



The Development of Green Bond in Developing Countries: Insights from Southeast Asia Market Participants

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Abstract

Given the increasing importance of green bond as the main funding source for the Sustainable Development Goals, the green bond is an emerging concept in the region of Southeast Asia. In addition, the concurrent Covid-19 pandemic has caused disruption to the development of green bond around the world. This research explores the current development status of the green bond in Southeast Asian countries. A total of thirty-two semi-structured interviews were held with capital market participants in Southeast Asian countries. The results highlight barriers, opportunities, and regulation difficulties, and expected growth for the development of the green bond market. This research is concluded by indicating several propositions that can be tested in the future to generalize the findings from this work. We thus extend the knowledge of green bond in the financial markets of Southeast Asian countries, which also delivers implications for practitioners and policy-makers regarding the development of green bond in Southeast Asian countries.

Keywords Green bond · Developing countries · Southeast Asia · Market participant perspectives

Résumé

Compte tenu de l'importance croissante de l'obligation verte en tant que principal attribut financier des objectifs de développement durable (ODD), l'obligation verte est un concept émergent dans la région de l'Asie du Sud-Est. En outre, la pandémie concomitante de Covid-19 a perturbé le développement des obligations vertes dans

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le monde. Cette étude explore l'état actuel du développement de l'obligation verte dans les pays d'Asie du Sud-Est. Au total, trente-deux entretiens semi-directifs ont été menés avec des acteurs du marché des capitaux dans les pays d'Asie du Sud-Est. Les résultats mettent en évidence les obstacles, les opportunités et les difficultés de réglementation, ainsi que la croissance attendue pour le développement du marché des obligations vertes. Dans sa conclusion, cette étude émet plusieurs propositions qui peuvent être testées à l'avenir pour généraliser les résultats de ce travail. Nous étoffons ainsi la connaissance concernant les obligations vertes sur les marchés financiers des pays d'Asie du Sud-Est, ce qui comporte également des implications pour les praticien-ne-s et les décisionnaires en ce qui concerne le développement des obligations vertes dans les pays d'Asie du Sud-Est.

Introduction

The Sustainable Development Goals (SDGs) were established in 2015 and they are expected to be achieved by 2030, including a collection of 17 interconnected goals with the overarching aim of providing a “blueprint to achieve a better and more sustainable future for all” (United Nations 2020, p. 1). Besides the several challenges for accomplishing these goals, including a lack of political will, weak capacity and technical availabilities, as well as inadequate managerial mechanisms, the SDGs agenda requires sufficient financial support, especially from the private sector, to deal with pollution and climate damages, caused by business and manufacturing operations. However, the possibility of accessing available financial resources for funding has not yet been effectively resolved and the need for green investments has grown since there was a huge investment gap, currently estimated at nearly 200 billion euros per year to fulfill those SDGs (Anzolin and Lebdioui 2021).

The Covid-19 pandemic emerged during the early part of 2020, leading to the disruption in value chain and the economic crisis (Hoang et al. 2021), which created the significant decrease in the ongoing funding for cleaner production, renewable energies, and climate change mitigation projects (Quatrini 2021). It has been reported that several negative implications have arisen from the Covid-19 pandemic, including the lower interest in renewable energies caused by the reduction in fossil fuel price, which has led to the lower interest in the cleaner energies. This, in itself, threatens the ongoing climate change, and the green production and operation efforts, as well as other SDGs (Barbier and Burgess 2020).

Among those tremendous implications caused by the Covid-19 pandemic, green investment has suffered significant losses for several reasons. First, most of the green investment projects, whether conducted in the private or the public sector are capital-intensive (Baulkaran 2019). Second, the implementation of green projects is faced with higher risk, and possibly a lower return (Chiesa and Barua 2019; Quatrini 2021). Besides, researchers also suggest that green financing is especially difficult to access in Asia, where the financial sectors are mostly dominated by the commercial banks as well as there being a paucity of venture capitals, especially in Southeast Asia (Deschryver and De Mariz 2020; Tolliver et al. 2021). Thus, there is a need for new financial sources and the construction



of green investment mechanisms that suit the green efforts. Thus, the introduction of the corporate green bond (GB) can help the private sector to fund cleaner business production and climate change mitigations caused by business operations and thus contribute to achieve the SDGs.

GB is a type of fixed-income debt instrument, which has emerged in the Southeast Asian countries in recent years. GB can be used to raise financial support from investors who want to invest in projects that prioritize sustainability and environmental protection rather than focusing on economic benefits (Azhgaliyeva et al. 2020; Sangiorgi and Schopohl 2021). Although GB is a similar mechanism to the conventional bonds, including face value, maturity date, and issuer, the main difference between GB and the conventional bond comes from the “green” label, which requires the issuer to use funding from the issuance of the GB for climate change mitigation, cleaner operations, and environmental protection actions for supporting a climate-resilient economy (Ng and Tao 2016; Quatrini 2021). However, several concerns associated with GB have been raised which have not been examined by the current literature, such as growth barriers for the development of GB, advantages for issuers of GB, the supply and demand of GB, relevant regulations of GBs, implications for the future of GBs, the influence of the Covid-19 pandemic on the development of GB, especially in the Southeast Asian market. Thus, this research aims to provide insights into the current development status of the green bond in the Southeast Asian countries.

