



ALIGNING FINANCE FOR THE NET-ZERO ECONOMY:

new ideas from leading thinkers

#5 MAKING GREEN BONDS SERVE THE CLIMATE GOALS

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in partnership with



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Foreword

Eric Usher, Head of UNEP FI &
Dr. Kirsten Dunlop, CEO of Climate-KIC

Since the 2015 Paris Agreement, conditional pledges have fallen well short of the target of holding the global temperature increase to well below 1.5°C above pre-industrial levels. To reach the aim of decreasing global greenhouse gas emissions annually by 7.6% up to 2030¹, we need to increase collective ambition by more than fivefold over the next ten years.

The low-carbon transition will require the integration of climate action into the economic, social and environmental dimensions of development: a distinguishing feature of the 2015 UN Sustainable Development Goals (SDGs). Interlinkages within and across the goals have been created to build on lessons from the past that sustained systemic change cannot be achieved through single-sector goals and approaches. Investing in climate-resilient infrastructure and the transition to a zero-carbon future can drive job creation while increasing economic, social and environmental resilience. Investing in innovation will further reduce the costs of climate change and generate

options for alternative business models and ways of living that contribute to economic stability and to a smooth transition.

Short-term thinking in investment cycles and in ideas of economic value are acting to prevent the 1.5°C transition we need, and this will require transformation and innovations in the financial system. Financial institutions play a leading role in allocating and pricing the investment necessary for business development and economic growth. Our financial systems cannot afford to view investments in economic recovery as separate from the sustainability agenda. Therefore, financial actors need to embrace new concepts of value, monetization and externalities, and to address underlying behaviours and mindsets, including short-termism, that govern choices and decisions. Above all, the financial system needs to redefine what it is in service of.

Reviews of the effectiveness of research and innovation activities funded by Europe's Horizon 2020 programme have led to calls for more systemic and cross-sectoral approaches, breakthrough thinking

¹ United Nations Environment Programme (2019) Emissions Gap Report 2019. Nairobi, Kenya. Available at: unenvironment.org/resources/emissions-gap-report-2019

and solutions, deep demonstration projects and social inclusion through citizen engagement and participation. The final Report from the High Level Panel of the European Pathways to Decarbonisation initiative, released in November 2018, specifically calls for a focus on: “system-level innovation, promoting sector-coupling so that the individual elements of decarbonisation fit together in a coherent whole” and recommends the establishment of large mission-oriented programmes of a cross-cutting nature for the deployment of system-level transdisciplinary innovation.²

In the meantime, the coronavirus pandemic has triggered a major global public health and economic shock. We can draw comparisons between pandemics and the climate emergency: as systemic, non-stationary, non-linear, risk-multiplying and regressive shocks. Many countries have been unprepared for a global shock of this scale and it is clear that we must collectively build a more coherent response to the potentially more disruptive climate emergency and build an anti-fragile capability for resilience and renewal.

The pandemic has also shown that business-as-usual cannot deliver the necessary emissions reductions. Despite international travel plummeting, factories scaling down production, and employees working from home, the annual drop in emissions has only been around 8% and unemployment has soared. Emergence from lockdown in China, for example, has shown that emissions quickly reach or even exceed pre-COVID levels,³ while government stimulus packages have only partially delivered transition-oriented funding and, in some cases, thrown a lifeline to high emissions industries.

Leading banks and investors have recognised that there is no alternative to a low-emissions, sustainable economy. Convened by UNEP FI and partners, the Net-Zero Asset Owners Alliance and the Collective Commitment to Climate Action by banks worldwide, have brought together over 70 financial institutions, committed to working with governments and other stakeholders, to support the financial and economic transformation needed to help deliver the Paris Agreement by aligning financial portfolios with the corresponding emissions pathways – a step that was hitherto unheard of – and deliver what the IPCC report calls, “rapid, far-reaching and unprecedented changes in all aspects of society”.⁴

However, the climate emergency will require current thinking and paradigms to be challenged and questioned. This is why EIT Climate KIC, in partnership with UNEP Finance Initiative, is convening leading thinkers to present their ideas for sustainable financial and economic transformation. We hope that this inspires financial actors to work across the field to draw up a financial system that enables the low emission societies of the future.



Eric Usher
Head of UNEP FI



Dr. Kirsten Dunlop
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² European Commission (2018) Final Report, High Level Panel of the European Pathways to Decarbonisation. Brussels, Belgium. Available at: op.europa.eu/en/publication-detail/-/publication/226dea40-04d3-11e9-adde-01aa75ed71a1

³ World Economic Forum (2020) China’s air pollution has overshoot pre-pandemic levels as life begins to return to normal. Geneva, Switzerland. Available at: weforum.org/agenda/2020/07/pollution-co2-economy-china/

⁴ IPCC (2018) Summary for Policymakers of IPCC Special Report on Global Warming of 1.5°C. WMO, Geneva, Switzerland. Available at: ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/



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Aligning Finance to the new carbon economy: new ideas from leading thinkers

Series Introduction

The IPCC Special Report, released in late 2018, highlighted the urgency of minimising global temperature rise to 1.5°C and emphasised the need for systems transitions that can be enabled by investments in climate change mitigation and adaptation, policy and acceleration of technological innovation and behavioural changes (IPCC; 2018). Amongst the emissions pathways scenarios, it proposed, for the first time, a limited or no overshoot scenario – the P1 low energy demand (LED) scenario, where future energy demand could be met through low-emission energy sources and enhanced energy efficiency. This scenario presupposes that system changes are more rapid and pronounced over the next two decades.

Five years after the Paris Agreement, and with calls by the IPCC for urgent action in the coming decade to prevent climate change catastrophe, 2020 was billed as a key year for climate action. The COVID-19 crisis that has accompanied this year marks a point of transformation for the economy and society: it has demonstrated how remarkable and rapid systems change can be. The global pandemic has given us a clear opportunity to pave the way for building back better and establishing new norms,

as well as lessons that can inform how we might face the unabated climate crisis and future climate shocks.

A paradigm shift is needed if we are to move towards a limited or no-overshoot climate scenario. Stakeholders in financial markets, capital and investment represent important levers of change, as they have a key allocative role in society, and can enable investment into a net-zero low-energy future. Financial intermediaries can effectively support and enable societies to mobilise the investment required for the systems change needed to transition economy and society onto a net-zero pathway that is compatible with 1.5°C by 2100.

EIT Climate KIC has been working over the past decade to catalyse systemic transformative change through innovation and has supported the development and uptake of innovations that could help financial markets scale up investment in green technologies and transformative alignment. Action has to move beyond disclosure of climate-related financial risks towards proactive interventions, from engaging the world's emitters to set GHG reduction targets that are sufficiently ambitious, credible and science-based to investing in, financ-

ing and helping enable the breakthrough technologies and business models of the future. Moreover, a focus on the role of regulators, fiduciary duty and other fiscal incentives is imperative to understand how we might reset the rules to develop a more regenerative and resilient economy.

The United Nations Environment Finance Initiative (UNEP FI) is a partnership between UNEP and the global financial sector to mobilise private sector finance for sustainable development. UNEP FI has been leading two initiatives, which aim to move beyond a passive risk disclosure perspective to a more active engagement of private sector actors in committing to meet the objectives of the Paris Agreement and support the low-carbon transition. 38 banks have committed to align their portfolios with Article 2.1c of the Paris Agreement under the aegis of the Principles for Responsible Banking, while UNEP FI has partnered with PRI, WWF, and Mission 2020 to launch the Net Zero Asset Owner Initiative, bringing together 29 institutional investors as of September 2020 to commit to net zero emissions by 2050.

EIT Climate-KIC has therefore partnered together with UNEP FI to produce this thought leadership series that aims to inspire financial actors worldwide to move from risk to alignment, challenge current assumptions around climate alignment and develop ideas and concepts on how alignment can best be achieved. We hope to encourage stakeholders that a proactive climate response is not only about disclosing risks, but also about investing in green opportunities that can enable the low emissions societies of the future. This series convenes innovators and industry experts to provoke discussion, challenge the status quo and guide the transformation of business and finance towards a sustainable future.

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THE PAPERS IN THIS SERIES WILL RESPOND TO A NUMBER OF KEY QUESTIONS :

- What economic system transformation is actually required to deliver the Paris Agreement?
- How do financial institutions achieve alignment with the Paris Agreement and how does it differ from transition risk transparency as captured in the TCFD?
- What is the future of financial institutions as a result of these changes?
- What are the various strategies and action tracks through which financial institutions can enhance and achieve full portfolio alignment?
- What are the pathways and choices needed for financial institutions and the financial system to drive an active transition to a net zero-carbon economy?



Massamba Thioye

Massamba Thioye is manager in the Mitigation Program of the UNFCCC secretariat where he is leading the development of regulations pertaining to the measurement of the impacts of climate action, including climate action undertaken by financiers. He has led breakthrough work at the UNFCCC secretariat, including the development of the standardized baselines framework and the digitization of climate change-related methodologies. Currently, he is leading the development of a global UNFCCC Innovation Hub.

He co-convened the development of the ISO standard, ISO 14097 "Framework and principles for assessing and reporting investments and financing activities related to climate change".

Massamba Thioye is also working on the application of digital technologies to climate and sustainability actions. As co-Chair of the Climate Chain Coalition, a coalition of more than 200 organizations, he is working on the application of the Distributed Ledger Technology ecosystem to climate and sustainability action.

Massamba Thioye has a PhD in energy systems.



Contents

1.	Conditions for the green bond framework to support the 1.5°C climate goal	11
2.	Current definition of green bonds	12
3.	Additionality of bonds labelled 'green'	13
4.	Portfolio approach to establish or assess the greenness of the use of proceeds of green bonds	17
5.	Scaling up green bonds	19
6.	New framework for green bonds	20
7.	Conditions for the operationalization of the proposed green bond framework: integration of the green bond and carbon markets and related benefits	27
8.	Conclusions	37

⋮ Introduction

Financiers are expected to contribute to filling the competitiveness gap of investments aimed at developing and deploying the climate technologies required to achieve the long-term goals of the Paris Agreement. However, mainstream financiers will not do so simply because it is the right thing to do, viewed as a moral duty. Instead, they will do so if it makes economic sense. Where such investments in climate technologies do not meet the risk/return expectations of the capital market, de-risking and/or incentive instruments will be required.

