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FINANCIAL PATHWAYS LINKING GREEN LENDING TO CORPORATE VALUATION

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Abstract

The expansion of sustainable finance has increased attention to green lending as a mechanism for promoting environmental objectives while strengthening corporate value. Despite its growing adoption, evidence regarding the value implications of green lending remains inconclusive, particularly within emerging banking markets. This study evaluates the contribution of green lending to corporate valuation and examines whether credit risk and profitability function as financial pathways through which such effects may occur. The analysis is based on panel data from four Indonesian KBMI 4 banks covering the period 2015–2024. Green lending is measured using the Green Lending Ratio, corporate valuation is proxied by Tobin's Q, credit risk is represented by the Non-Performing Loan ratio, and profitability is measured by Return on Assets. A path analysis approach employing panel regression with bank-clustered robust standard errors is applied. The results reveal that green lending contributes positively to corporate valuation. Credit risk exhibits a negative association with valuation, whereas profitability demonstrates a positive relationship. However, neither credit risk nor profitability significantly transmits the effect of green lending on valuation. These findings suggest that capital markets reward sustainability-oriented lending initiatives, while corporate valuation continues to depend largely on financial performance and asset quality.

Keywords: corporate valuation; credit risk; green lending; profitability; sustainable finance.

INTRODUCTION

The increasing prominence of sustainability concerns has fundamentally reshaped the priorities of corporations, investors, and financial institutions worldwide. As environmental degradation, climate change, and resource scarcity intensify, financial markets are increasingly expected to support the transition toward more sustainable economic systems. Within this context, corporate valuation has evolved beyond a conventional assessment of profitability and growth potential. Investors now evaluate firms not only on their financial performance but also on their ability to manage

environmental and social risks that may affect long-term value creation. Consequently, sustainability-oriented business practices have become an important determinant of market confidence and corporate valuation (Brigham & Daves, 2019; Damodaran, 2025).

The banking industry occupies a central position in this transition because banks influence economic development through capital allocation decisions. Unlike most non-financial firms, banks shape sustainability outcomes indirectly by determining which projects, industries, and economic activities receive financial support. As a result, financial institutions have become key actors in advancing sustainable development goals through the implementation of sustainable finance initiatives. One of the most prominent manifestations of this transformation is green lending, defined as the provision of credit to environmentally responsible projects and business activities. Green lending supports investments in renewable energy, energy efficiency, sustainable infrastructure, pollution reduction, and other environmentally beneficial initiatives (Sullivan & Mackenzie, 2006).

The strategic relevance of green lending has increased substantially over the past decade. Regulators, investors, and international organizations have encouraged financial institutions to integrate environmental considerations into lending decisions as part of broader sustainable finance agendas. Beyond environmental benefits, green lending is increasingly viewed as a mechanism capable of generating economic value. By financing environmentally sustainable projects, banks may strengthen their reputational capital, improve stakeholder trust, and demonstrate long-term strategic commitment to sustainability. These advantages can potentially enhance investor perceptions and contribute positively to corporate valuation (Schoenmaker & Schramade, 2019).

The relationship between green lending and corporate valuation can be understood through several theoretical perspectives. Signaling theory suggests that sustainability-oriented financial decisions provide information to investors regarding managerial quality, governance effectiveness, and future strategic direction (Howe, 1997). Since sustainability initiatives often require long-term commitment and substantial organizational resources, their implementation may serve as a credible signal of institutional strength and managerial confidence. Consequently, investors may interpret green lending activities as evidence of superior strategic positioning and lower long-term uncertainty, resulting in more favorable market valuations.

Stakeholder theory provides an additional explanation by emphasizing that firms generate sustainable value when they effectively address the interests of multiple stakeholder groups rather than focusing exclusively on shareholder wealth (Freeman, 1984). Through green lending, banks respond to growing expectations from regulators, customers, investors, communities, and environmental stakeholders. Such responsiveness may enhance institutional legitimacy and corporate reputation, both of which are important intangible assets influencing market valuation. Furthermore, the

sustainable finance framework argues that environmental considerations should be integrated into financial decision-making because sustainability-related risks increasingly affect economic performance and financial stability (Jeucken, 2010; Schoenmaker & Schramade, 2019).

