Chapter 12

# Green Bond in Indonesia: The Challenges and Opportunities

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## A. Sustainable Financing

Effects caused by the climate crisis have been worsening over time. Increasing areas affected by drought, changes in precipitation patterns, more intense tropical cyclones, and rising sea levels are among the projected phenomenon in mid 21st century (IPCC, 2021). Climate change also poses a climate-related risk (physical and transition risk) that affects multi-dimension aspects: socio-cultural, humanity, and economy (BIS, 2021). To tackle the effect of the climate crisis, signatories countries under the Paris Agreement in 2015 committed to reducing emissions as soon as possible and doing their best to limit global warming below 1.5°C or 2°C (Figueres et al., 2018).

A large amount of financing is needed to mitigate and adapt to the climate crisis. For mitigation, the estimation ranges from USD200

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billion to USD1000 billion in 2030; for adaptation, additional funding ranging from USD 140 billion to USD 300 billion annually in 2030 only for developing countries is needed (UNFCCC, 2008; UN, 2021). These extensive funds cannot come only from the government, especially in recent years when the COVID-19 pandemic has compounded economic activity, causing a freefall in government revenue and a surge in government expenditure. Additional resources are needed, not only from the government but also from the private sector (including banking, capital market, or non-banking financial industry). It may also be required to get funding from the global financial market on a larger scale. In this way, the need to create an investment product that attracts the private sector to involve in fighting the climate crisis is an inevitable thing.

Green bonds are one of the funding resources to address the climate crisis. ICMA (2021) defines a green bond as "any type of bond instrument where the proceeds or an equivalent amount will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible Green Projects and which are aligned with Green Bond Principles". These bonds work in helping to mitigate and adapt the climate change through its usage, that is, 'the proceeds will be exclusively used to finance or re-finance, in part or in full, new and/or existing eligible green projects' (ICMA, 2017). The issuers are required to disclose detailed information to the investors that the use of proceeds is for an environmental project to be able to label their products as green bonds. Green bonds have similar features to regular bonds; however, the "green" label comes in the term indicates that the issuer pledge that the use of proceeds concordances with environmental-friendly and fulfils the environmental sustainability objectives (ICMA, 2017). This labeling manner was often used in the past, such as railroad bonds (used for railroad construction), highway bonds (used for highway construction), and war bonds (used to finance the military needs during wartime). All of which are identified as a kind of thematic bond (Wiśniewski & Zieliński, 2019).

Green bonds attract a broad range of investors because of their key features. In addition to the 'green' label, which is closely related to promoting the action to fight climate change, it has a due-diligent process to ensure the issuer of the bonds frequently monitors the environmental-friendly or green project (Reichelt, 2010). This feature is significant for investors pursuing specific environmental strategies or incorporating actions to combat climate change effects. In addition, to comply with the standard in the initial phase, it is also frequently monitored, which facilitates tracking the proceeds used in the environmental project as pledged. Apart from due diligence, other features of green bonds are reputation, transparency, and disclosure (Agliardi & Agliardi, 2019). These features emphasize the integrity of the green bond market, providing more assurance to the market players.

This chapter aims to address issues on the green bond market in Indonesia, including the discussion on its development, challenges, and opportunities, benchmarking to the other countries, and proposing policy and action recommendations to the financial regulator, private sector, and government.

## 1. Global Green Bonds Development

The European Union has focused on green financing (especially green bonds) for more than ten years. Norway, Sweden, the United Kingdom, France, and Germany became the early movers (CBI, 2018b). European Investment Bank issued the first green bond in 2007 under Climate Awareness Bond (CBI, 2018a). The World Bank also issued a green bond in November 2008, which was earmarked to address the climate crisis, creating the blueprint for the green bond market, and piloting a collaboration model to bridge stakeholders involved (investors, banks, development agencies, and scientists) (World Bank, 2019).

