

Development of Green Banking Disclosure Index in Southeast Asia Region: Contributing to SDG 13

Nur Kabib^{1,2*}, Djoko Suhardjanto¹, Wulan Suci Rachmadani³, Rizky Windar Amelia⁴

¹Universitas Sebelas Maret, Surakarta, Indonesia

²Universitas Islam Negeri Salatiga, Salatiga, Indonesia

³Universitas Islam Negeri Sunan Kalijaga, Yogyakarta, Indonesia

⁴Universitas Widya Dharma, Klaten, Indonesia



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ABSTRACT

Objective: To compile the Unweighted Green Banking Disclosure Index (UGBDI) for banks in Southeast Asia. The index is developed to provide a more suitable disclosure measurement for banks in the region, considering that existing green banking assessments are often based on standards from developed countries. **Method:** Using a literature review approach based on green banking regulations in Southeast Asian countries and previous studies. The index preparation was conducted through several stages, including identifying definitions and keywords, discerning and classifying similar items, synchronizing them with existing standards, and formulating new disclosure items. **Results:** Resulting in 32 green banking disclosure items for banks in Southeast Asia. These items were developed from regulations and prior studies, then synchronized with sustainable banking assessment standards. The resulting index can be used by banks, researchers, and regulators as a reference for evaluating and improving green banking disclosure practices. **Novelty:** Developing an original Green Banking Disclosure Index tailored to the Southeast Asian context by integrating regional green banking regulations and previous studies. The index contributes to SDG 13 (Climate Action) by enhancing climate-related disclosure practices and supporting the transition toward sustainable finance in the banking sector.

INTRODUCTION

Sustainability, biodiversity, and a green environment have become global demands that must now be met. Global warming, environmental damage, carbon emissions, and pollution have been positioned as a common enemy, so they need to be fought systematically by all parties. All fields and industries, including banking, are required to comply with this, as reflected in the regulation of green banking in various countries. The Green Banking Disclosure Index is required to assess or disclose the claims.

The growing emphasis on environmental sustainability is closely aligned with Sustainable Development Goal (SDG) 13: Climate Action, which calls for urgent measures to combat climate change and its impacts. As financial intermediaries, banks play a strategic role in supporting climate-related initiatives through responsible financing, transparent disclosure, and sustainable business practices. Strengthening green banking disclosure is therefore essential to enhance accountability, encourage climate-conscious decision-making, and accelerate the transition toward sustainable finance in line with SDG 13. Green banking is part of sustainable banking. This can be explained by the fact that sustainable banking also includes green banking. A separate report published by the World Bank states that sustainable development is linked to the financial and banking sectors. Thus, sustainable development, sustainable banking, and green banking are closely related and largely overlap.

The development of the Green Banking Disclosure Index in Southeast Asia is needed because global banks are reported to play a major role in forest destruction in the region (Tailor, 2016). Massive pollution in Southeast Asia is also reported by the World Health Organization to be 5 percent (Syarifah, 2016), underscoring the importance of compiling this index. Improvement programs to manage environmental risks and develop green finance are being implemented in the region by the World Wide Fund for Nature. This is a non-profit organization focused on environmental conservation. Located in 100 (one hundred) countries for 60 (sixty) years, the institute collaborates with people around the world to develop and provide innovative solutions for communities, wildlife, and the environment.

The phenomenon related to Green Banking Disclosure can be observed in several events. According to the Sustainable Banking Assessment 2024, issued by the World Wide Fund for Nature (WWF), member countries of the Association of Southeast Asian Nations (ASEAN) have lower green banking disclosure scores than those of Japan and Korea Selatan (Pandit et al., 2018). The assessment covers six major aspects: goals, policies, processes, people/HR, products, and portfolio. Each of these aspects is further organized into several smaller, more detailed aspects, as shown in the Green Banking/Sustainable Banking assessment (attached). Based on social and environmental issues, the average green banking score in Southeast Asia is lower than that of foreign banks. The banks in question include Danamon at 10.98 percent, BNI at 6.37 percent, Mandiri at 3.46 percent, BRI at 3.09 percent, Panin at 2.95 percent, BCA at 1.74 percent, CIMB Niaga at 1.52 percent, and OCBC NISP at 1.13 percent. Banks outside Southeast Asia are used for comparison, including HSBC (London) at 37.83 percent, Citibank (New York) at 36.08 percent, and The Bank of Tokyo (Tokyo) at 19.81 percent (Ahmad et al., 2018). The green banking score. It can be observed that banks outside Southeast Asia have high green banking scores. Another section shows that green banking scores in the Southeast Asia region are low. The difference in scores provides empirical evidence of the low level of green banking disclosure in Southeast Asia.