Green bonds are targeted financial instruments for shifting towards climate solutions, low-cost pri-

vate finance serviceable from the capital market. It is therefore important to determine the conditions under which green bonds can serve the climate goal of limiting the global average temperature rise to 1.5 °C above pre-industrial levels and assess whether those conditions can be met under the current green bond framework. Our assessment concludes that the current green bond framework does not fully support the 1.5 °C climate goal, and improvement options are proposed for its alignment with the climate goal.



1. Conditions for the green bond framework to support the 1.5 °C climate goal

In order for the green bond framework to serve the 1.5 °C climate goal, it should be scalable and effective in enabling additional greenhouse gas (GHG) emission reductions. Indeed, there is nothing so useless in addressing climate change as promoting and scaling up an instrument designed to enhance mitigation, but that cannot foster additional GHG emission reductions. That instrument could be widely used, but would not fulfil its purpose. It is also useless to develop an instrument that can

be effective in ensuring enhanced GHG mitigation outcomes but is not embraced by the targeted users, because it is not sufficiently attractive. Such an instrument would be relevant but not effective. But these two cases of inefficient and ineffective bonds are widespread today. The current green bond framework does not enable additional GHG mitigation and is not sufficiently conducive to the scaling up of the green bond market.



2. Current definition of green bonds

In most of the current definitions, green bonds are differentiated from regular bonds solely by the demonstration and verification of exclusive use of the proceeds to finance or refinance 'green' projects, assets or business activities (*European Commission, 2016; EU Technical Expert Group on Sustainable Finance, 2019; T. Ehlers and al, 2017; the World Bank, 2015; UNDP, 2016*). While broadly accepted, this definition could be the key barrier limiting the

capability of green bonds to serve the long-term goals of the Paris Agreement. In the course of preparing this paper, only the Economist (2017) set out an alternative definition, explaining that "simply using the proceeds for environmentally friendly investments is not enough" to make bonds green. However, that article does not provide guidance on what else is needed to make bonds green.



3. Additionality of bonds labelled 'green'

3.1

ADDITIONALITY REQUIREMENTS

The bond market is largely dominated by use of proceeds (UoP) bonds that best meet the risk/return expectation of investors: more than 80 per cent of the bonds declared 'green' by their issuers are UoP bonds. Yet there are more and more voices challenging the suitability of UoP bonds, considered 'green' according to the above definition, in contributing to the climate goals. However, these skeptical voices have not always identified and correctly formulated the environmental integrity issue undermining the current green bond framework. Some arguments point out the fact that investors do not pay a premium and buy green and UoP vanilla bonds at the same price in the primary market. Paying a premium compared with vanilla bonds is neither a necessary condition for a bond to be green nor a sufficient condition. Others insist on the fact that bonds are primarily refinancing instruments, question whether they can trigger the decision to invest in green activities and challenge their effectiveness as a climate

instrument. Given that the maturity date of debts from commercial banks generally occurs between 5 and 10 years after issuance, the perspective of possible refinancing can reasonably be considered as an important criterion for those commercial banks when financing a long-term project or an organization implementing long-term projects. Indeed, in most developing countries, the availability of long-term green debt from the capital market for the refinancing of short-term green debt from local commercial banks is a key enabler for green investment. Finally, other arguments against the current green bond framework concern the absence of a causal relationship between the financing conditions of the green bond and the implementation of the green activities. However, to assess the effectiveness of a green bond, there is no need to establish such a causal relationship or to assess the extent to which the cost and availability of the proceeds has contributed to the investment decision-making process. It is also not necessary to assess whether the benefit provided by a green bond buyer, compared with buying a regular bond, is substantial enough to influence the issuers' investment decision. These questions could, however, be relevant for determining the shade of green of the bond.

To fully serve the climate goals, green bonds should be sufficiently attractive to mainstream financiers and contribute to scaling up activities that enable the development or deployment of climate technologies and products that would otherwise not occur. "Otherwise" means that in the absence of the green attribute of the activities in its investment plan, the issuer would not be able to access the financing conditions offered by the proceeds of its green bond, and without those financing conditions the activities with the green attribute would not be viable. The financing conditions offered by the proceeds of the green bonds should therefore be more beneficial for the issuer than the prevailing baseline financing conditions. The benefit is measured not against the financing conditions that the buyer would offer for a regular vanilla bond but against the financing conditions that the issuer would have access to in the absence of the green attribute of its investment plan. It is therefore not a necessary condition that the buyer pays a premium. Only where the financing conditions of the market from which the buyer obtains the UoP vanilla bonds are the same as the prevailing baseline financing conditions accessible to the issuer is the benefit measured by comparing the financing conditions of the UoP green bond with those of a UoP vanilla bond, which means that the buyer has to pay a premium.

The buyer paying a premium, or more generally the issuer drawing an economic benefit from the issuance of a UoP bond compared with the prevailing baseline financing conditions, is also not a sufficient condition for the bond to be green, even if the activities in the issuer's investment plan are green. In addition to the requirement of being green, the activities in the investment plan should present a viability gap that the economic benefit contributes to filling. The proceeds of the green bond finance activities aimed at developing or deploying climate technologies that would otherwise not occur. Here, it is important to stress that filling the financial viability gap of green activities that would otherwise not occur is the condition, not financing green activities. The difference between them depends

on whether the investment plan of the issuer would have been financed anyway with the prevailing baseline financing conditions or not.

Activities with a financial viability gap that the proceeds of the bond should finance for the bond to be considered green could be defined as those that are still economically not viable (e.g. with a negative net present value (NPV)) under the available baseline financing conditions after all available sources of improvement of their NPV have been exhausted, with the exception of accessing lower external financing cost. Possible sources to improve an activity's NPV include:

- Efforts from shareholders accepting a lower rate of return;
- Policymakers in the host country providing subsidies or introducing carbon pricing;
- Technology development reducing the cost or enhancing the efficiency of the climate technologies;
- Customers paying a premium for the products generated by the activity.

Green assets aligned with the climate goals but with a financial viability gap under the prevailing baseline financing conditions will only be included in an investment plan if additional revenues or cost reductions that can contribute to filling that gap are available. The proceeds of a bond that do not provide a lower financing cost to the issuer or any other form of economic advantage compared with the prevailing baseline financing conditions will not contribute to filling that financial viability gap. Indeed, the proceeds of such bonds can only be used to finance activities that are viable under the prevailing baseline financing conditions. Instead of increasing the share of finance used to develop or deploy green assets, such bonds will simply replace financing that would be available in their absence. Therefore, those bonds will not support the climate goals.

There is no need to establish a causal relationship between the issuance of the green bond and the viability of the activities it finances. It is sufficient to substantiate that the green bond has contributed to filling the financial viability gap. The benefit provided by the green bond's financing conditions may not by itself be sufficiently substantial to make the NPV of a climate project become positive, but it can contribute to doing so where it is blended with other benefits such as the payment of a premium by customers and subsidies from policymakers, as well as efforts from the suppliers of climate technologies to decrease their cost and increase their efficiency.

3.2

WHY ADDITIONALITY OF GREEN BONDS IS NECESSARY

Figure 1 illustrates the extent to which, depending on the definition, green bonds as a financial instrument can impact the "investment in climate solutions/total investment" ratio.

Case A is consistent with the current definition of green bonds that does not require the filling of a viability gap. The development of the green bond market will, to a large extent, only promote the green labelling of financing activities directed to financially viable climate solutions that would be implemented in any case, including in the absence of a green bond framework. Within the share of investment-in-climate solutions (the area below the solid green line) that would be financed in any case with or without green bonds, the current green bond framework can provide an incentive for increasing the green labelling of the bonds (the

area below the red dotted line). However, it does not enable the implementation of additional climate solutions. Although a green bond framework applying the current definition of green bonds can be appealing for all stakeholders, it is not contributing to the achievement of the climate goals. Indeed, it allows:

1. issuers to claim that they are implementing climate solutions;
2. investors to claim that they are financing climate solutions; and
3. validators and verifiers to further develop their business (the rise of the red dotted line).

However, the green continuous line representing the investment in climate solutions/total investment ratio is not affected by the existence of a green bond framework if it does not require the filling of a viability gap (the ratio is the same under case 1a relating to a baseline without a green bond framework and case 1b relating to a baseline with a green bond framework).

Case B illustrates the implications of the proposed green bond definition. As the green bond must fill a viability gap and finance climate solutions that would otherwise not be financed, the green bond as a financial instrument lifts up the curve representing the ratio: volume of investment in climate solutions/volume of total investment. The share of climate solutions financed with green bonds (the solid green line) will be on top of the share of climate solutions viable under the baseline financing conditions (the dotted green line). Under these conditions, it is clear that green bonds as financial instruments are contributing to the climate goals.

