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Bridging Green Banking Disclosure and Board Effectiveness in Enhancing Corporate Value: Institutional Ownership as a Strategic Moderator in Emerging Markets

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Abstract: This study aims to examine the effect of green banking disclosure and board effectiveness on firm value with institutional ownership as a moderating variable. A quantitative approach is employed using secondary data from 42 banking companies listed on the Indonesia Stock Exchange (IDX) during 2020–2023 which consistently published financial and sustainability reports. Data analysis methods include descriptive statistics and regression analysis conducted using Stata MP 17.0 software. The findings reveal that green banking disclosure has a negative and significant effect on firm value, board effectiveness does not have a significant impact on firm value, institutional ownership positively moderates the relationship between green banking disclosure and firm value and the interaction between board effectiveness and institutional ownership does not significantly affect firm value. These results suggest that green banking disclosure should be accompanied by measurable sustainability achievements and well crafted communication strategies to prevent negative market perceptions. The insignificant effect of board effectiveness indicates a need to strengthen the quality of board oversight. Moreover, institutional ownership plays a vital governance role, reinforcing the positive impact of green banking disclosure on firm value.

Keywords: Green Banking Disclosure, Board Effectiveness, Firm Value, Institutional Ownership, Moderation.

INTRODUCTION

The value of banking institutions is commonly measured using the Price to Book Value (PBV) ratio, which serves as a key indicator for assessing financial performance and long-term prospects. While financial indicators remain fundamental, non-financial dimensions, particularly environmental, social, and governance (ESG) practices have increasingly influenced investor perceptions. In this regard, green banking has emerged as a strategic initiative that incorporates sustainability into banking operations through environmentally responsible financing, energy efficiency, and environmental risk management. These practices aim to enhance stakeholder trust and contribute to firm valuation (Khan et al., 2021).

In Indonesia, efforts to integrate sustainability into financial practices are supported by Law No. 40 of 2007 concerning Limited Liability Companies, particularly Article 74 Paragraph 1, which mandates corporate social and environmental responsibility. This legal provision is further reinforced by Financial Services Authority Regulation No. 51/POJK.03/2017, which obliges financial service institutions to publish sustainability reports that disclose the environmental and social impacts of their operations (OJK, 2017). Additionally, technical implementation guidance is outlined in the Financial Services Authority Circular Letter No. 16/SEOJK.04/2021 (UNEP, 2021).

The financing of The Batang coal fired power plant in Central Java illustrates the indirect environmental impact of banking decisions. This project is funded by central state-owned banks that have drawn criticism due to their environmental consequences including air pollution and degradation of the marine ecosystem (Greenpeace, 2022). The project also disrupted the livelihoods of coastal communities. This case underscores the significance of green banking not only in disclosing environmental risks but also in incorporating these risks into credit assessments and investment policies (Smith & Johnson, 2020).

Governance quality, particularly board effectiveness also plays a significant role in advancing ESG practices and enhancing firm value. Characteristics such as board independence, diversity, and ESG expertise have been associated with improved sustainability performance and strategic alignment with long term goals (Birindelli et al., 2023). Boards that are actively engaged in oversight are more capable of directing companies toward sustainable development objectives (Wang & Sarkis, 2023). Institutional ownership further contributes to sustainability governance by reinforcing accountability and supporting long term strategies, although its direct impact on green banking disclosure may vary (Yuliandhari et al., 2022). Institutional investors often encourage transparency, environmental responsibility, and risk mitigation aligned with stakeholder interests (Bauer et al., 2019).

The theoretical foundation of this study is grounded in three major perspectives. First, legitimacy theory, as introduced by Dowling and Pfeffer (1975), posits that corporations must continually ensure their activities conform to societal norms and expectations to secure social approval. This theory encompasses the dimensions of validity and congruence, which influence how legitimacy is perceived (Hack & Sieweke, 2018). Within this lens, green banking disclosure represents a proactive step taken by banks to align with societal norms, projecting responsibility and accountability. Khan et al. (2022) emphasize that such disclosures help cultivate a positive corporate image thereby securing social legitimacy. Board effectiveness reinforces this effort by aligning organizational behaviour with societal expectations, enhancing transparency, and strengthening stakeholder confidence (Suniantari & Yasa, 2022).

