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MEDIATING ROLE OF SUSTAINABILITY REPORTING QUALITY ON THE RELATIONSHIP BETWEEN GREEN BANKING AND FIRM VALUE

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Abstract: The mounting environmental concerns have become a pressing issue across industries. Nevertheless, the banking sector has a distinct influence in shaping economic growth and development. This study sought to evaluate the impact of green banking in strengthening corporate value through its level of sustainability reporting in order to address these concerns. A research framework was developed based on theoretical support. The sampled data was collected from banks listed on the Indonesian Stock Exchange from 2018-2021. An empirical analysis was performed through hierarchical regression. The study's findings indicated that green banking positively and significantly impacts firm value. Furthermore, there is a mediating effect between green banking and business value due to the quality of sustainability reporting. The empirical test revealed that the quality of sustainability reporting has a mediating effect to some extent. The results also showed that there is an interaction between business size (assets) and correlations between firm value and green banking. By undertaking a data-driven research that explains the impact of green banking on business value, this study aims to fill a significant gap in the body of knowledge on green banking and sustainability reporting.

Keywords: Green banking; Sustainability reporting quality; Firm value; Banking sector.
JEL Codes: G24, G32.

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1. Introduction

In recent decades, environmental issues and climate change have become among the most discussed topics globally. Rapid population expansion, widespread human activity, and remarkable technological innovations have long been acknowledged as major contributors to environmental degradation (Zhang et al., 2022; Ali & Johl, 2023a). The utilization of conventional energy sources such as fossil fuels and the release of waste from industrial activities leads to increased greenhouse gas emissions into the atmosphere (Petrović & Fiket, 2022). Environmental damage and the imminent threat of climate change have become inescapable realities given the current state of human society (Sharma & Choubey, 2022, Ali & Johl, 2023b). Unfortunately, the current knowledge and technological gaps create significant barriers to the search for commercial operations with minimal environmental impact (Bukhari et al., 2023). Environmental issues not only pose a threat to human health but also serve as barriers to sustainable development (Kayani et al., 2020). By recognizing the importance of environmental sustainability, countries implement various ways to prevent or reduce environmental damage. One of the most prominent outcomes of the agreement is the Sustainable Development Goals (SDGs) launched in 2015 (Glubokova et al., 2021; Bukhari et al., 2023). Standards in various aspects of business activities are established to encourage business people to prioritize environmental sustainability while carrying out business activities. In the realm of business and finance, environmental protection requires active engagement and collaboration from all stakeholders. Furthermore, this imperative call requires unwavering commitment and participation from each party (Bukhari et al., 2023; Aslam & Jawaid, 2022; Ali et al., 2022). For instance, manufacturers should reduce and regulate waste disposal from the production process, consumers need to reduce plastic usage, and government should implement environment-based regulations (Kulin & Sevä, 2019; Nittala & Moturu, 2021; Ali & Johl, 2022).

Banking is among the sectors that play a crucial role in environmental protection. Although banks do not release massive pollutant substances, they provide financial support to other sectors, including industries with the most potential to cause environmental damage, such as steel, cement, fertilizer, and textile industry (Meena, 2013; Khan et al., 2023). As an influential player in the economic and business landscape, the banking sector plays a pivotal role in driving the operations of both environmentally friendly and unfriendly firms. This unique positioning makes them intermediaries between economic development and environmental sustainability (Bukhari et al., 2023; Khan et al., 2023)

The banking sector's participation in reducing environmental damage gave rise to a concept called green banking. Global Alliance for Banking Values (GABV) defines green banking as the application of sustainable principles, which includes a triple-

bottom-line approach (financial, social, and environmental) at the core of the business model. This approach is grounded in communities and emphasizes transparent and inclusive governance (Park & Kim, 2020). In simple terms, green banking is a banking activity that promotes environmental protection. Green banking practices generally comprise two aspects: responsible utilization of all resources and financing only environmental-friendly projects (Ahuja, 2015). Green banking is one of the steps to achieving SDG (Úbeda et al., 2022) and has been vastly studied in the last two decades (Sarma & Roy, 2020; Aracil et al., 2021).

Although the concept is still in its infancy in the banking sector, it has gained increased attention, underscoring its potential benefits. Green banking not only improves economic value but also serves as a testament to a bank's commitment to responsible business practices (Park & Kim, 2020). Furthermore, it helps banks to fulfill financial and social responsibility goals effectively. Nevertheless, the lack of awareness regarding green practices at the banking level among stakeholders is concerning (Zhang et al., 2023). There are also misconceptions that green projects are unprofitable and risky (Ratnasari et al., 2021). Moreover, implementing green practices in the banking sector is a complex process that requires careful consideration of various aspects (Bukhari et al., 2020; Ali et al., 2020).