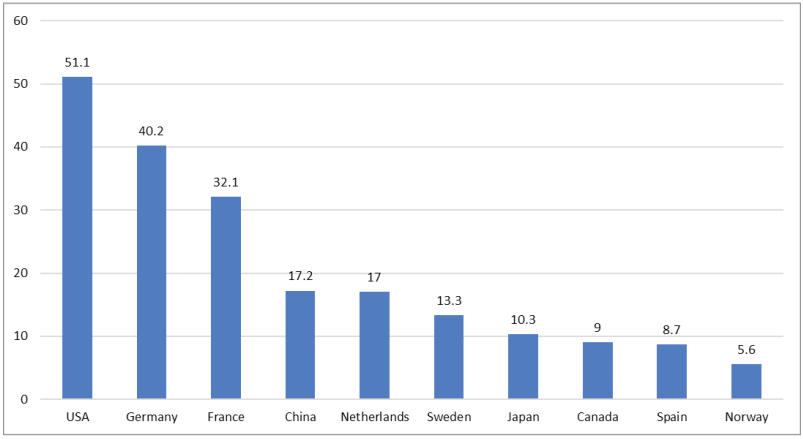
Since its first issuance, green bonds have gained interest from issuers and investors as climate change awareness increases, causing the growth of the green bonds market. Annual green bond volume has increased from USD 807 million in 2007 to USD 258 billion in 2019,

as shown in Figure 12.2. Regarding the bond issuers, various types of issuers have raised the financing using green bonds, which also come in various categories, such as corporate and municipal bonds (Weber & Saravade, 2019). Table 12.1 shows the difference between green bond issuers in the private and public sectors. Meanwhile, the US records the highest amount (USD 51.1 billion) for green bond issuance in 2020. European countries dominate the top 10 countries (Germany, France, Netherlands, Sweden, Spain, and Norway). Other countries that occupy the top 10 are China, Japan, and Canada (Figure 12.1).

**Table 12.1** Green Bonds Issuers

| Issuers from Private Sector | Issuers from Public Sector |
|---|---|
| Institutional issuers (private pension funds, insurance companies, etc.) | State-owned or public sector banks |
| Corporations or multinational companies | Municipalities and state-owned utilities |
| Commercial and private sector banks | Bilateral trade agencies and development |
| Private universities | State universities and education boards |
| Private utility companies | Other state-owned enterprises |
| Private sector financial services | Multilateral development banks |
| Private power and renewable energy producers | State-owned financial services and certain institutional issuers (public pension funds, etc.) |

Source: Weber & Saravade (2019)

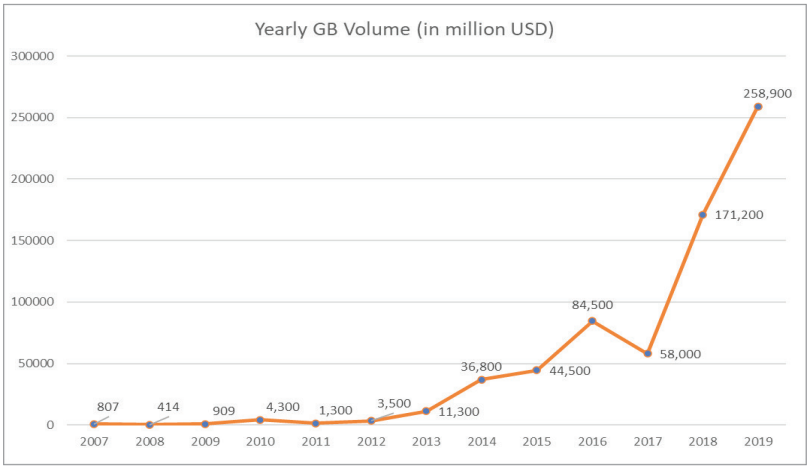



Source: Jones (2021)

**Figure 12.1** Annual Green bonds issuance 2020 by country (in billion USD)

Nonetheless, global green bond market shares are relatively low compared to other bonds. It accounts for about 0.8% of the total outstanding bond market (Torvanger et al., 2021). Several factors hinder green bond issuance. Green bonds have a relatively higher price and offer a lower yield to investors (Agliardi & Agliardi, 2019). Although the green bond investors consider the long-term impact of investing in green bonds as a contribution to saving the environment, they also consider the yield they projected to get to determine the investment decision.

