodiversity. Additionally, consistent and regular reporting practices are necessary to build confidence and avoid suspicions of greenwashing.

In Indonesia, the development of sustainable finance is still at an early stage. The introduction of Financial Services Authority Regulation No. 60/POJK.04/2017 represents the country's initial step toward regulating green bonds to promote financing for environmentally friendly projects.[9] This regulation aligns with Indonesia's broader strategy to achieve its climate goals and transition toward a low-carbon economy. However, despite these efforts, challenges persist in ensuring legal certainty, consistent standards, and effective prevention of greenwashing. Current regulations primarily address basic aspects of green bond issuance but lack depth in areas such as standardized definitions, detailed reporting requirements, and enforceable sanctions for non-compliance.

Indonesia's Green Taxonomy, introduced as a voluntary guideline for assessing green bonds, contrasts with the legally binding EU Taxonomy, which sets rigorous criteria for environmental performance, climate contributions, and minimum safeguards. While Indonesia's flexible framework encourages early adoption, its lack of enforceable standards risks inconsistencies and greenwashing. In contrast, the EU's robust approach enhances transparency and investor trust through mandatory adherence and standardized reporting. To strengthen its green bond framework, Indonesia could adopt elements of the EU Taxonomy, such as binding requirements and third-party verification. This would not only reduce greenwashing risks but also enhance credibility, attracting cross-border investments and aligning the market with global standards.

Although the Indonesian Green Taxonomy has been introduced to guide green bond assessments, its adoption remains voluntary, leading to significant gaps in regulatory enforcement and clarity. The absence of a binding legal framework that

[8] Umair Saeed Bhutta, Adeel Tariq, Muhammad Farrukh, Ali Raza, and Muhammad Khalid Iqbal., Green bonds for sustainable development: Review of literature on development and impact of green bonds, *Technological Forecasting and Social Change*, Vol.175, 2022, page.121378.

[9] Josua L. Tobing, Kevin Sebastian, and Wenny Setiawati., Tinjauan Yuridis Terhadap Efek Bersifat Utang Berwawasan Lingkungan (Green Bond) Sebagai Instrumen Investasi dalam Penerapan Sustainable Investment di Pasar Modal Indonesia, *Technology and Economics Law Journal*, Vol.1, no.1, 2022, page.2.

mandates adherence to stringent environmental standards can create ambiguity, potentially allowing projects that do not meet rigorous criteria to be labeled as green.[10] This highlights a critical need for governments and regulators to establish objective and measurable criteria for green bond eligibility, ensuring consistency with international standards.[11]

Existing research on green bonds often focuses on market dynamics and economic benefits but falls short in addressing the critical need for legal certainty and standardized frameworks that enhance market integrity.[12] Furthermore, while several studies have explored the benefits of green bonds,[13] few have examined the impact of regulatory coherence and governmental oversight on the sustainability of green bond markets.

Regulatory Coherence involves the alignment and consistency of policies and standards across different jurisdictions or sectors. For green bonds, regulatory coherence ensures that the rules governing their issuance, assessment, and reporting are harmonized, facilitating cross-border investments and reducing ambiguity. The lack of a uniform legal standard for green bonds can lead to regulatory pluralism, potentially resulting in fragmentation and increased transaction costs. The EU's initiative to establish a Green Bond Standard aims to address these challenges by creating a cohesive framework that aligns with international best practices.[14]

The economic advantages associated with green bonds, such as access to a broader base of environmentally conscious investors, are another driving force behind their rapid adoption. For issuers, aligning with green projects can enhance their reputation and demonstrate a commitment to sustainability. However, the realization of these benefits is contingent on a stable legal environment that offers tax incentives, subsidies, and other forms of government support.[15] Without clear regulatory mechanisms, potential issuers may face high compliance costs and uncertainties, deterring participation in the green bond market.[16]

Government authorities play a critical role in shaping the legal certainty of green bond issuance. As regulators and significant market participants, governments have the power to enact laws that either foster or hinder the growth of the green

[10] Umair Saeed Bhutta, Adeel Tariq, Muhammad Farrukh, Ali Raza, and Muhammad Khalid Iqbal., Green bonds for sustainable development: Review of literature on development and impact of green bonds, *Technological Forecasting and Social Change*, Vol.175, 2022, page.121378.