Despite these theoretical arguments, the economic consequences of green lending remain far from settled. Existing studies have reported mixed findings regarding whether sustainability-oriented lending contributes to financial performance and firm value. Several scholars argue that green lending improves corporate valuation by strengthening reputation, reducing exposure to environmental risks, and enhancing stakeholder confidence (Al-Qudah et al., 2022; L. Zheng et al., 2025). Other studies suggest that green lending contributes to stronger financial performance by improving asset quality and reducing credit-related losses (Cui et al., 2018). These findings imply that sustainability-oriented lending may generate value not only directly but also indirectly through improvements in financial fundamentals.

However, empirical evidence remains inconsistent. While research conducted in China and several Middle Eastern countries reports favorable effects of green lending on risk management and financial performance, other studies identify weak or insignificant relationships between sustainable lending and profitability (Backman, 2024; Ali Fata & Arifin, 2024). These inconsistencies indicate that the financial outcomes of green lending may depend on institutional characteristics, regulatory quality, market maturity, and the level of sustainable finance development within a particular country. Consequently, the extent to which green lending contributes to corporate valuation remains an unresolved empirical issue.

A second limitation of existing literature concerns the insufficient understanding of the mechanisms through which green lending affects corporate valuation. Most prior studies focus on direct relationships between sustainability practices and market performance, while relatively few investigate the intermediate financial processes that may explain these effects. This limitation is important because investors ultimately evaluate banks based on observable financial outcomes. Therefore, understanding how green lending influences financial fundamentals is essential for explaining its contribution to market value.

Among the potential mechanisms, credit risk and profitability appear particularly relevant. Credit risk reflects the quality of a bank's lending portfolio and its ability to manage borrower default exposure. Sustainable lending practices may improve credit quality by directing financial resources toward projects with stronger regulatory compliance and lower environmental liabilities (Jeucken, 2010). As environmental regulations become increasingly stringent, borrowers operating in environmentally vulnerable sectors may face greater operational and financial risks. Consequently, banks with greater exposure to environmentally sustainable projects may experience lower levels of non-performing loans and improved asset quality.

Profitability represents another important pathway through which green lending may influence corporate valuation. Profitability reflects a bank's ability to generate earnings from its assets and operations, making it one of the most closely monitored indicators by investors. Higher profitability generally enhances investor confidence and supports higher market valuation (Brigham & Daves, 2019; Husnan, 2015). Green lending may contribute to profitability through several channels, including reputational benefits, stronger stakeholder relationships, improved portfolio quality, and access to sustainability-oriented funding opportunities. However, because sustainable lending may also involve additional monitoring costs and investment requirements, its profitability implications remain uncertain (Backman, 2024).

The Indonesian banking industry offers a particularly relevant setting for investigating these issues. Indonesia has introduced significant regulatory initiatives aimed at promoting sustainable finance, including the implementation of Financial Services Authority Regulation No. 51/POJK.03/2017 concerning sustainable finance practices. Although the value of green financing has expanded considerably, environmentally oriented credit still represents a relatively small proportion of total banking lending. This discrepancy highlights an important research problem: while sustainability-oriented financing is increasingly promoted as a strategic imperative, its contribution to corporate valuation remains insufficiently understood within the Indonesian banking context.

Furthermore, empirical evidence from emerging markets remains limited compared with that available from developed economies. Most existing studies focus on countries with relatively mature sustainable finance ecosystems, leaving important questions regarding the effectiveness of green lending in emerging banking systems unanswered. Indonesia presents a unique institutional environment characterized by rapid economic growth, evolving sustainability regulations, and increasing investor attention to ESG-related issues. These characteristics provide an opportunity to examine whether sustainability-oriented lending creates value under conditions substantially different from those observed in developed markets.

Against this background, this study addresses two important research gaps. First, it investigates whether green lending contributes to corporate valuation in the context of Indonesian banking institutions. Second, it examines whether credit risk and profitability operate as financial pathways linking green lending to corporate valuation. By simultaneously analyzing these mediating mechanisms, the study extends existing literature beyond direct-effect models and provides a more comprehensive understanding of how sustainability-oriented lending generates economic value.

Accordingly, the objective of this study is to examine the effect of green lending on corporate valuation and to evaluate the mediating roles of credit risk and profitability within Indonesian KBMI 4 banks during the period 2015–2024. The study contributes to the sustainable finance literature by integrating signaling theory, stakeholder theory,

and sustainable finance perspectives into a unified analytical framework. In addition, it provides empirical evidence from an emerging market setting where research remains relatively scarce, offering practical insights for regulators, investors, and banking institutions seeking to align sustainability objectives with long-term value creation.