The green banking concept has recently gained momentum in Indonesia, driven by the government's focus on sustainable development and environmental concerns. Indonesian banks have started implementing green practices, with an increased number of published sustainability reports. In 2015, the Indonesian government launched a "First Movers on Sustainable Banking" project involving eight major banks committed to SDGs. The initiative further exemplifies the growing prominence of green banking in the country (Gilchrist et al., 2021; Steuer & Tröger, 2022). Environmental responsibility activities benefit stakeholders, including revenue growth, a better brand image, and enhanced business value. Companies are compelled to publish information regarding climate change and their awareness of environmental concerns due to shareholder pressure and external organizations (Lee & Cho, 2021). Companies utilize sustainability reports to express their identity, activities, and commitment to social and environmental responsibility (Kuzey & Uyar, 2017; Buallay, 2019). Companies bridge the knowledge gap with external organizations through sustainability reporting by reducing information asymmetry (Swarnapali, 2020; Linh et al., 2022). Investors evaluate the quality of sustainability reporting as an observable indication when making investment decisions. Several studies have proven the benefits of quality sustainability reporting on company value, demonstrating that sustainability reports impact enterprise value (Swarnapali, 2020).

There isn't enough information in the literature now available to make a firm-values-based conclusion about how green banking, the quality of sustainable reporting, and

firm values interact. A positive association between green banking and firm value has been shown by earlier studies (Kuzey & Uyar, 2017; Buallay, 2019; Abdi et al., 2020; Swarnapali, 2020; Loh et al., 2021; Linh et al., 2022). On the other hand, other studies have identified either a negative association or no significant relationship between these variables (Utomo et al., 2020; Landi & Sciarelli, 2019; Alsahlawi et al., 2021; Buallay et al., 2021; Duque-Grisales and Aguilera-Caracuel, 2021; Indriawati et al., 2021; Jyoti & Khanna, 2021; Ali et al., 2022). The existing inconclusive findings provide a compelling rationale for further research in this area. Notably, there is a scarcity of studies examining the impact of green banking on firm value, particularly investigating sustainable reporting quality as a mediating variable in the context of emerging economies. In order to fill this void, the present study aimed to fulfill the following objectives:

RO1: To examine the impact of green banking on sustainability reporting quality that further promotes firm value.

RO2: To examine the mediating role of sustainability reporting quality on green banking and firm value relationships.

From a practical viewpoint, this study provides insights to enterprises (especially banks), stakeholders, and policymakers on how green banking practices and the quality of sustainability reports influence enterprise value.

2. Literature review

2.1. Green banking and firm value

According to Bhardwaj and Malhotra (2013), "green banking" describes banking activities that are carried out in particular places and ways that contribute to the reduction of emissions and carbon footprints. In general, green banking covers two aspects. The first aspect is the wise utilization of resources and carbon footprint reduction of banks' operational activities, such as regulation of paper, water, and electricity usage and waste management. The second aspect is supporting and financing environmentally friendly projects, such as renewable energy projects, biodiversity conservation, the establishment of green buildings, and environmentally friendly transportation (Ahuja, 2015). Green banking aims to decrease banks' carbon footprint, support environmentally friendly initiatives, and monitor the environment-related operations of banks' business partners (Rajput et al., 2019). In short, green banking encourages environmental protection practices for sustainable development while reducing the carbon footprint of banking activities. Examples of green banking practices are net banking, online saving accounts, reducing paper usage, saving water and electricity, green credit, and green bonds (Mir & Bhat, 2022). Green banking practices are beneficial for reducing waste and emissions, creating environmental awareness among business actors, and encouraging business owners to switch to environmentally friendly businesses (Meena, 2013).

Green banking practices can be beneficial for both companies and society. For instance, green credit can reduce financing difficulties in renewable energy companies. Banks direct the flow of capital to businesses and industries that conserve energy and safeguard the environment, supporting long-term green economic growth (He et al., 2019). Green finance provides financial support to avert financial obstacles for companies involved in environmental activities. Green finance limits traditional firms with high energy consumption and pollution, thereby preventing them from overinvesting (Xie et al., 2020). Green finance can lead to reduced investment from highly polluted companies. Investment plans that harm the ecological environment are more likely to be postponed or discontinued (Qi, 2021). Environmental issues have sparked the concern of many groups, including business and financial actors. Environmental concern is one of the reasons that drive banks' clients to utilize green banking services (Bryson et al., 2016). Today, many investors in the capital market consider green practices when evaluating companies (Steuer & Tröger, 2022). Companies that do not adopt or apply green concepts in their activities and instead contribute significantly to environmental damage will receive an unfavorable view. Moreover, the government promotes actions to protect the environment through regulations and policies, encourages companies to undertake green and sustainable practices, and reports its results. Hence, green banking is evidence of banks' participation in environmental sustainability measures to improve their good image in the market (Alshebami, 2021).