In addition to high prices and low yield, green bonds are often perceived as high risk. This perception is not only limited to green bonds but also other climate-themed investments, mainly because of the lack of financial track record and technological risk in building the project for which the procedure is used.




Source: CBI (2020)

**Figure 12.2** Annual green bonds volume (in million USD).

## 2. Green Bonds/Green Sukuk Development in Indonesia

Indonesia is one of the vulnerable countries when it comes to climate change. It ranks 110 and 106 out of 182 countries for vulnerability and

readiness, respectively (countries higher in rank are less-vulnerable and more ready to face climate change) (ND-GAIN, 2019). Some cities are reported to face flooding and sinking. For example, Jakarta is expected to be submerged by 2050, Pekalongan city in Central Java is expected to be 90% covered by water by 2035, and other 100 regions are predicted to be at risk of sinking by 2050 (Steel, 2020; Syam & Okura, 2021; Meidinata, 2021).

The after effect of the climate crisis is projected to be costly. Climate change's total cost in 2050 is estimated at IDR 132 trillion or 1.4% of Indonesia's GDP (Hecht, 2016). This amount comes only from three areas: agriculture, health, and sea level rise. The country also needs to afford the cost of climate change mitigation and adaptation. The required amount to tackle the climate change impact is estimated to reach USD 247.2 billion annually (Ministry of Finance, 2021). With its current GDP, which is expected to reach USD 1,150 billion in 2021, it is challenging work to finance the climate crisis-related needs. The national budget is insufficient; finding other sources is crucial and inevitable. Green bonds/green sukuk are one of the funding resources to address the climate crisis in Indonesia through the capital market channel.

In terms of issuance, most of the products issued by the government are green sukuk. Basically, green sukuk is similar to a green bond, as sukuk and bonds have the same process and tradability patterns; for example, the issuance of both instruments needs to determine a coupon, maturity, and issuance price. However, there are slight differences between sukuk and bonds. Sukuk, which comply with sharia law, are equity- or asset-based instrument, while bonds are structured based on debt. Sukuk holders take partial ownership of the underlying assets, allowing the holders to receive a share of the profit generated by the assets. Meanwhile, bondholders act as a lender, allowing regular interest payments from the issuer—the loan recipient.

Indonesia tapped into green bond/green sukuk issuance in 2018. Since then, the government and corporates have issued several green bonds/green sukuk, and the amount allocated shows steady growth.

Up to December 31, 2020, cumulative issuance of green bond/green sukuk has reached USD 5 billion (Table 12.2), dominating green bonds issuance by amount among ASEAN countries (CBI, 2021a).

**Table 12.2** Green bonds/green sukuk issuances in Indonesia (2017–2020)

| Issuer name | Amount issued | Issue date | Use of proceeds |
|---|---|---|---|
| **Republic of Indonesia** | IDR5.4tn (USD383.7m) | Dec-20 | Energy, Buildings, Transport, Water, Waste, Land Use |
| **Star Energy Geothermal (Dajarat II) Ltd** | IDR4.65tn (USD320m) | Oct-20 | Energy |
| **Star Energy Geothermal (Dajarat II) Ltd** | IDR11.48tn (USD790m) | Oct-20 | Energy |
| **Republic of Indonesia** | IDR10.9tn (USD750m) | Jun-20 | Energy, Waste, Water |
| **Republic of Indonesia** | IDR10.9tn (USD750m) | Feb-19 | Energy, Waste, Water |
| **PT Sarana Multi Infrastruktur** | IDR500m (USD50m) | July-18 | Energy, Transport, Waste, Water, Land Use |
| **Star Energy Geothermal (Wayang Windu) Ltd** | IDR8.43tn (USD580m) | April-18 | Energy |
| **Republic of Indonesia** | IDR18.16tn (USD1.25bn) | Mar-18 | Energy, Buildings, Transport, Waste, Land Use |
| **TLFF I Pte Ltd** | IDR1.38tn (USD95m) | Feb-18 | Land use |
| **Total** | **USD5bn** | | |