RESEARCH METHOD

This study employs a quantitative explanatory design to examine the relationship between green lending and corporate valuation and to identify the financial pathways through which this relationship may occur. The research focuses on Indonesian KBMI 4 banks, which represent the largest and most systemically important banking institutions in the country. A census approach was adopted, resulting in a sample comprising *Bank Central Asia* (BBCA), *Bank Negara Indonesia* (BBNI), *Bank Rakyat Indonesia* (BBRI), and *Bank Mandiri* (BMRI). The observation period spans from 2015 to 2024, generating a balanced panel dataset of 40 bank-year observations.

The analysis is based exclusively on secondary data obtained from publicly available sources, including annual reports, sustainability reports, audited financial statements, and regulatory disclosures. These sources provide consistent information regarding sustainable financing activities, financial performance, credit quality, and market valuation. The use of secondary panel data enables the examination of both cross-sectional differences among banks and temporal changes in sustainable lending practices over time.

Four key variables are incorporated into the empirical framework. Green lending serves as the independent variable and is measured using the Green Lending Ratio (GLR), reflecting the proportion of environmentally oriented financing relative to total lending. Corporate valuation is the dependent variable and is proxied by Tobin's Q, a market-based indicator that captures investors' assessments of future value creation. Credit risk is represented by the Non-Performing Loan (NPL) ratio, while profitability is measured using Return on Assets (ROA). These variables were selected because they reflect the principal financial mechanisms through which sustainability-oriented lending may influence market valuation.

Data analysis was conducted using panel-based path analysis to evaluate both direct and indirect relationships among the study variables. The analytical procedure began with descriptive statistics to summarize data characteristics and identify distributional patterns. Subsequently, panel regression techniques were employed to estimate the structural relationships within the proposed framework. The mediating roles of credit risk and profitability were assessed by examining indirect effects linking green lending to corporate valuation. To enhance the reliability of statistical inference and address potential heterogeneity across banks, coefficient significance was evaluated using bank-clustered robust standard errors. This analytical approach enables a comprehensive assessment of whether green lending contributes directly to

corporate valuation or operates through improvements in asset quality and profitability. The findings are interpreted within the perspectives of signaling theory, stakeholder theory, and sustainable finance theory to explain the economic relevance of sustainability-oriented lending practices in the banking sector.

RESULT AND DISCUSSION

Overview of the Research Context

This study examines Indonesia's KBMI 4 banks, namely *Bank Central Asia* (BBCA), *Bank Negara Indonesia* (BBNI), *Bank Rakyat Indonesia* (BBRI), and *Bank Mandiri* (BMRI), which represent the largest and most capitalized banking institutions in the country. These banks play a dominant role in national credit allocation and have been at the forefront of sustainable finance implementation, including the expansion of green lending initiatives. The observation period covers 2015–2024, a decade characterized by significant developments in Indonesia's sustainable finance framework and increasing regulatory support for environmentally responsible banking practices. Given their substantial market presence, extensive lending activities, and availability of sustainability-related disclosures, KBMI 4 banks provide an appropriate setting for assessing whether green lending contributes to corporate valuation and whether credit risk and profitability function as the financial pathways underlying this relationship.

Descriptive Statistical Analysis

Table 1. Summary Statistics of the Research Variables

Variables	N	Min	Max	Mean	Std.Dev
Green lending ratio (GLR)	40	0.088582	0.691788	0.293776	0.167323
Credit risk (NPL)	40	0.007000	0.043000	0.023345	0.008161
Profitablity (ROA)	40	0.003726	0.037847	0.023166	0.007161
Corporate valuation (Tobin's Q)	40	0.763696	1.305576	0.960224	0.183379

Source: Processed data, 2026

Table 1 presents the descriptive statistics of the variables included in the study. The Green Lending Ratio (GLR) exhibits a mean value of 0.2938, indicating that, on average, approximately 29.38% of total lending portfolios were allocated to environmentally oriented financing activities. The observed range, from 0.0886 to 0.6918, suggests substantial variation in green lending practices across banks and over time, reflecting differences in strategic commitment to sustainable finance initiatives.

Credit risk, measured by the Non-Performing Loan (NPL) ratio, records an average value of 0.0233 with a relatively low standard deviation of 0.0082. This finding indicates that the sampled banks generally maintained sound credit quality throughout the

observation period, despite variations in economic and regulatory conditions. Similarly, profitability, proxied by Return on Assets (ROA), shows a mean value of 0.0232, suggesting a relatively stable capacity of the banks to generate earnings from their asset base.