The effect of green banking on firm value has been the subject of much research, with a consensus regarding its favorable influence emerging. For instance, Khan et al.'s (2021) investigation of Bangladesh's listed banks showed how green banking disclosure increases business value. This advantageous impact, notably on Tobin's Q, was confirmed by a subsequent study conducted in Bangladesh by Bose et al. (2020) attributable to enhanced green banking performance. According to Hossain et al. (2020), green banking practices also have an impact on crucial financial indicators including return on equity, return on assets, and the overall market value of businesses. In a study about the relationship between green partnership and firm value, Sadovnikova and Pujari (2017) confirmed that green marketing partnership positively influences shareholder value. Based on their study's results, Lin et al. (2022) stated that green credit significantly positively affects banks' return on assets and net interest margin, which signifies that issuing green credit improves their financial performance. In a review paper, Gilchrist et al. (2021) suggested that environmentally responsible practices increase shareholder value and value accrued to non-financial stakeholders. Based on the discussion above, this study suggests the following hypothesis:

Hypothesis 1: Green banking positively affects firm value.

2.2. Sustainability reporting quality and firm value

A sustainability report is developed to provide information on how a company contributes to sustainable development. Businesses inform the public of the effects of their operations on the economy, environment, and society by publishing sustainability reports (Global Reporting Initiative, 2021). The sustainability report offers information on the company's sustainability performance (Papoutsi & Sodhi, 2020). Sustainability reporting is not only necessary to comply with demand and responsibility but also useful in contemplating long-term plans, devising strategies based on the sustainable development concept, improving company reputation, and raising stakeholders' awareness about sustainable development (Massa et al., 2015). Three prominent theories form a solid basis for the sustainability reporting practice, namely legitimacy theory, stakeholder theory, and signaling theory. Legitimacy theory states that companies have a 'social contract' that bridges a business and society. According to the legitimacy theory, companies must obtain permission from society to undertake operational activities to obtain necessary resources and act within the limits accepted by society (Shocker & Sethi, 1973). If society is dissatisfied with the company's existence and activities, or if the company operates unacceptably or illegally, society can revoke the 'contract'. The withdrawal of a 'social contract' can occur in various ways, such as consumers reducing demand for products, suppliers refusing to provide labor and financial capital, communities reporting to the government to increase taxes or fines, or passing laws to prohibit actions that are not in line with people's expectations (Deegan, 2002).

A company's sustainability depends on how the company conveys socially acceptable goals and distributes economic, social, and political benefits to deserved parties (Shocker & Sethi, 1973). For example, messages are delivered by issuing sustainability reports. A sustainability report is a tool to legitimize the business and prove that the company is operating within certain limits. The degree of an organization's disclosure about the environment depends on the firm's size and environmental sensitivity. Environmental disclosure is highly prevalent in sectors of the economy that are sensitive to the environment, particularly in major corporations (Deegan & Gordon, 1996). Companies usually make environmental disclosure voluntarily only if it is deemed beneficial. Reporting is an effective way to control or shape public opinion and to inform the public about the company's views on certain environmental issues (Donovan, 1999). Popularity and media spotlight have prompted companies to make greater disclosures. Reporting is often used to restore public opinion when there are negative public opinions (Deegan et al., 2002). Social and environmental disclosures are often made for corporate viability and profitability rather than to demonstrate social and environmental responsibility (Deegan, 2019). Companies can publish high-quality sustainability reports to demonstrate their excellent performance. On the other hand, low-quality sustainability reporting is

utilized to disguise actual performance and simultaneously protect the company's legitimacy (Hummel & Schlick, 2016). A sustainability report is a manifestation of a strategy to emphasize the positive aspects of a company's sustainability performance and obscure negative results (Diouf & Boiral, 2017).

Stakeholder theory states that a company is obliged to provide benefits to stakeholders and not solely operate for the company's sake. This theory emerged based on the view that norm is a part of the business. Ethics and business should not be separated (Freeman et al., 2004). Stakeholders should be involved in deciding how the business will proceed and have the right to be viewed as more than just instruments to attain corporate goals. Stakeholders have the same right to make claims as shareholders have, who have the ability to question management choices (Freeman, 1998). Stakeholders who are treated well tend to reciprocate with positive attitudes and behaviors towards the company. For example, consumers tend to purchase more products, society provides tax breaks, capital providers offer easier and more profitable financial terms, shareholders increase their investments, and employees work hard and demonstrate loyalty to the organization even during challenging times (Harrison et al., 2015). A company's management must actively maintain good relationships with stakeholders to develop a business strategy, which, in turn, enables it to build a framework suited for issues and changes in a business environment. Amidst changes, traditional strategies may not help the company develop new strategic directions and seize new opportunities (Freeman & McVea, 2001).

