



**CREATE - SHARE - CARE**

**Mélanie COMBLE**

Programme Grande École

Promotion 2018

*Sustainability bonds, a lever for sustainable economic development in emerging countries?*

**Master's thesis**

**Written under the direction of**

**Pr. Christophe REVELLI**

Associate Professor of Responsible Finance and Academic  
Director of the MSc Finance Program at KEDGE Business  
School

Bordeaux, France, June 2018

## Abstract

---

Addressing the sustainability challenges in developing markets is a priority to achieve Sustainable Development Goals defined by the United Nations in 2015. However, sustainable finance investments mainly focus on developed economies. The Green Bonds, as a fixed income instrument allowing financing eligible, identifiable and earmarked projects, is seen as a financial product able to bridge the gap between the sustainable finance market and the emerging economies.

The question of the suitability of the green bonds in the context of emerging markets has to be raised, as well as its relevance to finance solutions to the main sustainability challenges faced by those economies while insuring a sufficient level of risk management.

The green bonds issuances appear to be limited only to certain issuers profile in emerging markets, the sovereign and financial issuers, and to only attract the demand of a limited range of investors. Furthermore, the projects (re-)financed through Green Bonds do not have additionality, in the sense of triggering new sustainable solutions to key sustainability challenges faced by the emerging economies. However, the Green Bond market in emerging market is a fast growing and widening one, in terms of issuers, investors and projects financed, and an impactful one in terms of knock-on effect on the overall sustainability approaches on the market.

Key words: Sustainable development; Sustainability and Green Bonds; Emerging markets

# Acknowledgments

---

I would like to thank Christophe Revelli, my supervisor for this dissertation, for his understanding and his patience during the realisation of this paper, but also for introducing me to the thrilling topic of Socially Responsible Investment during my first year of master.

I would also like to thank Dr. Julia Haake, my manager during my time at oekom research for her support, her enthusiasm, for being inspiring and for having introducing to me the topic of green bonds. Thank you also to my other former colleagues from oekom research who always took time to discuss their expertise and who always considered my point of view as valuable.

I also thank Anne-Claire Impériale, my manager at Sycomore Asset Management, who always has been supportive, who gave me precious advises on the realisation of this paper, and from whom I learned so much.

I would also like to thank Marine for our long working session on our respective papers, and Gabrielle and Marion for their caring proofreading.

Finally, I want to thank the respondents of my questionnaire who took time to discuss with me the topic of green bonds with a focus on emerging markets for the purpose of this paper. Those talks have been as helpful as inspiring.

## Table of content

<b>Abstract</b> .....	<b>I</b>
<b>Acknowledgments</b> .....	<b>1</b>
<b>Chapter 1. Introduction</b> .....	<b>1</b>
<b>1.1. Problem statement</b> .....	<b>1</b>
<b>1.2. Purpose &amp; research question</b> .....	<b>1</b>
<b>1.3. Research method</b> .....	<b>2</b>
<b>Chapter 2. Literature review</b> .....	<b>4</b>
<b>2.1. Definition of key concepts</b> .....	<b>4</b>
2.1.1. Sustainable development .....	4
2.1.2. Emerging markets .....	5
2.1.3. Green, Social and Sustainable Bonds.....	7
<b>2.2. Sustainability challenges in emerging markets</b> .....	<b>8</b>
<b>2.3. Financing sustainable development</b> .....	<b>11</b>
2.2.1. The need for investment on social and environmental solutions to achieve transitions goals.....	11
2.2.2. Green and social financial instruments .....	12
2.2.3. Green bond as an attractive investment tool to finance sustainable projects .....	13
<b>2.4. Green Bond issuances in emerging markets</b> .....	<b>16</b>
2.4.1. Typology of Green Bond issuers .....	16
2.4.2. Incentives for issuances .....	19
2.4.3. Issuances' risk management .....	20
<b>2.5. Investors' demand for green bonds issued in emerging markets</b> .....	<b>22</b>
2.4.1. Typology of investors and their specific demand .....	22
2.4.2. Incentives for investors to join the Green Bond Market .....	24
2.4.3. Risk management of investment in Green Bonds .....	25
<b>2.6. Impact of Green Bond on sustainable development</b> .....	<b>26</b>
2.6.1. Measuring the impact of investment .....	26
2.6.2. Additionality of projects financed through Green Bonds.....	28
<b>2.7. Hypothesis deduction</b> .....	<b>29</b>
A – The market of Green Bonds issued in emerging countries is more limited than the market of Green Bond issued in the developed one. ....	29

## Sustainability bonds, a lever for sustainable economic development in emerging countries?

B – Green Bond issuances do not trigger new sustainable solutions implementation but have a positive effect on the sustainability strategy of the issuer .....	29
C – The transparency and sustainability quality of the projects (re-)financed through Green Bonds in emerging economies are similar to the developed economies ones while the ESG risks remain higher in emerging markets.....	30
D – The demand for Green Bonds issued in the emerging markets is high, but only among a range of investors. ....	30
<b>Chapter 3. Empirical phase.....</b>	<b>31</b>
<b>3.1. Methodology .....</b>	<b>31</b>
3.1.1. Aim of the empirical phase .....	31
3.1.2. Data collection tool.....	31
<b>3.2. Key findings of semi-directive interviews .....</b>	<b>35</b>
3.2.1. Green bond market in emerging countries is not yet structured for mainstream investments .....	35
3.2.2. Countries, as issuers and regulators, are playing a key role on the emerging market development .....	38
3.2.3. Sustainability analysis of green bonds issued in emerging markets should be based on the same topics than the ones in developing market but not with the exact same expectations .....	39
3.2.4. Green bond has an overall knock-on effect on its stakeholders' ecosystem .....	44
<b>Chapter 4. Discussion .....</b>	<b>47</b>
<b>4.1. On hypothesis A – The Green Bonds market is indeed limited, especially in terms of issuers' profile, but is growing and is getting more diversified thanks to regional incentives.....</b>	<b>47</b>
<b>4.2. On hypothesis B – The additionality of Green Bonds stands in its capacity to have knock-on effects on the sustainability approach of SRI's ecosystem.....</b>	<b>48</b>
<b>4.3. On hypothesis C -The sustainable quality of the projects and process related to an emerging market Green Bond issuance is indeed as good as one issued in developed market while but the ESG profile of the issuer is often not .....</b>	<b>49</b>
<b>4.4. On hypothesis D - Not all types of investors are willing to invest in the green bond market of emerging market so far, but all recognize the credit and sustainable potential of this market.....</b>	<b>50</b>
<b>Chapter 5. Conclusion .....</b>	<b>51</b>
<b>5.1. Summary .....</b>	<b>51</b>