Second, Stakeholder Theory, formulated by Freeman (1984), highlights that firms are accountable not only to shareholders but to a broad range of stakeholders affected by corporate decisions. Green banking disclosure is one such means of addressing diverse stakeholder concerns, ranging from environmental impact to social responsibility. Hussain et al. (2022) argue that sustainability disclosure fosters constructive stakeholder relationships, ultimately enhancing firm value. In this framework, effective boards play a mediating role, balancing competing interests and ensuring that disclosures meet the expectations of a broad array of constituents (Suniantari & Yasa, 2022).

Third, Signaling Theory, proposed by Spence (1973), asserts that companies send informative cues to the market through their actions and disclosures. Green banking disclosures serve as credible signals of environmental commitment and proactive governance, thereby attracting environmentally conscious investors and enhancing firm valuation (Bose et al., 2022). Likewise, board effectiveness as evidenced by independence, oversight, and expertise, signals robust corporate governance and transparency (Boubaker et al., 2022).

Jain and Jamali (2021) highlight the role of green banking in enhancing corporate image

and attracting stakeholder support. From the perspective of stakeholder theory, disclosure satisfies public expectations fostering long term relational capital (Garcia et al., 2022). Legitimacy theory suggests that voluntary disclosures reinforce compliance with social norms

(Mio et al., 2021) while signaling theory views these disclosures as indicators of environmental performance and risk management (Wang & Sarkis, 2023). Empirical evidence also shows that banks implementing green policies tend to experience improved reputations and long-term financial performance (Zhang et al., 2023). Effective boards reduce information asymmetry and agency costs by strengthening managerial oversight (Chen et al., 2020). Board independence, tenure, and meeting frequency are essential for ensuring strategic alignment and accountability thereby fostering investor trust (Li & Xu, 2021). Bajra & Čadež (2018) found that strong board governance enhances both financial and non-financial disclosure, while Donkor et al. (2023) highlighted the contribution of board diversity to sustainable governance and value creation.

Institutional ownership is hypothesized to moderate the relationship between green banking disclosure and firm value. From a signaling perspective, institutional investors provide external validation of a firm's sustainability commitments, amplifying the impact of green disclosures (Luo et al., 2022). Legitimacy theory suggests that such ownership enhances corporate credibility and public perception. Bushee (2020) and Gao et al. (2021) argue that institutional shareholders often push for greater ESG accountability, thereby strengthening the influence of green banking initiatives on firm value. Supporting studies also indicate that institutional investors act as catalysts for corporate sustainability practices, thereby improving firm valuation (Wang et al., 2023).

Similarly, institutional ownership may moderate the relationship between board effectiveness and firm value. According to agency theory, institutional investors serve as an additional layer of monitoring that reinforces the board's governance role (Bushee, 2020). From a signaling perspective, their involvement signals enhanced governance quality and bolsters investor confidence (Luo et al., 2022). Nguyen & Kim (2021) suggest that institutional ownership legitimizes board decisions and increases public accountability. Studies by Alshabibi (2021), Abedin et al. (2022), and Ullah et al. (2019) confirm that institutional investors promote effective board practices, mitigate conflicts of interest, and enhance strategic decision making, which contribute to stronger firm performance and value.

These relationships underscore the strategic importance of sustainability disclosure, governance effectiveness, and investor composition in shaping the value trajectory of banks operating in emerging markets. In the context of Indonesia, where institutional frameworks, ESG regulations, and governance standards are still evolving, these interactions offer vital insights for policy, corporate strategy, and academic inquiry. The findings of this study are expected to contribute both context specific knowledge and broader implications applicable to other emerging economies navigating the transition toward sustainable financial systems.