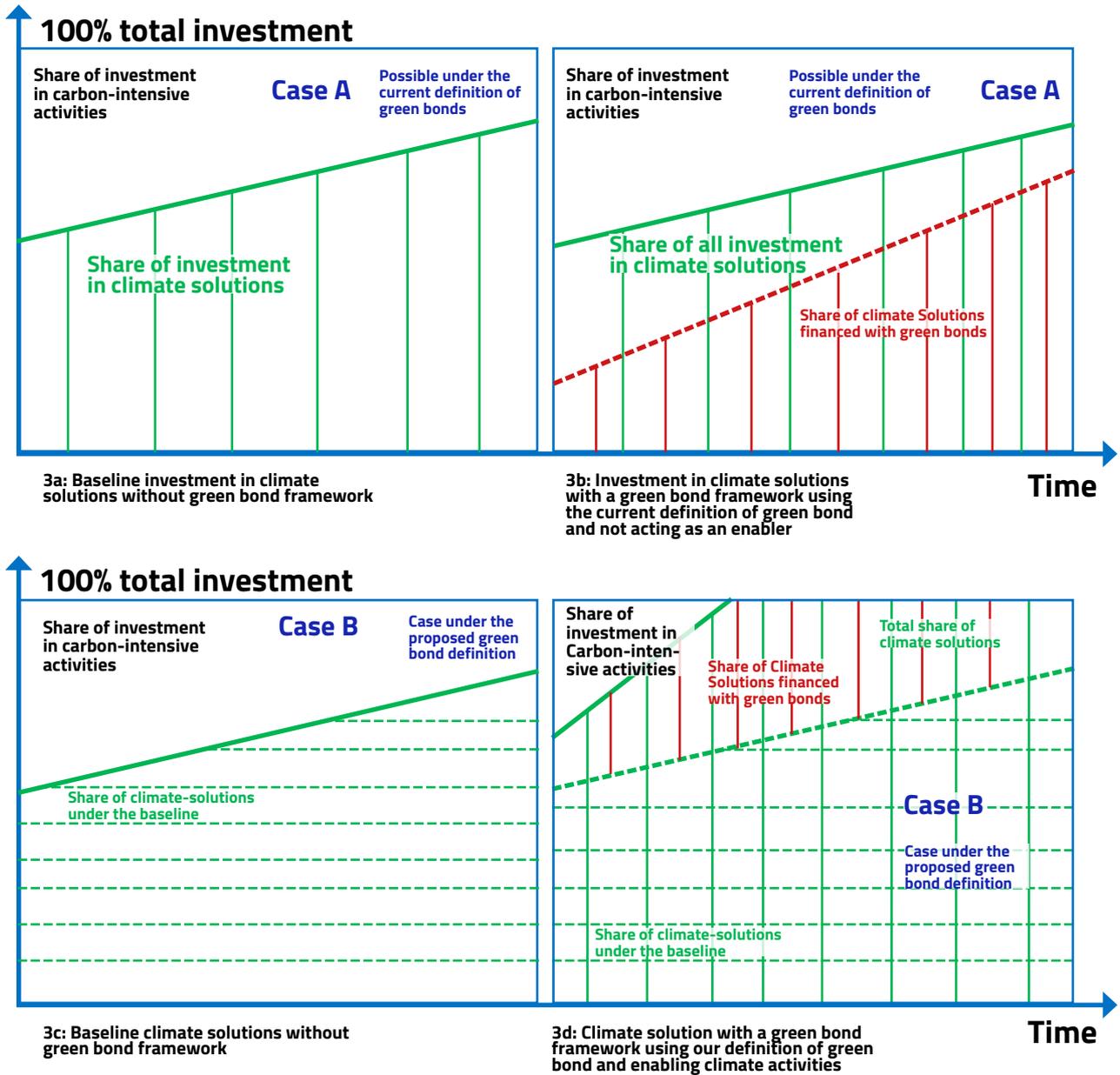


FIGURE 1: Total share of investment in climate solutions part-financed through green bonds

4. Portfolio approach to establish or assess the greenness of use of proceeds green bonds

While for project bonds and asset-based security bonds the debt recourse is a project or group of projects, for UoP green bonds the recourse is the issuer even if the proceeds of the green bonds are earmarked for specific green projects. This means that the debt is provided to the issuer on the basis of the evaluation of its credit quality and not on the financial viability of the projects financed with the proceeds of the green bond. For the same reason, the greenness of the bond should not be evaluated solely on the basis of the greenness of the projects financed by the proceeds. This criterion needs to be complemented with additional criteria relevant to all the other projects in the investment plan of the issuer. The investment plan of the issuer, taken holistically and including the projects not financed with the proceeds of the green bond, should contribute to the achievement of the climate goals. Otherwise, an entity with an investment plan which is, as a whole, highly carbon intensive, would be able to segregate the cleaner projects from the investment plan and issue a green bond for those projects. The positive contribution of the cleaner projects to the climate goals would be recognized, while the negative impact of the highly carbon-intensive projects would simply be ignored. The

issuer of the bond would appear as an organization with a green investment plan even though it is not.

It is nevertheless important to stress that the proposed green bond framework (see chap. VI below) is forward-looking and addresses only activities contained in the investment plan that are yet to be financed by a green bond issuer. The proposed framework does not take into account investments already done. For example, a company would like to change its 'misaligned' business model and become a climate solutions provider. That company can issue a green bond while it continues to own assets in operation, relevant to its current misaligned business model, at the condition that all its future activities including investment in new facilities, efficiency improvement in existing facilities as well as early asset closures, reflected in its plan, are aligned with the climate goals.

With the portfolio approach, one of the requirements for a bond to be green is that the investment plan of the issuer taken holistically should be green. It is not enough that the proceeds finance green projects. However, the issuer's past investments are not required to be green.



⋮ 5. Scaling up green bonds

Making genuine green bonds attractive for mainstream financiers will enable to scale up activities aimed at developing or deploying climate technologies or products that would otherwise face a financial viability gap. That condition must be met for any green bond framework to foster the effective participation of the financial sector, beyond angel investors and venture capitalists, for the successful implementation of the Paris Agreement and 2030 Agenda for Sustainable Development. This will make mainstream financial flows become an enabler for scaled-up and impactful green activities and is therefore an important part of the climate solution toolbox.

6. New framework for green bonds

Compared with the prevailing baseline financing conditions, the proceeds of a green bond are expected to provide the issuer with some economic benefits that contribute to filling the financial viability gap of green activities aimed at developing or deploying climate technologies or products that would otherwise not be viable. In addition, if the purpose of labelling a bond as 'green' is so that alongside the trading of the bond there is some form of recognition of the buyer's contribution to the achievement of the climate goals, simply buying a bond that finances or refinances 'green' projects, assets or business activities, even if those activities support the climate goals, is not enough for the bond to be labelled 'green'. If the 'green' label associated with a bond means that the owner of the bond can claim impactful climate action contributing to the climate goals, the global public good associated with the implementation of the financed assets, in the form of mitigation outcome security (MOS), should be transferred from the issuer to the buyer of the bond, alongside the bond, in exchange for some benefits for the issuer. In the same way that a bond is an instrument of financial indebtedness of the bond issuer to the holders of the bond, the MOS is an instrument of carbon unit

indebtedness of the bond issuer to the holders of the MOS. The bond issuer owes the holders of the MOS equivalent mitigation outcome units and is obliged to pay them at the maturity date, which can be the date when the real mitigation outcome units arising from the implementation of the mitigation activities are expected to be issued. This is comparable to the way in which the green electricity market operates, with the only difference being that renewable electricity certificates are issued ex post after the consumption of renewable electricity, while the MOS are securities issued ex ante before the generation of the mitigation outcome units. The fact that the electricity generated by an independent power producer (IPP) is green is not a sufficient criterion for the same electricity consumed by a household receiving electricity from that IPP to be considered green.

6.1

ANALOGY WITH THE RENEWABLE ENERGY CERTIFICATE

In figure 2, the same IPP provides electricity from the same wind power plant to two households, A and B. The electricity generated is green. Household A pays a premium to buy the electricity generated but also its green attribute, represented in this case by the renewable electricity certificates. Household B is interested in buying conventional electricity, not green electricity, and therefore does not pay a premium or get the green attribute in the

form of renewable electricity certificates. The certificates corresponding to the electricity bought by household B are not transferred but kept by the IPP. Although both households are fed with the same generated green electricity, household A is consuming green electricity, while household B is consuming conventional electricity. The transfer of the electricity's green attribute against the payment of a premium is the only difference that makes the electricity consumed by household A green and the electricity consumed by household B not green. Renewable electricity producers can sell either green or conventional electricity to final consumers depending on whether a renewable electricity certificate has been transferred from the renewable electricity producer to the final consumer.

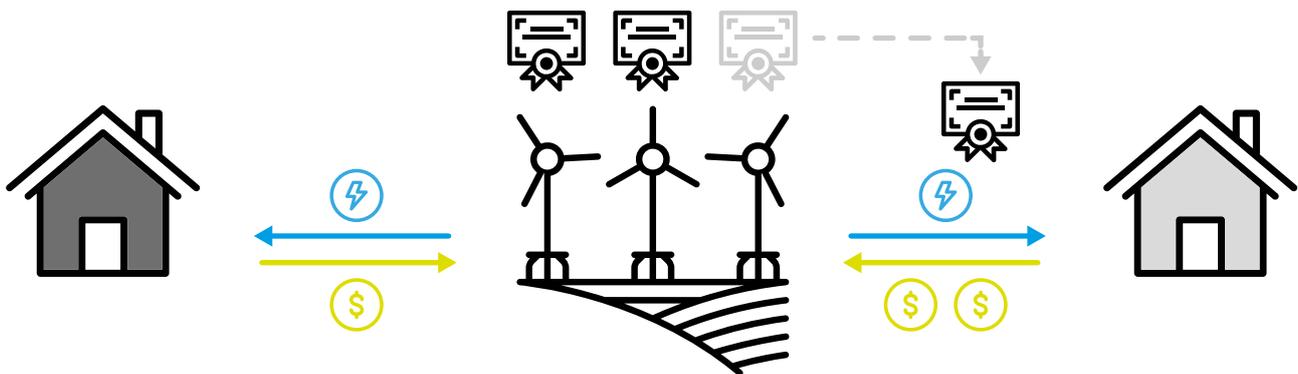


FIGURE 2: Two households receiving conventional and green electricity from the same independent power producer

Likewise, a bond issued by a corporate implementing green projects that support the climate goals can be considered either a green bond or simply a plain vanilla bond depending on whether the green attribute of the activity (in this case materialized by the MOS) is transferred.