Sustainability bonds, a lever for sustainable economic development in emerging countries?

- 5.2. Policy and Managerial Implications ..... 52**
- 5.3. Academic literature implications ..... 54**
- 5.4. Limitations..... 55**
- 5.5. Direction for further research..... 55**
  
- Bibliography ..... 56**
  
- Annexes..... 60**
  - Annex 1 : List of emerging countries, World Bank, 2016..... 60**
  - Annex 2: Lower-middle income countries, World Bank, 2016 ..... 62**
  - Annex 3: Pre-issuance and post-issuances reviews, The Green Bond Principles V2, 201763**

# **Chapter 1. Introduction**

---

## **1.1. Problem statement**

“Sustainability is history’s biggest investment opportunity.” Al Gore, Peace Nobel Prize and former Vice President of the United States, pronounced this sentence in April 2018. Engaged since ten years in sustainable finance, this pioneer defines sustainable finance as “improving quality of life without borrowing from the future generation”. It aims to reconcile economic performance with positive impact on environment, society and stakeholders of financial markets by implementing long-term vision in investment strategies.

Historically, sustainable finance has been focused on stock and investing in shares. But since 2008, a new category of products emerge: the ‘sustainable bonds’. They are aimed to finance or refinance projects that have a social and/or environmental positive impact. Sustainable finance, green or sustainable bonds as part of this trend, is booming in developed economic markets. Those past three years, the sustainability bonds market started to raise in emerging markets, led by Chinese issuance.

In emerging markets, sustainable challenges are huge: the demographic growth is still high and the need for infrastructure, energy, food and other resources is growing the fastest. Emerging markets are also the ones where the inequalities, poverty; safety and hunger are at the highest level in the world. To operate an ecological and social transition toward a more equal and sustainable economy, those countries need funds when they are the most unwealthy ones. Sustainable finance should then target this region of the world, and green bonds, because of its proceeds which are supposed to be dedicated to green and/or social project should do the same. Green bond could be a useful product to finance green and social projects in emerging markets by putting the price of investment to the generation that will benefit from it.

However, the young green bond market developed itself first on developed market regarding the provenance of issuance, of investors willing to invest in and of standards that have been built in an Occidental point of view. Moreover, some controversial issuances have been lowering the level of confidence of some investors on the market.

## **1.2. Purpose & research question**

This paper is aimed to build a tentative exploration about the suitability of the ‘green’ and ‘sustainability’ bonds as a financial instrument in domestic emerging economies and markets and to address the sustainable risks and opportunities in those domestic economies.

Green bond issuances are prominent in mature debt capital markets as the European one. However, for three years, the Chinese issuances of green bond grew drastically to reach similar levels than the European ones and the first green bond issuances of the domestic market of emerging countries occurred, such as the sovereign Nigerian Green Bond issuance and the Mexico Airport Green Bond issuance. The question of the scale that the green bond will reach in those emerging markets is especially relevant because of the massive sustainable challenges that less developed economies are facing. To have a real positive impact on the sustainable economic development of those economies, the sustainability quality of the underlying assets and expenditures financed or refinanced through green or sustainability bonds must be satisfying, both in term of opportunities creation and of Environmental, Social and Governance (ESG) risks management. Strong credentials on the sustainability quality of a Green Bond are key to ensure trust and consistency on the green bond market, and especially in the context of emerging markets where key ESG opportunities (eg. founding of basic services and assets, of solutions to meet the Sustainability Development Goals defined by the United Nations) and key ESG risks (eg. in terms of Human Rights or environment pollution) are more vivid than in any mature economy.

**Research question: Are Sustainability Bonds a suitable financial instrument in the context of emerging markets? Are they a relevant instrument to finance solutions to the main sustainability challenges of those economies while insuring a sufficient level of ESG risks management?**

### **1.3. Research method**

To address this research question, the present essay is following a hypothetical deductive approach, including the formulation of hypothesis to answer the research question, the confrontation of those hypothesis against are the inputs from relevant stakeholders of the green bond market, the validation, alteration or information of those hypothesis to conclude on the paper implication in managerial, political and academic point of views.

As part as a constructivist approach which believe that reality is a construction, the most accurate methodology to collect data in an empirical process is the qualitative one. As the green bond market is rather new in a debt capital market perspective and as there is still a limited number of actors involved on this market so far, a quantitative data collection would not fit this special ecosystem.



Semi-directive interviews have been chosen to give the possibility to the respondents to express their views on the questions submitted while suggesting some other topic of discussion and opening the discussion.