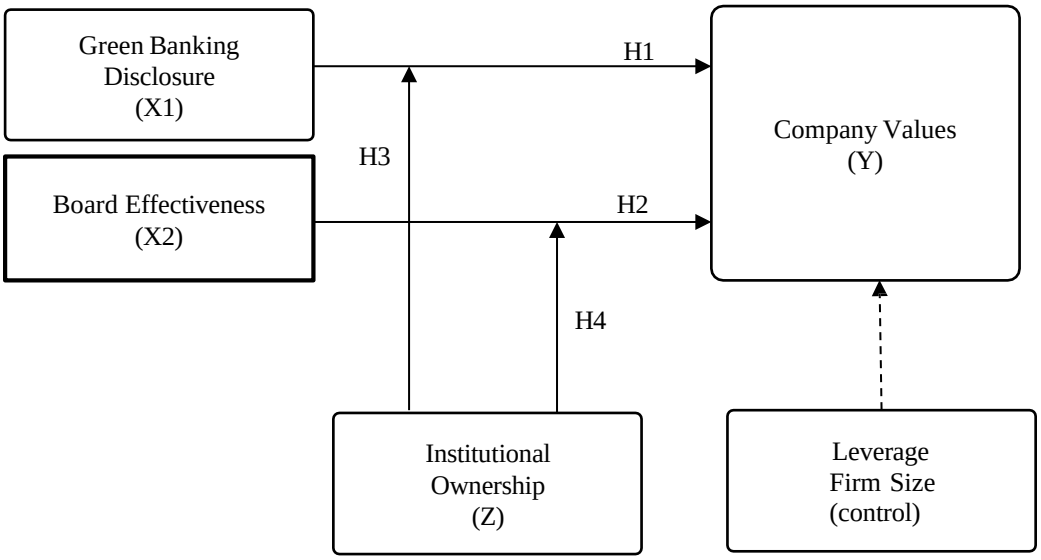
Green banking disclosure in this study is measured using the Green Banking Disclosure Index (GBDI) developed by Bose et al. (2018), which comprises 21 disclosure items related to green banking practices. Each item is scored 1 if disclosed in the sustainability report, and 0 if not. Board effectiveness is assessed through four indicators: board size, board independence, frequency of the Board of Commissioners' meetings, and board tenure. These indicators follow the criteria set by Financial Services Authority Regulation No. 33/POJK.04/2014, with a composite score ranging from 0 to 4. Board size is considered effective if it includes 4 to 8 members (Jensen, 1993), while board independence must be at least 30% of the total commissioners. The board is also considered effective if it meets at least six times per year and if the tenure of its members is no longer than nine years (OECD, 2021). Firm value is proxied by the PBV ratio calculated as the stock price divided by equity per share (Husna & Satria, 2019). Institutional ownership refers to the percentage of company shares held by institutional

investors, including banks, insurance firms, pension funds, and investment companies (Murti, 2022).

Given these inconsistencies, this study aims to examine the effect of green banking disclosure and board effectiveness on the value of banking companies listed on the Indonesia Stock Exchange (IDX) from 2020 to 2023. Additionally, it analyzes the moderating role of institutional ownership in strengthening these relationships. The study is expected to provide empirical evidence on the extent to which sustainability practices and governance mechanisms contribute to value creation in the Indonesian banking sector.

Anchored in the aforementioned theoretical and empirical context, this study seeks to examine the influence of green banking disclosure on corporate value within the banking sector, assess the effect of board effectiveness on firm value, analyze the moderating role of institutional ownership in strengthening the relationship between green banking disclosure and firm value, and seek the moderating effect of institutional ownership on the relationship between board effectiveness and firm value.

Table 1. Thinking Framework



METHODS

This study adopts a quantitative descriptive approach utilizing secondary data obtained from the annual reports, sustainability reports, and financial statements of banking companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period. The research population comprises all publicly listed banking institutions on the IDX throughout the observation years. The unit of analysis is the firm year, while the variables investigated include green banking disclosure, board effectiveness, institutional ownership, and firm value.

The sampling technique employed is purposive sampling, based on the following eligibility criteria:

1. Banking companies listed on the IDX from 2020 to 2023; and
2. Companies that publish annual reports and sustainability reports for 2020 to 2023.

The selection process is summarized in Table 1.