Although the GB has been recognized as the advanced financial instrument that can be used to address the uncertainties caused by pollution and climate damages (Anzolin and Lebdioui 2021), while also maintaining the financial efficiency (Reboredo and Ugolini 2020), GB markets in developing countries have still not been standardized (Tolliver et al. 2020; Choudhury et al. 2021), and thus there is a requirement for stronger institutional legitimacy and pressure from the wide range of actors in the markets. In order to shed light on the institutional support that purportedly focuses on GB, this research examines the perspectives of market participants in the financial markets of Southeast Asian countries. Our study adopts a qualitative narrative approach based on the perception and the experience of market participants from mutual funds, as well as financial institutions.

The semi-structured interview was employed as it was able to generate new findings, and match the aim and purpose of our study. The research design of this study can help to gain an understanding and encourage responses from market participants from Southeast Asia. Our research makes important and timely, and practical and theoretical contributions to the emerging literature on green bond and sustainability in developing markets, which focuses on growth barriers and the impacts of green bonds. Additionally, a number of propositions have been developed which are based on empirical data to pave ways for future research on this topic.

The rest of this study is organized as follows: the next section introduces the literature background of GBs. “**Methodology**” section describes the research methodology and research design. “**Findings**” section describes the findings, **Discussion** section provides discussions and finally, “**Conclusion**” section summarizes, concludes, and outlines the implications of this paper.



Literature Background

There are various kinds of GB issuers, for instance, corporation, government, and financial institutions, and depending on the issuers, the GB types can be distinguished (Nanayakkara and Colombage 2019). Despite GB being issued the first time by the World Bank since 2007 (United Nations Development Programme 2017), GBs have received attention and interest from the private sector after several international global climate change protocols such as the Kyoto Protocol, Doha Amendment, and the Paris Agreement in 2005 (Pham 2016). Those agreements include an international agenda for redirecting the financial supports to facilitate low-carbon and climate change mitigation actions.

The GB has emerged and has become a useful fixed-income debt instrument over the last decade from the governments and corporations in all of the developed and developing countries (Piñeiro-Chousa et al. 2021). In a business, GBs are asset-linked and backed by the institution's financial position, thus GB also carries credit ratings as do other conventional bonds. Although the positive implications of GB to the environment, society, and the economics have been reported by scholars (for example, see Yamahaki et al. 2020 and Zhang 2020), the GB still only accounts for about 3% of all of the bond markets (Climate Bonds Initiative 2019), and this rate is even lower in some Asian developing countries (Wiśniewski and Zieliński 2019). The findings for the sustainability, climate mitigation projects, and environmentally friendly investments such as GB have increased since investors have recognized the threats and uncertainties caused by the climate change to the long-term economic development as well as human society (Reboredo and Ugolini 2020).

Several drivers leading to the development, issuance, and acceptance of GB can be attributed to the institutional pressure performed by a wide range of actors (Yamahaki et al. 2020; Sangiorgi and Schopohl 2021; Piñeiro-Chousa et al. 2021). For example, some of the actors, such as standard setters, investors, or strategic business partners, deliver direct impacts on the decision to issue or develop GB (Erdogan and Acaravci 2021; Piñeiro-Chousa et al. 2021). Other actors can be seen as those having an indirect influence on the decision to invest more in GB, such as government agencies that encourage sustainability policies, or international bodies that favor GB (Sangiorgi and Schopohl 2021). However, other investors may show a resistance to holding GB as they believe that this may reduce their economic benefits (Tolliver et al. 2021). One of the significant features of institutions is defined by Gupta et al. (2010, p.459) as being "... incrementally and conservatively to deal with social problems as they are based on cultural practices, deep-rooted lifestyles and ideological premises..." This feature implies that institutions are slow to react and adapt with change, which is reported as the fundamental limitation for addressing risks evolved from climate change and sustainability matters (Gupta et al. 2010; Nguyen et al. 2021). Thus, a critical issue facing institutions is the satisfaction of a wide range of stakeholders in a way that is consistent with their own aims.

The interest in GB has been surging significantly and had been expected to grow substantially in 2020 and 2021 if the disruption caused by the Covid-19



pandemic had not emerged. GB development has exceeded GB supporters' expectations, who initially doubted the outlook for the future of GB due to the lack of economic benefits (Russo et al. 2021). Despite this prospect and the expectation from its supporters, the GB market size accounts for a small proportion of the whole bond market, and there is a list of aspects that may deliver institutional pressures and challenges, as well as advantages for the development of GB such as legitimate aspects, financial implications, stakeholders expectation, corporate reputation, and finally, the disruption caused by the Covid-19 pandemic, which will be discussed in later sections.

Legitimacy Aspect

One of the first principles that has been established to regulate GB was introduced by the International Capital Market Association (ICMA) and has been in place since 2014 in order to strengthen the integrity and transparency in the issuance of GB (ICMA 2018). Furthermore, the effort to develop a GB standard has been conducted by the EU Commission since 2019, although the legality and identification mechanism of GB has not been fully developed (Descryver and de Mariz 2020), and this should depend on the countries or regions that regulated the GB issuers.

The lack of a clear definition and the classification of the green label in GB has created difficulties for both issuers and investors in the GB (Hachenberg and Schiereck 2018) as well as raising a "What is green?" concern from the stakeholders. The most well-known concern related to this difficulty was the "greenwashing" risk (Lebelle, et al. 2020) in which a company can issue bonds and label them as green without clarifying the sustainability and environmental friendly extent of these bonds (Lee et al. 2021); one typical example of this risk is the case of the Repsol green bond controversy in 2017 (MacAskill et al. 2020). This ambiguity underlines the requirement for the standard setters and policy-makers to develop criteria and guidelines for qualifying GB, as a variety of uncertainties and risks may arise, thus harming the reputation of GB issuers as well delivering other negative implications for the investors and stakeholders (Nanayakkara and Colombage 2019).