Corporate valuation, represented by Tobin's Q, reports an average value of 0.9602, with values ranging from 0.7637 to 1.3056. The dispersion of Tobin's Q indicates differences in market assessments of future growth prospects and value creation among the sampled institutions. Overall, the descriptive statistics reveal sufficient variability across the variables, supporting further examination of the relationships between green lending, credit risk, profitability, and corporate valuation within the Indonesian banking sector.

Assesment of Regression Assumptions

Prior to hypothesis testing, several diagnostic procedures were conducted to evaluate the adequacy of the regression models. Residual normality was assessed using the Jarque–Bera (JB) test. The first and second equations produced JB probabilities of 0.575 and 0.668, respectively, indicating normally distributed residuals. Although the third equation reported a probability value below the conventional threshold, the use of panel estimation with robust standard errors reduces the sensitivity of the results to deviations from normality, thereby preserving the reliability of statistical inference.

Heteroskedasticity was examined using both the Breusch–Pagan and White tests. Across all model specifications, the reported probability values exceeded the 5% significance level, indicating no evidence of systematic heteroskedasticity. These results suggest that the variance of the residuals remained sufficiently stable throughout the estimation process.

Multicollinearity was evaluated through Variance Inflation Factor (VIF) statistics. The VIF values ranged from 1.231 to 2.392, remaining well below the commonly accepted threshold of 10. This finding confirms that the explanatory variables do not exhibit problematic linear dependence and that the estimated coefficients can be interpreted with confidence.

Autocorrelation was assessed using the Breusch–Godfrey (BG) test. While the first and second equations reported probability values below 0.05, indicating potential serial correlation, the third equation did not exhibit this issue. To address possible dependence within panel observations, all estimations were conducted using bank-clustered robust standard errors. This approach provides consistent inference even in the presence of within-bank serial correlation and heterogeneity. Overall, the diagnostic results indicate that the empirical model satisfies the principal requirements for panel-data estimation and is suitable for examining the relationships among green lending, credit risk, profitability, and corporate valuation.

Table 2. Diagnostic Assesment Findings

Model	Jarque–Bera (p-value)	Breusch–Pagan (p-value)	White Test (p-value)	Breusch–Godfrey (p-value)
Equation 1	0.575481	0.074138	0.202652	0.01676
Equation 2	0.668396	0.759494	0.096508	0.04014
Equation 3	0.00165	0.786339	0.417439	0.2494

Source: Processed data, 2026

Table 3. Multicollinearity Assessment

Variables	VIF
Green lending ratio (GLR)	1.231
Credit risk (NPL)	2.3641
Profitability (ROA)	2.3919

Source: Processed data, 2026

Data Analysis

Panel Model Determination

The appropriate panel-data specification was determined through a sequential model selection procedure involving the Chow, Breusch–Pagan Lagrange Multiplier (LM), and Hausman tests. The Chow test produced statistically significant results for all three equations, indicating that the pooled ordinary least squares model was not appropriate and that panel-data estimation should be employed.

The LM test further confirmed the presence of panel effects in Equations 1 and 2, as reflected by probability values below the 5% significance level. Although Equation 3 did not show a significant LM statistic, the Chow test indicated that panel estimation remained preferable to the pooled model. Subsequently, the Hausman test was applied to distinguish between fixed-effects and random-effects specifications. The probability values for all equations exceeded 0.05, suggesting that the random-effects assumption could not be rejected.

Based on these results, the Random Effects Model (REM) was selected as the most appropriate estimation approach for all equations. The use of REM is consistent with the characteristics of the dataset, as it accommodates unobserved bank-specific heterogeneity while preserving estimation efficiency. Accordingly, all subsequent analyses examining the relationships among green lending, credit risk, profitability, and corporate valuation were conducted using the random-effects specification.

Table 4. Panel Model Determination Findings

Equation	Chow F-Statistic	Chow p-value	LM Statistic (BP)	LM p-value	Hausman χ2	Hausman p-value
Equation 1	5.247515	0.004268	9.758926	0.001785	0.028376	0.866228
Equation 2	14.425735	0.000003	44.831448	0.000000	0.137957	0.710321
Equation 3	6.164399	0.001909	2.840502	0.091916	7.336773	0.061904

Source: Processed data, 2026

Path Analysis Findings

The path analysis findings reveal distinct relationships among green lending, credit risk, profitability, and corporate valuation. As reported in Table 5, green lending does not exert a statistically significant effect on credit risk, as indicated by a negative but insignificant coefficient (β = −0.0089; p = 0.3138). This finding suggests that the expansion of environmentally oriented lending activities does not necessarily translate into immediate improvements in loan portfolio quality. The result may reflect the relatively early stage of sustainable finance implementation, where the risk-mitigation benefits of green lending require a longer period to materialize.