Table 1. Sample Selection Criteria

No.	Criteria	Number of Companies
1	Banking companies listed on the IDX during 2020–2023	46
2	Companies without complete sustainability and annual reports (2020–2023)	(4)
	Total Final Sample	42

Data were collected through documentary techniques by downloading official reports from the companies' websites and the IDX portal. Analytical procedures involved both descriptive statistics and panel data regression analysis conducted using Stata MP version 17.0. The analysis began with descriptive statistics to summarize the data's characteristics, followed by a multicollinearity test to ensure that there was no excessive linear correlation among the independent variables. The selection of the appropriate panel model was conducted using the Chow test and the Hausman test to determine whether the fixed effect or random effect model was more suitable.

A heteroskedasticity test was also performed, and if heteroskedasticity was detected, robust standard errors were applied to correct the standard errors. Additionally, an autocorrelation test was conducted to verify the absence of serial correlation in the residuals. These diagnostic tests were followed by panel regression analysis to examine the effect of independent and moderating variables on the dependent variable. The regression model used is a moderated multiple linear regression, formulated as follows:

$$NPi,t = \beta0 + \beta1GBDi,t + \beta2BEi,t + \beta3(GBDi,t \cdot KIi,t) + \beta4(BEi,t \cdot KIi,t) + KIi,t + \beta5Levi,t + \beta5Firmi,t + \epsilon$$

Variable Descriptions:

NPi,t : Represents the firm value of bank i in year t
GBDi,t : Green banking disclosure implemented by bank i in year t
BE i,t : Board Effectiveness implemented by bank i in year t
KIi,t : Institutional Ownership implemented by bank i in year t
Lev i,t : Leverage implemented by bank i in year t
Firm i,t : Firm size implemented by bank i in year t
ϵ : Error

Hypotheses H1 through H4 are considered supported when the coefficients β1, β2, β3, and β4 exhibit positive values and are statistically significant.

RESULTS AND DISCUSSION

Table 2. Regression Analysis Results

$$NPi,t = \beta0 + \beta1GBDi,t + \beta2BEi,t + \beta3(GBDi,t \cdot KIi,t) + \beta4(BEi,t \cdot KIi,t) + KIi,t + \beta5leveragei,t + \beta5firmsizei,t + \epsilon$$

Variable	Coefficient	Std. Error	z	P>|z|	95% Confidence Interval	
X1	-2.30922	0.945179	-2.44	0.015	-4.16174	-0.45671
X2	0.855047	1.199224	0.71	0.476	-1.49539	3.205483
X1Z	121.1778	55.66945	2.18	0.03	12.06764	230.2879
X2Z	-61.3465	44.40633	-1.38	0.167	-148.381	25.68835
Z	-39.6939	31.68625	-1.25	0.21	-101.798	22.40999
LEVERAGE	-0.36741	0.313287	-1.17	0.241	-0.98144	0.246622
FIRM_SIZE	-0.09614	0.097143	-0.99	0.322	-0.28654	0.094256

KONSTANTA	4.863379	2.493508	1.95	0.051	-0.02381	9.750565
Rsquared Overall						0.1038
Prob > chi2						0.0035
Estimasi						*Random Effect Model*
Hettest						Yes
Observasi						2020 2023

Source: Research Result 2025

Based on the results of the panel regression analysis, the variable Green Banking Disclosure (X1) has a significant negative effect on firm value (Y) with a coefficient of -2.30 and a p-value of 0.015. This indicates that a significant decline in firm value often accompanies an increase in green banking disclosure. Therefore, Hypothesis 1 (H1), which proposed that Green Banking Disclosure has a positive effect on firm value, is rejected. Furthermore, the variable Board Effectiveness (X2) shows a coefficient of 0.85 with a p-value of 0.476. Since the p-value exceeds the 5% significance level, X2 does not have a significant effect on firm value. As a result, Hypothesis 2 (H2), which stated that Board Effectiveness positively influences firm value, is also rejected. The results show that Hypothesis 3 (H3) is accepted, as the interaction between Green Banking Disclosure and Institutional Ownership has a significantly positive effect on company value. This is supported by a coefficient value of 121.1778 and a p-value of 0.03, indicating that Institutional Ownership strengthens the positive influence of Green Banking Disclosure on firm value. On the other hand, Hypothesis 4 (H4) is rejected because the interaction between Board Effectiveness and Institutional Ownership does not have a significant impact on company value. This is reflected in a coefficient value of-61.34 and a p value of 0.167, suggesting that Institutional Ownership does not moderate the effect of Board Effectiveness on firm value.