Moreover, the lack of regulations for GB and associate penalties have contributed to the increase of the vagueness of GB regulations and reduced the potential of GB (Wang et al. 2018). To be more specific, GB's risks are similar to conventional bonds' risks, including credit risk, interest rate risk, and market risk. However, GB's obligations should both include conventional bonds' characteristics, as well as the non-financial requirements and criteria for which GB were introduced or issued (Wang et al. 2020). In other words, there are currently no environmental protection and climate mitigation obligations or penalties as long as the issuer can meet the financial requirements associated with GB. Although the "green" label is a significant feature of GB, as investors intentionally invest in GB for their expectation on the green implications of the investment, the concern of the obligation to fulfill this green obligation is not definitely solved (Zhang 2020). Therefore, in a case of a "green" default in GB and given the lack of specific regulations, moral hazards can occur for the GB issuer.



Financial Aspect

The existing GB research highlights the financial aspect as one of the barriers for the development of GB, in which the lack of binding standards and quality have created uncertainties for both investors and issuers of GB, which slow down the development of the GB market (Ogunlusi and Obademi 2019). To find a solution to this challenge, GB issuers can employ the third-party verification system for their GB. However, further verification from the third parties can generate additional expenses for the issuance of GB besides the setup costs of the internal mechanism and due diligence process for GB, which causes a disadvantage compared to the conventional bond issuance (Pham and Huynh 2020). The investment benefits of GB have been a controversial and much disputed subject within the field of finance, while Broadstock and Cheng (2019) reported that there is no significant difference in the establishment costs of GB and conventional bonds, while GB investment delivers higher yields, lower volatility, and higher liquidity, and thus is more valuable than conventional bonds as well as other stocks. Besides, a research conducted by Nanayakkara and Colombage (2019) highlights the advantage from the issuance of GB which came from a discount to the issuers of GB.

In the same vein, the financial benefit can also be reported as an advantage of GB issuance. Tang and Zhang (2020) reveal that corporate GB has brought positive impacts for corporate issuers, which enhances sustainability performance, reduces the impact of climate changes caused by the business operation, and also adds to the increase in corporate performance. To determine the long-term effects of GB to firm performance, Deschryver and De Mariz, (2020) and Zhang (2020) suggest that GB issuance is a positive correlation to the long-term value creation in a firm in comparison to conventional bonds.

Sustainability and Environmental Performance

The first study investigating the benefit of GB to the corporate performance has been conducted by Baulkaran (2019), who confirms that the fundamental advantages for the GB issuers were the possibilities of broadening the investor base as well as attracting more investors, who are interested in the environmental implications of GB. Furthermore, Zhang (2020) reports that there is an emerging demand among individuals as well as institutional investors in GB due to the raising awareness of environmental protection and climate change impacts. As a result, GB offers a valuable way of attracting more investment with the commitment to decreasing emission volumes and climate change, thus leading to lower expenses when financing environmentally friendly projects.

Other Business Implications

The development of the GB market has changed the investment behavior of the international investors as well as corporations around the world. In addition, the



introduction of a variety of environmental agendas and agreements have shifted the interest of stakeholders as well as putting pressure on the firms, as it requires them to show greater commitments on the sustainable efforts (Mihálovits and Tapaszti 2018). Given this context, GB has emerged as a solution for corporations to demonstrate their responsibilities to sustainability and climate change mitigation. Furthermore, GB can help to generate additional international climate policies and agreements and help to raise awareness and attract financial support for low-carbon and climate-resilient efforts (Nanayakkara and Colombage 2019). Thus, sustainability finance such as GB can dually assist SDGs by attracting financial capital more effectively as well as helping issuers to uphold their good reputations (Ogunlusi and Obademi 2019). This idea is reinforced by Bachelet et al. (2019), who affirm that investors are willing to sacrifice financial benefits with the aim of supporting sustainability, climate mitigation efforts and SDGs by engaging in sustainable finance such as investing in GB.

Disruptions Caused by Covid-19

Since the early part of 2020, the Covid-19 pandemic and the following economic crisis have delivered negative implications on green investment such as GB, other green efforts, and the emerging interest in sustainable finance for several reasons. First, the Covid-19 pandemic caused the reduction in prices of the traditional energies such as coal, oil, and gas, thus reducing the interest in the alternative renewable energies as well as the associated sustainable finance (Taghizadeh-Hesary et al. 2021). Second, remedies used to combat the Covid-19 pandemic, such as travel restrictions and quarantine have contributed to the international economic recession during the Covid-19 pandemic; the overreaching concern of most of businesses as well as stakeholders has been to continue business during the pandemic (Wells et al. 2020; Barbier and Burgess 2020). Hence, the initial motivation for supporting environment protection and climate change mitigation via sustainable finance and investment of stakeholders has been reduced. Similarly, economic recovery plans developed by most governments around the world prioritize the economic survival and sustaining value chain for recovering rather than setting green efforts as a precedence (Abbas et al. 2021). Therefore, the current disruption caused by the Covid-19 pandemic requires many efforts from policy-makers, market participants and GB issuers to sustain green investments. In other words, the establishment and preservation of sustainable finance such as GB may depend on the current business and regulatory context in each region and the relevant countries.