Consumers, investors, communities, and other stakeholders need media that can provide information about companies and their activities, especially regarding the environment and climate change. Government policies and regulations demand that companies report their activities transparently and in detail. Companies issue sustainability reports as a responsibility towards stakeholders. The pressure from stakeholders can determine sustainability reports' quality and transparency (Fernandez-Feijoo et al., 2014).

The signaling theory described by Spence (1973) states that workers possess two types of attributes when applying for jobs. Unchangeable attributes, such as gender and race, are called 'indices,' while changeable attributes, with the efforts of workers themselves or others, such as education and skills, are called 'signals'. Employers view their workers based on these signals to decide when to hire new employees or evaluate existing employees. Signaling theory is used in various fields, including market study. In economics, an assumption exists that transacting parties have different information (Mishra et al., 1998), where one party may have more information than the other party. This information asymmetry creates uncertainties. For example, employers may distrust their workers' capabilities (Spence, 1973), buyers may be skeptical about products sellers offer (Kirmani & Rao, 2000), and

insurance agencies may doubt their consumers' health condition (Rothschild & Stiglitz, 1976). Information asymmetry also emerges in the relationship between the manager (agent) and shareholder (principal). Agency problems arise when a conflict occurs between the desires or goals of the principal and agent, and the principal faces challenges in verifying the agent's actions (Eisenhardt, 1989).

Signaling is needed to prevent information asymmetry. For instance, producers make advertisements to notify consumers about product specifications (Nelson, 1974). Signaling occurs in the relationship between managers and investors. Based on signaling theory, companies utilize sustainability information to convey messages about how companies operate economically, socially, and environmentally. Company management attempts to give investors information regarding the company through annual and sustainability reports. Managers need to disclose observable quality signals or variables that can effectively describe the company's performance and condition, thereby encouraging investors to make investments (Bergh et al., 2014; Steigenberger & Wilhelm, 2018). The quality and image of good companies can be distinguished from average ones through reporting as a form of signaling (Connelly et al., 2011).

High-quality sustainability reporting holds an important value in the market, particularly the environmental component (Bachoo et al., 2013). The quality of sustainability performance and sustainability reporting is a vital aspect of investors' evaluation of a company (Jadoon et al., 2020). Investors view large companies that generate large profits but exhibit low corporate social responsibility levels negatively (Lourenço et al., 2012). Investors are likely to pay a premium in financial markets for companies that demonstrate environmental and social responsibility compared to companies that do not (Swarnapali, 2020).

Numerous studies have shown that a company's value can be determined by how well it reports on sustainability. The return on equity and Tobin's Q showed a favorable link with environmental disclosure, according to Buallay (2019). Effective disclosure of Environment, Social, and Governance (ESG) factors favorably affects corporate value. According to Feng and Wu (2021). Zhang et al. (2020) also supported the idea that sharing environmental and social information enhances business value. Linh et al. (2022) examined non-financial businesses in Vietnam and established that sustainability reports improve firm value and competitiveness. In their research on Turkish publicly traded companies, Kuzey and Uyar (2017) discovered that sustainability reporting has a positive effect on a company's market value. According to empirical findings from Loh et al.'s (2017) study of Singaporean listed businesses, there is a link between sustainability reporting and a company's market value. Swarnapali (2020) examined listed firms in Sri Lanka and discovered a beneficial connection between firm market value and sustainability reporting. As per the discussion above, the study posits the following hypothesis:

Hypothesis 2: Sustainability reporting quality positively affects firm value.

2.3. Green Banking and Sustainability Reporting Quality

The direct influence of green banking or green practices on the quality of sustainability reports has been investigated in only a few studies, indicating a scarcity of research in this area. Various theories, such as the signaling theory, may be referenced to explain the relationship between green banking and sustainability reporting quality (Spence, 1973; Connelly et al., 2011; Bergh et al., 2014). A sustainability report reduces the information asymmetry between firms and stakeholders and contains information about the company's sustainability performance, including green initiatives. A sustainability report may convey a message about the importance of green banking. Green banking is an attempt to realize sustainable development and environmental protection (Úbeda et al., 2022) besides undertaking profitable business activities. Adopting green banking in corporate activities requires considerations and strategies. When applying green banking, management considers government policies and regulations, strategic plans, and achievable results. The sustainability report may present all the information about the company's green banking, from planning to implementation.