To explore the opportunities of applying green bonds to emerging markets and of using those issuances to tackle sustainable development challenges that emerging countries are facing the most while following the research method described above, the thesis is structured as follow:

- The literature review (Chapter 2) is aimed to make the statement of the current research available on the topic of green bonds and its adaptation to emerging markets. It defines the conceptual background of this study, present the existing literature on the need for financing sustainable projects and the state of existing dedicated financial tools, on the projects to be financed in emerging economies to boost sustainable economic development, on the state of green bond issuances and of the investors' appetite for such issuances, and finally on the actual impact of Green Bonds on sustainable development. Key hypothesis to address the research question are defined after this literature review.
- The empirical phase (Chapter 3) aims to provide the necessary information to discuss the subjects and that were not available at the end of the literature review. It consists of collecting and confronting the points of view of various stakeholders of the Green Bond market thanks to semi-directive interviews conducted based on an interview guide defined upon the literature review hypothesis.
- The discussion part (Chapter 4) will confront the hypothesis defined thanks to the literature review with the insights collected while the empirical phase to answer the research question and to deduct key managerial, policy and academic implications.
- The conclusion (Chapter 5) presents the answer to the research question, the key managerial, policy and academic implications of the essay as well as limitations of this research paper and directions for further academic research on this topic.

## **Chapter 2. Literature review**

---

### **2.1. Definition of key concepts**

#### **2.1.1. Sustainable development**

One of the first definitions of sustainable development has been given by the Brundtland Report, ordered by the World Commission on Environment and Development in 1987. In this report, sustainable development is defined as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’ (World Commission on Environment and Development, 1987). The sustainability literature is then grounded in a resource-oriented approach with a special focus on environment as the name of the organisation which ordered this report teaches us (World Commission on Environment and Development, 1987).

This first definition contains in itself some of the debate that the sustainability has faced since then. First, the needs of the present generations are likely to be very different than those of the next ones and it is difficult to predict what will be the needs of the coming generations (Redclift, 2005), especially in a world which is evolving, and which climate is increasing so quickly. To the opposition between the need of current and next generations can be added the one of the need for quick growth, especially in emerging countries, and the one of resource preservation for a long-term and sustainable growth. Nowadays, developing countries are facing chocking socioeconomics needs. In this context, prevent those countries to use the minimal amount of critical natural resources necessary to economic growth - which is a cornerstone of sustainability - relates to keep states and population into misery (Mustunsir, 2015). This need for growth suggests an opposition between environment preservation and socioeconomic improvements.

However, the environmental resource preservation does not have to mean that our needs and the ones of people living on Earth after us will not be met. Even though some of the definitions of the concept of ‘green growth’ only focus on environment preservation (World Bank, 2012), most of the approaches related to green growth contain both the topics of environment preservation and of economic development that benefit to populations. The Organisation for Economic Cooperation and Development defines the ‘green growth’ concept as a mean to ‘foster economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies’ (Organisation for Economic Cooperation and Development, 2011). This concept is particularly interesting when applied to emerging economies as it becomes a strategic map to achieve ‘environmentally

sustainable economic progress to foster low-carbon, socially inclusive development' (UNESCAP, 2015). Green growth is then not only about environmental aspects but also about economic and social improvement, as none of these topics is isolated and independent from the others.

To reconcile social, environmental and economic perspectives, using the term 'sustainable development' might be more transparent. In its clearest and purest form, sustainable development can be defined as an economic growth that 'improves human well-being and social equity, while significantly reduces environmental risks and ecological scarcities' (United Nations Environmental Program, 2011).

In this essay, the terms 'sustainable development' and 'green growth' will both be used to mention economic growth strategies that are designed to meet the needs of human population over time in the limit of the natural capital resources that will be available during all the life-cycle of those strategies.

### **2.1.2. Emerging markets**

The concept of 'emerging or developing markets or economies' has no common definition in the United Nations system (United Nations Statistics Division, 2003). They are mostly thought in opposition to developed countries that are countries of Occidental Europe, of North America and Japan. The concept of 'emerging countries' also implies a transformation of the countries: they are starting to a low point of development to grow and reach a higher level of development, closer to the one of the developed countries. One can thus recognize developing countries thanks to this dynamic that defines themselves, as countries that 'are investing in more productivity capacity' and that are 'moving away from their traditional economies' (Amadeo, 2018).

The international institutions have tried to compare countries against each other to have a better understanding of their economic, social and environmental reality. The IMF for example uses 3-components classification to consider countries' development:

- Their per capita income level;
- The diversity of the goods that they export; and
- Their degree of integration into the international financial system (International Monetary Fund, 2009)

Even though this methodology is very thin and can capture the reality of countries, it is based on some qualitative indicators that do not allow it to become a standard. On the contrary,

the World Bank established a ranking only based on per capita gross national income. Judging that the distinction between ‘developing’ and ‘developed’ countries was outdated, the World Bank decided to rank countries in a 4-range scale income class:

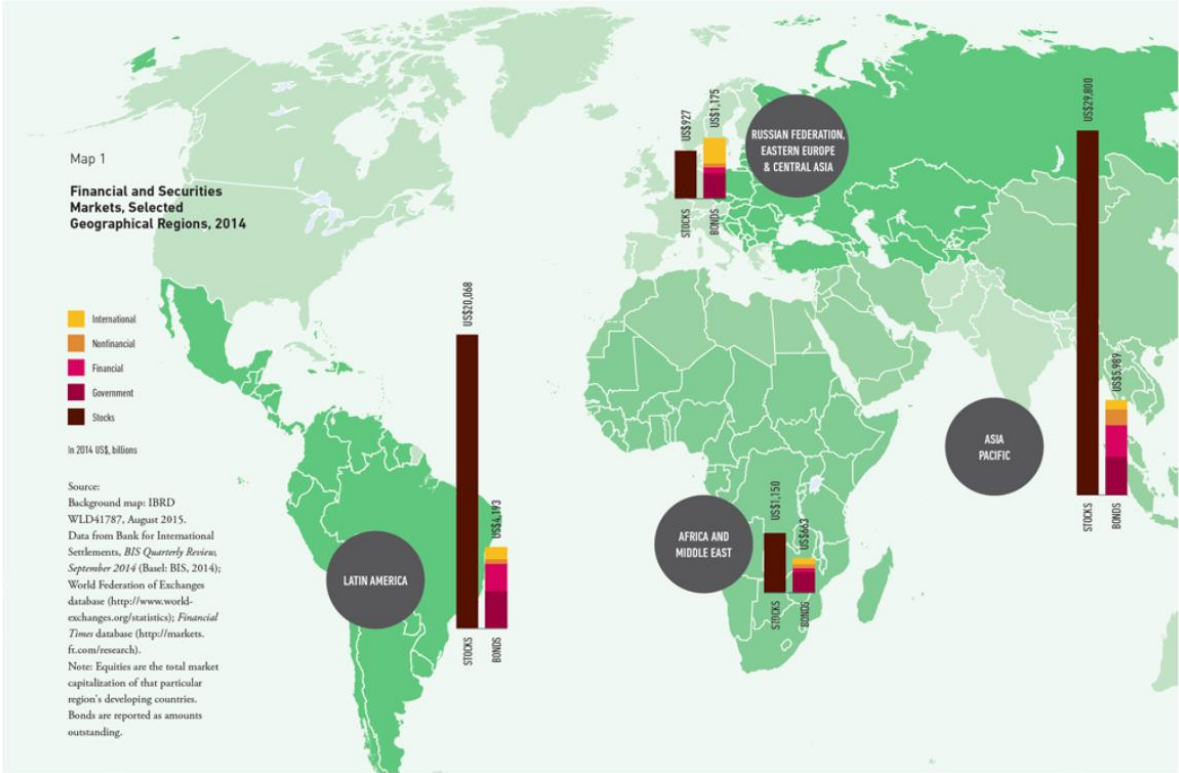
- High income countries: \$12,237 per capita gross national income and above
- Upper medium income countries: from \$4,036 to \$12,236
- Lower middle-income countries: from \$1,026 to \$4,035
- Low income countries: \$1,025 or less (Fantom, Khokhar, & Purdie, 2016)

This ranking is starting to be commonly used. ‘Developing countries’ and ‘under-developed countries’ are taking into consideration in the low income and lower middle-income ranges (Amadeo, 2018).

Low income and lower middle-income countries have several common characteristics, except for their same-range per capital gross national income. Those countries know a rapid growth, suffer from high volatility and their capital markets are less mature than the higher income range ones. Those characteristics, if well managed by the local authorities and ecosystems, can lead to a higher-than-average return for investors, especially on bond market (Amadeo, 2018). (cf. Annex 1)

The low integration to financial markets of emerging economies varies from a geographical area to another. Asia Pacific and Latin America are the most integrated economies in the international financial market. In comparison to those areas, Africa and Middle-East bond markets are 4 to 5 times lower (World Bank, 2014).

To use of purpose of this study, lower-middle income countries will also be considered. Lately, some of them as China, India and Brazil introduce themselves into the green bond market as sovereign issuers and regulators. They are good examples of how to integrate the green bond market. (cf. Annex 2)



*Figure 1: Financial and Securities Markets in Emerging economies, World Bank, 2014*

In this essay, ‘emerging or developing countries or economies or market’ are to be defined as countries for which the per capita gross national income is below \$12,236.

**2.1.3. Green, Social and Sustainable Bonds**

In 2012, the World Bank defined green bonds as ‘bonds for which the proceeds are used to support projects aimed at tackling the causes and consequences of climate change’ (World Bank, 2012). The first green bond issuance occurred in 2007 with the European Investment Bank. Since then, the green market boomed to pick at \$155bn of issuances in 2017 (Climate Bonds Initiative, 2014). Even if this remains a small amount of the overall international bond market - nearly 1%-, the progression of green bonds market has been of +78% in 2017. As the overall bond market is a key component to leverage optimal capital use, green bonds could be a very important tool to re-orientate private finance to ‘green’ sectors.

As climate change is the main topic of environment-related debate of the political and financial sphere, it is naturally that green bonds focused on climate change emerged. Those ‘climate bonds’ are defined ‘as asset-backed or ring-fenced bonds designed to raise finance for climate change mitigation projects that deliver genuine reductions in emissions, or for climate change adaptation measures’ (Kidney, Cleanaghan, & Oliver, 2014). Climate bonds can be

considered as a subsection of green bonds, which proceeds are specifically dedicated to climate change mitigation and/or adaptation projects.

Proceeds are the cornerstone to define whether a bond is green or not. According with the Green Bond Principles, a commonly recognized standard on the market, a green bond is different than a regular bond because of its proceeds that ‘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 the four core competences’, which are:

- Use of proceeds - what projects will be financed or refinanced by the bond?
- Process for projects evaluation and selection
- Management of proceeds
- Reporting (Green Bond Principles, V2, 2017)

Use of proceeds is the first criteria to define whether a bond is green or not. The three other components aim at insuring and verifying that the capital collected through the bond is correctly allocated to the projects to be financed.

This financial tool can also be used to finance projects with a positive social impact: it is then called a Social Bond (The Social Bond Principles, 2017). Some bonds also finance or re-finance combinations of Green and Social projects and are then called Sustainable Bonds (The Sustainability Bond Principles, 2017). The same four core components also applied to the Social and Sustainable Bonds: the only difference is then the type of projects to be finance.