Source: CBI (2021a)

### a. Green Sukuk Issuance by the Government

Prior to the first government green sukuk issuance in 2018, the government formulated The Republic of Indonesia Green Bond and Green Sukuk Framework. The formulation of this framework was aimed to provide a higher trust from the investor to subscribe to the green sukuk. This framework describes the introduction of a system used to review and approve a project to be listed as eligible green projects. Under this system, preliminary identification is made by the budget tagging process, which is earmarking the budget for a proposed green project before discussing it with ministries responsible for the processes. This framework excludes some projects from the eligible green project label: new fossil fuel-based electric power generation capacity, large-scale hydro plants, and nuclear and nuclear-related assets.

In March 2018, the government of Indonesia issued its first global green sukuk, which amounted to USD 1.25 billion (Ministry of Finance, 2020). Following this issuance, the government issued other green sukuk, which gained positive responses, such as the green sukuk

issued in February 2019 was oversubscribed by 3.8 times, and issuance in June 2020 was oversubscribed by 7.37 (Ministry of Finance, 2021). The latter notably signaled a positive response toward Indonesian green sukuk issuance because it occurred amidst the COVID-19 pandemic and slowing global economic activity.

Indonesia was the first issuer of global green sukuk in 2018 (CBI, 2021a). Indonesia is also the most prominent green sukuk issuer globally, as the Indonesian government issued 54% of the world's green sukuk (Azhgaliyeva, 2021). The government's cumulative green sukuk issuance value until 2020 reached USD 2.24 billion. However, most were issued as global green sukuk and purchased by international investors. Only 15% of this amount was issued as retail green sukuk. This low share of retail green sukuk poses some problems. As domestic markets have limited access to purchase the "green product", investors have low awareness of these green products, hindering the development of the green bonds market.

### b. Issuance by Corporates

Indonesian corporates started to issue green bonds in 2018. Until December 2020, CBI (2021a) recorded five green bond issuance by corporates, with the cumulative amount issued reaching USD 1.84 billion. However, among these issuances, only the issuance by PT Sarana Multi Infrastruktur (Persero) (PT SMI) was sold to the domestic market. PT SMI, a state-owned enterprise under the Ministry of Finance of the Republic of Indonesia, issued USD 50 million of green bonds on July 9, 2018, which its proceeds are used for eligible green projects with the criteria referring to Green Bonds Principle (GBP). In particular, the proceeds were allocated for clean transportation and sustainable water project. In addition to following eligibility criteria in the green bond framework, PT SMI also evaluates the financial viability and assesses the environmental and social risk (World Bank, 2018).

Indonesian corporate's green bond issuances are primarily issued in the global market. Like global green sukuk issued by the

government, domination of global green bonds can hamper domestic green bond markets development, resulting in low issuance of green bonds for domestic markets. Further policies are required to attract the corporation to issue in domestic markets, as well as to increase the local investors' awareness of the green product.

## 3. Green Bond in Indonesia: The Challenges and Opportunities

### a. Challenges

Although Indonesia leads green bonds issuance size (amount) in the ASEAN market, the number of issuers and issuance is relatively small. Between 2017 and 2020, 4 issuers from 3 categories of issuers have launched green bonds: government (Ministry of Finance), financial corporate (PT. SMI), and non-financial corporate (Star Energy Geothermal and TLFF) (CBI, 2021a). These four issuers made nine issuances in total. Other countries saw a more significant number of issuers and deals of green bonds. In Malaysia, 13 issuers from various issuer categories issued 14 green bonds. The Philippines also recorded 14 green bond issuances by eight issuers, making both countries top the green bond issuance number in ASEAN. These numbers indicate that even though Indonesia dominated the size of green bond issuance, the small number of the issuers shows that there is reluctance from potential issuers to issue green bonds.