Sustainability reporting allows companies to describe policies, plans, applications, and results of green banking practices. This approach can improve the sustainability report's quality and, in turn, enhance firm value. Presumably, the quality of sustainability reports improves with the quantity and quality of green banking practices. Sustainability reports may indicate sustainability performance (Papoutsi & Sodhi, 2020) and exhibit the firm's 'green label' (Blengini & Shields, 2010). Green banking practices may improve stakeholders' favorable view of the company, prompting the management to seize the opportunity to disclose such practices through sustainability reports. In a study focused on the logistics industry, Karaman et al. (2020) emphasized the relationship between increased openness and the disclosure of sustainability performance and a commitment to green logistics practices. Companies with outstanding environmental performance are more likely to publish sustainability reports, making their environmental performance public. In light of this knowledge, the study suggests the following hypotheses:

Hypothesis 3: Green banking positively affects sustainability reporting quality.

Hypothesis 4: Sustainability reporting quality mediates the effect of green banking on firm value.

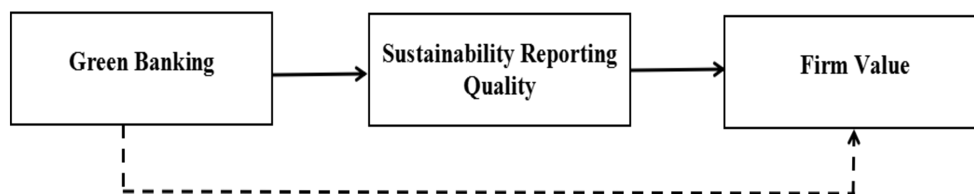

Figure 1 Research model
Source: Author's view

3. Methodology and empirical data

3.1. Empirical data

This study looked at how sustainability reporting quality affects corporate value by looking at green banking as an intermediary element. Figure 1 shows the conceptual model for the investigation. The study used a sample of banks that were listed on the Indonesia Stock Exchange between 2018 and 2021. Purposive sampling was utilized to choose the sample. The majority of the data used in this study came from secondary sources. Data on green banking was taken from annual reports and sustainability reports of banks. Sustainability reporting quality data was sourced from sustainability reports. Data on firm value were collected from annual reports, financial reports, Indonesia Stock Exchange's official websites, and other online sources.

3.2. Statistical method

Green banking (GB) was assessed using 20 items, which were adapted from Bose et al. (2018) with slight modifications. A dichotomous scale was used to measure each item. A score of 1 was given if the item was found in the annual or sustainability report, and a score of 0 was assigned if it was not present. The maximum total score for each company is 20, which was subsequently divided by 20. Sustainability reporting quality (SRQ) was measured using ten items of the environmental reporting index, which were adapted from Amran et al. (2014) with slight adjustments. A score of 1 was granted if the item was disclosed in the sustainability report, and a score of 0 was assigned if it was absent. Each company's maximum total score is ten, subsequently divided by ten.
Tobin's Q (TQ) measure of a firm's value serves as the study's dependent variable. Tobin's Q was determined by dividing the equity market value by the book value of all the assets. Financial websites including the Indonesia Stock Exchange and Yahoo! Finance were used to retrieve the information on the market value of equity

and the book value of all assets. The study's control variables are bank-specific variables, namely: firm size (SIZE) calculated as log10 of total assets, financial leverage (LEV) calculated as liability divided by total assets, and two macroeconomic variables, including inflation rate (INF) and growth of gross domestic product (GDP).
The relationship between variables was determined by estimating the linear models as follows:

Model I: $TQ = \beta 0 + \beta 1GB + \beta 2SIZE + \beta 3LEV + \beta 4INF + \beta 5GDP + \varepsilon$ (1)
Model II: $SRQ = \beta 0 + \beta 1GB + \beta 2SIZE + \beta 3LEV + \beta 4INF + \beta 5GDP + \varepsilon$ (2)
Model III: $TQ = \beta 0 + \beta 1SRQ + \beta 2SIZE + \beta 3LEV + \beta 4INF + \beta 5GDP + \varepsilon$ (3)
Model IV: $TQ = \beta 0 + \beta 1GB + \beta 2SRQ + \beta 3SIZE + \beta 4LEV + \beta 5INF + \beta 6GDP + \varepsilon$ (4)

Where,
TQ = Firm's Tobin's Q.
GB = Green banking practices disclosed in the firm's annual report and sustainability report.
SRQ = Sustainability reporting quality.
SIZE = Firm size.
LEV = Firm's financial leverage.
INF = The country's inflation rate.
GDP = The country's gross domestic product growth.
$\beta 0$ = Intercepted.
ε = Random error.

4. Empirical results

4.1. Descriptive statistics

The data collection procedure obtained 122 observations. Descriptive statistics of the variables are presented in Table 1. The maximum score for green banking and sustainability reporting quality are 0.9 and 0.7, respectively. The minimum score for green banking and sustainability reporting quality is 0.2. The average score for green banking is 0.526 out of 1, indicating that the implementation of green banking among listed banks in Indonesia is relatively low. Many banks presumably did not adopt nor apply green banking practices. Nevertheless, the average score of sustainability reporting quality value is 0.487 out of 1, implying that the quality of sustainability reports of Indonesian listed banks is relatively low. Sustainability reporting quality reflects the company's adherence to guidelines in producing sustainability reports. This finding suggests that numerous companies may not be adhering to the guidelines. Another plausible explanation is that limited information might be available to reflect the company's sustainability performance adequately.