[11] Pauline Deschryver and Frederic De Mariz., What future for the green bond market? How can policymakers, companies, and investors unlock the potential of the green bond market?, *Journal of risk and Financial Management*, Vol.13, no.3, 2020, page.61.

[12] Giuseppe Cortellini and Ida Claudia Panetta., Green bond: A systematic literature review for future research agendas, *Journal of Risk and Financial Management*, Vol.14, no.12, 2021, page.589. See too, Lloyd Freeburn and Ian Ramsay., Green bonds: legal and policy issues, *Capital Markets Law Journal*, Vol.15, no.4, 2020, page.440.

[13] Aaron Maltais and Björn Nykvist., Understanding the role of green bonds in advancing sustainability, *Journal of sustainable finance & investment*, Vol.14, 2020, page.13.

[14] Michal Pyka., The EU Green Bond Standard: a plausible response to the deficiencies of the EU green bond market?, *European business organization law review*, Vol.24, no.4, 2023, page.640.

[15] Aaron Maltais and Björn Nykvist., Understanding the role of green bonds in advancing sustainability, *Journal of sustainable finance & investment*, Vol.13, 2020, page.12.

[16] Lloyd Freeburn and Ian Ramsay., Green bonds: legal and policy issues, *Capital Markets Law Journal*, Vol.15, no.4, 2020, page.423.

bond market.[17] Effective government involvement includes not only issuing green bonds to fund public projects but also enforcing compliance through monitoring the allocation of proceeds, verifying project impacts, and imposing penalties for violations. This dual role of regulation and participation helps build trust among investors and ensures that green bonds contribute to meaningful environmental outcomes.[18]

Despite the progress made, existing literature on green bonds often falls short in addressing legal certainty and its impact on the sustainability of the market.[19] Most studies have focused on market dynamics, scalability, and economic benefits, but there remains a lack of quantitative analysis on how regulatory coherence, legislative processes, and government oversight influence investor confidence and market integrity. This study seeks to fill that gap by investigating the critical factors affecting legal certainty in green bond issuance, particularly in the context of Indonesia.

By focusing on the alignment of objectives, transparency in the legislative process, economic incentives, and active governmental oversight, this research aims to provide a comprehensive framework that establishes a secure, consistent, and trustworthy green bond market. The findings are intended to inform policymakers on developing structured and legally sound approaches to green bond issuance, thereby fostering long-term market growth and contributing to sustainable economic development.

2. Research Methods

This research is a quantitative research which employed an online survey method using a questionnaire distributed through Google Forms. The online survey was chosen due to its ability to gather data from geographically dispersed populations, providing easy access for respondents and saving both time and cost.[20] The primary focus of this research was to gather insights from institutional investor representatives, including investment managers from insurance companies, pension funds, and mutual fund managers, regarding their decision-making process when investing in green bonds. The questionnaire was carefully designed to explore various factors influencing investment decisions, such as risk perception, financial returns, and regulatory frameworks.[21] The research population comprised professionals in the financial sector involved in institutional investment decisions,

[17] Wei Zhao and Lihua Huang., The impact of green transformational leadership, green HRM, green innovation and organizational support on the sustainable business performance: Evidence from China, *Economic research-Ekonomska istraživanja*, Vol.35, no.1, 2022, page.6125.

[18] Martin Holmén, Felix Holzmeister, Michael Kirchler, Matthias Stefan, and Erik Wengström., Economic preferences and personality traits among finance professionals and the general population, *The Economic Journal*, Vol.133, no.6, 2023, page.2954.

[19] Giuseppe Cortellini and Ida Claudia Panetta., Green bond: A systematic literature review for future research agendas, *Journal of Risk and Financial Management*, Vol.14, no.12, 2021, page.589.

[20] Don A. Dillman., Moving survey methodology forward in our rapidly changing world: A commentary, *Journal of Rural Social Sciences*, Vol.31, no.3, 2016, page.8.

[21] Mark Saunders., *Research methods for business students*, London, Person Education Limited, 2009, page.132.

specifically in green bonds and other government-issued debt instruments.[22] The study employed a simple random sampling method to select participants from the broader population of institutional investors in green bonds. This method was deemed appropriate because the target population is relatively homogeneous, comprising individuals with similar roles and expertise.