Some potential reasons explain the slow growth of the number of green bonds issuer. CBI (2019b) identified six obstacles that impede the growth of the green bond in Indonesia:

a) Limited availability for currency hedging accompanying the foreign investors, as it is costly and uneasy to manage the foreign exchange exposure under the current requirement in Indonesia.
b) Low liquidity, particularly in the secondary markets, hinders investors' attempts toward price discovery and eventually creates difficulties in pricing for new bonds.

c) Additional cost incurred specifically for issuing green bonds as the issuers need to confirm the alignment of their green bond with green bonds principles. It includes, for example, the cost of obtaining consultant review, verification, certification, and ratings from qualified third parties. As the issuers must bear this cost, it impedes issuers with a small transaction (less than USD 300 million).

d) Low international credit ratings, making it less attractive for potential investors to purchase the green bonds issued.

e) Perceived risks of green project underlying the bonds, e.g., low profitability and cash flows, and the lack of track record as the number of previous issuers was limited.

f) Lack of awareness and knowledge of green bonds among potential issuers and investors.

### b. Opportunities

One of the major challenges to increasing the green bond supply is the lack of green assets and project identification or definitions (World Bank, 2020). The lack of identification of green asset and project financing n potentially increase the company's greenwashing action. Those green classifications are generally called "Green Taxonomy". International Capital Market Association (ICMA) defines the green taxonomy as a "*classification system for identifying activities or investments that will move a country toward meeting specific targets related to priority environmental objectives*".

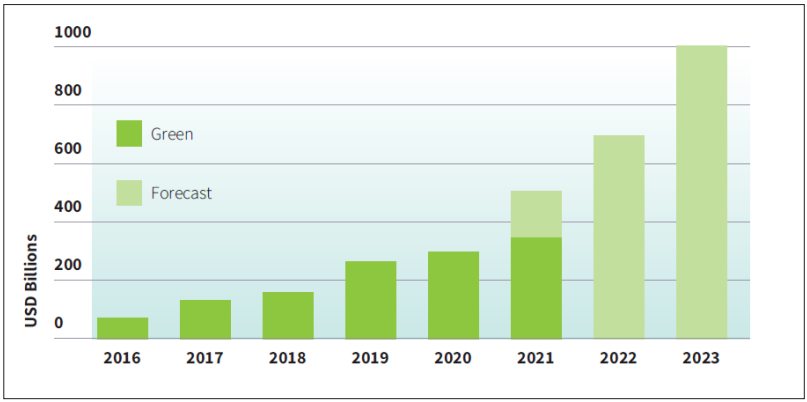
Indonesia published the Indonesian Green Taxonomy 1.0 (Taksonomi Hijau Indonesia/THI 1.0) in January 2022. The green taxonomy has a purpose as guidance for financial players and the stakeholders to identify which investment or sector can be labeled as "green" in their jurisdiction (World Bank, 2020). THI 1.0 is structured based on Indonesia Standard Industrial Classification (KBLI) and does not focus only on sub-sector/group/business activities categorized as green, but also includes sectors/groups/business activities yet to be classified into the green category. There are 2,733 sectors and sub-

sectors that have been categorized. For classification purposes, the criteria are divided into three categories: green (do no significant harm, apply minimum safeguard, provide a positive impact on the environment, and align with the environmental objective of the taxonomy), yellow (do no significant harm), and red (harmful activities). The publication of THI 1.0 is one of the opportunities to accelerate the development of green financing in Indonesia, including green bonds. Those classifications can make the green financing definition easily established.

Besides the publication of THI 1.0, the other determinant of green bond development opportunities is the rising of capital market investors in Indonesia. The number of retail investors in December 2021 reached more than 7.4 million or increased by more than 92% compared to the previous year. Indonesia Stock Exchange predicts that the number of investors will reach more than 10 million at the end of 2022. With the increase of capital market investors, the room for the green bond market is still open widely.

## 4. Lesson Learned from Developed Countries

The number of issuers and the issuance amount of green bonds have been proliferating since the first issuance in 2007. Until Q3 2021, the global issuance of green bonds reached USD 354.2 billion (ytd). Green bond issuance continued to grow, even in the COVID-19 phase (2020 and 2021), and will increase in upcoming years. Climate Bond Initiatives predicts that globally, the annual green bond issuance will reach USD 1,000 trillion by 2023 (Figure 12.3).