## **2.2. Sustainability challenges in emerging markets**

The Sustainable Development Goals, defined by the United Nations in 2015, are the most acknowledge agenda for sustainability worldwide. This set of goals aims to ‘end poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda’. All those 17 goals are decomposed into targets to be achieved by 2030 (United Nations, 2015). As the least developed countries represent the main challenge of the SDGs, they are a key priority to fulfil the 2030 Agenda. The Sustainable Development Goals are the followings:

1. No poverty
2. Zero hunger
3. Good health and well-being
4. Quality education
5. Gender equality
6. Clean water and sanitation
7. Affordable and clean energy
8. Decent work and economic growth
9. Industry, innovation and infrastructure

## Sustainability bonds, a lever for sustainable economic development in emerging countries? Chapter 2. Literature review

- |  |  |
|--|--|
| 10. Reduced inequalities                   | 14. Life below water                       |
| 11. Sustainable cities and communities     | 15. Life on land                           |
| 12. Responsible consumption and production | 16. Peace, justice and strong institutions |
| 13. Climate action                         | 17. Partnerships for the goals             |

To fulfil the SDGs, governments, private sectors and civil societies need to work together (United Nations, 2015). This also implies that private sector, and especially financial markets, can not address all of the SDGs as they are defined. For example, financing ‘17. Partnerships for the goals’ and ‘5. Gender equality’ is less likely than investing in ‘11. Sustainable cities and communities’. However, most of those targets can be fulfilled thanks to the private sectors and the projects that they will implement. Financial markets can thus finance projects that will contribute to the Sustainable Development Goals (United Nations, 2015).

To define which projects will have a positive social impact and help achieve the SDGs by 2030, the first step is to identify the most urgent beneficiaries. The International Capital Market Association gave in its Social Bond Principles examples of populations to target while issuing social bonds (but not limited to this list):

- ‘Living below the poverty line
- Excluded and/or marginalised populations and/or communities
- Vulnerable groups, including as a result of natural disasters
- People with disabilities
- Migrants and/or displaced persons
- Undereducated
- Underserved
- Unemployed’ (The Social Bond Principles, 2017)

Those underprivileged populations are mostly located in the emerging countries. To reach those populations, the Social Bond Principles defines categories of projects to be financed by social bonds (but not limited to this list):

- ‘Affordable basic infrastructure (i.e. clean drinking water, sewers, sanitation, transport)
- Access to essential services (i.e. health, education and vocational training, healthcare, financing and financial services)
- Affordable housing

- Employment generation including through the potential effect of SME financing and microfinance
- Food security
- Socioeconomic advancement and empowerment' (The Social Bond Principles, 2017)

In the same way, examples of environmental projects to be financed by Green Bonds are presented by the International Capital Market Association in its Green Bond Principles as follow:

- 'Renewable energy;
- Energy efficiency;
- Pollution prevention and control;
- Environmentally sustainable management of living natural resources and land use;
- Terrestrial and aquatic biodiversity conservation;
- Clean transportation;
- Sustainable water and waste water management;
- Climate change adaptation
- Eco-efficient and/or circular economy adapted products
- Green buildings.' (Green Bond Principles, V2, 2017)

The distinction operated between social and environmental is more artificial than accurate. As explained previously (ie. Part 1-1), social projects can have environmental co-benefits and vice-versa. For example, in the SDG '7. Affordable and clean energy' implies both environmental and social improvement related to access energy.

### ***Key findings***

A wide range of social and environmental projects can be financed through green bonds. The need for implementing those projects in emerging markets is bigger than in developed markets. A green bond is then a strategic tool for those economies.



## **2.3. Financing sustainable development**

### **2.2.1. The need for investment on social and environmental solutions to achieve transitions goals**

In 2015, the two most worldwide acknowledged agendas related sustainability have been adopted: the Sustainable Development Goals (SDGs) and the Paris Agreement as detailed earlier (part 1.B). To achieve those two agendas, the countries, corporations, companies, institutions and other associations involved need to have access to a broader source of financing. (United Nations, 2015)

Since the SDGs have been defined, there was a common awareness on the need for new means of financing to fulfil those objectives. In 2015, the World Bank published, in association with an association of multilateral development bank, a paper called 'From Billions to Trillions'. According to this paper, the need for financial resources was about to increase strongly (From Billions to Trillions: Transforming Development Finance., 2015). The same year, the United Nations defined the Addis Ababa Action Agenda to support the fulfilment of the SDGs and highlighted that the financial need would be enormous (United Nations, 2015). Some academics even stated that to meet the goals as they are defined 'every single dollar' will have to be mobilized (Ladd & Conceição, 2015).

The attempt to quantify the need for financing has been more in-depth for environment- and climate-related topics - as often in sustainable finance, climate is the trendiest topic. Between 2011 and 2020, Accenture, a consulting group, predicted that an investment of €2.9 trillion in total would be necessary to implement low-carbon technologies installation in sectors as important as electric generation, transportation and buildings (Accenture, 2011). The prevision of the United Nation for Economic Development was even more important in 2011 at the 2050 horizon: then, \$1.3 trillion per year would be needed to manage natural capital in a sustainable way (United Nations Environmental Program, 2011). Finally, the Paris Agreement defined in 2015 the need for \$100 billion each year starting in 2020, in loans, debt and gifts, to finance projects to adapt climate change and to lower the CO<sub>2</sub> emissions. (Paris Agreement, 2015)

Those quantitative previsions of how much money will be needed to mitigate and adapt to climate change have to be completed with the need for financing projects with social benefits. Even though no commonly recognized prevision of this social need for financing has been defined so far, we can guess that the total amount of money to mobilize to achieve the environmental and social sustainable development goals will be tremendous. Mobilizing capitals

is particularly a challenge for the poorest countries that are also in average the less developed ones, also in a sustainable point of view. Finding how to mobilize and allocate financial resources to those least developed countries is even more a challenge than for developed countries.

Different financial tools are available to finance green, social and more broadly sustainable projects.

### **2.2.2. Green and social financial instruments**

To finance sustainable projects, different actors joined the cause. Historically, developed states granted least developed countries with Public Development Aid (PDA). This public aid was managed by the states, which could choose to which projects to allocate the funds. The Millennium Development Goals were planned to be financed mostly by PDA. Though, since the 2008 financial crisis, the amount of OPA in circulation has been decreasing drastically. To finance the SDGs, the private sector and the financial market actors have joined the cause.