Related to environmental, social, and governance issues, banks in Indonesia are indeed favored compared to other Southeast Asian countries (although inferior to Singapore). The facts show that there are still 8 banks in Indonesia that disclose environmental, social, and governance aspects. Banks that have submitted Green Banking Disclosure: only eight banks disclose, among the dozens that have not disclosed. The eight banks include Mandiri, BRI, BCA, BNI, Muamalat, BRI Syariah, BJB, and Bank Artha Graha Internasional. In addition, the eight banks have not disclosed any information on green banking as part of environmental, social, governance, or sustainable banking.

The issue of Green Banking Disclosure is significant to discuss and analyze. The International Financial Reporting Standard (IFRS) has a conceptual accounting framework. According to the conceptual framework, accounting is carried out in sequential stages. These stages and sequences start with the determination of the objectives of financial statements, the qualitative characteristics of the use of financial information, reporting entities and financial statements, elements of financial statements, recognition and termination of recognition, measurement, and, most recently, presentation and disclosure. Technically, Kieso, Weygandt, & Warfield (2019) divide the conceptual framework of accounting into three levels. The first level contains objectives; the second level consists of qualitative characteristics and elements of financial statements; and the third level consists of assumptions, principles, and constraints. (Kieso et al., 2013). To provide a clearer understanding of the position of disclosure within the accounting process, the conceptual framework of accounting can be illustrated as a hierarchical structure consisting of three

interconnected levels. As shown in Figure 1, disclosure represents an essential component of the third level of the framework, emphasizing the importance of complete and transparent reporting practices.

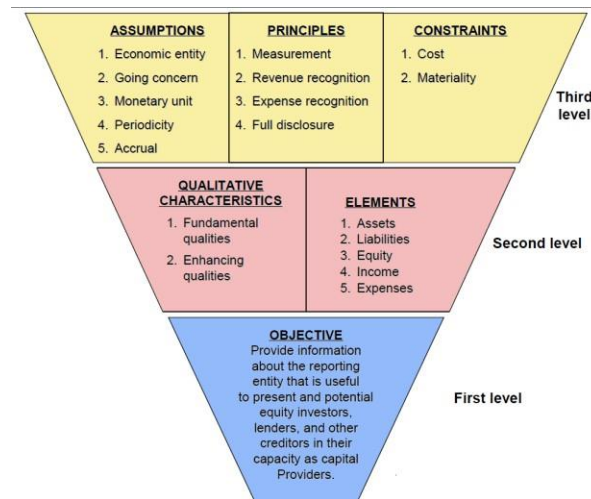


Figure 1. Accounting conceptual framework

The problem with Green Banking Disclosure is significant to review because it relates to the completeness of levels, quality levels, and elements in the accounting conceptual framework. The level and element in question are the third level of the principle of full disclosure. Disclosure is not thorough, so the accounting information in the financial statements is less reliable and incomplete. Another important aspect of green banking needs to be analyzed because going green, including green banking, has become a global issue and necessity. The preservation of the biological environment has become a necessity; on the other hand, global warming threatens civilization. The impact of not disclosing green banking is that stakeholders' recognition (legitimacy) will be further away. Another meaning of green banking is that, if it is not disclosed, it can be interpreted as companies not participating in the global imperative to go green.

Accounting, as an information system, provides stakeholders with information about the company. Related to this argument, then accounting must also make disclosures about green banking practices. Such disclosures can be made in an integrated manner with the annual report or disclosed in a separate report. This is important because it concerns a large element of financial statements. Dong, Xu, and McIver (2020) examined Green Banking Disclosure as part of a risk-level analysis of financial sustainability practices. The research does not specialize in the banking industry but rather encompasses the broader non-bank finance industry. Regarding Green Banking Disclosure, this study only reports the existence of green financing.