Source: CBI (2021b)

**Figure 12.3** Green Bond Issuance Forecast 2023

Sweden and Norway are the early movers in the green bond market development with faster market growth than most countries. Torvanger et al. (2021) studied that there are six green bond success factors in both countries, which are described as follows:

- Frontrunners and leadership: the financial industry in Sweden and Norway is committed to focusing on sustainable investment and business activities, so the player has formed the financial industry itself.
- Economic structure: there are diversified corporation sectors exist in Norway and Sweden
- Financial markets: Norway has a large financial market with diversified products of debt issuance. The investor's high demand for the green market has formed the green perception among market players.
- Sustainability focus of the finance sector: high demand for green products makes the company compete in issuing the green products
- Business culture: with all the support systems, sustainability culture has been integrated into the Sweden and Norway market.

- Role of government: Swedish Government, together with the private sector, has become the frontrunner in issuing the green bond to the market so that the government not only acts as a catalyst but also has the role of being a market player (green bond issuer).

The empirical studies above show that all financial ecosystems (including market players, financial regulators, and government) must simultaneously accelerate green bond development. The balance of demand and supply in the green bond market needs to be created together; the development of green bonds cannot be viewed from a chicken and egg perspective.

## 5. COVID-19 Pandemic and Climate Change

KPMG (2020), an accounting firm, argued that economists and market players agreed that COVID-19, which has caused crises in various aspects, including the health crisis as well as the economy, is a valuable lesson in our response to climate change in the future. In this report, KPMG viewed that while climate risk continues to grow, we can learn from the impact of COVID-19 about how to develop better crisis prevention and response. This will require organizations and governments to act rapidly to deliver integrated risk, strategy, governance, and reporting on climate risk.

A survey conducted by IPSOS (2020) on 33,000 respondents concluded that 71% of the global public felt that climate change is just as significant an issue in the long term as COVID-19. In its report, IPSOS has identified five practical learnings from COVID-19 for climate change, namely a need to listen to the expert; preventive measures are as important as a mitigated response; society must come together to protect the most vulnerable; cross-sector collaboration is paramount to success, and the public needs clear, tangible communications and direction. On the other side, KPMG (2020) also mentioned that the lack of existing government and organizational mitigation and response planning highlights the need to ensure we learn from this crisis to better manage other systemic risks in the future.

Green Bonds, as one of the investment products in the capital market, can play a significant role in maintaining the company's condition to avoid transition risks that can broadly threaten the company's going concerns and financial instability. When green bonds have dominated the public offering of bonds, the policy changes due to climate change will not threaten the company's going concerns. In the long term, the green project as the green bond underlying will reduce the physical risk (i.e., flooding, hurricane, etc.) that occurs due to climate change since the green project will be used as the basis of the environment-friendly project.

## 6. Policy and Action Proposal

The financial regulator is one of the important players in green bond development in Indonesia, especially in green bond issuance. The regulation published by the financial regulation can impact the actions taken by the prospective green bond issuers and the green bond market itself. On the other side, the government must act as a catalyst and role model in issuing green bonds in the domestic market. A considerable amount of green bonds issued by the government can significantly impact. Finally, the industry player needs to move synchronically to accelerate the green bond development.

The strategy of implementing incentives and disincentives for financial industry players can be used to accelerate the development of green bonds in Indonesia. One of the incentive strategies is to reduce green bond issuance fees. This incentive strategy is also implemented by the Hong Kong Monetary Authority (HKMA) and the Monetary Authority of Singapore (MAS) through subsidy schemes for green bond issuance (CBI, 2019a). Indonesia FSA has implemented the issuance fee incentive through the Board of Commissioner Decision No 24/KDK.01/2018, mentioning that the imposed fee for the green bond issuance is 25% of standard fees (0.05% of issuance value based on Government Regulation number 11 the year 2014 on Levies by Indonesia Financial Services Authority). This is an excellent move

to support the green bond development and can positively impact lowering the issuance cost for the issuer.