Similarly, the relationship between green lending and profitability is not statistically significant (β = 0.0031; p = 0.6529). Although sustainable lending is often associated with reputational advantages and long-term financial benefits, the evidence indicates that such benefits have not yet been reflected in the short-term earnings performance of the sampled banks. This outcome implies that profitability may be influenced more strongly by broader operational and market factors than by the proportion of green financing alone.

In contrast, green lending demonstrates a strong positive association with corporate valuation (β = 0.6171; p < 0.001). This result indicates that capital markets respond favorably to sustainability-oriented lending strategies. From a signaling perspective, green lending may be interpreted by investors as evidence of long-term strategic commitment, responsible governance, and adaptability to emerging sustainability challenges, thereby enhancing market valuation.

The analysis further shows that credit risk negatively affects corporate valuation (β = −7.7176; p = 0.0154), while profitability exerts a positive and statistically significant effect (β = 17.3522; p = 0.0018). These findings confirm that investors continue to place substantial weight on fundamental financial indicators when assessing firm value. Lower credit risk strengthens confidence in asset quality and financial stability, whereas

higher profitability signals stronger earnings potential and long-term value creation capacity.

Overall, the results suggest that green lending contributes directly to corporate valuation, while the proposed financial pathways through credit risk and profitability receive limited empirical support. The valuation benefits of green lending therefore appear to arise primarily from market perceptions and sustainability-related signaling effects rather than from measurable improvements in financial performance or risk reduction during the observation period.

Table 5. Path Analysis Findings

Relationship	Coefficient	p-Value
Green Lending → Credit Risk	- 0.00891	0.313800
Green lending → Profitability	0.003083	0.652900
Green Lending → Corporate Valuation	0.617110	0.0000004
Credit Risk → Corporate Valuation	- 7.71763	0.015389
Profitability → Corporate Valuation	17.352241	0.001847

Source: Processed data, 2026

Sobel Test Findings

Table 6. Sobel Test Findings

Mediation Path	Indirect Effect	z-Statistic	p-Value
Green Lending → Credit Risk → Corporate Valuation	0.068827	0.947315	0.343478
Green Lending → Profitability → Corporate Valuation	0.053499	0.449261	0.653244

Source: Processed data, 2026

The Sobel test was conducted to evaluate whether credit risk and profitability mediate the relationship between green lending and corporate valuation. As presented in Table 6, neither mediation pathway achieved statistical significance. The indirect effect of green lending on corporate valuation through credit risk produced a z-statistic of 0.9473 (p = 0.3435), while the indirect effect through profitability generated a z-statistic of 0.4493 (p = 0.6532). Both probability values exceed the conventional 5% significance threshold, indicating the absence of a significant mediating effect.

These findings suggest that the influence of green lending on corporate valuation does not operate through reductions in credit risk or improvements in profitability during the observation period. Although credit risk and profitability are individually associated with corporate valuation, they do not function as transmission mechanisms

linking sustainability-oriented lending to market value. This result implies that investors may perceive green lending primarily as a strategic signal of long-term commitment to sustainability rather than as an immediate source of financial performance enhancement or risk reduction.

Overall, the mediation analysis reinforces the direct-effect results by indicating that the valuation benefits associated with green lending arise predominantly from market perceptions and sustainability-related expectations rather than from observable changes in financial fundamentals. Accordingly, the proposed financial pathways receive limited empirical support within the context of Indonesian KBMI 4 banks.

Assessment of Direct and Indirect Effects

Table 7 summarizes the magnitude of the direct and indirect effects of green lending on corporate valuation. The results indicate that the direct effect of green lending on corporate valuation (0.6171) is substantially larger than the combined indirect effects transmitted through credit risk and profitability (0.1223). Consequently, the total effect reaches 0.7394, with the direct pathway accounting for the dominant proportion of the overall relationship.

The relatively small indirect effects are consistent with the Sobel test results, which indicate that neither credit risk nor profitability functions as a statistically significant mediator. Although both variables are associated with corporate valuation, their contribution to transmitting the impact of green lending remains limited. This finding suggests that the valuation benefits of green lending are not primarily generated through observable improvements in financial performance or reductions in credit risk.