Methodology

Research Setting and Sample

Our research adopts the interpretivist qualitative approach with the aim of investigating participants' experiences and views of a certain circumstance and time (Gehman



et al. 2018; Hoang et al. 2021). The sample for our research consists of 32 market participants and incumbents from financial institutions and the mutual fund from countries in Southeast Asia. This area has been intentionally selected as the green bonds have just recently been introduced in these markets over the past few years (Azhgaliyeva et al. 2020).

The semi-structured interview guide has been purposefully developed, as it allowed the respondents to express their experience and perspectives on several of the pre-determined issues that are associated to the development of the GB, and, critically, it enabled the investigator to explore issues that required further clarification and allowed respondents to highlight the aspects of GB that they believe to be important (Cassell et al. 2017; Nguyen et al. 2021). By employing this method, we expected that we would be able to highlight the views and experiences of respondents during each interview and enhance the validity of the research findings through matching respondents' perspectives with experiences reflected from the Southeast Asian market regarding the development of GB from each interview (Gioia et al. 2010; Rheinhardt and Gioia 2021).

Data Collection

The in-depth interview and semi-structured interview questions were chosen for collecting data in this research. The semi-structured interview is a popular data collection method in qualitative research as it facilitates the accessibility, flexibility, intelligibility, and ability to highlight critical and hidden facets of each respondent's points of view (Paul 2017). As a part of the data collection procedure, four pilot interviews were conducted to make sure that the interview guide was appropriate and respondents could express their views fully along with their experiences of GB. Furthermore, purposive sampling and snowball sampling procedures have been adopted to access research participants who can provide valuable insights on to the phenomenon that meet the investigator's interest (Gioia et al. 2010; Rheinhardt and Gioia 2021). The requirements for selecting respondents included the participant being an incumbent who works in a financial institution, or a fund manager with at least fifteen years' experience as a stock market trader and must presently be investing in the GB.

Importantly, for the success of this study, the main participants of this research, who are portfolio managers and financial analysts in the Southeast Asian markets, must be approached. Those key participants can help us to facilitate the assessment to respondents across a wide range of Southeast Asian investment funds and financial institutions. Each respondent was then contacted to arrange a convenient interview time and procedure. There was a total of 32 informants from 8 funds and financial institutions, which have been coded as A, B, C, D, E, F, G, H for participation in our research. All of the respondents were assured anonymity by name and institution. However, their job titles are mentioned. During each interview, following the snowball sampling approach, respondents were asked to recommend additional participants with the aim of maximizing the number of research participants across a variety of institutions. Furthermore, after seeking the permission of each



Table 1 Interview details

No	Inter- viewee code	Job title	Education	Experi- ence (years)	Interview time (minutes)
1	A1	Global Markets Portfolio Manager	BA	17	65
2	A2	Deputy Head of Asia Investment Office	DBA	18	75
3	A3	Head of South-East Asian Equity Research	MA	21	60
4	A4	Investment Manager, Global Equities	MA	16	65
5	B1	Senior Equity Analyst	BA	15	60
6	B2	Equity Research, Global Sustainability	BA	15	60
7	B3	Associate Director Equity Funds	MA	17	60
8	C1	Head of Global Specialist Funds	MBA	18	70
9	C2	Managing Director - Industry Sector Equities	MA	20	75
10	C3	Managing Director – Equities & Finance	DBA	18	75
11	D1	Funds Director	DBA	19	70
12	D2	Deputy Fund Director	MA	20	80
13	D3	Executive Director, Wealth Management	MA	22	75
14	D4	Global Equity Fund Manager	MA	17	75
15	D5	Head of Southeast Asia Institutional Fund	BA	15	65
16	E1	Global Portfolio Manager	MBA	15	70
17	E2	Managing Director- Global Equities	MBA	21	75
18	E3	Senior Equity Analyst ESG	BA	16	60
19	E4	Asia Equity Analyst ESG	BA	18	65
20	F1	Asian Head of ESG Research	PhD	19	65
21	F2	Associate Fund Manager - Industry Sector Equities	BA	21	60
22	F3	Equity Research Analyst - Industry Sector Equities	MBA	20	80
23	F4	Investment Director, Asia Equities	PhD	18	80
24	F5	Managing Director, Southeast Asia Markets Research	MBA	20	75
25	F6	Asian Equity Analyst - ESG Focus	MBA	19	75
26	G1	Investment Director, Asia Equities	MA	17	60
27	G2	ESG Investment Analyst	MA	19	65
28	G3	Head of Asian Specialist Fund	MBA	20	75
29	G4	Senior Investment Research Analyst	MBA	22	60
30	H1	Associate Portfolio Manager	PhD	17	65
31	H2	Senior Investment Manager	MBA	15	70
32	H3	Senior Quantitative Analyst	MA	15	65

respondent, interviews were conducted and recorded by the researchers, and the length of the interviews ranged between 60 and 80 min. Table 1 represents details of these interviews.