The first environmental finance tools were issued in the late 2000's. Banks have been leading the way with the issuances of green credit, which is a financial tool that allows to lend more credit to projects with a positive environmental impact while being more careful about the environmental performance of projects financed (Su, 2014). Green credit can be a powerful tool to allocate more funds to environmental projects by issuing more loans to energy conservation projects, or environment protection projects for example. At the same time, banks should grant less credit to heavy energy-consumption projects or very polluting ones (CBRC, 2007). This product has been successful so far, and is it up-to-date like the Danone granted in 2018 highlight (Alvarez, 2018).

Insurance companies also joined the cause of reallocating capital to environmental projects by structuring Environmental Pollution Liability Insurance (EPLI), which allows a victim of a pollution accident to receive compensation for its loss (only if the accident was the responsibility of the policy holder though). This product had hard time being adopted by companies as the multiplicity of offers and the coverage of the offers can be confusing (Dybdahl, 2015).

Financial market investors contributed to reorientate capital to sustainable projects. The first tool that they have been using was Emissions Trading Market (ETM). This market includes pollutant related to air and water but also carbon emission trading. The ETM are not as dynamic as they used to be (Su, 2014).

In the recent years, financial markets innovated and launched new financial tools fitted to finance environmental transition: the green loans and the green sukuk. The green loans are ‘any type of loan instrument made available exclusively to finance or re-finance, in whole or in part, new and/or existing eligible Green Projects’ (Green loans principles, 2018). The first green loan has been structured by Lloyds Banking Group in 2016 to help their clients to reduce their CO<sub>2</sub> emissions. Since then, various banks issued green loans to finance environment-friendly projects. The green sukuk have been designed by Islamic finance to be Shariah compliant investments in environmental projects. The first green sukuk has been issued by the Malaysian state in 2017 (Dr. Mahbudi Ali & Dr. Mah Abdullah, 2018). The green loans and green sukuk are growing fast in worldwide financial markets.

Many environmental tools exist in the worldwide market. Except the ones mentioned earlier, there are also green fees, Payments for Ecosystem Services (PES), Market-Based Mechanisms (MBM), Clean Development Mechanisms (CDM), Voluntary Emissions Reduction (VER), green taxes, etc. (United Nations Development Programs, 2012). Even though the structure of those tools would also allow them to finance social projects, ‘social finance’ is way less structured than environmental finance. One of the only mainstream tool, which finances social and green projects already and that, can be issued whether by countries cities and regions, banks, institutions or even companies is the sustainable bond.

### **2.2.3. Green bond as an attractive investment tool to finance sustainable projects**

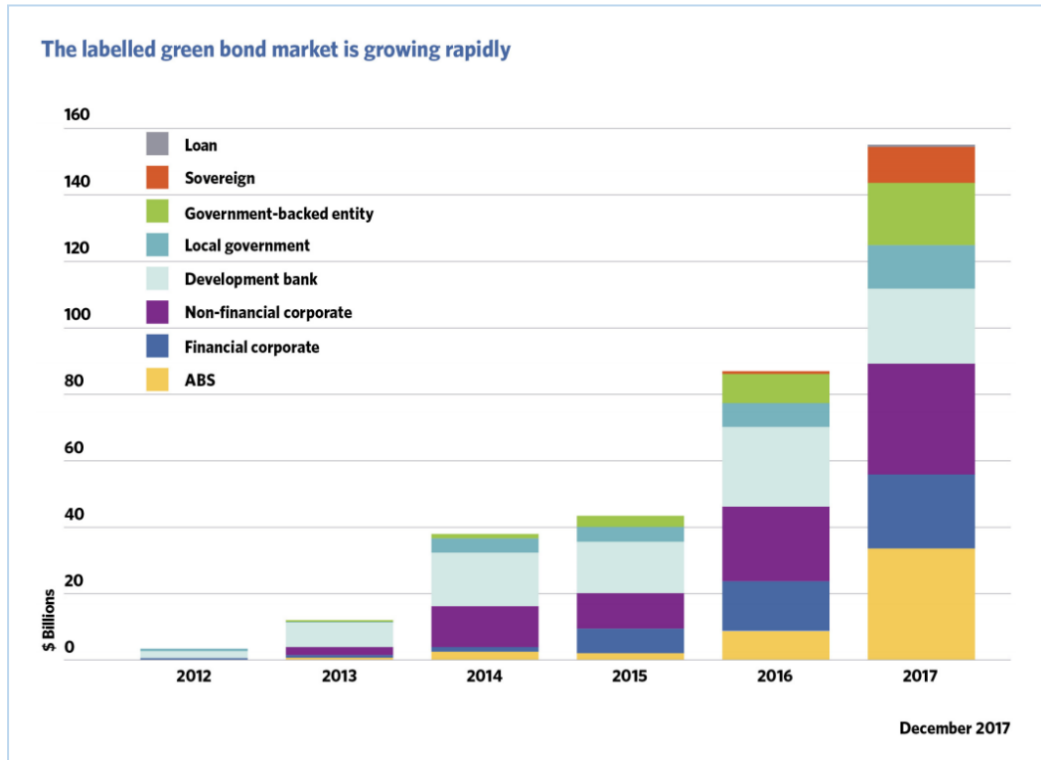
Green bonds are not only benefitting from a strong momentum for growth on the regional and international financial markets. This investment tool mostly takes advantage of a strong support from governments all around the world, but also from an always increasing interest from investors. ((Tao, 2015). As an example, China and the ASEAN established their own green bond frameworks and the real investor demand can be illustrated by the common oversubscription of the green bonds issued.