The exploratory research on the performance of green banking between five Islamic banks and five conventional banks was conducted in Bangladesh. This study measured the performance of green banking using the Maqasid Syariah approach, consisting of maintaining human self-preservation, maintaining intelligence, maintaining the sustainability of future generations, and maintaining the sustainability of wealth. The results showed that no bank fully meets green/sustainability policies (Johnson & Christensen, 2014). Green banking and Islam are two sides of the same coin. This is qualitative research using data triangulation. The results indicated that Green Banking Disclosure has three major aspects: environmental, social, and governance. In this case, Islam also has concepts or

doctrines regarding these three areas. Other research findings indicate that Islamic banks should implement green banking (Bukhari et al., 2019).

Another research publication states that green banking is disclosed across four reporting domains: green products, green operations, green customers, and green policies. Green product consists of 6 (six) indicators, green operational consists of 6 (six) indicators, green customer consists of 3 (three) indicators, and green policy consists of 6 (six) indicators (Handajani, 2019). Empirical evidence on the encouraging aspects of green banking disclosure, from institutional and governance perspectives, has not yet been examined. Using a multivariate regression analysis method by bringing up green banking disclosure dependent variables projected with the Green Banking Disclosure Index (GBDI). GBDI is structured around 21 (twenty-one) statement items (attached) to assess green banking. Independent variables consist of Green Law, Board Size, Independent Board Size, Institutional Ownership, and control variables, including company size, Growth Opportunities, company age, Leverage, Profitability, Foreign proprietary, CEO compensation, number of women directors, as well as Government Ownership (Bose et al., 2018).

Another exploratory study using content analysis methods examining Green Banking Disclosure has also been conducted in Bangladesh. One of the interviews in this study was about 16 (sixteen) items that represent the Green Banking Disclosure for Bangladesh. The disclosure system here includes disclosures on energy efficiency, electricity consumption, water consumption, paper consumption, and green finance (Hossain et al., 2016). The use of paper negatively affects forest sustainability, so it must be reduced. Other impacts beyond the threat: printing documents on paper also produces carbon, which is certainly not environmentally friendly. The alternatives offered to reduce the adverse effects of the above, in green banking have characteristics 1) the application of digital banking (Lalon, 2015; Mahto et al., 2020) (2) engagement with stakeholders (Bose et al., 2018; Lalon, 2015) (3) sustainable development of practices, policies, and initiatives, such as paper-free practices, low energy consumption, and efficient waste management (4) creation of new (green) financial products and services. In particular, it should be noted that technology is a fundamental opportunity for green banks. The ongoing digitization of the banking industry can increase the impact of the internal environment (Islam and Das 2013) and external factors.

The characteristics of the green banking process can be identified and summarized. There are (1) digital banking, (2) engagement with stakeholders, (3) sustainable development of practices, policies, and initiatives, such as paper-free practices, low in energy consumption, and efficient waste management, and (4) the creation of new (green) financial products and services. In particular, it should be noted that technology is a fundamental opportunity for green banks. The ongoing digitization of the banking industry can increase the impact of both the internal and external environments. Green banking, as part of sustainability issues, has been the subject of research, encompassing both non-financial and financial performance risks. The research develops a new approach to assessing sustainability risks in the banking sector. This new approach uses 9 (nine) categories of corporate sustainability risks using the information available in the company's financial statements and sustainability reports (Handajani, 2019; Handajani et al., 2019; Hardman et al., 2013).

Some of the previous studies above are types of exploratory research that explain the position of a variable. The publication of preliminary research testing the effects of free variables on bound variables (causal-quantitative) by reputable publishers remains very limited. Research involving 24 (twenty-four) issuers listed on the Indonesian stock exchange

was conducted in 2019. Using the basis of the theory of Institutional Corporate Governance gave rise to 3 (three) independent variables, namely the number of board of commissioners, independent commissioners, and institutional ownership, to predict Green Banking Disclosure. The results indicated that only the variable number of board of commissioners was significantly positively associated with green banking disclosure (Handajani, 2019). A summary of the core results of previous research related to Green Baking Disclosure.