Instead, the results imply that market participants may assign value to green lending because it reflects broader strategic and sustainability-related commitments. From a signaling perspective, environmentally oriented lending activities communicate long-term adaptability, responsible governance, and alignment with evolving sustainability expectations. As a result, investors appear to respond more strongly to the strategic implications of green lending itself than to its indirect influence through conventional financial indicators. These findings reinforce the argument that green lending contributes directly to market valuation, while the proposed financial pathways provide only marginal explanatory power within the sampled banking institutions.

Table 7. Summary of Direct and Indirect Effects of Green Lending on Corporate Valuation

Direct Effect (c') Green Lending → Corporate Valuation	Indirect Effect via Credit Risk	Indirect Effect via Profitability	Total Indirect Effect	Total Effect
0.617110	0.068827	0.053499	0.12232	0.7394

Source: Processed data, 2026

Evaluation of Research Hypotheses

The result of the hypothesis evaluation provide evidence that green lending plays a significant role in enhancing corporate valuation. The positive and statistically significant coefficient confirms that banks with greater engagement in environmentally oriented lending activities tend to achieve higher market valuation. This finding supports the argument that sustainability-oriented financing is perceived favorably by investors and contributes directly to value creation.

In contrast, green lending does not exhibit a significant relationship with either credit risk or profitability. These results suggest that the expansion of green lending has not yet translated into measurable improvements in asset quality or earnings performance within the observation period. Accordingly, the expected financial transmission mechanisms linking green lending to corporate valuation receive limited empirical support.

The findings further demonstrate that credit risk and profitability remain important determinants of corporate valuation. Credit risk is negatively associated with firm value, indicating that deteriorating asset quality reduces investor confidence and market assessment. Conversely, profitability exerts a positive influence on valuation, confirming that stronger earnings performance remains a key driver of shareholder value.

The mediation analysis reinforces these conclusions. Neither credit risk nor profitability significantly mediates the relationship between green lending and corporate valuation. Therefore, the valuation benefits associated with green lending appear to arise primarily through a direct market response rather than through changes in conventional financial indicators. Collectively, the results highlight that sustainability-oriented lending is recognized by investors as a strategic commitment with value relevance, while its influence on financial fundamentals remains less evident in the short to medium term.

Table 8. Overview of Hypothesis Evaluation Results

Hypothesis	Coefficient	p-value	Result
Green Lending → Corporate Valuation	0,61711	0,0000004	Supported
Green Lending → Credit Risk	-0,008	0,313800	Not Supported
Green Lending → Profitability	0,003	0,652900	Not Supported
Credit Risk → Corporate Valuation	-7,717	0,015389	Supported
Profitability → Corporate Valuation	17,352	0,001847	Supported
Green Lending → Credit Risk → Corporate Valuation	0,068827	0.343478	Not Supported
Green Lending → Profitability → Corporate Valuation	0,053499	0.653244	Not Supported

Source: Processed data, 2026

Discussion

The findings of this study provide important insights into the relationship between sustainable finance practices and corporate valuation within the Indonesian banking sector. The central objective of the research was to examine whether green lending contributes to corporate valuation and whether such influence operates through two financial channels, namely credit risk and profitability. The empirical evidence reveals a nuanced pattern. Green lending significantly enhances corporate valuation, yet it does not significantly affect either credit risk or profitability. Moreover, neither credit risk nor profitability mediates the relationship between green lending and corporate valuation. These findings suggest that the economic value of green lending is primarily derived from market perception and strategic signaling rather than from immediate improvements in financial performance.

One of the most notable findings is the positive contribution of green lending to corporate valuation. This result suggests that investors increasingly regard sustainability-oriented financing as a strategic indicator of long-term organizational quality. In the banking industry, green lending extends beyond the provision of financing for environmentally responsible projects. It represents a broader commitment to sustainable development, prudent governance, and future-oriented business transformation. Consequently, banks that actively integrate environmental considerations into their lending portfolios appear to enjoy stronger market recognition and more favorable investor assessments.