In the same way that the final electricity consumer pays a premium in order to obtain the renewable energy certificate which enables it to claim consumption of green electricity, the bond buyer should provide economic benefits compared with the prevailing financing conditions in order to receive the MOS and be able to claim that it possesses a green bond. The bond buyer will have the flexibility to buy a green bond with a desired shade of green

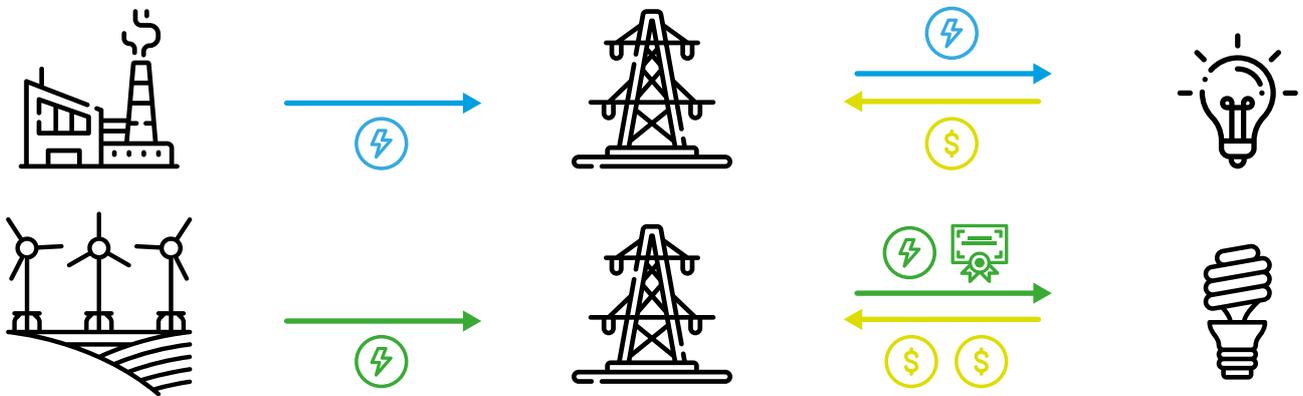
or a vanilla bond. From the same bond issuance, some bond buyers can buy dark green bonds or light green bonds, while others buy vanilla bonds depending on whether they pay a premium or provide any other additional economic benefits, so that in return some MOS are appended to the bond. The shade of green will depend on the amount of MOS appended to the bond. The mitigation outcome units that will be used to pay for the appended MOS should be entirely, or at least largely, sourced from the organization's activities that were targeted to be financed with the proceeds of the bond at the point of issuance of the green bond. For example, mitigation outcome units cannot be bought from the carbon market and simply be combined with a regular bond to make a green bond without any

mitigation outcomes from the activities financed with the proceeds of the bond. The MOS is expected to represent the green attribute of the financed activities. However, mitigation outcome units can be acquired by an issuer from the carbon market and be used to further darken the shade of green of an already green bond, including to compensate for any deficit of mitigation outcome units that the issuer committed to delivering to the green bond buyer. The key difference here is that the mitigation outcome units acquired from the carbon market are used to pay only partly for the MOS of a bond that is

already green because its proceeds have financed activities that have generated mitigation outcome units (but not as much as initially expected) and not to green a regular vanilla bond financing activities in an investment plan that are, taken holistically, not generating mitigation outcome units.

Figure 3 below shows a comparison between the green electricity market based on the trading of conventional electricity and renewable electricity certificates and the green bond market based on the trading of vanilla bonds and MOS.

Green electricity market



Green bond market

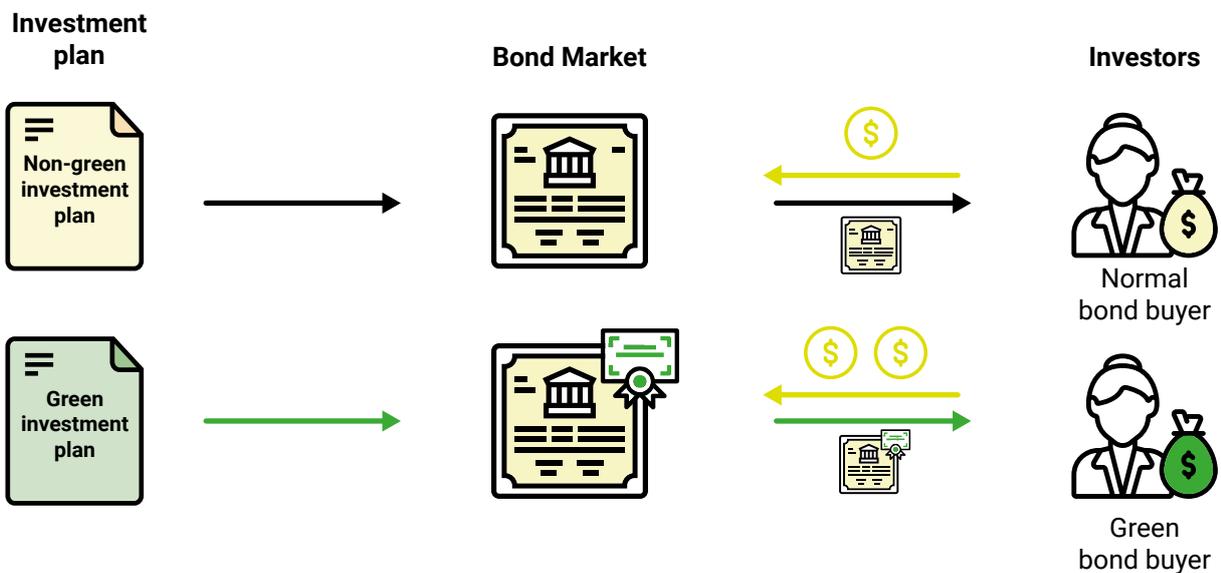


FIGURE 3: Comparison between the green electricity market and the green bond and the green bond market

6.2

FEATURES OF PROPOSED GREEN BOND FRAMEWORK

The green bond framework proposed in this paper departs from the current green bond framework in that it does not:

1. require providing the issuer with additional benefits compared with the prevailing financing conditions;
2. require the use of these additional benefits to fill the viability gap of the activities aimed at developing or deploying climate technologies or products;
3. require the formal transfer of the green attribute of the project (the mitigation outcomes associated with the implementation of the financed assets) from the bond issuer to the bond buyer as part of the green bond transaction; and
4. address climate performance gaps in the activities of the issuer that are not financed with the bond's proceeds.

The lack of formal transfer of the green attribute in the form of MOS from the issuer to the buyer in the current green bond framework could explain why bond buyers are not eager to pay a premium. It also makes double counting and double claiming possible. From this analysis, it can be derived that the necessary and sufficient conditions for a UoP bond to serve the climate goals, and therefore be labelled green, are fivefold:

- a. The proceeds of the UoP bond are exclusively used to finance or refinance projects, assets or business activities aimed at developing or deploying climate technologies or products and generating mitigation outcomes;

- b. The proceeds of the UoP bond provide an economic benefit to the issuer compared with the prevailing baseline financing conditions;
- c. The above economic benefit contributes to filling the financial viability gap of the projects, assets or business activities aimed at developing or deploying climate technologies or products that would otherwise not be developed or deployed and mitigation outcomes that would not be generated;
- d. In exchange for the economic benefit, all or part of the green attributes of the financed or refinanced projects, assets or business activities in the form of MOS are transferred, appended to the bond, from the issuer to the buyer. With a robust carbon market, the bond buyer will make gain by selling the MOS.
- e. Before transferring the mitigation outcome units to pay for the MOS, any climate performance gap from other activities of the issuer financed after the issuance of the bond should be offset using the mitigation outcome units generated by the activities financed with the proceeds of the bond. Only the leftover mitigation outcome units will be used to pay for the MOS. If no mitigation outcome unit is left to pay for the MOS, the bond cannot be considered green.

6.3

REDEFINING GREEN BONDS

In the primary market, a green bond is characterized as follows:

- A bond acquired with, and to which are appended, MOS; future repayment of the MOS is made using mitigation outcome units that are at least partly

generated by the assets or business activities its proceeds finance. These assets or business activities of the issuer generate the mitigation outcomes by developing or deploying climate technologies or products. In exchange for the MOS, the bond buyer pays a premium or provides to the issuer another type of economic benefit compared with its baseline source of financing;

- The future mitigation outcome units intended for the repayment of the MOS and that will be generated by the assets or activities financed by the proceeds of the bond should be used firstly to compensate any climate performance gaps in the issuer's other assets or activities financed after the bond issuance but not with the bond's proceeds. After these offsets, mitigation outcome units should be left for repayment of the MOS to the bond buyer for the bond to be confirmed green;
- In return for the economic benefit arising from the issuance of green bonds, the issuer fills the viability gap of climate solutions generating mitigation outcomes. It is to be highlighted that there is no need to track the proceeds of the green bonds to confirm what they are used for. It is sufficient to establish that the issuer has implemented climate solutions with a viability gap generating mitigation outcome units and that, after the offset of any climate performance gaps in its investment plan, there are mitigation outcome units left over to transfer to the bond buyer for the payment of the MOS. What the proceeds were used for does not matter;
- The shade of green of the bond is measured by the amount of MOS appended to it per unit of financial resources.

In the secondary market, a green bond is a bond acquired with, and to which are appended, all or part of the MOS that were transferred from the bond issuer to the bond buyer in the primary green bond market. The shade of green of the bond is measured by the amount of MOS appended to it per unit of financial resources.

It is important to further stress that while mitigation outcome units generated by activities different from those financed by a green bond can be acquired from the carbon market and used for the repayment of the MOS that were appended to a green bond to fill a gap in the mitigation outcome units generated by the activities financed with the proceeds, they cannot be appended to a normal bond to make it become green. This avoids a situation whereby a bond whose proceeds are not used to finance activities generating mitigation outcomes can become green simply because some mitigation outcomes generated by green activities and bought separately are attached to it.