In line with the incentive strategy, the disincentive strategy can also be implemented by imposing higher fees on conventional bond issuance. Of course, the higher fees for conventional cannot be imposed in a one-time increase since these fees addition may give a shocking effect that can influence market sentiment. The higher fees can be imposed at the staging strategy until they meet a maximum targeted level percentage. Incentive and disincentive strategies can potentially urge the issuer to move gradually to green financing since the cost of green bonds will be lower than conventional bonds.

On the other side, financial players have started being aware that climate risk measurement must begin now. The operational transition to green operation cannot be done in a short time, so it must be started gradually; otherwise, the shocking transition will threaten the company's concern. For example, at COP-26 in Glasgow at the end of 2021, more than 40 countries (including Indonesia) committed to coal phasing out by 2030 and for smaller countries to do it by 2040. It shows that the industries which will be greatly affected are not only the coal industry but also all types of industries that use coal in their operations. Apart from coal phasing out, many other aspects have been targeted to help reduce carbon emissions. With the basis of sustainable business activities, companies can easily turn their projects into underlying green bonds in the market. With the help of pro-green regulations and various incentives, it will be easier for companies to issue green bonds.

The existing mindset where green financing is considered risky needs to be re-analyzed because sustainable activities have a high sustainability value compared to conventional activities, which can be very vulnerable to the impact of climate change. The Bank for International Settlement is currently conducting a study to determine the standard for determining the portion of climate risk companies need to set aside to anticipate the impacts of climate change. It shows that companies that do not pay attention to the effects of climate

change and do not transform to green have a higher risk of being negatively affected than companies that have transformed to green.

The government also has a very strategic role in developing green bonds in Indonesia. The government can act as a catalyst for green bonds in Indonesia through various channels. One policy the government can implement to accelerate the development of green bonds is taxation. The pattern of incentives and disincentive strategies can also be applied to tax incentives. In terms of green bond development, there are needs for a catalyst that directly touches issuers and investors to accelerate the green bond issuance. Tax incentives in the form of low taxation for green projects can be a catalyst for both issuers and investors, increasing the portion of green project profitability. In addition to applying low taxes, a fixed tax rate can also be a catalyst. Green projects usually have long-term project characteristics, potentially creating uncertainty in the taxes imposed. Using a fixed tax rate in the long term can provide certainty to investors and green bond issuers. As a result, the issuance of green bonds can be more attractive than conventional bonds.

## B. Conclusions

This chapter discussed some of the challenges and opportunities in issuing green bonds as one of the financing resources in Indonesia. As the impact of climate change is more threatening than before, a large amount of financing is needed to fight these effects, far beyond the government's budget capacity in any country. The urge to create an attractive investment product that enables the private sector to tackle the climate crisis is increasing. In this way, green bonds are seen as one of these financial resources.

The world saw an increasing interest in green bonds, as the awareness of the climate crisis's impact has also risen among issuers and investors. CBI (2020) reported that the green bond amount issued globally in 2019 amounted to US$258 billion, multiplied by the first issuance in 2007. On the other side, the first green bond in Indonesia was issued in 2018. Until 2020, the issuance for the domestic market

and the interest from issuers and investors have been relatively low. Several factors contribute to this common interest: limited availability for currency hedging accompanying the foreign investors, low liquidity, additional cost incurred, low international credit ratings, perceived risks of green project underlying the bond, and lack of awareness and knowledge of green bonds (CBI, 2019b). However, Indonesia also sees opportunities in green bond development, considering the publication of the Indonesian Green Taxonomy in January 2022 and domestic capital market investors' rising.

Other policies are needed to raise awareness about the vital role of the green bond. At the same time, it is significant to create a broader green bond market to accelerate the development of green bond issuance in Indonesia. The financial regulator can implement incentives and disincentives strategies for financial industry players. On the other side, financial players must start being aware of climate risk measurement and change their wrong mindset that green financing is risky. Finally, the government can play a vital role as a catalyst by using fiscal policies such as tax incentives and disincentive policies.

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