Our study focuses on capturing the perspectives and experience of market participants on the status quo and the potential development of green bond in South-east Asian developing markets. The research design in this paper enables the



identification of commonality and differences between each participant's perspectives toward the development of GB in the market. Before the interviews, an email indicating the purpose of this study was sent to each respondent. In addition, respondents were also asked to construct their institutional views on the GB, so that they can mention these perspectives during each interview. This procedure allowed the researcher to gather useful additional information from the perspectives of the respondents. After this pre-interview phase, a list of enquiry areas has been collected from the interviewees' responses, including:

- i. Their understanding, knowledge, and experience of the values of a green bond in the market and their institution;
- ii. Whether and how green bonds are used and whether they replace regular bonds or stocks;
- iii. Whether green bonds help issuers to reach goals through their focus on funding sustainability and environmental efforts besides its economic benefits;
- iv. The issuance, key strengths, and limitations of green bonds, particularly concerning any perceived barriers or challenges for the current business environment in Southeast Asia; and
- v. The legitimate, business, and financial barriers to the investment intention on green bonds.

Data Analysis

All of the collected data were analyzed through a thematic analysis approach, which has proved to be just as efficient in accurately identifying empirical findings themes grounded in the qualitative research (Patvardhan et al. 2015; Reed et al. 2021). After that, all collected data were synthesized, read, analyzed, and compared to identify and categorize the findings into themes and conceptual categories (Gioia et al. 2012), where the conceptual categories are constructed based on the existing research (Patvardhan et al. 2015). Finally, all of the conceptual categories were classified into aggregate dimensions (Gioia et al. 2012, 2013). More precisely, this research employed three phases of data analysis proposed by Gioia et al. (2013). In the first phase, raw data, including interview transcripts collected from interviewing participants and published GB reports, were combined to be analyzed. Our research team read all of the relevant published reports of GB in the Southeast Asian markets as well as the interview transcripts. We then coded phrases repeated in all of the data sources to identify main concepts and themes representing experiences and views of the respondents in their own narratives. In the next phase, findings and concepts were analyzed in-depth to highlight their links and patterns, thereby constructing conceptual categories based on the findings' themes.

In the final phase, aggregate dimensions were developed from conceptual categories. During this stage, findings from current GB literature were employed to four constructed theoretical rooted aspects, with the conceptual categories developed in the second phase and then organized into aggregate dimensions. For example, the "development barriers" dimension consists of the "cost associated with issuing GB,"



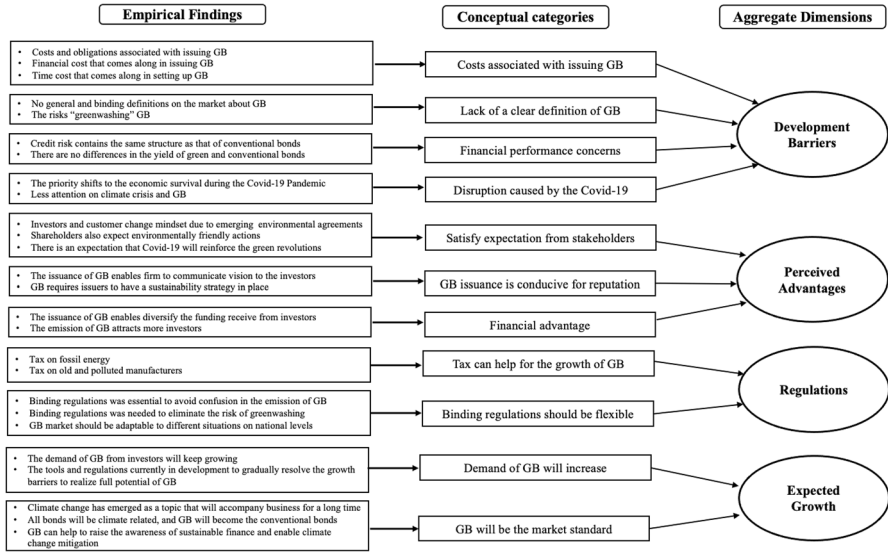


Fig. 1 Data structure

the “lack of a clear definition of GB,” “financial performance concerns,” and “disruption caused by the Covid-19 pandemic.”

In all three data analysis phases, to maintain the reliability of the data analysis, two researcher groups independently conducted the coding of interview transcripts and archival documents. The results from the coding stage were then compared and discussed among researchers to make sure that the outcomes are consistent. Furthermore, both a follow-up discussion and an online meeting between the research team and the respondents were conducted to review the outcomes of the data analysis stage, thus ensuring and sustaining the accuracy of the data structure. Figure 1 presents the data structure in this research, and Table 2 outlines the representative quotes.

Findings

Barriers for Development

Interviewees stated that GB has gained little attention and has sometimes been refused from issuers and market participants, which has led to the fact that the GB market is quite small in the Southeast Asian countries. They listed several reasons to explain this reality. First, A3 discussed the economic consequences such as “additional costs” and “costs related to obligations” of issuing green bonds. D1 provided additional explanation: “for the corporate green bond issuers, the main costs generated not only from the issuance, commitments or efforts, rather the additional time costs relate to the setting up of green bonds