The sample size required for this study was calculated using G*Power software, with an alpha level set at 5%. This software was used to ensure an adequate sample size for the structural model analysis, particularly when employing Partial Least Squares Structural Equation Modeling (PLS-SEM). The power analysis ensured that the sample size was sufficient to detect significant relationships between variables, with a recommended sample of 300 participants. This sample size aligns with the complexity of the model and the characteristics of the population.

The sample size of 300 participants was determined based on guidelines for Partial Least Squares Structural Equation Modeling (PLS-SEM), which recommend a minimum of 10 times the number of indicators in the most complex construct.[23] In this study, the model includes 15 indicators, making 300 participants sufficient to ensure reliable results. The target population comprises institutional investors in green bonds, such as investment managers from insurance companies, pension funds, and mutual funds. Given the specialized and relatively niche nature of this group, the sample size adequately represents the population while addressing its characteristics. The complexity of the model, which includes multiple latent variables and paths, further supports the need for a robust sample size. Additionally, a G*Power analysis confirmed that 300 participants provide sufficient statistical power for detecting significant relationships at a 5% significance level. This sample size balances the theoretical requirements of SEM and the practical considerations of the target population, ensuring robust and generalizable findings.

The participants included investment managers and financial professionals who were actively involved in green bond investments. Demographic data were collected to ensure balanced representation and were analyzed in accordance with survey research standards.[24] The study utilized an online survey method using Google Forms to collect data from institutional investors in green bonds. The survey link was distributed directly via email to companies from various regions in Indonesia who had direct experience in green bond investments, spanned from September 2024 to January 2025.[25]

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[22] Martin Holmén, Felix Holzmeister, Michael Kirchler, Matthias Stefan, and Erik Wengström., Economic preferences and personality traits among finance professionals and the general population, *The Economic Journal*, Vol.133, no.6, 2023, page.2970.

[23] Joe Hair Jr, Joseph F. Hair Jr, Marko Sarstedt, Christian M. Ringle, and Siegfried P. Gudergan., *Advanced issues in partial least squares structural equation modeling,* California, saGe publications, 2023, page.121.

[24] Marko Sarstedt, Christian M. Ringle, and Joseph F. Hair., Partial least squares structural equation modeling, In *Handbook of market research*, pp. 587-632. Cham, Springer International Publishing, 2021, page.5999.

[25] Kevin B. Wright., Researching Internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services, *Journal of computer-mediated communication*, Vol.10, no.3, 2005, page.1034.

Indonesia was chosen as the focus of this study because of its emerging green bond market and the country's strategic efforts to decentralize public financing. As one of Southeast Asia's largest economies, Indonesia is increasingly turning to green bonds to finance critical infrastructure and public services at the local government level. These bonds provide an essential avenue for local governments to raise funds independently, reducing dependency on central government transfers.[26] Despite the growing significance of green bonds in Indonesia, research on this topic remains limited. This study aims to fill this gap by examining key factors influencing institutional investors' decisions in this market, with implications for the development of a robust green bond framework in the country.

The research instrument used in this study, a structured questionnaire, was carefully designed to measure the variables of interest: Coherence of Green Bond Issuance Objectives, Legitimacy of the Legislative Process, Economic Benefits of Green Bonds, and Legal Certainty of Green Bonds Issuance. The development of the questionnaire followed a thorough review of relevant literature to ensure that the items accurately captured each construct.

Each variable was operationalized into measurable indicators, which were incorporated into the questionnaire using a 5-point Likert scale. This scale allowed respondents to express the degree to which they agreed or disagreed with each statement, ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). The use of the Likert scale is a standard practice in quantitative research as it provides nuanced insights into the perceptions and attitudes of respondents See Table 1 for the details of variable measurements. The variables and indicators used in this study can be seen in Table 1.

The questionnaire was structured into several sections, each corresponding to a variable. The statements within each section were formulated based on existing research in municipal finance, public administration, and governance. The items were pre-tested in a pilot study to ensure clarity and relevance, with minor modifications made to refine the language and improve respondent comprehension. To ensure the validity and reliability of the instrument, several statistical tests were employed. Convergent validity was assessed using Average Variance Extracted (AVE), ensuring that the items within each variable adequately reflected the same construct. Discriminant validity was examined using the Fornell-Larcker criterion, confirming that the variables were distinct from one another.[27] Internal consistency was tested using Cronbach's Alpha, with a threshold of 0.70 used to indicate acceptable reliability.