Table 1. Descriptive statistics

Variable	Dependent variable	Independent variable		Control variable			
	TQ	GB	SRQ	SIZE	LEV	INF	GDP
Mean	0.645	0.526	0.487	31.976	0.721	0.021	0.040
Median	0.171	0.500	0.500	32.206	0.825	0.019	0.060
Std. dev.	2.105	0.159	0.136	1.857	0.248	0.005	0.057
Maximum	18.006	0.900	0.700	37.872	0.919	0.031	0.090
Minimum	0.024	0.200	0.200	27.997	0.006	0.017	-0.040

Source: Own processing

Four diagnostic tests were run to check for normalcy, collinearity, heteroscedasticity, and autocorrelation in order to identify the linearity assumptions. The testing findings show that the study's data and model have no problems with the regression assumption.

4.2. Hypotheses testing

4.2.1. Hypothesis H1

Green banking, according to H1's hypothesis, enhances business value. The analysis's findings showed that green banking has a positive and significant impact on business value (p 0.05; $\beta = 0.348$). Thus, Hypothesis 1 is accepted. Currently, green banking is gaining significant attention globally. Increasing environmental damage has garnered increased attention from various parties towards environmentally friendly business practices. Investors in the capital market are attracted to 'green' companies or projects. Companies that adopt and implement green practices are viewed differently compared to companies that do not associate with green practices. Environmental and societal concern has become part of the economy and business. As a means of support, the government establishes regulations regarding the impact of company activities on the environment, corporate social responsibility, and other related aspects. In this study, the practice of green banking is confirmed to increase firm value. This finding supports the findings of previous studies (Sadovnikova & Pujari, 2017; Bose et al., 2020; Hossain et al., 2020).

Green banking reflects the company's expertise in utilizing resources and reducing its carbon footprint. In addition, the application of green banking also indicates that the company supports environmentally friendly projects. The study's results are consistent with predictions from legitimacy theory. The theory states that companies need to obtain permission from the community to obtain the necessary resources to undertake operational activities and must act within societal limits (Shocker & Sethi,

1973). Green banking activities demonstrate a commitment to incorporating sustainable environmental aspects into people's lives for the future. Therefore, investors in banking companies view green banking as a crucial factor in determining the valuation of the company's stock price.

Table 2. Regression results

	Model I		Model II		Model III		Model IV	
	TQ		SRQ		TQ		TQ	
	β	p	β	p	β	p	β	p
GB	0.348	***	0.227	0.012			0.293	***
SRQ					0.279	***	0.193	***
SIZE	-0.106	0.208	0.292	***	-0.178	**	-0.163	**
LEV	-0.219	***	0.031	0.737	-0.243	*	-0.179	***
INF	-0.239	***	0.132	0.163	-0.253	***	-0.231	***
GDP	0.072	0.388	-0.068	-0.737	0.074	0.391	0.061	0.457

Source: Own processing
Note: *0.05, **0.01, ***0.001.

4.2.2. Hypothesis H2

According to hypothesis H2, the quality of sustainability reporting has a favorable impact on business value. Empirically, the quality of sustainability reporting had an increase in business value (β= 0.279; p 0.05). As a result, Hypothesis 2 is confirmed. This study confirms findings from earlier studies (Kuzey & Uyar, 2017; Buallay, 2019; Swarnapali, 2020; Linh et al., 2022) showing sustainability reporting enhances enterprise value and financial performance. A company's endeavor to share information on sustainability performance, particularly environmental-related challenges, is known as sustainability reporting. Companies that operate in a socially responsible manner are more likely to inform stakeholders and the general public by publishing sustainability reports, according to legitimacy and stakeholder theories. A company's obligation to stakeholders and the general public is to report. The value of a corporation could rise as a result of increased reputation due to sustainability reporting.

This finding corroborates the signaling theory. A sustainability report provides stakeholders with information about the company's condition and performance, specifically regarding the environment. Sustainability reports with good quality may indicate that the company is concerned about sustainability and the environment. Signaling is needed to reduce information asymmetry. Disclosure in sustainability reports is a form of signaling that can reduce information asymmetry between agents and principals regarding environmental, social, and economic activities. Thus, principals (investors) can properly evaluate and assess the company's performance.