Table 2 Representative quotes

Dimensions and categories	Illustrative quotes	Interviewee
<i>Development barriers</i>		
Costs associated with issuing GB	Before a firm issues a green bond, they need to set up an issuance procedure, including additional work with the government agencies and stakeholders, managerial system, as well as the reporting processes; all of these procedures generate financial costs for GB issuance	E2
Lack of a clear definition of GB	Although everyone knows what a bond is, there is a vagueness in the term “green.” How can we define a GB issued by company A that has the common sustainability commitment or standard like GB issued from other companies?	B3
Financial performance concerns	The financial aspects like credit risks and the yield are no different compared to a conventional bond [...] all of these features reduce the interest from market participants	F4
Disruption caused by the Covid-19 pandemic	The tremendous economic consequences of the Covid-19 are undeniable, so rather than continued sustainable finance efforts such as GB issuance, most governments shift the priority to healing the national economic and sustaining the value chain	C2
<i>Perceived advantages</i>		
Satisfy expectations from stakeholders	Recent news from the environmental agreements, and the encouragement and sustainability reports from industries have stimulated the shift in the mindset of stakeholders and shareholders, who demand serious environmental commitments and sustainable market growth	D3
GB issuance is conducive for reputation	The issuance of GB implies the serious vision and strategic development within sustainability, thus increase a firm’s reputation for environmental commitment	B2
Financial advantages	By issuing GB along with conventional bonds and stock, a firm can receive additional financial support to pursue an environmentally friendly development strategy	D2
<i>Regulations</i>		
Tax can help for the growth of GB	Tax can be added for a firm that has not expressed any sustainability engagement such as GB issuance and currently maintains polluted production lines and factories or consume a certain amount of fossil energy	C1
Binding regulations should be flexible	Future GB regulations must be flexible to changes in the market, while highlighting the sustainable development and being adaptable to each circumstance on national levels	A2
<i>Expected growth</i>		
Demand of GB will increase	Pressure and standards introduced by business partners from the developed countries have forced most corporations to be more serious on sustainability, as well as raising awareness on sustainable finance efforts	E3



Table 2 (continued)

Dimensions and categories	Illustrative quotes	Interviewee
GB will be the market standard	GB will gradually replace conventional bonds and become the standard of the future bond markets	F5



which is not certain to be beneficial.” E2 confirmed that an additional financial cost comes along with GB issuance and an additional procedure for GB issuers, by affirming that:

Before firms issue a green bond, they need to set up an issuance procedure, including additional work with the government agencies and stakeholders, managerial system, as well as reporting processes. All of these procedures generated financial costs for GB issuance.

Another constraint was indicated by B3, who asserted that there is no common standard or clear binding definition of GB, which tends to create “uncertainties” for the issuer of GB:

Everyone knows what a bond is, but there is a vague understanding of the term “green”. How can we ensure that a GB issued by company A has a similar sustainability commitment or standard to GBs issued from other companies?

In the same vein, F1 links the lack of a binding definition of GB to the “green-washing” risk, by providing an example:

Rather than taking a serious green operation or cleaner production, an environmental pollution manufacturing firm simply issues GB with little respect for the environment, but still promotes their brand name as being an environmental friendly manufacturer.

While the “green” definition and standard of GB is currently questionable for some interviewees, other participants have shown their concern regarding the financial benefit of GB. For instance, F4 affirmed that the GB and conventional bonds in the markets currently have “a similar credit risk” and “no differences in the yield,” which may “reduce the interest” in GB from the market participants:

Although the standard of green commitment is not clear, the financial aspects such as credit risks and the yield are no different when compared to conventional bond [...] all of these features reduce the interest from market participants.

Finally, participants assert that the disruption caused by the Covid-19 pandemic has created challenges for the penetration of GB to the Southeast Asian markets. H2 explains that, due to the negative effect of the Covid-19 pandemic on the economy, most markets, including Southeast Asian countries, shift the focus on sustaining the economy and value chain during the pandemic, rather than being concerned about “climate crisis” or “the sustainability efforts” such as the GB issuance. C2 also confirms this view:

As the tremendous economic consequences of the Covid-19 pandemic are undeniable, rather than continuing sustainable finance efforts such as GB issuance, most governments shift the priority to heal the national economics and sustain the value chain.



Perceived Advantages

Regarding the perception of the stakeholder toward the emergence of GB, a few participants, such as D2 and F3, propose that the shareholder mindset has gradually changed, especially after international global climate agreements and protocol such as the Kyoto Protocol, Doha Amendment, and Paris Agreement. Similarly, D3 further explains that, not only the shareholders, but also most of the stakeholders have progressively shifted the focus on both the economic interest as well as long-term business development and sustainable concerns:

Recent news from the environmental agreements and the encouragement and sustainability reports from industries have stimulated the shift in the mindset of stakeholders and shareholders, who demand serious environmental commitments and sustainable market growth.

Many respondents also expressed their interest that the Covid-19 pandemic, in some aspects, can reinforce, among other things, the interest in the green revolutions, and thus foster the popularity of GB. E1 explained that the Covid-19 pandemic has created a disruption in most economies and the whole world has “a chance to restart with a bigger focus on the green revolution.” This shift in mindset is not only happening for the stakeholders of firms, but for the government and the society as well, thus F1 and B2 believed that the GB engagement can help to increase corporate reputation of issuers:

Before issuing GB, it is obvious that companies must have a long-term commitment to sustainable development and environmental protection efforts, so the issuance of GB implies the serious vision and strategic development within sustainability, thus increasing a firm’s reputation on its environmental commitment.

Besides the increase in corporate reputation, respondents also highlight financial advantages from the issuance of GB. For instance, A1 outlines that the issuance of GB helps issuers to attract more investors, who perceived that “GB issuance implies an indication of a sustainable business.” In addition, D2 claimed that GB issuance allows a firm to diversify the funding received from investors: “by issuing GB along with conventional bonds and stock, a firm can receive additional financial support to pursue an environmentally friendly development strategy.”