While the current definition of a green bond was based only on the financing or refinancing of assets or business activities that generate mitigation outcomes, the above proposed definition requires the buyer to provide economic benefits compared with the prevailing financing conditions that enable the generation of mitigation outcomes that would otherwise not be generated, and the mitigation outcome units are transferred from the green bond issuer to the green bond buyer. Figure 4 provides a decision tree to assess whether a bond is green.

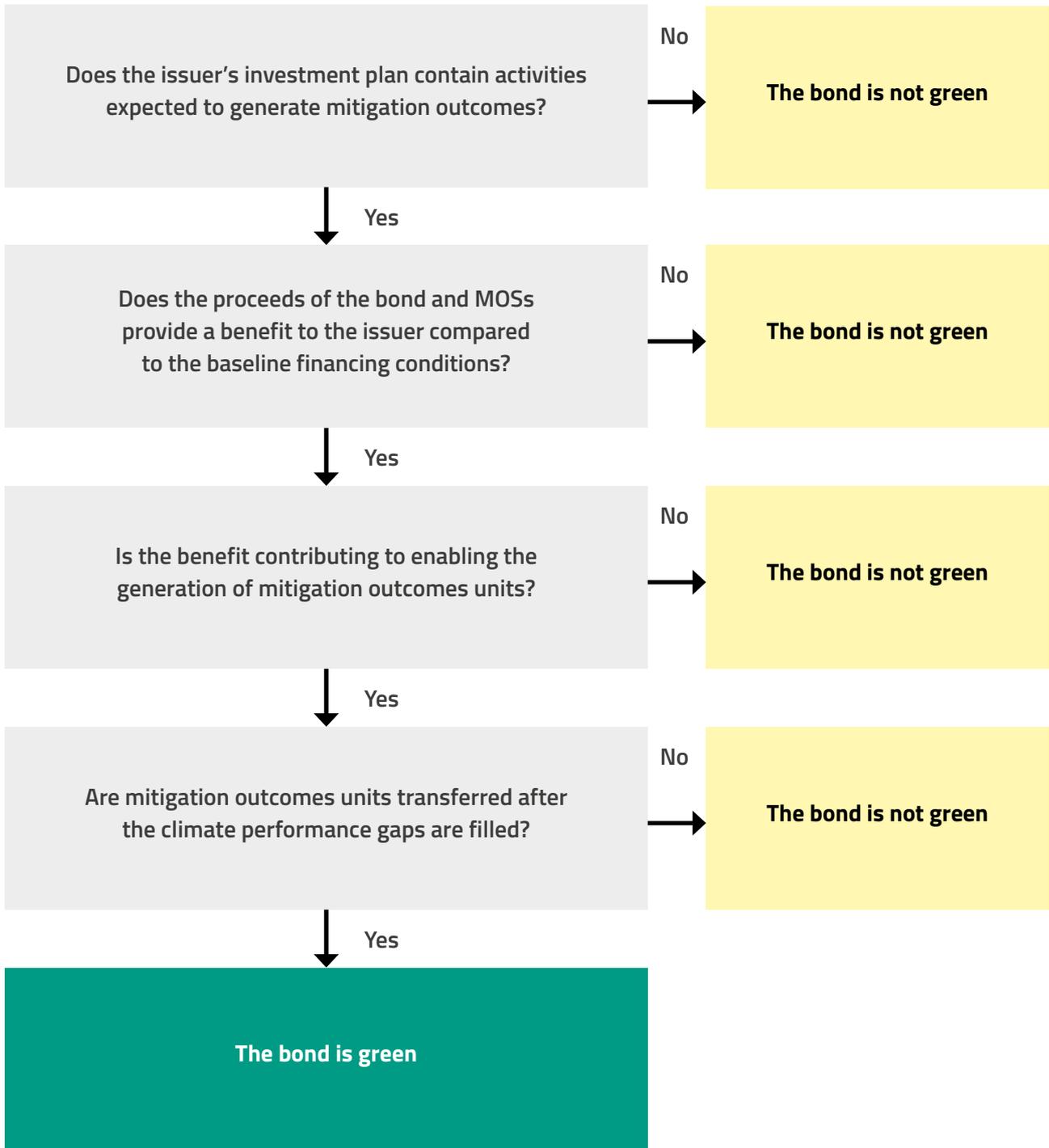


FIGURE 4: Decision tree to assess whether a bond is green

6.4

USE OF PROCEEDS

There is no need to demonstrate that the proceeds of the bond have been used to finance assets or activities generating mitigation outcomes. The issuer transfers to the financiers, alongside the bonds, mitigation outcome units that represent the green attribute of the green bond. The issuer should simply establish that:

- Mitigation outcome units have been used to offset any climate performance gaps related to the issuer's projects financed after the issuance of the bond;
- The leftover mitigation outcome units are transferred alongside the bond to the buyer to green the bond.

rate. This means that the interest to be paid by this sovereign green bond will be lower if the mitigation outcomes are transferred to the investors. The proceeds of the green bond will be used as concessional loans. This will contribute to improving the limited profitability of mini-grid investments and make them meet the risk/return expectation of potential project developers.

This sovereign green bond issued by Nigeria will therefore contribute to filling the competitiveness gap of the mitigation projects it finances and be among the first green bonds in compliance with the proposed definition of green bonds. The anticipated incentive for the financier is the promise of mitigation outcome units that the project will generate. However, it will be an incentive only if the financier can make a capital gain from it. Hence the importance of designing and implementing a framework that can transform the financier's acquisition of these mitigation outcome units into a capital gain.

6.5

COMPLIANCE OF ISSUED GREEN BONDS WITH THE PROPOSED GREEN BOND FRAMEWORK

The Swedish Energy Agency-Nigeria virtual pilot green bond appears to be the first issued green bond that offers an option that can comply with the proposed definition of green bonds. It is a sovereign green bond issued in Nigeria to mobilize low-cost financing from the capital market and enable Nigeria to exceed a mini-grid capacity target based on the use of renewable electricity that has been derived from its nationally determined contribution. International investors can opt to receive the mitigation outcomes in return for a reduced interest

7. Conditions for the operationalization of the proposed green bond framework: integration of the green bond and carbon markets and related benefits

To achieve the Sustainable Development Goals and the long-term goals of the Paris Agreement, considerable green and sustainable investments are required, especially to build new infrastructures in developing countries or to renovate existing ones in developed countries. The International Energy Agency estimates that the necessary investments amount to around USD 1.5 trillion per year from now up until 2050, in addition to the current level of investment, for a green and inclusive transformation that limits the global temperature increase to below 2 °C.

This considerable amount of financial resources cannot be provided by the public sector alone. Private investors, especially institutional investors, must also be involved and they have the capability to fill the gap. Indeed, private finances are largely available. Global capital markets are in a phase of exceptional liquidity with the real interest rate for risk-free assets hovering at around zero, with some occasions of negative interest rates. How-

ever, these sources of low-cost financing are not usually available for green activities in developing countries that are perceived as being too challenging to implement, financially risky and individually too small to warrant the costs of conducting the necessary due diligence. The returns required for private investment in many developing countries' green projects are very high compared with the very low interest rates experienced in developed countries. Carbon finance from the traditional carbon market, generated through results-based financing mechanisms, is not appropriate to fill the viability gap of green projects with no access to low-cost financing because:

- It is not an ex ante enabler that can turn a green project with a viability gap into a financially attractive project but rather an ex post hypothetical reward and therefore does not always facilitate compliance with the risk/return expectations of the capital market;

- The limited access to the international capital market means that only financial resources with a high interest rate will be available in many developing countries for green projects, resulting in an even more important viability gap to fill.

Instead of aiming at filling the viability gap of green projects in the investment plan of an issuer with no access to low-cost finance from the capital market, climate finance – including carbon finance – should be used where possible to make these green projects meet the risk/return expectations of the international capital market.

7.1

INTEGRATING THE GREEN BOND AND CARBON MARKETS

One condition for a financier to be able to claim that it holds a green bond is that MOS (future repayment of which is made using mitigation outcome units generated at least partly by the issuer’s activities) must be appended to the bond. The bond buyer pays a premium or provides an alternative economic benefit equivalent to the cost of the appended MOS. The shade of green of the bond will be determined by the MOS/price ratio of the bond. The MOS are determined based on an ex ante calculation, while the related mitigation activities are only at the planning stage in the issuer’s investment plan.

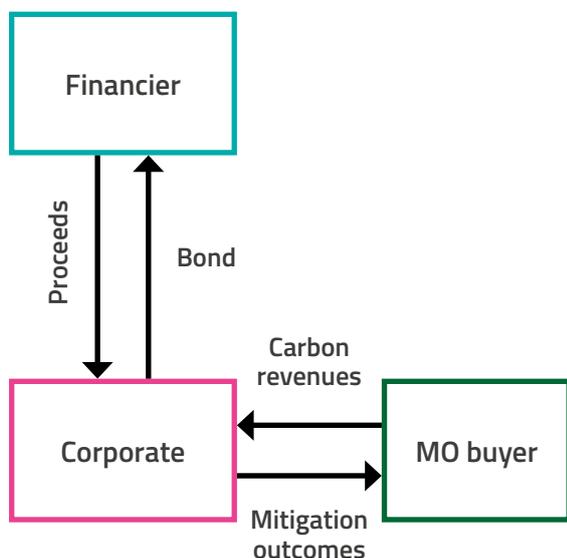
A liquid market for the MOSs, driven by demands from governments, corporates, other financiers and individuals, will be needed to attract financiers in an integrated green bond and carbon market as illustrated in figure 5 below. With a sustainable high

demand for mitigation outcome units, mainstream financiers will be strongly incentivized to buy genuine green bonds that have MOS appended to them, which means investing in activities that promise to generate mitigation outcomes. They will accept to pay a premium for a green bond if they are able to make an additional capital gain from it through the sale of the MOS in the carbon market. The more the demand is robust, leading to attractive prices for the MOS, the more investors will accept to pay the premium that will lower the financing cost of activities aimed at developing or deploying climate technologies. The green bond and carbon markets will then be integrated. The development of the carbon market leading to higher demand for mitigation outcomes will pull forward the green bond market that will provide the supply of mitigation outcome units. In addition, the development of the green bond market will foster the scaling up of activities supporting the climate goals.