4.2.3. Hypothesis H3

According to hypothesis H3, the effectiveness of sustainability reporting has an impact on green banking on business value. Empirically, green banking had a favorable impact on the caliber of sustainability reporting (β = 0.227; p 0.05). As a result, Hypothesis 3 is confirmed. This result suggests that sustainable banking methods can raise the caliber of sustainability reports. The environmental concerns of a corporation can be seen in a sustainability report. Banks that practice green banking and are environmentally conscious may be more likely to take sustainability reports' quality into account. More data can be included in the sustainability report if green banking practices are adopted and used more widely.

To investigate the mediation function of sustainability reporting quality, the Sobel test (Goodman, 1960; Sobel, 1982; Baron & Kenny, 1986; Preacher, 2022) was used. The analysis of the mediation effect is shown in Table 3. The findings in the table show that the association between green banking and business value is mediated by the quality of sustainability reporting. So too is Hypothesis 4 supported (p 0.05). Green banking raises the standard of sustainability reports, which raises the value of the company. However, the mediation effect is only partially present.

Table 3. Mediation effect test results

Input			Test statistic	Std. error	p-value
a	0.227	Sobel test	18.873	0.003	***
b	0.279	Aroian test	18.873	0.003	***
*S*a	0.012	Goodman test	18.873	0.003	***
*S*b	0.001				

Source: Own processing

a = regression coefficient for the relationship between GB and SRQ; *S*a = standard error of *a*; *b* = regression coefficient for the relationship between SRQ and TQ; *S*b = standard error of *b*.

*Note: *0.05, **0.01, ***0.001.*

A model test based on company size was conducted in this study as part of additional analysis (see Table 4). The sample was split into two groups, high-asset banks and low-asset banks. The data demonstrates that smaller businesses are more directly affected by green banking on firm value (See Table 4, Panel 2). On the other hand, in larger businesses, the impact of green banking on firm value is significantly smaller (See Table 4, Panel 1). These findings suggested that investors in smaller companies than in larger ones pay greater attention to the company's economic, social, and environmental actions.

Table 4. Regression-based on firm size (cutoff: median)

Panel 1. Large Firm (n=63)

	Model I		Model II		Model III		Model IV	
	TQ		SRQ		TQ		TQ	
	β	p	β	p	β	p	β	p
GB	0.239	***	-0.075	0.585			0.219	**
SRQ					-0.281	**	-0.266	**
SIZE	0.578	***	0.230	0.086	0.679	***	0.639	***
LEV	0.121	0.251	-0.084	0.534	0.043	0.665	0.098	0.325
INF	-0.041	0.717	-0.089	0.542	-0.107	0.327	-0.065	0.547
GDP	0.000	0.998	0.101	0.486	0.064	0.552	0.027	0.802

Panel 2. Small Firm (n=59)

	Model I		Model II		Model III		Model IV	
	TQ		SRQ		TQ		TQ	
	β	p	β	p	β	p	β	p
GB	0.393	***	0.551	***			0.125	0.234
SRQ					0.561	***	0.486	***
SIZE	-0.252	***	0.199	**	-0.366	***	-0.348	***
LEV	-0.285	***	-0.273	***	-0.159	0.098	-0.152	0.113
INF	-0.238	**	-0.066	0.549	-0.196	**	-0.205	**
GDP	0.101	0.309	0.078	0.469	0.055	0.519	0.063	0.460

Source: Own processing

Table 5. Regression-based on firm size (cutoff: 40% highest and 40% lowest firm size)

Panel 1. Large Firm (n=50)

	Model I		Model II		Model III		Model IV	
	TQ		SRQ		TQ		TQ	
	β	p	β	p	β	p	β	p
GB	0.295	***	-0.169	0.272			0.305	***
SRQ					-0.164	0.139	-0.114	0.267
SIZE	0.649	***	0.133	0.375	0.715	***	0.673	***
LEV	-0.100	0.317	-0.110	0.473	0.042	0.699	0.103	0.320
INF	0.026	0.813	-0.247	0.144	-0.148	0.229	-0.073	0.525
GDP	-0.076	0.486	0.192	0.250	0.158	0.194	0.090	0.430

Panel 2. Small Firm (n=47)

	Model I		Model II		Model III		Model IV	
	TQ		SRQ		TQ		TQ	
	β	p	β	p	β	p	β	p
GB	0.345	***	0.604	***			0.011	0.918
SRQ					0.565	***	0.558	***
SIZE	-0.370	***	0.156	0.217	-0.459	***	-0.457	***
LEV	-0.317	***	-0.260	0.045	-0.173	0.065	-0.172	0.070

INF	-0.229	**	-0.183	0.123	-0.125	0.123	-0.127	0.136
GDP	0.194	**	0.006	0.959	0.197	0.017	0.197	**

Source: Own processing

Finally, Table 6 presents the fixed and random effects in a regression model. Fixed effects capture constant differences across entities, whereas random effects account for unobserved heterogeneity across entities.