Sustainable bond offers key advantages very appreciated by the market and useful to finance the environmental and social transition:

- As another investment tool within sustainable finance sphere, this investment tool provides an additional way of financing sustainable development.

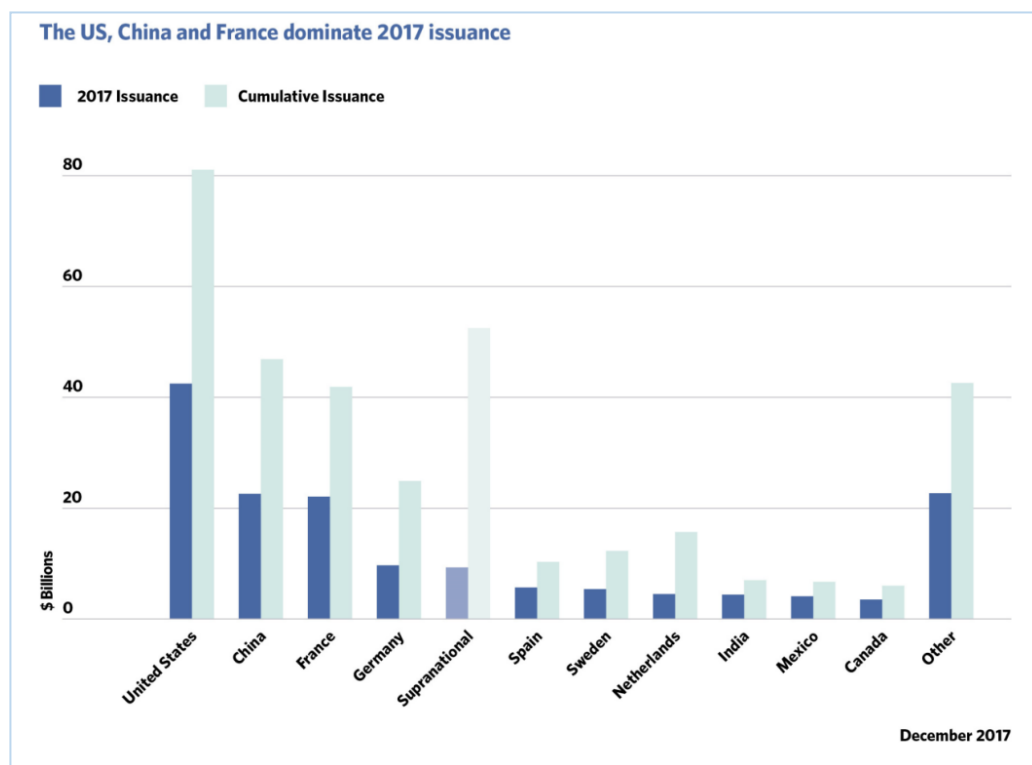
- By clearly being labelled as ‘green’, green bonds highlight the environmental and/or social attribute of the financial products (Tao, 2015) and enhance reputation of issuers while communicating their environmental strategy (OECD, 2017).
- The timeframe of the lifecycle of the bond has several advantages. First, as a bond, a sustainable bond helps avoiding maturity mismatch between the financial tool and the projects to be financed (OECD, 2017). With a bond, the principal is paid at its maturity. Then, it is more likely that the issuer pays back when the projects financed are profitable (ie. 7 to 8 years for solar power projects in average) (Tao, 2015). Moreover, sustainable bonds allocate the cost of an investment to the generation that will benefit from the project implemented (Sachs, 2014) and from the mitigation of environmental or social damages (Flaherty, Gevorkyan, Radpour, & Semmler, 2016). The intergenerational burden is then more equitable.
- Green bonds also offer potential cost advantages (OECD, 2017). Indeed, investing in bond market is cheaper than investing in equities or bank loans. (Tao, 2015).
- Green bonds also have the benefit to provide one more sustainable investment tool to responsible and/or long-term investors and contribute to sustainable finance market growth (Su, 2014).
- Sustainable bond is an investment tool flexible enough to allow various issuers to join responsible finance market (Tao, 2015). Countries, regions, municipalities, institutions, banks, corporations and associations issued green or social bonds.

Those several key benefits and the various types of issuers involved in the green bond market led to a growing interest of investors willing to finance ecological and social transition while preserving their profitability. The strong interest of issuers, investors and policy makers for green bond makes it an even more financing tool, which design fits with the environmental and social project finance requirements. All those elements contribute to explain the green bond market growth.



*Figure 2: Growth of the green bond market since 2012, Highlights from 2017, CBI (2018)*

However, the growth of the market is yet to reach the emerging markets that are the least developed countries, the least performant regarding environment and social aspects and which are lacking the most of funds and capital.



*Figure 3: Green bond issuance per country in 2017 and in cumulative since 2012, CBI (2018)*

### *Key findings*

The need for funds to achieve the Sustainable Development Goals is huge. Some green finance and social finance tools are available to finance this transition, among which the green and social bonds. Those tools have the advantages to help tracking funds allocating to sustainable projects, to decrease potentially the cost of capital and to input this cost at the time when the projects financed are operational and potentially profitable. Even though a wide range of issuers can issue green bonds, it is not yet well implemented in emerging markets.

## **2.4. Green Bond issuances in emerging markets**

### **2.4.1. Typology of Green Bond issuers**

To issue a green bond, an organisation has first to be able to issue a normal bond. To do so, entities are required 'to disclose financial information to regulators, rating agencies, and investors' (World Bank, 2014). This heavy and costly process does not fit the resources of certain entities as small capitalisation companies or local banks.