The regression results show that Green Banking Disclosure (X1) has a negative and significant effect on the company's value. These findings suggest that the higher the level of disclosure of green banking by banks, the lower the company's value, as reflected in the Price to Book Value (PBV). Theoretically, this phenomenon can be explained through the agency theory approach (Jensen & Meckling, 1976), which posits that conflicts of interest and information asymmetry between management and shareholders can prompt management to make decisions that are not always aligned with short term value creation. The implementation of green banking practices often incurs additional costs, including those associated with preparing sustainability reports, conducting energy audits, and investing in environmentally friendly technology. These costs generally do not produce direct returns that are visible in the short term, which can affect investors' perception of the company's efficiency and profitability (Nguyen, 2020).

In emerging markets such as Indonesia, Environmental, Social, and Governance (ESG) literacy remains limited, so investors tend to prioritize conventional financial indicators over sustainability disclosures. Hidayat and Firmansyah (2022) emphasized that a low understanding of ESG causes the market not to make sustainability disclosure the primary factor in investment decision making. Fauzi et al. (2021) also found that the corporate social responsibility (CSR) program of the national bank environment has not had a positive impact on market performance. Kusumawardhani et al. (2023) also reinforce these findings with empirical evidence, showing that ESG disclosure has not had a significant impact on the market value of banks in Indonesia. In terms of regulations, POJK 51/POJK.03/2017 has required financial services institutions to prepare a Sustainable Finance Action Plan and submit an annual sustainability report, while SEOJK 16/SEOJK.04/2021 regulates the format and structure of the report's content. However, these two regulations have not comprehensively regulated the mechanism for evaluating the quality, materiality, or effectiveness of disclosure in encouraging company performance and

value creation. In practice, many companies compile sustainability reports solely to meet administrative or compliance driven requirements rather than as a strategic communication tool that signals value to investors.

Furthermore, POJK 17/POJK.04/2023 concerning Good Corporate Governance Guidelines for Issuers or Public Companies encourages information disclosure to be carried out not only to fulfil formal obligations but also to create sustainable long-term value for all stakeholders. However, in the context of Green Banking Disclosure, the findings of negative and significant influences indicate a governance disconnect between formal compliance and the value captured by the market. When green banking disclosure is not accompanied by improved governance quality and information transparency that have a direct impact on performance, the compliance costs that arise both administratively and operationally can reduce the perception of company efficiency in the eyes of investors. In other words, although POJK 17 emphasizes the principles of openness and accountability, disclosure that is not accompanied by substantive value creation causes a negative signal to the company's prospects.

Dewi and Widyawati (2023) also emphasized that sustainability disclosure will not affect a company's value unless it is accompanied by external assurance or independent verification of the report's content. In the absence of quality assurance from third parties, sustainability reports prepared in accordance with SEOJK 16 tend to be formalistic and do not guarantee the reliability of the information. Therefore, in the context of the Indonesian market, which is still in the transition stage towards a mature ESG investing ecosystem, the disclosure of green banking tends to be perceived as a cost center, not a value driver (Harjoto et al., 2017), thereby reducing the market's perception of the company's value. The results of this hypothesis test show that the Indonesian market has not fully appreciated sustainability initiatives due to the uncertainty of returns and low ESG literacy among investors.

The regression results showed that the Board Effectiveness (X2) variable had no significant effect on the company's value. This confirms that the quantitative aspects of board effectiveness, such as the frequency of meetings or the diversity of composition, do not necessarily reflect the actual quality of supervision. The effectiveness of the board is determined by its capacity to carry out its supervisory function actively and critically, not just by its formal attributes. Finkelstein & Mooney (2003). In the context of the banking industry, some studies indicate that the effectiveness of the board of commissioners does not always have a direct impact on the company's value. This is due to the complexity of strict banking regulations and the dominant external supervision, such as that from monetary authorities and financial supervisory agencies, which often limits the board's leeway in making strategic decisions. Additionally, in banking, a company's value is usually influenced more by external factors, such as macroeconomic conditions and monetary policy, than by internal governance attributes (Rahman et al., 2020).