This study is novel compared to the previous study. The main novelty of this study is the creation of an Unweighted Green Banking Disclosure Index for Southeast Asian countries. Another novelty in the use of Management Strategic Theory, where previous studies used Institutional Theory. The use of Management Strategic Theory as a basis for explaining the importance of benefits and strategic uses in creating an index. Next step: knowledge of those benefits and uses will help the entity prioritize and make strategic decisions. The theme of the previous study is very limited, so this research has not been conducted. This research is expected to support or compare with previous studies. The problem in this research is that no index has been found to reveal green banking in Southeast Asian countries. Assessing green banking disclosure in Southeast Asia using indices for developed countries such as Japan and South Korea is not appropriate.

Based on the phenomena above, it can be concluded that Green Banking Disclosure in Southeast Asia is measured using an index similar to that used in developed countries. The use of developed-country indices for the banking industry in Southeast Asia is not appropriate because most countries in the region are developing, where regulations, work cultures, and implementation stages differ from those in developed countries. This can be interpreted as indicating that there has been no index for measuring Green Banking Disclosure in Southeast Asia. The novelty of this research lies in the creation of an Unweighted Green Banking Disclosure Index for Southeast Asian countries. Based on the background of study above, the problem statement is made: "What indicators make up the Unweighted Green Banking Disclosure Index (GBDI) for many countries in the Southeast Asia region? The purpose of the study is "Compiling an index to measure Green Banking Disclosure for banks in the Southeast Asia region". The research contribution is aimed at the banking industry, academia, and regulators. The banking industry can identify the priority aspects of green banking, providing a solid basis for decision-making. The banking industry also has its own index to assess green banking practices, so it is not always necessary to juxtapose it with those of developed countries. The banking industry is more proactive in developing and implementing the Green Banking Disclosure process, making it more responsible for environmental, social, and governance aspects.

For academics and researchers, this study also has some benefits. Give some knowledge and insight into the demands of Green Banking Disclosure as part of the issues of flexibility, responsibility, and go-green. The following benefits for academics and researchers provide empirical evidence in basic research, which can be used for advanced research. The regulator will also enjoy a contribution. Enhance green banking disclosure items, thereby strengthening the characteristics of policy and regulatory making. Another contribution to regulators is to obtain regional indices, which can make it easier to develop collaborative policies and regulations.

LITERATURE REVIEW

This section discusses the theory, green banking regulation, and previous studies on green banking. The main theory used in this study is Strategic Management Theory. Green banking

regulations are derived from regulations issued by governments, central banks, or professional organizations in Southeast Asian countries. Strategic Management Theory states that organizational goals are achieved through processes and approaches, including the development of policies, programs, paradigms, and plans, accompanied by the allocation of resources to implement them. Strategic management can be seen as the combined management component across three stages of the strategy process: strategy development, strategy implementation, and strategy evaluation.

The purpose of this study is to compile a green banking disclosure index in Southeast Asian countries. The green banking disclosure index is expected to reveal the priorities of these disclosure items. Prioritizing these items is beneficial for strategic management decision-making to achieve the company's goals. Figure 2 illustrates the application of Strategic Management Theory in this study. The theory provides a rationale for developing the UGBDI, as the identification of priority disclosure items may support banks in formulating strategies and making informed managerial decisions related to green banking practices.



Figure 2. Strategic management theory

This section describes some of the regulations of countries in Southeast Asia. The regulatory search identified five regulations originating from Indonesia, Malaysia, Singapore, Thailand, and Vietnam. Each country has its own designation for regulations that are owned but related to banking in general, with the same scope as Green Banking Disclosure / Environment & Social Bank, Responsibility / Sustainability Bank. Here are some of the regulations in question.

The Indonesian Financial Services Authority Regulation is issued by the Financial Services Authority (OJK) of the Republic of Indonesia, which oversees banks and non-bank financial institutions. This regulation was established on July 18, 2017, in the form of OJK regulation number 51 of 2017, signed by the chairman of the OJK board of commissioners at the time, Muliaman D. Hadad, and promulgated by the then minister of law and human rights, Yasonna H. Laoly, on July 27, 2017. This regulation took effect on the date of promulgation.