To strengthen this incentive, governments and private sector stakeholders should (1) have ambitious mitigation objectives aligned with the climate goals; and (2) acquire mitigation outcome units to compensate any gaps in meeting those mitigation objectives.

With a disconnected green bond and carbon market, corporate and mitigation outcome buyers transact directly in the carbon market in which financiers are not involved. In an integrated green bond and carbon market, mitigation outcomes and carbon revenues are transacted between corporate and mitigation outcome buyers through financiers.

Disconnected green bond and carbon market



Integrated green bond and carbon market

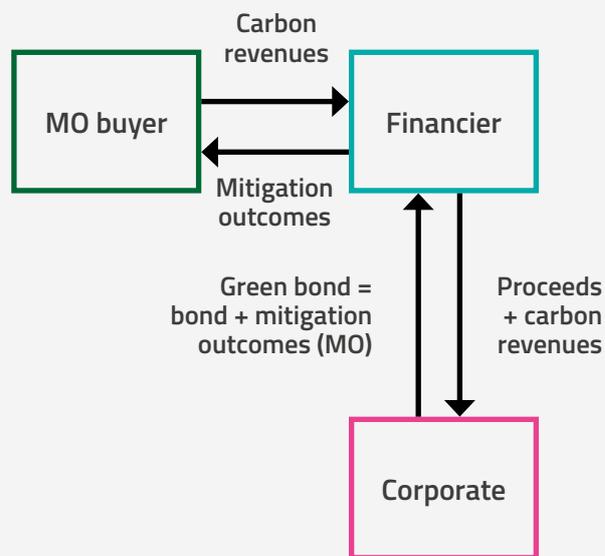


FIGURE 5: Disconnected and integrated green bond and carbon markets

7.2

KEY BENEFITS OF AN INTEGRATED GREEN BOND AND CARBON MARKET

The integration of the green bond and carbon markets as proposed above will have several benefits for the climate.

1. Enhanced transparency, objectivity and environmental integrity

The proposed green bond framework will increase the transparency of the green bond market by providing an objective definition of green that does not provide room for misinterpretation and that is easy

to assess. This will protect investors from the accusation of 'green washing'. It will also address the issue of multiple claims in the current green bond framework under which both the issuer and the buyer can claim the green attribute of the activities.

2. No need to track the use of proceeds

In the current green bond framework, significant efforts need to be deployed for the tracking of the UoP. However, this is not effective as it does not address the environmental integrity issue arising from the issuance of a green bond by an organization whose investment is dominated by carbon-intensive projects. Indeed, even if the issuer can establish that the proceeds of the bond are financing ring-fenced green projects in its carbon-intensive investment plan, it should not be able to claim that its bond is green. The proposed framework addresses this issue while requiring no tracking of

the UoP. Mitigation outcome units generated by the activities should be left for transfer after the offset of any climate underperformance of the activities in the investment plan. This requires the investment plan to be green overall and establishes that the proceeds are used to finance the implementation of a green investment plan.

3. Optimal use of public climate finance to enable impactful climate action

Ensuring the optimal use of public climate finance to enable impactful climate action is an important argument supporting the integration of the green bond and carbon markets.

To achieve the objectives of the Paris Agreement, the use of scarce public climate finance must be transformative, effective and efficient. The 'power to transform' attribute requires public climate finance to be used in a way that enables and catalyzes the actions expected from all stakeholders (subnational stakeholders, policymakers in the supported host country, corporates and financiers) for the implementation of impactful climate solutions. It can have as a metric tons of carbon dioxide equivalent (t CO₂ eq) reduced as a result of the public climate finance. The attribute of effectiveness requires the public climate finance to mobilize, for a climate solution, private finance that would otherwise not be available and in the absence of which the climate solution would not be possible. The related metric could be the volume of private finance leveraged by the public climate finance. The attribute of efficiency requires the maximum impact for a given amount of public climate finance. The related metric could be t CO₂ eq per unit of public climate finance.

a. Transformative public climate finance

Public climate finance is not used at scale as an upfront enabler to de-risk green projects and fill viability gaps that could compromise their access to mainstream low-cost financing. Instead, climate finance is mainly used as loans, crowding out private finance. With regard to carbon finance, it is used as an ex post reward, through results-based financing mechanisms, after the implementation of a green project. This means that only climate activities that meet the risk/return expectations of mainstream finance in the first place can have access to low-cost financing. Those that do not will present a larger profitability gap and compromised viability with a very low probability of being implemented when using baseline sources of finance, which have a much higher interest rate. If climate finance is used to acquire mitigation outcome units supplied by financiers which provide them with an additional source of revenue, buying green bonds could become a common investment activity for mainstream financiers. The cost of financing green activities could then decrease below the cost of financing other types of activities to reflect the availability to financiers of this additional source of revenue if they buy green bonds. This will also change the functioning of the green bond market. With an integrated carbon and green bond market, the demand for mitigation outcome units expected to be supplied by financiers will foster green activities. Financiers that have secured a demand for mitigation outcome units will be interested in actively looking for entities implementing green projects with a view to financing them and obtaining in return, alongside the payment of the loan, the mitigation outcome units.

Financiers and corporates are the main players in the corporate green bond market. Climate policymakers are to a large extent absent in the market. In the carbon market, financiers are largely absent. Corporates and policymakers are the key players in the carbon market as suppliers and buyers of carbon units, respectively.

The integration of the green bond and carbon markets will mobilize all the required actors for the enabling of climate solutions: policymakers, corporates and financiers. By fostering climate actions not only at the level of corporates but also at the level of their key enabling entities (financiers and policymakers), the proposed green bond framework will bring about transformative change in facilitating climate action.

b. Effective public climate finance

Public climate finance is used to fill the viability gap of green activities.

Public climate finance enables a shift of the capital market’s mainstream finance towards climate solutions that would otherwise not happen. The private sector is crowded in.

c. Efficient public climate finance

Using public climate finance to buy mitigation outcome units from financiers, thus facilitating the access of green activities to low-cost private finance, is much more impactful than buying the same mitigation outcome units directly from corporates or using climate finance for direct lending. Figure 6 illustrates how the additional revenues for financiers from the trading of mitigation outcome units can lower the cost of finance for green projects and fill their viability gap. It addresses the case of green activities presenting a viability gap even if they have access to low-cost finance from the international capital market.

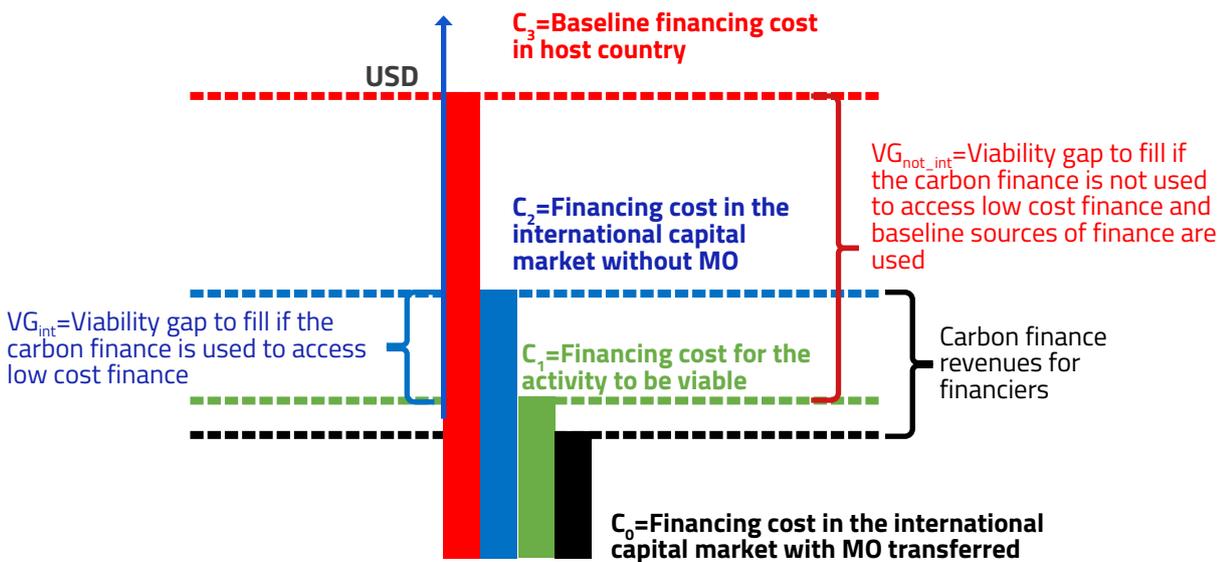


FIGURE 6: Capital gain saved for the financier and public climate finance in an integrated green bond and carbon market

C_1 , C_2 and C_3 are respectively:

- C_1 = the maximum financing cost for the activities in the company’s investment plan to be viable after they have mobilized available support from relevant stakeholders with the exception of debt providers. After all other variables have been fixed, this is the financing cost that will make the NPV of the project equal to zero;
- C_2 = the baseline financing cost in the international capital market which is equal to the financing cost for vanilla bonds;
- C_3 = the baseline financing cost in the financial market of the host country.