Regulation

A few respondents expressed the expectation that tax can be used as a way to leverage the issuance of GB, and both C1 and C3 claimed that, although “incentives for the issuance of GB” can encourage large firms to engage in GB, a “thoughtful and realistic” solution which links directly to “economic benefits” of the corporation should nonetheless be considered. Therefore, they suggest that further tax can be added to corporations that “have not expressed any sustainability engagement such



as GB issuance” including those that “consume a certain amount of fossil energy” and “maintain polluted production lines and factories.”

In addition, H2 suggests that efforts, guidance, and regulations are needed to “reduce the barriers” and “avoid confusion” for the initial engagements in GB by heavy industries such as the machine tool industry, aviation, and the auto-industry. Similarly, G1 also recommends that “additional guidance in finance and securities law should be considered by the governments to eliminate the risks from greenwashing.” G1 thus proposes a “label system” that enables the rating of GB in corporation with “different favors to environmental engagement.” D5 supports this idea by arguing that Southeast Asian standard setters and policy-makers can refer to the “GB categories and relevant guidance proposed in other developed markets as the EU Green Bond Standard” to develop appropriate laws and guidance in each country. Most of the interviewees, including A2, E2, and D1, agreed with this view, which implies that the development of regulations associated to GB “must be flexible to changes in the market,” focus on “sustainable development,” as well as “being adaptable to each circumstance on national levels.”

Expected Growth

When commenting on the future development of GB, most of the respondents express a positive view that the demands will continuously increase from the market on GB. G2 explains that both the demand from investors, who are keen on sustainability and environmental impacts, and also “support from standard setters and governments in constructing and supporting regulations, will unfold the potential of GB in the Southeast Asian markets.” Similarly, F5 shares this view that, due to the support from national regulators and intergovernmental bodies such as the United Nations, “GB will gradually replace conventional bonds and become the standard for the future bond markets.” A few respondents are optimistic in regard to the current situation of GB, and perceive that the current challenges such as “regulatory barriers” or “disruption caused by the Covid-19” will only “create a short delay” in the development of GB. They therefore conclude that GB will soon become popular for most of the corporations in the markets.

Other participants provide other explanations for the emergence of GB; for instance, F6 said that environmental concerns and climate change “will emerge as the main concerns for businesses” in the market that gains interest from both stakeholders and business leaders. E3 provides another perception that “pressure and standards introduced by business partners from the developed countries have forced” businesses in Southeast Asian markets “to be more serious about sustainability, as well as raising awareness on sustainable finance efforts,” including GB issuance. After that, the introduction of GB in the markets will help “to raise the awareness of investors and market participants who are lacking the concerns of sustainability and climate change” (interviewee B2). Finally, in alignment with the purpose, funds raised from GB are “able to help corporations to deal with environmental consequences caused by their business operations” (Interviewee H1). Overall, this will enable climate change mitigation.



Discussion

This part provides a discussion of our research findings, which represents the experience and views of market participants regarding the emergence of GB in the Southeast Asian markets. The discussion is followed by the development of a number of propositions that can be tested by future research.

Green bonds have emerged as new and applicable financial instruments that can be used to raise funds for environmental protection and climate change mitigation purposes. In recent years, GB has penetrated into the Southeast Asian markets with the overarching aim of constructing an effective investment channel to favor the environmental social and governance (ESG) investing and sustainable development (Azhgaliyeva et al. 2020). Southeast Asian markets have been trying to establish and develop GB markets. The perceptions and experiences of market participants highlighted the existing development barriers, advantages, relevant regulations, and expected growth of the GB market. There are four main propositions which can be drawn from our study.

First, the costs associated with issuing GB, the lack of a specificity definition of GB, concerns related to financial performance, and disruption caused by the Covid-19 pandemic are the growth barriers for GB. Those results reflect findings from the studies by Tang and Zhang (2020); and Tolliver et al. (2020), who raised the concern that lower financial benefits than the conventional bonds could reduce the acceptance of GB. Furthermore, our research also highlights the experiences from market participants which suggest that the costs associated with issuing GB, and the lack of a clear definition of GB, have reduced the interest from the potential issuers in GB (Banga 2019; Yamahaki et al. 2020; Sangiorgi and Schopohl 2021). These results confirm the findings by Weber and Saravade (2019), who observe that the issuance of GB infers additional costs, which is one of the main barriers for GB acceptance.

Finally, our study adds to the emergence of literature about the implication of Covid-19 to the development of GB, and confirm findings from recent business and economic research that business survival has been set as the priority of the market during the pandemic rather than considering other sustainable finance efforts such as GB issuance. Although respondents confirmed that business disruption caused by Covid-19 has eliminated the development of GB in the Southeast Asian markets, they also suggested that the Covid-19 disruption will only exist in a short-term, and GB will become eventually the standard for the bond market. Thus, the first proposition can be drawn:

Proposition 1 *Costs associated with issuing GB, the lack of a specificity definition for GB, concerns related to financial performance, and the disruption caused by the Covid-19 are the growth barriers for GB.*

Second, regarding the perceived advantages of the GB in Southeast Asian markets, three main benefits have been suggested from the respondents, including the possibility of satisfying the demand for sustainability from stakeholders, corporate reputation, and financial benefits. These views reinforced the findings from