[26] R. F. Prisandy and W. Widyaningrum., *Green bond in Indonesia: the challenges and opportunities, Indonesia Post-Pandemic Outlook: Rethinking Health and Economics Post-COVID-19.* Jakarta, Penerbit BRIN, 2022, page.124.

[27] Jörg Henseler, Christian M. Ringle, and Marko Sarstedt., Testing measurement invariance of composites using partial least squares, *International marketing review*, Vol.33, no.3, 2016, page.427.

Table 1. Variables, Indicators, and Sources for Green Bonds Issuance

Variable	Indicators	Sources
	Clarity of objectives (X11)	
	Consistency of objectives (X12)	
Legitimacy of Legislative Process (X2)	Transparency in the legislative process (X21)	
	Accountability in the legislative process (X22)	
Economic Benefits of Green Bonds Issuance (X3)	Improved local economic conditions (X31)	Prisandy & Widyaningrum[28]
	Generated more jobs (X32)	Adelino et al.[29]
Existence of Government Authority (X4)	Predictability and consistency of legislation (X41)	Hutahayan et al.[30]
	Government corruption and transparency (X42)	
	Anti-corruption bodies (X43)	
	Anti-corruption laws (X44)	
Legal Certainty of Green Bonds Issuance (Y1)	Consistent law enforcement (Y11)	Hutahayan et al.[31]
	Legal stability (Y12)	
	Legal protection of investor rights (Y13)	
	Effective dispute resolution (Y14)	
	Information disclosure (Y15)	

Based on the pilot test results, items that did not meet the validity criteria—such as low factor loadings or ambiguous wording—were reconstructed to improve clarity and alignment with the research constructs. The feedback from the pilot study was integral in refining the questionnaire, ensuring it was both comprehensible and robust for the main data collection phase. These adjustments enhanced the reliability and validity of the instrument, aligning it more closely with the study's objectives. In this research, the pilot test confirmed that all items met the validity and reliability criteria, eliminating the need for reconstruction. This process ensured the instrument was clear, robust, and ready for use in the main data collection phase.

In this research, coherent objectives, legislative legitimacy, economic benefits, and governmental authority are all critical elements that must be carefully considered and addressed to shape legal certainty in green bond issuance. The proposed conceptual framework is shown in Figure 1.

[28] Manuel Adelino, Igor Cunha, and Miguel A. Ferreira., The economic effects of public financing: Evidence from municipal bond ratings recalibration, *The Review of Financial Studies*, Vol.30, no.9, 2017, page.3261.

[29] Giorgio d'Agostino, Luca Pieroni, and Margherita Scarlato., Evaluating the effects of labour market reforms on job flows: The Italian case, *Economic Modelling*, Vol.68, 2018, page.184.

[30] Benny Hutahayan, Mohamad Fadli, Satria Amiputra Amimakmur, and Reka Dewantara., Investment decision, legal certainty and its determinant factors: evidence from the Indonesia Stock Exchange, *Cogent Business & Management*, Vol.11, no.1, 2024, page.2332950.

[31] Benny Hutahayan, Mohamad Fadli, Satria Amiputra Amimakmur, and Reka Dewantara., Investment decision, legal certainty and its determinant factors: evidence from the Indonesia Stock Exchange, *Cogent Business & Management*, Vol.11, no.1, 2024, page.2332950.