The crisis caused by the pandemic forced management and boards to focus on mitigating liquidity risks and short-term business viability, which limited or delayed long term strategic decisions and innovations, ultimately impacting board effectiveness. Thus, although the structure and activities of the board appear to be formally effective, its impact on the company's value is difficult to discern due to external policy pressures and uncertain market conditions. (Sari & Nugroho, 2022). During the 2020-2023 pandemic period in Indonesia, several macroprudential policies and stimulus measures were implemented by the OJK and the government, including credit relaxation, lowering the benchmark interest rate, and increasing the flexibility of bank capital. This significantly interfered with the performance and stability of banking companies. This policy plays a significant role as an external factor in maintaining the value of banking companies, thereby reducing the influence of the board of commissioners on the effectiveness of supervisory and control functions in determining the market value of the company. (Bank Indonesia, 2020; OJK, 2020)

This phenomenon is also supported by empirical studies, which show that in crises, the role of board effectiveness on company value becomes less significant than external factors, such as regulatory interventions and economic stimulus. This confirms that, in the context of a major crisis, the role of the board of commissioners must be viewed alongside the external forces and macroprudential policies that significantly shape the business climate (Fauzi et al., 2021). Another study found that the role of the supervisory board is more administrative and compliance than strategic, so its influence on the market value of banks is relatively small. In Indonesia, it was also reported that the effectiveness of the board of commissioners had no significant effect on the value of Islamic bank companies, reflecting a similar phenomenon in the national banking sector (R. Y. Astuti & Isbaniah, 2022)

Based on stewardship theory (Donaldson & Davis, 1991), the board of commissioners is expected to act as a guardian of shareholders' interests and play an active role in enhancing the company's value. However, in the Indonesian context, the process of council elections is often not based on competence or independence but rather is influenced by political affiliation and personal relationships. Mentioned that more than 40% of the board of commissioners in SOEs have strong political affiliations, and this contributes to low independence and weak strategic oversight (R. Astuti & Isbaniah, 2022).

On the other hand, in developed countries such as Canada and the United Kingdom, regulations encourage the establishment of sustainability committees in board structures as part of good governance practices. This committee oversees ESG issues explicitly and is directly responsible to the main board, a practice that is still rare in Indonesia. This highlights the need to enhance board governance in line with international best practices, thereby creating added value for the company (OECD, 2020).

The regression results show that the interaction between Green Banking Disclosure and Institutional Ownership (X1Z) has a significant positive effect on the company's value. These findings indicate that when a company has a high level of institutional ownership, the disclosure of green banking can increase investors' perception of the company's value. The results of the hypothesis test indicate that Green Banking Disclosure (X1) has a direct, significant negative effect on the company's value. In contrast, its interaction with Institutional Ownership (X1Z) exhibits a significant positive influence on the company's value. These findings suggest that, in the context of Indonesian companies, green banking disclosures made without pressure or institutional owner involvement can be considered an additional burden by the market. This aligns with the view of sceptical investors, who believe that sustainability disclosures that are merely symbolic or intended for regulatory compliance do not provide direct added value to the company (Nugroho & Darsono, 2020). However, when green banking disclosure is carried out in the context of strong institutional ownership, the direction of its influence changes to a significant positive. This indicates that institutional investors play a crucial role in ensuring that sustainability practices are implemented strategically, rather than merely as a formality. Institutional ownership serves as a driver of management discipline and accountability in implementing green banking activities that have a tangible impact on the company's reputation, long term efficiency, and legitimacy (Wahba & Elsayed, 2020)