While the traditional carbon market acts as an ex post reward, an integrated carbon and green bond market will operate as an ex ante enabler. Indeed, rating agencies evaluate bonds at the time they are issued. Therefore, the assessment of the credit quality of debt securities and their issuers will not necessarily factor in, as assets in the balance sheet, possible future carbon revenues from green projects that are yet to be implemented. If the green projects present viability gaps, the expected future carbon revenues will not usually be able to fill them, which will affect the creditworthiness of both the bond and its issuer and be a barrier to access to low-cost finance. In making investment and business decisions, investors use the ratings as an input to assess the relative credit risk of an issuer or an individual debt issue and its compliance with their own risk tolerance or credit risk guidelines. Where there is a gap, they will not invest. Given that the prevailing interest rates in the domestic financial markets of developing countries are far higher than the interest rates in the international capital market, a broad range of green projects in developing countries will not be viable and therefore will not be implemented because those projects have no access to low-cost financing from the international capital market.

Where the green bond and carbon markets are integrated, financiers can first secure the demand for mitigation outcomes and ascertain how much revenue they will receive from trading them. They can then take into account this additional source of revenue when determining the financing cost of debt securities that gives them access to mitigation outcomes. This will result in lower-cost finance for green projects.

In addition to the payment of a loan for vanilla bonds, green bond contractual arrangements will also include obligations related to the transfer of mitigation outcomes from the issuer to the bond buyer as repayment of the MOS. Corporates will, at least in part, have to honor this obligation using mitigation outcomes generated by the projects

financed with the proceeds of the green bond. Where they fail to fully deliver the promised mitigation outcomes from their projects, they will still have to reimburse, alongside the loans, the mitigation outcomes they committed to delivering, for example by buying them from the carbon market. For a financier that has already secured a demand for mitigation outcomes, this will reduce uncertainties regarding the quality of the bond and enhance the predictability of its future revenue. A contractual commitment to deliver mitigation outcomes for which the financier has secured a demand presents far fewer uncertainties than mitigation outcomes expected to be generated in the future by activities yet to be implemented and considered as assets in a balance sheet, with very limited predictability concerning their size and future value.

To maximize the impact of public climate finance, it should be prioritized for buying MOS appended to green bonds, that is, bonds whose proceeds are used to finance an investment plan with projects with an NPV when using baseline financing sources, such as the proceeds of vanilla bonds (a project in which $C2 > C1$, as illustrated in figure 6).

For a bond to be green, it has to finance an activity that, if it was financed at the cost of vanilla bonds, would present a viability gap, currently filled using the additional revenue from the trading of the MOS appended to it. Such types of activities have access to the lower financing cost of green bonds because they generate mitigation outcomes and, in the absence of the lower financing cost of green bonds, they would not be implemented, and the mitigation outcomes would not be generated.

4. Advantages for green financiers

Financiers will have the choice to either cancel the mitigation outcome to demonstrate a climate contribution or trade the mitigation outcome. As shown in chapter 7.2., the MOS can be an important source of capital gain for mainstream financiers. In

addition, green bond buyers are protected against the incrimination of 'green washing'. As there will be no possibility of 'green washing', green bond buyers will be able to fully enjoy reputational advantages compared with financiers investing in corporates undertaking activities that are misaligned with the climate goals.

5. Governments buying from financiers mitigation outcomes generated from developing countries can claim the mobilization of private climate finance for the benefit of those developing countries

In addition to increasing the effectiveness and efficiency of climate finance, the proposed green bond framework could provide some other interesting benefits to governments buying MOS appended to green bonds issued from developed countries. Indeed, buying those MOS would contribute to enabling green activities in developing countries to meet the risk/return requirements of the capital market and provide them with access to low-cost financing.

If mobilization of private finance for activities serving the climate goals is a core component of the climate finance, there is a need for a sound, objective and transparent approach to its accounting. There are many voices recognizing the limitations in the current accounting system for mobilized private finance. Under the proposed green bond framework, governments buying mitigation outcomes appended to green bonds issued from developing countries would directly contribute to the mobilization of their proceeds which, if considered as private climate finance, would be easy to quantify. Developed countries buying the MOS associated with the issuance of green bonds in developing countries would be able to claim the transfer to those developing countries of part of the green

bond proceeds, proportional to the amount of mitigation outcomes they have bought. This could be an important incentive for developed country governments to buy mitigation outcomes appended to green bonds from financiers rather than buying them from corporates. Financiers can therefore expect a liquid market for the MOS transferred to them as the green attribute of the green bonds they have bought. In that sense, the development of the carbon market will drive the development of the green bond market. In addition, by enabling activities generating mitigation outcomes, the development of the green bond market will also support the development of the carbon market. The participation of financiers in the carbon market will also enhance its liquidity, facilitate price discovery and increase economic efficiency.

6. Operationalizing the disclosure of exposure to climate risks and opportunities

Another important benefit of integrating the green bond and carbon markets is that it can support the operationalization of the disclosure of climate-related risks and opportunities.

Investors' financial assets can be exposed to high climate risks or opportunities, including physical climate risk originating from extreme rapid onset events, such as intense typhoons or wildfires, or from slow onset events such as sea level rise or ocean acidification. They can also be exposed to transition risk arising from policies and regulations implemented to combat climate change. Finally, the risk can originate from technological innovations developed as a response to climate change threatening the business models of a financier's investee organization. These risks can have financial implications for a financier's portfolio. For investors with a long-term horizon such as pension funds and for impact investors, risk identification and management through corporate engagement is preferred

to divestment. If the risk is well managed, this will also contribute to the achievement of the climate goals. It is therefore important to operationalize the regulators' recommendations on disclosure of climate-related risks and opportunities not only for corporates but also for financiers.

Countries buying MOS appended to green bonds could set as a criterion for a financier selling mitigation outcomes to participate in their bidding processes the disclosure by the financier of the level of exposure of its financial assets to climate-related risks and opportunities.

This could be an effective incentive instrument to enhance financiers' willingness to (1) request corporates to disclose their climate performance; and (2) use the climate performance of their investee organizations to measure the climate performance of their own portfolio.

7. Turning carbon finance into an ex ante enabler to access the international capital market"

In the current carbon market, carbon finance is simply an ex post reward for corporates that have implemented green projects that are viable mainly because they had access to low-cost finance from the capital market. To date, countries with low capability to access low-cost finance have been able to implement only a limited number of the infrastructure projects they need for their development and have therefore prepared very few clean development mechanism projects under the Kyoto Protocol. This leads to an imbalance in the regional distribution of clean development mechanism projects. The need to achieve the Sustainable Development Goals coupled with the scale and urgency of climate action requiring prompt action in all regions does not provide any room for the recurrence of a situation where less than 20 per cent of Parties not

included in Annex I to the Convention accounted for more than 80 per cent of all clean development mechanism projects.

In an integrated green bond and carbon market, carbon finance will rather act as an ex ante enabler, an instrument that will facilitate access for green infrastructure projects in low capability countries to the international capital market, particularly when coupled with global de-risking instruments. This will boost the green bond market, diversify the supply side and help shift the USD trillions from mainstream investment to green investment, including in developing countries. It will no longer reward only corporates that have already mobilized finance and implemented green projects. It will mainly incentivize investors to pay a premium by buying MOS appended to genuine green bonds, the proceeds of which will finance genuinely green projects.

8. Benefit compared to the EU Taxonomy combined with the EU Green Bond Standard

The combination of the EU Taxonomy with the EU Green Bond Standard improve significantly the current green bond framework. Indeed, if under the EU Taxonomy, only activities aligned with the 1.5 °C goal are eligible, this is an important step forward. However, it is not enough. Because that framework does not include an instrument to fill any viability gap of green activities and financiers will not invest in green activities just for moral reason, it will promote only the green activities without any viability gap meaning those that would have been implemented anyhow even in the absence of the EU taxonomy and the EU Green Bond Standard. As shown in section 3.2, this will not increase the volume of mainstream finance redirected toward green activities. It will simply increase among the financing activities that would have anyhow occurred, the share that will be labelled green bond.

The EU Taxonomy has also the advantage of being able to consider the entire portfolio of a company. It can also address the issue of cherry picking whereby companies bring out their green activities and are silent about their brown activities. However, the aggregation done across the portfolio cannot take into account the shade of green or the shade of brown. For example, it cannot distinguish between (i) a combination of 100 MW wind plus 100 MW oil and (ii) a combination of 100 MW wind plus 100 MW coal.

The framework we propose in this paper is strictly forward-looking. It does not consider the existing operating assets of a company. It focus on the assets in its investment plan. Indeed, this is what is relevant to a debt provider as this is what its money will be used for.

7.3

ADDITIONAL BENEFITS OF THE PROPOSED GREEN BOND FRAMEWORK

1. Empowering financiers to play a greater role in addressing climate change

The carbon market is an important instrument to make green investment economically competitive. Providing investors with an opportunity to directly influence its development alongside policymakers will empower them to contribute to achieving the climate goals.

Bond buyers will provide the financial resources needed to build the green infrastructures for the 2030 Agenda for Sustainable Development and the Paris Agreement. If they require the bonds to be green with MOS appended to them, as a criterion for them to invest, the economic sector will then turn green. They should therefore be incentivized and empowered to play a role in the carbon market, supplying to governments the mitigation outcomes needed for compliance. This will result in financiers that are very influential stakeholders, being more engaged in requesting policymakers to make more ambitious commitments for an enhanced demand of MOS.