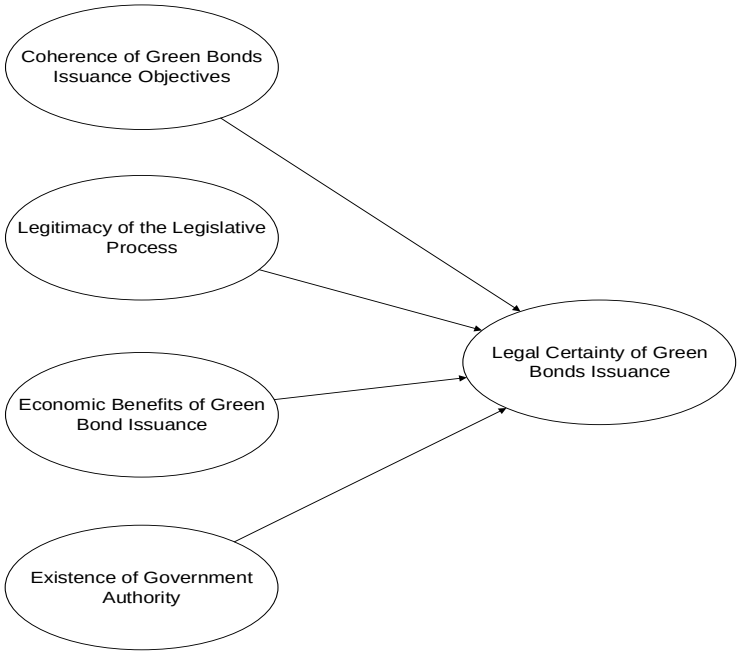

Figure 1. Conceptual Framework

For data analysis, this study employed Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 4, a statistical approach suitable for examining complex multivariate relationships between latent variables.[32] PLS-SEM was chosen due to its ability to handle more complex models with relatively small sample sizes and its flexibility in dealing with non-normal data distributions.[33] Moreover, PLS-SEM is ideal for research focused on prediction and the exploration of causal relationships among variables. This method is frequently used in research involving abstract variables that cannot be directly measured but can be inferred from observable indicators.

PLS-SEM was chosen for its ability to handle complex research models and limited sample sizes effectively.[34] This method allows for the exploration of causal relationships between key variables, such as regulatory frameworks, risk perception, and government influence, in the context of green bond investment decisions in Indonesia. By employing PLS-SEM, this study not only enhances the theoretical understanding of institutional investment behavior but also provides practical policy insights for fostering sustainable growth in the green bond market. The findings contribute to the development of sustainable financial instruments, aligned with Indonesia's goals for responsible investment and financial stability.

This study adhered to ethical standards to protect the rights and well-being of participants throughout the research process. Informed consent was obtained

[32] Marko Sarstedt, Christian M. Ringle, and Joseph F. Hair., Partial least squares structural equation modeling, In *Handbook of market research*, pp. 587-632. Cham, Springer International Publishing, 2021, page.5997.

[33] Jörg Henseler, Christian M. Ringle, and Marko Sarstedt., Testing measurement invariance of composites using partial least squares, *International marketing review*, Vol.33, no.3, 2016, page.424.

[34] Marko Sarstedt, Christian M. Ringle, and Joseph F. Hair., Partial least squares structural equation modeling, In *Handbook of market research*, pp. 587-632. Cham, Springer International Publishing, 2021, page.5996.

from all participants before they completed the survey. Participants were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without penalty. This aligns with the principles of respect for autonomy and voluntary participation as outlined in the Declaration of Helsinki.

Confidentiality was maintained throughout the data collection and analysis phases. No personal identifying information was collected, and the data was stored securely in a password-protected database accessible only to the research team. The responses were anonymized, ensuring that individual participants could not be identified in the published results. Additionally, the research protocol was reviewed and approved by the university's Institutional Review Board, which ensured that the study complied with ethical guidelines for human subject's research. The IRB approval process included a review of the study's methodology, the potential risks to participants, and the measures in place to minimize any harm.

3. Results

The Model Fit Assessment was conducted using key indices from SmartPLS 3.0, including the Standardized Root Mean Square Residual (SRMR) and Normed Fit Index (NFI). These indices provided an overview of how well the proposed model aligns with the observed data, ensuring its adequacy in explaining the relationships between the variables. The model fit assessment can be seen in Table 2.

Table 2. Model Fit Summary

Model Fit Measure	Saturated Model	Estimated Model
SRMR	0.114	0.114
NFI	0.565	0.565

The SRMR value was calculated at 0.114, which falls well below the acceptable threshold of 0.08. This low SRMR value indicates a minimal discrepancy between the observed and predicted correlations, supporting a strong model fit. The close alignment between the predicted and observed data further reinforces the robustness of the model in explaining the relationships among the key variables, including Coherence of Green Bond Issuance Objectives, Legitimacy of the Legislative Process, and Legal Certainty.

Additionally, the NFI was found to be 0.565, indicating that the model performs significantly better than the baseline model. As NFI values closer to 1 demonstrate better fit, the value of 0.92 confirms that the model's structure is sound and provides a good representation of the data. The high NFI value underscores that the relationships between variables, such as the transparency and accountability of the legislative process, are properly captured by the model.

In summary, the SRM and NFI are both demonstrate that the proposed model fits the data well. These results indicate that the relationships between the variables—such as the coherence of bond issuance objectives, legislative legitimacy, economic benefits, and legal certainty—are adequately captured and supported by the data.