The valuation framework was issued by Bank Negara Malaysia (BNM) as central bank number BNM/RH/DP028-8 on September 1, 2019. These guidelines cover the general introduction, general purpose, approach, scope, and basic principles. The basic principles consist of three: VBI Financing and Investment Impact Assessment Framework (VBAIF), governance principles, and risk management impact principles (Nath et al., 2014).

Responsible Financing was issued on June 1, 2018, by the Bank Singapore Association. This guideline is based on four main areas: general purpose, background, responsible financing coverage, and responsible financing principles. The principle of responsible Financing comprises three principles: the disclosure of senior managers' commitment to carry out responsible Financing, responsible financing management, and capacity building for responsible Financing (Millar et al., 2018).

The directive was issued as Decree No. 03/CT-NHNN, signed by the Governor of the State Bank of Vietnam on March 24, 2015. The scope of this directive includes not only Vietnamese state banks but also commercial banks, financing companies, leasing companies, cooperatives, and foreign bank branches in Vietnam. This directive consists of five main points, including overall objectives and duties; units under the State Bank of Vietnam; state banks in provincial branches; credit institutions; and their implementation.

The Thailand Bank Association issued the Sustainable Banking and Responsible Lending guidelines on August 13, 2019. The Association of Banks of Thailand developed the document through multi-stakeholder cooperation, including the World Wide Fund for Nature (WWF). This document is a living document that can be updated to stay relevant. The guidelines also acknowledge that repairs are still needed when documents are damaged. These guidelines also include general-purpose, background, scope, and responsible lending guidelines (Dong et al., 2020).

Previous study

Green banking has a comprehensive scope. The scope involves policies, processes, products, and human resources for portfolios. The implementation of green banking cannot be limited solely to the company's directors and commissioners; it must involve other parties. Each stakeholder has their own function and role towards the company. All stakeholders (internal or external) need to be involved in every green banking process (Bose et al., 2018; Lalon, 2015).

Reducing the use of paper will reduce the felling of green trees. In addition, reducing paper use will reduce carbon emissions in the document printing process. Reducing paper use will lower electricity consumption, which in turn will reduce oil and coal consumption in power plants. Such exposure, in the context of green banking, can be implemented with the application of digital banking (Kilkki et al., 2018). The use of car banking has existed since 1995, with the technology not using paper media at all and very low electricity consumption. Using paper means avoiding the felling of trees, so that a damaged global ecosystem can be anticipated. Using less electricity can reduce coal use in power plants and automatically reduce carbon pollution.

The development of sustainable practices, policies, and initiatives, such as paper-free practices, low energy consumption, and efficient waste management, guarantees the sustainability of green banking/responsible banking (Handajani, 2019). Creativity, innovation, elaboration, and collaboration among stakeholders are key factors in development. The involvement of all stakeholders is believed to guarantee the development of greenbanking / responsible banking practices.

The need for green products and services is becoming a necessity in the implementation of green banking/responsible banking. The availability of green products and services offers stakeholders many alternatives. So the creation of new (green) financial products and services (Sekaran & Bougie, 2016). It is considered essential and relevant to the practice of green/responsible banking.

In line with the adoption of digital banking, the use of technology is an important factor in the implementation of green banking/responsible banking. In particular, it should be noted that technology is a fundamental opportunity for green banks. The ongoing digitization of the banking industry can increase the impact of the internal environment (Islam and Das 2013) and external factors. Digitalization of banking is believed to reduce logging for the paper industry as well as reduce carbon-burning power plants.

The characteristics of the green banking process can be identified and summarized, including (1) digital banking

(2) engagement with stakeholders (3) the development of sustainable practices, policies, and initiatives, such as paper-free practices, low energy consumption, and efficient waste management (4) the creation of new (green) financial products and services. In particular, it should be noted that technology is a fundamental opportunity for green banks. The ongoing digitization of the banking industry can increase the impact of the internal environment (Islam and Das 2013) and external factors. Some of the research above is the concept of green banking in general. Some research is a green banking disclosure index for one country. This research develops a green banking disclosure index applicable to many countries across Southeast Asia.