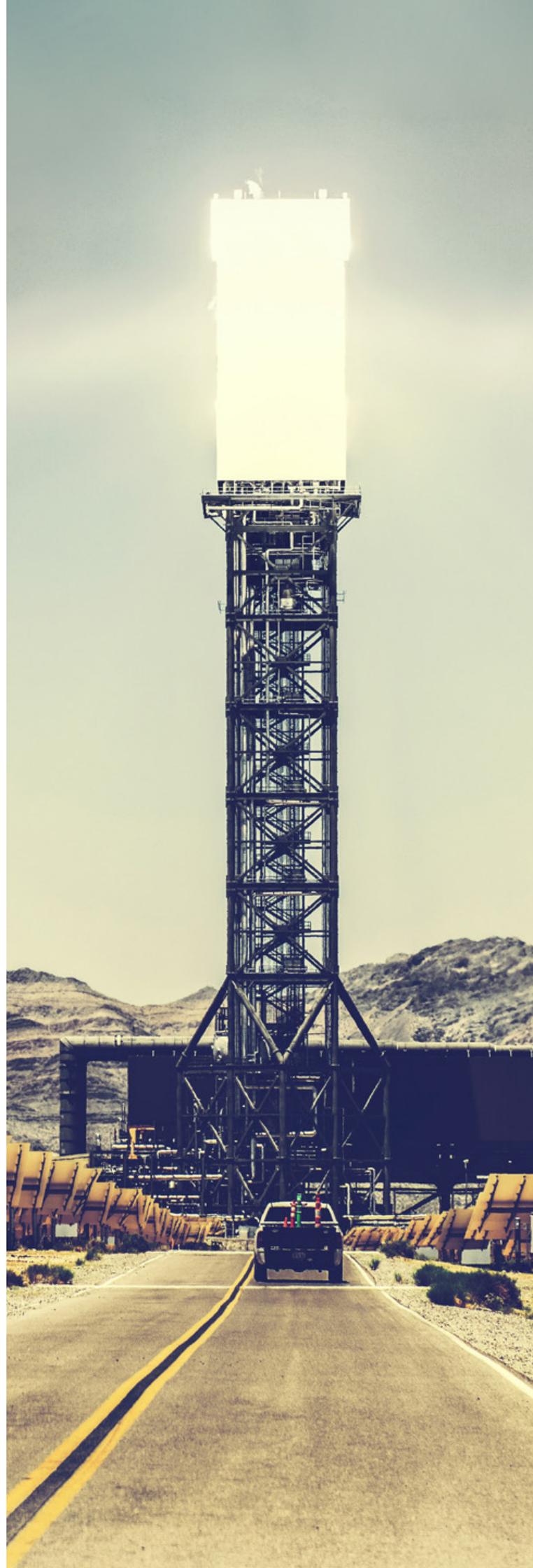
2. Transfer of a tangible product the buyer must pay for as a condition for the bond to be green

The proposed definition of green bonds inherently addresses the issue of benefit for the issuer by requiring, as a condition for the bond to be green, the purchase by the bond buyer of MOS appended to the bond by the issuer.

3. The bond and the green attribute of the bond, in the form of mitigation outcome, can be sold separately

The bond and the green attribute of the bond, in the form of mitigation outcome, can be sold separately. In the primary market, the issuer of the bond can decide on the shade of green of the bond it will issue by appending more or less MOS to the bond. The buyer can also decide to buy bonds with or without their green attribute, as well as on their shade of green.

Bond owners can sell the bond in the secondary market, with fewer green attributes. To make capital gain from the green bond, the bond owners will not rely solely on demand from climate-conscious investors in the secondary bond market. They can also sell separately the bond in the secondary market as a vanilla bond and the green attribute of the bond in the form of MOS in the carbon market.



8. Conclusions

Over the last five years, the use of UoP green bonds has expanded and is now a source of funding for a wide variety of climate, environmental and social initiatives. To progress towards achieving the climate goals of limiting global temperature increase to 1.5 °C above pre-industrial levels, green bonds that are aiming at addressing climate change must continue to empirically validate and measure the amount of GHG emission reduction resulting from real economy projects. By doing so, innovative new financing products that can offer strong returns, such as the MOS discussed in this paper, can drive markets to finance GHG mitigation projects and a sustainable world.

To empirically validate green bonds to advance GHG emissions reduction, there must be a more impactful and more attractive framework that specifically recognizes and rewards the climate contribution of bond investors. Many bonds currently promote marginally green activities that could have been financed from a standard corporate bond. Other bonds that address the Sustainable Development Goals can be appealing to issuers, investors and validators/verifiers; however, their UoP often addresses green uses but does not contribute to the 1.5 °C climate goal as they are not enabling green activities that otherwise would not be possible. There is a dire need to accelerate the reform of the green bond framework to make it support the climate goals and drive down GHG emissions.

Mainstream bond investors buy bonds to meet their investment preferences. This means that a bond that funds climate improvements but delivers sub-par returns is not enough for most investors.

The source of recourse in the event of default for many UoP green bonds is the bond issuer. The credit quality of the issuer is often higher than the green project and is the primary security (and reason) for the investors purchasing the bond. However, if investors could better visualize and be rewarded for the benefits of green projects, as well as the credit quality of the issuer, more liquidity would flow into genuinely green bonds, supporting the climate goals. For the time being, the current investment profile of green bonds is a limitation and makes the product incomplete.

This limitation can be addressed through the proposed integrated green bond and carbon market via a new financial product: the MOS. The MOS would be akin to a warrant attached to a bond and would act as an additional source of return, tied to the amount of GHG emissions reduced by the green project and the price of carbon. This is especially timely as talk of carbon pricing and carbon markets is advancing at pace. The MOS would be a commitment to deliver a unit of GHG emission reduction (a promised mitigation outcome unit) attached to the bond. It can be sold and traded immediately after the issuance of the green bond, before its maturity date, which is the date on which the actual mitigation outcome unit become due to the MOS holder. The maturity date of the MOS will be linked to the date on which the GHG emission reduction associated with the green project is expected to occur. This transforms the current carbon finance, which is an ex post reward in the current carbon market, into an ex ante enabler in the form of additional benefit for the green bond issuer in an integrated green bond and carbon market.

To meet the conditions required for the climate bond to be a financial instrument that serves the 1.5 °C climate goal, a new definition of green bond is proposed:

In the primary market:

- A green bond is a bond acquired with an appended MOS. Future repayment of the MOS is made using mitigation outcome units that are at least partly generated by activities financed by the proceeds of the bond. In exchange for the MOS, the bond buyer pays a premium or provides to the issuer another type of economic benefit compared with its baseline source of financing;
- The future mitigation outcome units intended for the repayment of the MOS and that will be generated by the assets or activities financed by the proceeds of the bond should firstly be used to compensate any climate performance gaps in the issuer's investment plan. After these offsets, mitigation outcome units should be leftover for the repayment of the MOS to the bond buyer;
- As a counterpart of the economic benefit arising from the issuance of the green bond, the issuer fills the viability gap of the climate solutions that generate mitigation outcome units. What the proceeds of the green bond were used for becomes irrelevant;
- The shade of green of the bond is measured by the amount of MOS appended to the bond per unit of financial resources.

The proposed integrated green bond and carbon offset and trading market framework has several benefits. If implemented, it will directly contribute to the climate goals by shifting mainstream finance towards effective climate solutions. It will also enhance the transparency, objectivity and environmental integrity of the green bond market by providing an objective definition of green bonds that does not provide room for misinterpretation and that is easy to assess, therefore protecting its users from the accusation of 'green washing'. It will enhance the efficiency and effectiveness of climate and carbon finance by crowding in private finance. Developed countries buying MOS issued from developing countries can claim the facilitation of access to easily quantifiable private finance. Countries buying MOS, by setting as a condition for participation in their bidding processes the disclosure by the financier of the exposure of its financial assets to climate-related risks and opportunities, can incentivize the implementation of initiatives concerning the disclosure of climate-related risks and opportunities. Financiers, that are influential stakeholders, will have additional reasons to undertake policy advocacy for enhanced climate ambition by policymakers, as this will lead to enhanced demand for MOS.

References

1. European Commission (2016) *Study on the potential of green bond finance for resource-efficient investments*. European Union, Luxembourg. Available at: <http://ec.europa.eu/environment/enveco/pdf/potential-green-bond.pdf>.
2. EU Technical Expert Group on Sustainable Finance (2019) *TEG Report: EU Green Bond Standard*. Available at: <https://www.politico.eu/wp-content/uploads/2019/06/EU-GREEN-BOND-STANDARD.pdf>
3. T. Ehlers and al (2017) *Green bond finance and certification*. Bank for International Settlements, Basel, Switzerland. Available at: https://www.bis.org/publ/qtrpdf/r_qt1709h.pdf.
4. The World Bank (2015) *What are Green Bonds?* The World Bank Treasury and Public – Private Infrastructure Advisory Facility (PPIAF), Washington D.C., USA. Available at: <http://documents.worldbank.org/curated/en/400251468187810398/pdf/99662-REVISED-WB-Green-Bond-Box393208B-PUBLIC.pdf>.
5. UNDP (2016) *Green Bonds*. UNDP, New York, USA. Available at: <http://www.undp.org/content/sdfinance/en/home/solutions/green-bonds.html>.
6. The Economist (2017) *What makes bonds “green”?* The Economist, London, UK. Available at: <https://www.economist.com/the-economist-explains/2017/07/04/what-makes-bonds-green>.



About EIT Climate-KIC

EIT Climate-KIC is Europe's largest climate innovation initiative, leveraging the power of innovation in pursuit of a zero-carbon, climate-resilient, just, and inclusive society. Established in 2010 and headquartered in Amsterdam, EIT Climate-KIC orchestrates a community of more than 400 organisations including large corporations and SMEs, municipal and regional governments, universities and research institutes, as well as non-governmental organisations and uncommon actors. The organisation uses a portfolio approach for developing and deploying innovation to achieve systemic change in those human systems that matter for long-term prosperity, combining activities and innovation outputs from applied research, education, start-up incubation, and innovation ecosystem building. EIT Climate-KIC is supported by the European Institute of Innovation and Technology (EIT), a body of the European Union.

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About UNEP FI

United Nations Environment Programme Finance Initiative (UNEP FI) is a partnership between UNEP and the global financial sector to mobilize private sector finance for sustainable development. UNEP FI works with more than 350 members—banks, insurers, and investors—and over 100 supporting institutions—to help create a financial sector that serves people and planet while delivering positive impacts. We aim to inspire, inform and enable financial institutions to improve people's quality of life without compromising that of future generations. By leveraging the UN's role, UNEP FI accelerates sustainable finance.

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