The observed relationship can be understood through the perspective of signaling theory. According to Spence (1973), organizations reduce information asymmetry by

transmitting credible signals regarding their future prospects and managerial quality. Within this framework, green lending functions as a visible and difficult-to-replicate signal that reflects managerial commitment to long-term value creation and strategic adaptability. Investors may interpret environmentally oriented lending policies as evidence that a bank is better positioned to navigate future regulatory requirements, stakeholder expectations, and sustainability-related risks. As a result, the market responds positively to sustainability-oriented lending activities, incorporating such signals into firm valuation.

The present findings are also consistent with the central proposition of sustainable finance theory, which emphasizes that environmental considerations should be integrated into financial decision-making processes to support long-term value creation (Schoenmaker & Schramade, 2019). From this perspective, sustainability initiatives are not merely compliance instruments or reputational mechanisms; rather, they constitute strategic investments that enhance organizational resilience, strengthen stakeholder relationships, and improve future competitiveness. The positive valuation effect identified in this study suggests that investors increasingly recognize sustainability-oriented banking practices as an important determinant of future economic performance.

This interpretation is supported by a growing body of international evidence. Friede et al. (2015), through a comprehensive review of more than 2,000 empirical studies, demonstrate that sustainability-related practices are generally associated with improved financial and market outcomes. Likewise, Gangi et al. (2019) argue that sustainability engagement enhances transparency and stakeholder confidence, both of which contribute positively to market valuation. Collectively, these studies reinforce the view that sustainability initiatives increasingly function as sources of competitive advantage and value creation within the financial sector.

Despite its positive effect on corporate valuation, green lending does not appear to significantly influence credit risk. This finding suggests that the expansion of environmentally oriented financing has not yet translated into measurable improvements in loan portfolio quality among Indonesian KBMI 4 banks. Such evidence differs from the expectation that green lending should contribute to lower credit risk by directing capital toward projects characterized by stronger long-term sustainability and lower environmental exposure (Cui et al., 2018).

Several factors may explain this outcome. Credit risk is influenced by a complex set of determinants, including macroeconomic conditions, borrower characteristics, sectoral exposure, portfolio concentration, and internal risk-management effectiveness. The combined influence of these factors may outweigh the contribution of green lending in shaping overall asset quality. Furthermore, many environmentally oriented projects involve technological innovation, evolving regulatory frameworks,

and long investment horizons. These characteristics may create transitional uncertainties that delay the realization of risk-reduction benefits.

The insignificant relationship between green lending and credit risk may also reflect the current stage of sustainable finance implementation. While sustainable finance frameworks advocate the integration of environmental risk into lending decisions, practical implementation frequently progresses more slowly than theoretical expectations. Jeucken (2010) emphasizes that environmental risk should form an integral component of credit-risk evaluation. However, in many emerging economies, environmental risk assessment systems remain underdeveloped, limiting their effectiveness in improving loan portfolio quality. Weber & Chowdhury (2020) similarly argue that sustainability-oriented risk-management systems require substantial institutional adaptation before generating observable outcomes. Consequently, the absence of a significant effect may reflect implementation maturity rather than the ineffectiveness of green lending itself.

A comparable pattern emerges in relation to profitability. The findings indicate that green lending does not significantly improve profitability, as measured by Return on Assets. This result suggests that environmentally oriented financing has not yet generated sufficient financial returns to affect short-term earnings performance. Although sustainability initiatives are frequently associated with reputational advantages and enhanced stakeholder relationships, such benefits do not necessarily translate into immediate accounting gains.

One plausible explanation concerns the additional costs associated with sustainable finance implementation. Green lending typically requires environmental due diligence, project monitoring, sustainability reporting, impact measurement, and compliance procedures. These activities increase operational expenditures and may offset short-term revenue gains. Moreover, banks often provide preferential financing terms to encourage investment in environmentally responsible projects, which may reduce profit margins during the early stages of implementation. Backman (2024) notes that the profitability effects of sustainable lending frequently emerge only after extended periods, once strategic and reputational benefits begin to outweigh implementation costs.

The absence of a profitability effect also highlights an important distinction between market-based and accounting-based measures of performance. Investors may recognize the strategic relevance of sustainability initiatives before such initiatives generate observable improvements in earnings. Consequently, the market valuation premium associated with green lending can emerge earlier than profitability gains. Gigante & Manglaviti (2022) similarly argue that sustainability investments often create reputational and strategic benefits long before they produce measurable accounting returns. This perspective helps explain why green lending enhances corporate valuation despite its insignificant relationship with profitability.