RESEARCH METHOD

This research method is a literary exploration of green banking disclosure. The research data were collected in line with green banking regulations issued by financial services authorities, central banks, and professional organizations in Southeast Asia. In addition to regulation, this research draws on previously published studies. To create an index, several stages must be completed in the research process. Some of these stages if detailed include 1) determining the definition and keywords on the topic to be made indices, 2) discerning the definition and the specified keyword, 3) making adjustments to international standards and 4) bringing up a new index (Zulfikar, Lukviarman, Ismail, Astuti, & Meutia., 2020; Mahto, Belousova, and Ahluwalia., 2020; Guo, Pan, Guo, Gu, & Kuusisto., 2019; Honggowati, Rahmawati, Aryani, & Probahudono, 2019; Pandit, Josi, Sahay, and Gupta, 2018; Kilkki, Karhu, Hammainen, & Ailisto., 2018; Millar, Lockett, & Ladd., 2018; Reinhardt & Gurtner, 2018; Johnson & Christensen, 2014; Hardman, Steinberger-Wilekens, & Van Der Horst., 2013; Suhardjanto, 2008; Govindarajan & Kopalle, 2006). Figure 3 demonstrates the stages of creating an index.

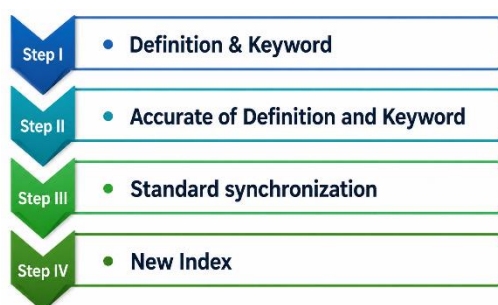


Figure 3. Index-creating stages

Index creation begins by digging into definitions and keywords related to green banking. Definitions and keywords are extracted from regulatory sources issued by central banks or professional organizations in Southeast Asia. In addition to regulations, definitions, and keywords are extracted from previous research on green banking. The second stage of index creation is to discern definitions and keywords. Discernment is done by identifying and

classifying definitions and keywords. Items with similar meanings are collected, and their similarities are written once to avoid textual or contextual repetition.

The third stage in creating the index is to synchronize selected items with existing standards or assessment items. This synchronization is intended to avoid similarities with other items and standards. The standard used to synchronize at this stage is the set of assessment items used by WWF to assess banks in Southeast Asia.

RESULTS AND DISCUSSION

Results

This part describes the steps for index creation, digging into definitions and keywords, synchronizing selected items, and bringing up new indices. The first step in identifying definitions and keywords is based on previous research and regulations on green banking in Southeast Asia. Some definitions/keywords to explore about green banking, among others: policy of profitability and environmental performance; environmental benefits; proactive banking for sustainability; and a combination of operational improvements, technology, and changing client habits.

Specifically describe twenty items that must be disclosed in green banking practices. Digital banking, the use of information technology, transparency of e-banking features, environmentally friendly financing, AMDAL requirements (permits related to environmental impact), and other items. Twenty disclosure items are detailed and complete. Another researcher, Bose et al. (2018), also presented as many as 21 items that need to be disclosed in green banking practices. These items include environmental conservation policies, environmentally sound financing, paper waste removal, technology application, and the use of environmentally friendly materials. Disclosure items in detail and completely.

Similarly, the published research revealed that green banking disclosure items consist of 16 items. The items in question include energy efficiency, electricity saving, Gas/Fuel savings, water savings, and paper savings. Completed and detailed the sixteen disclosure items in question. Further research by Procopio et al. (2020) also explains the definition of Green Banking. The four definitions include digital banking, stakeholder engagement, practice development, policy and sustainability initiation, and the creation of green financial products and services.

The definition and keywords of green banking are also explored based on existing regulations in Southeast Asia issued by central banks, financial authorities, or professional organizations. From the search results, it can be seen that five countries in the Southeast Asian region already have regulations on green banking, while the rest do not. Countries that already have green banking regulations include Indonesia, Malaysia, Singapore, Thailand, and Vietnam. Regulation in Indonesia, issued by the Financial Services Authority as number 51 of 2017, defines and lists keywords as follows: sustainable action plan, training for staff and senior managers, publication of the environmental policy, and use of three defense lines. The definition and keywords of green banking, according to the Indonesian Financial Services Authority, are as follows.