In theory, the difference in the direction of influence between H1 and H3 can be explained through the theory of legitimacy and the theory of agency. When institutional oversight is poor, management tends to have more room to make symbolic disclosures as an image building strategy. In contrast, institutional investors typically require more transparent and substantial disclosures, as they focus on a company's long-term value. Thus, the involvement of institutional ownership in green banking practices can enhance the credibility of sustainability reports, considering that institutional investors have a vested interest in corporate transparency and accountability (GarcíaSánchez et al., 2021). Institutional ownership reinforces the positive relationship between sustainability disclosure and corporate value in the

financial sector. In Indonesia, institutional investors are increasingly showing a preference for companies with high green banking scores that have a positive impact on the company's value. Pressure from institutional investors also improves the quality of green banking disclosures and has a positive impact on company performance. Active institutional ownership encourages companies to adopt more transparent sustainability practices, thereby increasing the company's value (Wahba & Elsayed, 2020). Many companies conduct green banking disclosures due to the requirements of OJK regulations, but this has not been followed by the internationalization of ESG into business strategies (Yanti et al., 2020). In situations like these, the presence of an active institutional owner with a clear green banking disclosure agenda, such as a pension fund or a sustainability based mutual fund, becomes an essential component in bridging practices with the market's expected impact (Kusuma et al., 2021)

The results of the regression analysis showed that the interaction between the effectiveness of the board of commissioners and institutional ownership was not significant in affecting the company's value. This suggests that institutional ownership has not been effective in enhancing board effectiveness and increasing company value. Institutional ownership is generally expected to improve the effectiveness of the board of commissioners through strict oversight and the reduction of conflicts of interest. However, research found that during the COVID-19 pandemic, institutional ownership focused more on managing short term risks due to economic uncertainty, which limited its role in supporting the board's strategic decision making and had a negligible impact on the value of banking firms (Li et al., 2022).

The research of SimónMoya et al. (2021) found that institutional ownership in developing countries exhibits a pattern of nonlinear relationships with a company's ESG performance. At low levels of ownership, institutional investors tend to be passive and do not exercise significant control or oversight functions over managerial policies, including those that encourage sustainable governance practices. This reflects the general characteristics of institutional investors in developing countries, who tend to prioritize short term profitmaking and opportunistic attitudes over long term strategic decision making. In other words, the presence of an institution in the ownership structure does not necessarily guarantee a boost to sustainability practices or an increase in the company's value, especially when the proportion of its ownership has not yet reached a dominant level.

Rahmawati & Qudus (2023) found that institutional ownership has an influence on financial distress but does not directly strengthen the effectiveness of the board in the context of conventional banking in Indonesia. This can be explained by the phenomenon of the board's weak role in carrying out supervisory functions and strategic decision making that creates long term value. Research by Perdana (2019) also indicates that institutional ownership has an impact on profit management, but does not directly enhance the relationship between board effectiveness and company value. This aligns with the capital market structure in Indonesia, which is characterized by centralized ownership and affiliate relationships between shareholders that often compromise the board's independence in supervising the company.

However, these results contradict studies in countries with more mature governance systems. For example, it found that institutional investors in Japan are pushing for governance reforms and strengthening the supervisory functions of the board, particularly in public companies that are closely supervised by the state. This difference indicates that the effectiveness of institutional investors as supervisory agents is highly dependent on the institutional context, regulatory strength, and information disclosure in each country (Sakai 2022).

CONCLUSION

Based on the empirical analysis conducted, several key conclusions can be drawn. First, green banking disclosure is shown to have a statistically significant negative influence on firm

value. This suggests that capital market investors have not fully appreciated the importance of sustainability disclosures within the Indonesian banking sector. Rather than being viewed as a strategic commitment to environmental responsibility, such disclosures are often perceived as merely compliance obligations or cost burdens, lacking demonstrable financial benefits or a real operational impact. This finding aligns with the notion that, in emerging markets, sustainability reporting must be accompanied by measurable outcomes and credible execution to be positively valued by the market.

Second, board effectiveness does not exhibit a significant relationship with firm value. This result suggests that the strategic role of the board, particularly in exercising oversight, governance, and guiding long term decision making, has not been sufficiently impactful in shaping investor perceptions or enhancing firm valuation. The finding may point to structural or qualitative gaps in board practices, such as limited independence, low engagement, or insufficient ESG competency.