Table 6. Fixed and random effect

TQ	Fixed effect		Random effect	
	β	p	β	p
GB	0.459	***	0.533	***
SRQ	0.632	***	0.713	***
SIZE	-0.214	0.231	-0.356	0.133
LEV	-0.389	0.109	-0.446	0.169
INF	-0.542	0.369	-0.619	0.453
GDP	0.167	**	0.211	**
R^2 (Overall)	**0.569**		**0.687**	
F-value	**87.659 (0.00)**			
Wald Chi2			**159.61 (0.00)**	

Source: Own processing
*Note: *0.05, **0.01, ***0.001.*

5. Discussion and recommendations

This study sought to better understand how green banking may increase firm value in the banking industry. The quality of sustainability reporting was also explored in this study as a potential mediator in the relationship between green banking and business value in emerging countries like Indonesia. Based on many hypotheses, a research framework has been constructed.

In terms of the first research objective, the empirical analysis indicates that green banking has a positive and significant effect on firm value. The research findings align with past studies (Sadovnikova & Pujari, 2017; Bose et al., 2020; Ali & Johl, 2023a Hossain et al., 2020). For instance, Khan et al. (2021) argued that the demand for green business practices has grown globally. Consequently, there is a demand surge to incorporate green practices into their business, especially in public financial institutions. Khan et al. (2021) concluded that green banking practices have both short and long-term effects on firm value. Similarly, Prawirasara (2015) concluded that Indonesian banks' environmentally friendly practices significantly improve the firm's internal and external values. From a theoretical viewpoint, the study outcomes align with legitimacy theory, which postulates that a firm must secure social responsibility before acquiring other resources. Furthermore, social boundaries and

norms are imperative to maintain legitimacy and gain stakeholders' support (Hossain et al., 2016; Akhter et al., 2022; Ali et al., 2023).
The empirical findings on the second research goal showed that sustainable reporting quality has an effect on business value and partially mediates. The empirical results showed a positive and significant relationship between sustainability reporting quality and business value. The study's conclusions agree with previous studies (Swarnapali, 2020; Linh et al., 2022). After considering the effects of Indonesian government rules on sustainability reporting, Mutiha (2022) concluded that excellent reporting on sustainability has a positive and considerable impact on business value. This study further argued that the primary purpose of sustainability reporting is to provide additional information concerning economic, social, and environmental activities. As a result, stakeholders' trust level rises, which promotes firm value. Finally, Loh et al. (2017) concluded that sustainability reporting significantly enhances the firm value in Singapore.
Moreover, the empirical findings indicated that sustainability reporting quality partially mediates between green banking and firm value. The outcomes are supported by previous studies (Alodat et al., 2022; Dewi & Maulana, 2022). According to Harmadji et al. (2018), among Indonesian publicly traded companies, sustainability quality reporting acts as a mediator between sustainability reporting approach and stock price risk. According to Nawawi et al. (2020), corporate governance and stock performance in Indonesian public list enterprises are mediated by sustainability reporting. Theoretically, the findings provide compelling evidence supporting the signaling theory. Sustainability reporting serves as a powerful tool to communicate necessary information to stakeholders, especially concerning environmental aspects. Sustainability reporting quality acts as a signal that the firm is committed to SDGs and environmental stewardship (Alodat et al., 2022).

6. Conclusions

This study used the quality of sustainability reporting as a mediating variable to assess the impact of green banking on corporate value. The dataset of Indonesian banks listed on the Indonesia Stock Exchange from 2018 to 2021 was evaluated to meet the research goals. The study reveals through data gathering and analysis that the quality of green banking and sustainability reporting has a positive and significant impact on business value. Furthermore, it was discovered that the level of sustainability reporting had a mediating impact on the link between green banking and business value.
The results of the study significantly advance theoretical understanding in the fields of green finance, sustainability reporting, and company value. This study contributes to our understanding of the connection between sustainability reporting quality, company value, and green banking, particularly in the context of Indonesian banks.

From a practical viewpoint, the findings are vital for banks' management, stakeholders, and policymakers as they shed light on the significance of green banking practices in the economy and business sectors. Green banking is a good step towards achieving sustainable development. It is beneficial not only for businesses but also contributes towards environmental sustainability. Hence, banks' management is recommended to improve green banking and sustainability reporting practices.

Last but not least, this study has several limitations. First, the number of observations is limited as green banking practices and sustainability reporting are still relatively new in Indonesia. The data were retrieved only from banks listed on the Indonesia Stock Exchange for 2018-2021. Many banks began issuing sustainability reports in the middle or after the period. Second, the green banking data was gathered only from sustainability and annual reports. Information about green banking practices was obtained based on whether banks disclosed it or not.

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