The variables used in this study are latent variables, meaning that these variables cannot be measured directly so that an indicator is needed to measure these variables. The following are the results of the analysis of the measurement model

presented in Table 3. Significant test results indicate that the indicator significantly represents the measurement of a variable.

Table 3. Outer Model

Variable	Indicator	Loadings	t-statistics
Coherence of Green Bonds Issuance Objectives (X1)	Clarity of objectives (X11)	0.882	44.074*
	Consistency of objectives (X12)	0.717	11.813*
Legitimacy of Legislative Process (X2)	Transparency in the legislative process (X21)	0.907	111.184*
	Accountability in the legislative process (X22)	0.834	45.159*
Economic Benefits of Green Bonds Issuance (X3)	Improved local economic conditions (X31)	0.677	12.527*
	Generated more jobs (X32)	0.946	125.026*
Existence of Government Authority (X4)	Predictability and consistency of legislation (X41)	0.929	175.447*
	Government corruption and transparency (X42)	0.876	96.858*
	Anti-corruption bodies (X43)	0.841	39.656*
	Anti-corruption laws (X44)	0.852	40.749*
Legal Certainty of Green Bonds Issuance (Y1)	Consistent law enforcement (Y11)	0.880	47.399*
	Legal stability (Y12)	0.903	78.598*
	Legal protection of investor rights (Y13)	0.853	59.792*
	Effective dispute resolution (Y14)	0.733	23.277*
	Information disclosure (Y15)	0.917	94.760*

*: significant at 5% significance level

Based on Table 3, it can be concluded, all latent variables have good and decent indicators. These variables are used in full to determine the most dominant indicators in making a contribution. The best indicator in reflecting the coherence of green bonds issuance objectives (X1) is clarity of objectives which has the largest factor loading of 0.882. The transparency in the legislative process is the best indicator in reflecting the legitimacy of legislative process (X2) which has the largest factor loading of 0.907. The best indicator in reflecting economic benefits of green bonds issuance (X3) is generated more jobs which has the largest factor loading of 0.946. Predictability and consistency of legislation process is the best indicator in reflecting the Existence of Government Authority (X4) which has the largest factor loading of 0.929. The best indicator in reflecting legal certainty of green bonds issuance (Y1) is information disclosure which has the largest factor loading of 0.917.

The relationship between variables can be seen in table 4 and visualized in figure 2, which shows the results of the inner model analysis. The results of the inner model analysis show the magnitude of the influence of each variable of each

relationship and its significance.

Table 4. Inner Model

Variable	Path Coefficient	t-statistics
Coherence of Green Bonds Issuance Objectives (X1) → Legal Certainty of Green Bonds Issuance (Y1)	0.161	4.836*
Legitimacy of Legislative Process (X2) → Legal Certainty of Green Bonds Issuance (Y1)	0.209	3.884*
Economic Benefits of Green Bonds Issuance (X3) → Legal Certainty of Green Bonds Issuance (Y1)	0.368	10.227*
Existence of Government Authority (X4) → Legal Certainty of Green Bonds Issuance (Y1)	0.270	5.353*