Nguyen et al (2020), who suggest that expectations of stakeholders as well as corporate reputation can be improved through sustainability efforts such as CSR practices, sustainability disclosure, and GB issuance. These findings are also consistent with research conducted by Wiśniewski and Zieliński (2019), who suggest that the fundamental benefit of GB issuance came from the increase in corporate reputation for issuers, and suggest that GB will become the business norm that is able to drive the sustainability intention into the development agenda. Finally, our research results also support the findings of Pham and Huynh (2020), by indicating that, similar to conventional bonds, GB can also deliver sufficient financial benefits to support sustainability actions and climate change mitigation caused by business operations (Piñeiro-Chousa et al. 2021), which is considered as a main advantage of GB issuance. Therefore, the following proposition can be concluded:

Proposition 2 *The expectations from stakeholders, corporate reputation, and financial advantage are the perceived advantages for GB.*

Third, in terms of regulation, tax has been supported as an effective way of promoting the development of sustainable finance such as GB issuance in the Southeast Asian corporations, which reflected the findings from previous studies by Wang et al. (2018) and Liu et al. (2021). Besides, the lack of binding regulations associated to GB issuance has also been recognized as a concern for the development of GB. This view is consistent with Aji and Sutikno (2015) and Mihálovits and Tapasztó (2018). Respondents thus suggest several ways to reinforce the relevant laws and guidance for regulating GB. Finally, our research emphasizes that a flexibility of binding regulations is required in each country to sustain the development of GB. To summarize, one more proposition can be determined:

Proposition 3 *Tax and flexible binding regulations relating to the issuance of GB are the main concern for the market participants associated with the issuance of GB.*

Finally, participants expect that the demand for GB will increase in the future due to the increase in the perception and requirement of stakeholders for the sustainable business and climate mitigation. This finding is consistent with the Climate Bond Initiative (2019), which reports that the issuance demand and supply of GB will grow in the world after 2020. Additionally, GB is also expected to replace the conventional bond and become the standard for the bond market. Those findings reinforce suggestions found in the studies of Banga (2019), Deschryver and De Mariz (2020), and Tolliver et al. (2020). Therefore, the following proposition can be concluded:

Proposition 4 *The increase in demand for GB as well as the expectation that GB will become the standard of the bond market are the outlook for GB.*



Conclusion

Our study can be seen as a response to the recent call for a more in-depth examination of the finance source for SDGs in the Covid-19 pandemic in the Asian and Pacific countries (Deschryver and De Mariz 2020; Tolliver et al. 2020). Therefore, this paper aims to provide insights into the status quo of green bonds throughout the Southeast Asian countries during the Covid-19 pandemic. Although the GB has emerged as an important source of finance for SDGs, the GB market still only accounts for a small proportion of the bond market (Climate Bonds Initiative 2019; Tolliver et al. 2021). By accessing market participants' perception and experience, our study highlights the current development barriers, positive impacts, related regulation, and expectation of market participants within the GB development. Therefore, our study delivers both theoretical and practical contributions.

Theoretical Contribution

In terms of this study's theoretical contribution, despite most of the current GB literature focusing on the economic perspective of GB in the international financial markets (Pham 2016; Reboredo and Ugolini 2020; Pham and Nguyen 2021); political implication of GB (Tolliver et al. 2020; Deschryver and De Mariz 2020); market reaction to GB issuance (Banga 2019; Wang et al. 2020), regulation development for the GB market (Lebelle et al. 2020; Zhang 2020), there are only a few researches that have investigated GB development in the context of the Covid-19 pandemic in the Southeast Asian markets. Hence, this research aims to extend the GB literature by accessing the perceptions and experiences of market participants during the Covid-19 pandemic and highlights the growth barriers, perceived advantages, relevant regulation, and expected development of the GB in Southeast Asian countries.

Practical Contribution

With regard to the practical contribution, by empirically investigating the GB development in the context of the Southeast Asian markets, this paper aims to support standard setters and market participants to understand the current status quo of GB. Although GB has received certain support from the policy-makers, additional perception and experience of market participants are valuable in highlighting the pragmatic insights from these markets (MacAskill, et al. 2020; Nguyen et al. 2021). Accordingly, research results indicate that, although the issuance of GB has faced several financial and regulation challenges, especially during the Covid-19 pandemic, GB's advantages and expectation for development are also recognized by most of the research respondents. In addition, although the Covid-19 pandemic has caused disruption in the international business as well as the development of GB, it is also expected to play as a driver for the development of GB during and after the pandemic (Tolliver et al. 2021; Choudhury et al. 2021). Furthermore, although the GB has just emerged in the Southeast Asian markets over the last few years



(Azhgaliyeva et al. 2020), and currently accounts for a very small portion of the total bond market, GB has received support and interest from the market participants due to the increasing awareness of the shareholders. Finally, stemming from our research results, and reflecting the views of the market participants, relevant political implications with specific standards and guidance should be developed to facilitate the development of GB in the Southeast Asian market.

Limitation and Future Research Suggestion

Our research is not without its limitations. The first limitation came from the sample of market participants as respondents in this research. Although our research participants are considered as the fund and portfolio managers who are familiar with the bond markets in Southeast Asian countries, the selection is limited through its focus on a few financial institutions in several Southeast Asian countries. Therefore, future research should focus on the GB from a broader context in all of the Southeast Asian markets. Furthermore, additional studies are recommended to consider the implications of GB for financing sustainability such as renewable energy, climate change mitigation, environmental protection activities, as well as firm performance, which have not been widely conducted to date. Finally, stemming from our findings, future research avenues could explore the perspective of policy-makers in the countries that promote the GB to understand and examine the drivers precisely for promoting GB in these markets.

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Declarations

Conflict of interest The authors declare that there is no conflict of interest.

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