Malaysia has also issued green banking regulations in the form of the Value-based Intermediation Financing and Investment Impact Assessment Framework (VBIAF) Guidance Document issued by Bank Negara Malaysia. The document covers information on the development of corporate value intent, VBIAF implementation, special teams, staff training, VBI policies to reference best practices, and the use of three defense lines – the full definition or keywords of green banking. Singapore also has regulations on green banking, in the form

of the Guidelines on Responsible Financing issued by the Singapore Bankers Association. The guidelines include a commitment to responsible finance, resource allocation for responsible finance, increased staff awareness, and responsible finance policies – a complete description of definitions and keywords according to the guidelines.

Vietnam has also issued regulations on green banking in the form of a Directive on Promoting Green Credit Growth and Environmental and Social Risk Management in Credit Granting Activities, which was released in March 2015. The directive contains the commitment of the board of commissioners and the president directors, the determination of special units/divisions, the allocation of resources for the social environment, and capacity building for employees/staff—complete definition and keywords of green banking. Similarly, Thailand has regulations on green banking in the form of the Sustainable Banking Guidelines for Responsible Lending, issued by the Thai Bankers' Association (TBA) on August 13, 2019 (Gunnarapong et al., 2024). The guidelines include a detailed list of environmental issues, the commitment of the board of commissioners / CEO / senior managers, the allocation of resources for responsible lending, and the development of the capabilities of senior managers and staff on environmental and social issues, as defined by green banking, according to the regulation.

All definitions and keywords that have been excavated and identified above are re-discerned, both from regulation and previous research. Discernment is achieved by grouping items with similar meaning, both textually and contextually. Discernment is done gradually, starting with the discernment of definitions/keywords sourced from both, then the discernment of definitions/keywords sourced by previous research, and finally the combined discernment of definitions/keywords sourced from both. Result of the definition/keyword discernment derived from regulations on green banking in the Southeast Asia region. The result of the definition/keyword discernment is sourced from previous research. Result of the definition/keyword discernment resulting from the incorporation of regulation and previous research that has also been observed before.

The next stage synchronizes 39 (thirty-nine) green banking definition/keyword items resulting from combining previous regulations and research with existing standards. The standards used for comparisons to synchronize are the Sustainable Bank Assessment points issued by the World Wide Fund for Nature (WWF). WWF standards in the form of 6 (six) indicators compiled on 11 (eleven) sub-indicators derived from green banking regulations owned by banking authorities and professional organizations of the country's banking profession in the Southeast Asia region. Synchronization is performed using items with textual and contextual meanings similar to those in WWF assessments, thereby excluding them from this index. The synchronization result of the thirty-nine items left thirty-two items selected. The selected items are then used as indicators in the Unweighted Green Banking Disclosure Index (GBDI) for Southeast Asia, as presented.

Discussion

The advantage of this new index, compared to the indices used in previous studies, lies in the completeness of the index items it includes. Compared with the study by Bose et al. (2018), this index includes new disclosure items. The new items include environmental permit requirements, customer education, the initiation of greenhouse gas emissions mitigation, and a green partnership. Thus, this new index further enriches the Bose et al index (2018). Similarly, compared with research (Hossain et al., 2016), this index includes popular items.

The next comparison is the index in research (Procopio et al., 2020). The article only contains four common things: digital banking, stakeholder involvement, and the development of sustainability practices and policies that enable the creation of green products and services. Hal is certainly less informative in terms of detail than this study, which consists of 32 detailed items. Thus, almost all of these research disclosure items constitute the novelty of Procopio et al. (2020).

The last comparison is the research by Handajani et al. (2019), consisting of 20 disclosure items. It is also evident that these items are less detailed than those in this study. Some items in this study that are not covered by Handajani et al. (2019) include stakeholder involvement, green partnership, staff education, and the initiation of greenhouse gas emissions mitigation. Thus, the disclosure items in this study complement those created by Handajani et al. (2019). Implications for this new index, companies can make green banking disclosures with more complete and detailed items. Another implication of the new index is that companies can also select disclosure items that are considered a priority. Regarding regulation, based on the new index, regulators can issue regulations that apply to a single region. In this context, the South East region can be coordinated by the Association of South East Asian Nations (ASEAN).