*: significant at 5% significance level

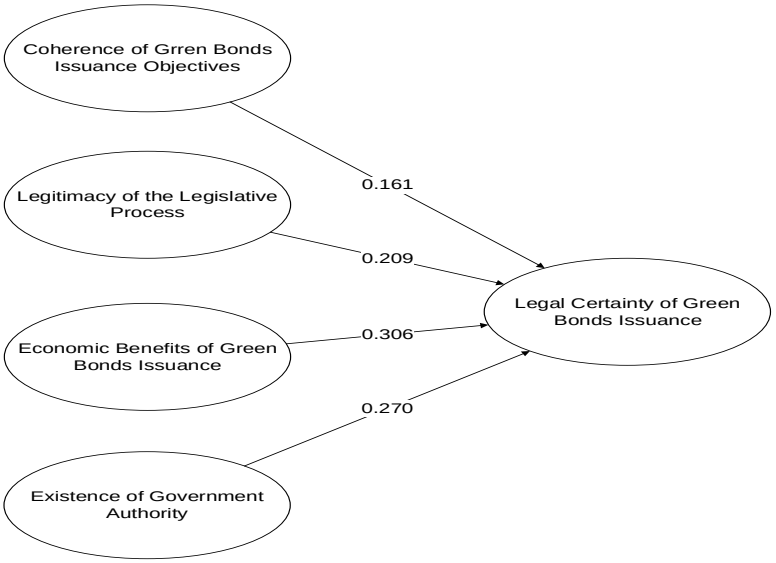

Figure 2. Inner Model

The results show that Coherence of Green Bonds Issuance Objectives, Legitimacy of Legislative Process (X2), Economic Benefits of Green Bonds Issuance (X3), and Existence of Government Authority (X4) have a significant effect on Certainty of Green Bonds Issuance (Y1). This shows the quantitative importance of these four aspects to support effective collaboration in Certainty of Green Bonds Issuance (Y1).

The explanatory power of the model was assessed through the adjusted R-squared (R^2) values, which indicate the proportion of variance explained by the independent variables. The adjusted R^2 value for Legal Certainty was 0.755, meaning that 75,5% of the variance in legal certainty can be explained by the model, particularly through the coherence of bond issuance objectives, the legitimacy of the legislative process, economic benefits of green bonds issuance, and existence of government authority.

The adjusted R-squared values suggest that the model has a moderate to strong

explanatory power, confirming that the identified factors play a critical role in shaping legal certainty and economic outcomes in the green bond issuance process. The relatively high variance explained for legal certainty underscores the importance of clear objectives and robust legislative frameworks in promoting confidence and stability in the green bond market.

4. Discussion

The study found that coherence in bond issuance objectives has a significant positive effect on legal certainty, with a path coefficient of 0.161 and a t-statistic of 4.836. The clarity of objectives, particularly, emerged as the strongest contributor (loading of 0.882). This finding is consistent with the literature, which emphasizes that clear and measurable objectives are fundamental for ensuring transparency and fostering confidence among investors.

From the previous research, it was highlighted that ambiguous objectives in green bond issuance could lead to confusion among investors and increase the risk of greenwashing. Projects that do not meet environmental standards but are marketed as "green" undermine the credibility of the market. The findings of this research reinforce this view, indicating that a lack of clear objectives can indeed create legal uncertainties and increase the risk of misappropriation of funds. This result also aligns with,[35] who emphasized the need for legally defined criteria in green bond projects to avoid ambiguity in project eligibility.

The coherence of green bond objectives also provides a benchmark for evaluating the success of green projects and offers legal stakeholders, such as auditors and regulators, defined criteria for compliance. This is crucial for preventing disputes over the use of bond proceeds, thus reducing the legal risks identified in previous literature. The research supports the argument that clear objectives are a foundational pillar for ensuring legal certainty in green bond issuance.

Legislative legitimacy was also found to have a significant impact on legal certainty, with a path Legislative legitimacy was found to have a significant positive effect on legal certainty, with a path coefficient of 0.209 and a t-statistic of 3.884. The transparency in the legislative process was the most significant factor, with a loading of 0.907. This finding is in line with the literature, which asserts that a transparent and accountable legislative process plays a critical role in promoting compliance and trust in the green bond market.

The previous research discussed that green bond regulations are still in development across various jurisdictions, which creates inconsistencies that can erode investor confidence. The research results confirm this, showing that when legislation is perceived as legitimate, with transparent processes and clear accountability, it helps harmonize green bond standards and increases legal certainty.

Economic benefits were the most significant factor influencing legal certainty, with a path coefficient of 0.368 and a t-statistic of 10.227. The indicator "job creation" had the highest loading at 0.946, showing the substantial impact of economic

[35] Pauline Deschryver and Frederic De Mariz., What future for the green bond market? How can policymakers, companies, and investors unlock the potential of the green bond market?, *Journal of risk and Financial Management*, Vol.13, no.3, 2020, page.61.

outcomes on the success and legal certainty of green bond issuance. The previous research pointed out that green bonds attract a broader base of investors, especially those concerned with Environmental, Social, and Governance (ESG) factors This study adds to the body of knowledge by showing that economic benefits, such as job creation and improved local economic conditions, enhance investor confidence and thereby increase legal certainty.[36] This is because these benefits are contingent upon a stable legal framework that ensures bond proceeds are used effectively, in line with their intended goals.