Third, institutional ownership is found to positively moderate the relationship between green banking disclosure and firm value. This suggests that the presence of institutional investors contributes to strengthening market confidence in sustainability reporting. Acting as sophisticated monitors, institutional investors may influence corporate managers to provide more credible and substantive disclosures, thereby reshaping investor perceptions and enhancing firm value.

Lastly, the interaction between board effectiveness and institutional ownership does not yield a significant effect on firm value. This suggests that institutional investors have yet to effectively enhance the board's governance role in a manner that materially impacts market valuation. The absence of a significant moderating effect may reflect limitations in collaborative governance dynamics or the passive nature of institutional shareholders in engaging with board performance in the Indonesian context.

Taken together, these findings underscore the importance of embedding meaningful sustainability practices and ensuring active institutional oversight in improving corporate value. While green banking disclosures alone may be insufficient to drive market valuation, their impact can be amplified through the presence of credible institutional investors. Meanwhile, improving board effectiveness remains an area that requires further attention, particularly in enhancing decision making quality, strategic alignment, and governance accountability to meet stakeholder expectations and ultimately elevate firm performance in the long term.

Limitations and Suggestions

Based on the empirical findings, several limitations of this study are acknowledged. First, the significant negative effect of green banking disclosure on firm value may reflect a prevailing market perception that such disclosures are viewed more as operational cost burdens than value generating investments. However, this study does not further explore the underlying factors influencing that perception. Second, the insignificant impact of board effectiveness on firm value may be attributed to the limitations in the measurement approach, which primarily emphasizes formal and quantitative aspects rather than the quality of strategic decision making. As a result, the study may not fully capture the board's broader strategic governance role. Third, the moderating role of institutional ownership is found to be significant only in the relationship between green banking disclosure and firm value, but not in the case of board effectiveness. This outcome suggests that the role of institutional investors is complex and possibly influenced by factors such as investment orientation and levels of engagement dimensions, which have not been sufficiently examined in the current research. Fourth, the study's scope is limited to banking firms in Indonesia which constrains the generalizability of the findings to other sectors or regions. Consequently, the results may not be directly applicable to contexts beyond this specific one.

In light of these limitations, several recommendations are proposed for future research. First, the finding that green banking disclosure has a significant negative impact on firm value suggests that market actors may interpret such disclosures as cost centric rather than as long term value creation strategies. Future studies are encouraged to explore market perceptions more deeply through qualitative approaches such as interviews or surveys with investors and financial analysts to uncover the drivers of such interpretations. Second, the non significant effect of board effectiveness may stem from a reliance on formal indicators that do not adequately reflect qualitative dimensions, such as board member competence, strategic contributions or active engagement in sustainability issues. Future research should incorporate more comprehensive metrics that account for these qualitative factors. Third, the finding that institutional ownership only moderates the relationship between green banking disclosure and firm value, but not the board effectiveness firm value nexus, suggests that investor characteristics have yet to be fully mapped. It is therefore recommended that future studies distinguish institutional investors by investment orientation (e.g., active versus passive, long term versus short term) and institutional type to provide a more nuanced understanding of their role in moderating the governance performance relationship.

Finally, due to the study's focus on Indonesia's banking sector, broader generalizations remain limited. Future research should expand the sample scope to include firms from other industries and conduct comparative studies across countries, particularly within ASEAN or other emerging markets to gain richer insights into the interplay between green banking, corporate governance and firm value across different institutional and economic contexts.

Implications

The following managerial implications were derived from this study. First, banking companies' management needs to review their green banking disclosure strategies, focusing on cost efficiency and transparency that not only meet regulations but also create added value for shareholders and attract the interest of institutional investors. Second, the Boards of Commissioners and Directors must enhance the quality of board effectiveness, ensuring it is strategic and innovative rather than merely an administrative formality to make a meaningful contribution to increasing the company's value, particularly through more active oversight of sustainability initiatives. Third, investors in institutional ownership, acting as strategic shareholders should be encouraged to play an active role in corporate governance thereby catalysing and strengthening the positive relationship between green banking disclosure and company value. Fourth, companies should enhance communication and education with stakeholders about the value of sustainability, so that green banking disclosure can be viewed as a profitable long-term investment rather than just an additional cost.

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