Although green lending does not significantly affect either credit risk or profitability, both variables remain important determinants of corporate valuation. Credit risk exhibits a significant negative effect on firm value, indicating that investors continue to regard asset quality as a critical indicator of financial stability. Higher levels of non-performing loans increase uncertainty regarding future cash flows, elevate expected losses, and weaken confidence in management's risk-management capabilities. As a result, banks with weaker asset quality receive less favorable market valuations.

The importance of credit risk is particularly evident within the banking industry, where asset quality represents a fundamental measure of institutional soundness. Investors often interpret deteriorating credit quality as a signal of future financial vulnerability. Therefore, even as sustainability considerations gain prominence, traditional indicators of risk management remain highly relevant to valuation decisions. Similar conclusions have been reported by Al-Qudah et al. (2022), who demonstrate that effective risk management continues to play a crucial role in sustaining investor confidence and firm value.

Profitability, by contrast, exerts a positive influence on corporate valuation. This result confirms that earnings performance remains a central consideration in investor decision-making. Higher profitability signals stronger operational efficiency, superior resource utilization, and greater capacity to generate future returns. According to Brigham & Houston (2019), profitability serves as a key indicator of managerial effectiveness and long-term growth potential. Consequently, investors reward profitable institutions with higher market valuations.

The simultaneous significance of profitability and credit risk indicates that traditional financial fundamentals remain central to value creation. Sustainability initiatives may enhance market perception, but they do not replace the importance of sound financial performance and prudent risk management. Instead, sustainable finance and financial fundamentals appear to operate as complementary sources of corporate value. Investors favor institutions that combine sustainability commitments with strong profitability and effective risk-control mechanisms.

Perhaps the most important contribution of this study concerns the absence of mediation effects. Neither credit risk nor profitability significantly transmits the influence of green lending to corporate valuation. This finding challenges the conventional assumption that sustainability initiatives generate value primarily through improved financial performance or reduced risk exposure. Instead, the results suggest that investors respond directly to sustainability-related commitments without requiring immediate evidence of financial improvement.

The lack of mediation implies that green lending functions primarily as a strategic signal rather than as an immediate driver of financial outcomes. Investors may perceive sustainability-oriented financing as an indicator of future competitiveness, regulatory

readiness, reputational strength, and organizational resilience. Consequently, valuation benefits emerge directly through market expectations rather than indirectly through changes in profitability or credit quality.

This interpretation is particularly relevant within emerging economies such as Indonesia, where sustainable finance frameworks and ESG-related disclosures continue to evolve. In such contexts, market participants may place greater emphasis on strategic sustainability commitments because they provide information regarding future adaptability and long-term positioning. Zhang et al. (2024) find that investors increasingly reward financial institutions demonstrating strong sustainability engagement, while Li et al. (2025) show that ESG-oriented banking strategies contribute to firm value primarily through expectations concerning future resilience and competitiveness. These observations help explain why green lending enhances corporate valuation even in the absence of significant effects on financial fundamentals.

Overall, the findings highlight the multifaceted nature of value creation within sustainable banking. Green lending contributes positively to corporate valuation, not because it immediately improves profitability or reduces credit risk, but because it signals strategic commitment, strengthens institutional legitimacy, and aligns organizations with evolving sustainability expectations. At the same time, profitability and credit risk continue to exert significant influence on market valuation, underscoring the enduring importance of traditional financial fundamentals. The coexistence of these effects suggests that long-term value creation in the banking sector increasingly depends on the successful integration of sustainability-oriented strategies with sound financial management and effective risk governance.

CONCLUSION

The evidence presented in this study indicates that green lending has become an increasingly relevant factor in shaping corporate valuation within the Indonesian banking industry. The positive association between environmentally oriented lending and firm value suggests that capital markets perceive sustainability commitments as indicators of strategic readiness, institutional credibility, and long-term adaptability. However, the expected financial transmission channels were not supported. Neither credit risk nor profitability was found to explain how green lending influences corporate valuation, implying that the market responds to sustainability-related signals more rapidly than to changes in accounting-based performance indicators.

These findings suggest that the value relevance of green lending extends beyond its immediate financial consequences. Sustainability-oriented lending appears to strengthen investor confidence by reinforcing perceptions of future resilience and responsible governance rather than by generating short-term improvements in profitability or asset quality. Consequently, sustainable finance should be viewed not only as a risk-management or performance-enhancement mechanism but also as a

strategic component of value creation. As sustainability expectations continue to reshape financial markets, banking institutions may achieve greater long-term valuation benefits by integrating environmental objectives with sound governance practices and prudent financial management.

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