From a sustainable development perspective, the proposed UGBDI contributes to SDG 13 (Climate Action) by promoting greater transparency and accountability in climate-related banking practices. The availability of a region-specific disclosure index enables banks in Southeast Asia to identify, report, and improve their environmental initiatives more systematically. In addition, the index may support regulators and policymakers in promoting sustainable finance policies and strengthening the banking sector's role in addressing climate-related challenges across the region.

CONCLUSION

Fundamental Finding: This study developed the Unweighted Green Banking Disclosure Index (UGBDI) for banks in Southeast Asian countries. The index consists of 32 disclosure items derived from green banking regulations in Southeast Asia and previous studies, and is then aligned with WWF sustainable banking assessment standards. **Implication:** The UGBDI can serve as a reference for bank management in determining priority disclosure items related to green banking practices and improving transparency in sustainability reporting. It may also assist regulators, particularly in the ASEAN region, in developing more relevant and region-specific green banking disclosure regulations. In this regard, the proposed index contributes to SDG 13 (Climate Action) by supporting climate-related disclosure, strengthening sustainable finance practices, and enhancing the banking sector's role in addressing climate change challenges. **Limitation:** This index has not yet been reviewed or weighted by competent external parties, such as banking regulators, central bank officials, environmental experts, governance experts, and academics. **Future Research:** Future studies are recommended to validate and weight the index by involving relevant experts and stakeholders. Further research may also test the application of this index in banks across Southeast Asia or modify it for use in other regions.

AUTHOR CONTRIBUTIONS

Nur Kabib contributed to the conceptualization of the study, research design, data collection, index development, formal analysis, interpretation of findings, and manuscript preparation. **Djoko Suhardjanto** contributed to supervision, conceptual refinement, validation of the

research framework, and critical review of the manuscript. **Wulan Suci Rachmadani** contributed to methodology development, literature review, data verification, and manuscript editing. **Rizky Windar Amelia** contributed to data organization, reference management, validation of disclosure indicators, and manuscript review. All authors have read, reviewed, and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

CONFLICT OF INTEREST STATEMENT

The authors state that no financial or personal conflicts of interest exist that may have affected the content or findings of this research.

STATEMENT ON THE USE OF AI OR DIGITAL TOOLS IN WRITING

The authors acknowledge the use of digital tools, including AI-based technologies, to support the writing and refinement stages of this article. Grammarly was used to assist with grammar checking, language clarity, and sentence structure, while ChatGPT was used to support academic wording, paraphrasing, and manuscript formatting. All outputs generated through these tools were carefully reviewed, revised, and verified by the authors to ensure accuracy, academic rigor, and compliance with ethical standards. The final responsibility for the content, interpretation, and integrity of the manuscript rests entirely with the authors.

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***Nur Kabib (Corresponding Author)**

Accounting Department, Universitas Sebelas Maret Surakarta; Universitas Islam Negeri Salatiga

Jl. Ir. Sutami No. 36 A, Jebres, Surakarta, Central Java, 57126, Indonesia;
Salatiga Ring Road Km. 2, Pulutan, Sidorejo, Salatiga City, Central Java, Indonesia.

Email: nurkabib@uinsalatiga.ac.id

Djoko Suhardjanto

Accounting Department, Universitas Sebelas Maret Surakarta

Jl. Ir. Sutami No. 36 A, Jebres, Surakarta Central Java, 57126, Indonesia

Email: djoko.suhardjanto@yahoo.co.id

Wulan Suci Rachmadani

Accounting Departement, Universitas Islam Negeri Sunan Kalijaga Yogyakarta

Jl. Marsda Adisucipto (Laksda Adisucipto), Papringan, Caturtunggal, Depok, Sleman Yogyakarta 55281, Indonesia

Email: wulansuci1986@mail.unnes.ac.id

Rizky Windar Amelia

Tax Departement, Universitas Widya Dharma

Jl. Ki Hajar Dewantara, Klaten Utara, Klaten, Central Java.

Email: kiky.windar@gmail.com