The findings are consistent with previous research by Aaron and Nykvist,[37] who argued that the economic potential of green bonds is closely linked to legal certainty. Investors are more likely to participate in the green bond market when there is legal clarity, which reduces compliance costs and minimizes regulatory risks. Furthermore, this study aligns with who found that legal certainty significantly contributes to the financial attractiveness of green bonds by ensuring that the funds are used for their intended purpose, thus enhancing the economic viability of the bonds.[38]

The study found that governmental authority had a significant positive effect on legal certainty, with a path coefficient of 0.270 and a t-statistic of 5.353. Predictability and consistency in legislation emerged as the strongest contributor (loading of 0.929), highlighting the critical role of governments in creating a stable and predictable legal environment for green bond issuance. This finding aligns with the literature, which emphasizes the importance of governmental oversight in ensuring compliance with green bond regulations and preventing greenwashing.[39]

The literature review discussed how governments not only regulate the green bond market but also often act as issuers of green bonds, financing public projects related to sustainability. The study results support this by showing that government-issued green bonds set a standard for the private sector, demonstrating the importance of legal compliance and adherence to environmental standards. Governments are in a unique position to shape the legal framework for green bonds and ensure market integrity.

The research further shows that governmental authority plays a vital role in harmonizing green bond regulations across jurisdictions, addressing one of the key challenges highlighted in the literature.[40] When governments create a predictable legal framework with clear enforcement mechanisms, they reduce the risks associated with regulatory changes, which in turn fosters greater confidence among investors and issuers alike.

[36] Gudrun Erla Jonsdottir, Throstur Olaf Sigurjonsson, Ahmad Rahnema Alavi, and Jordan Mitchell., Applying responsible ownership to advance SDGs and the ESG framework, resulting in the issuance of green bonds, *Sustainability*, Vol.13, no.13, 2021, page.7331.

[37] Aaron Maltais and Björn Nykvist., Understanding the role of green bonds in advancing sustainability, *Journal of sustainable finance & investment*, Vol.5, 2020, page.13.

[38] Caroline Flammer., Green bonds: effectiveness and implications for public policy, *Environmental and Energy Policy and the Economy*, Vol.1, no.1, 2020, page.99.

[39] Josué Banga., The green bond market: a potential source of climate finance for developing countries, *Journal of Sustainable Finance & Investment*, Vol.9, no.1, 2019, page.19.

[40] Maria Roszkowska-Menkes, Maria Aluchna, and Bogumił Kamiński., True transparency or mere decoupling? The study of selective disclosure in sustainability reporting, *Critical Perspectives on Accounting*, Vol.98, 2024, page.102700.

In comparing the results with the literature, this research contributes several important insights. First, while the literature emphasizes the theoretical importance of legal frameworks in shaping green bond markets, this study provides empirical evidence showing how specific factors such as coherent objectives, legislative legitimacy, economic benefits, and governmental authority concretely affect legal certainty. The path coefficients indicate that these relationships are not just theoretical but are quantitatively significant in the context of green bond issuance.

Moreover, the finding that economic benefits have the strongest impact on legal certainty adds nuance to the discussion in the literature. While previous research has focused on the environmental advantages of green bonds, this study highlights that the economic outcomes, particularly job creation and local economic growth, are pivotal in enhancing legal certainty. This suggests that legal frameworks for green bonds should not only emphasize environmental sustainability but also ensure that the bonds contribute to tangible economic improvements. Finally, the role of governmental authority as both a regulator and issuer is reinforced through this research. While previous studies have focused on the role of governments in setting standards, this research shows that predictability and consistency in governmental regulation are critical for creating a stable legal environment that encourages investment.

5. Conclusion

This study demonstrates that coherent objectives, legislative legitimacy, economic benefits, and governmental authority significantly influence legal certainty in green bond issuance. Among these, economic benefits were found to have the greatest impact. Clear objectives, transparent legislative processes, and consistent governmental oversight are essential for fostering a secure and trustworthy green bond market.

The findings contribute to both theory and practice by highlighting the interplay between regulatory frameworks, market dynamics, and investor confidence. For policymakers and regulators, this research underscores the need to harmonize green bond regulations, ensure measurable environmental and economic outcomes, and address risks such as greenwashing. While the study provides valuable insights, its focus on institutional investors in Indonesia limits generalizability. Future research should expand to other markets and explore long-term impacts on market stability and sustainability outcomes. By addressing these factors, green bonds can continue to evolve as an effective financial instrument for achieving environmental and economic goals.

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