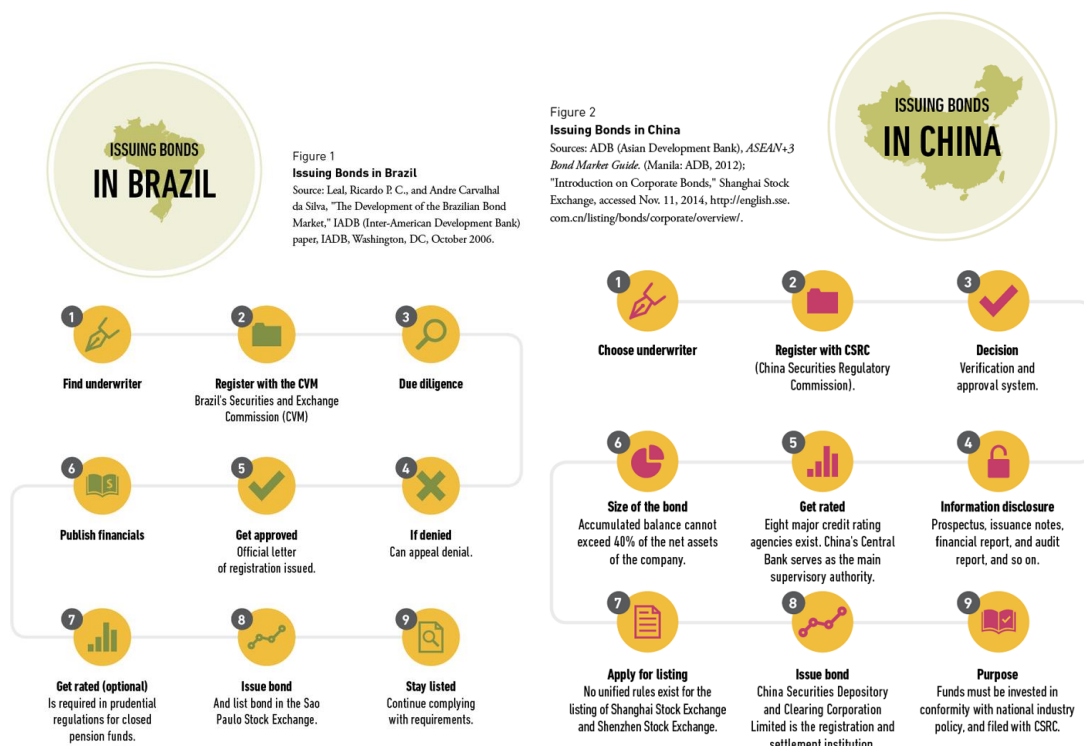


Figure 4: Bond issuance process in Brazil, IADB, 2006

Figure 5 : Bond issuance process in China, ADB, 2014

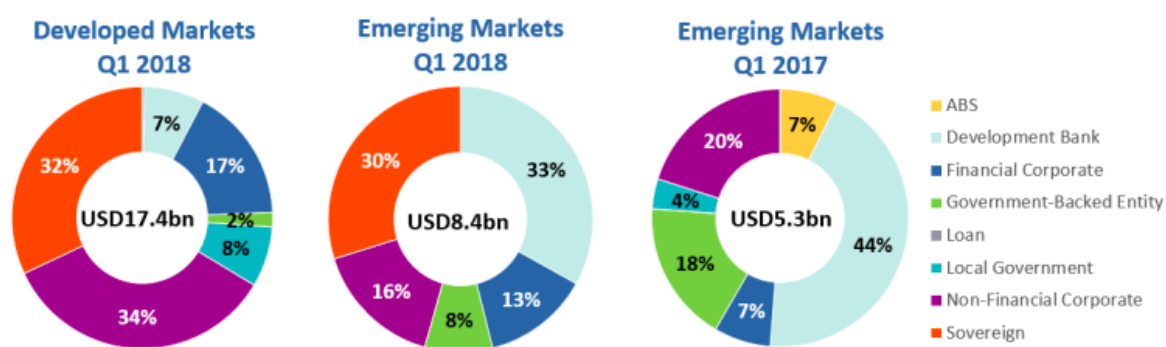
This issuance process is not adapted to small capitalisation companies because it is not meant to finance small size projects (Berger, 2017). Local banks can also meet difficulties by trying to ‘match the maturities of their long-term assets and their short-term liabilities ‘.

To help other entities that could access bond market, most of investment banks offer underwriting services. They help the potential issuer of bond to meet requirement of transparency toward investors, regulators and third party agencies (World Bank, 2014). Some underwriters developed a special expertise on underwriting Green Bonds: not only do they help issuers to build a strong credit profil to their issuance, but they also provide ESG expertise to them selecting the right projects to finance through the bond and how to manage the proceeds in a transparent and reported way (JP Morgan Chase & Co, 2017).

Initially, green bonds have been tailored as financial instruments mostly used by supranational institutions as the European Investment Bank or the International Finance Facility for Immunisation. Those supranational institutions were the first issuers of green bond on developed market, but also on emerging ones (Knight, 2015). In 2006, the first Vaccines bond issued by the IFFIm in London was used to finance vaccination in under-developed countries (International Finance Facility for Immunisation, 2017). New issuers then started entering the

green bond market (Knight, 2015). Financial institutions (as development banks or investment banks) issued their first green bond to contribute to finance the green economy and to help mobilizing capital debt market to finance sustainable development (Knight, 2015). In 2013, corporate issuers joined the green bond market to become one of the most important types of issuer on the market. Corporate issuers contributed to the growth of the market and to the diversification of the projects' categories financed through the bond. However, there is a strong sectorial bias on the green bond as transportation, energy, buildings and financials, which are dominating the market (Garcia Paret & Lorenzo, 2015). Finally, sovereign issuers also entered the green bond market and became on the key issuances driver. In January 2017, Poland and France issued the first green bond worldwide and demonstrated their engagement toward financing transition to a greener economy. (Berger, 2017). Sub-sovereign issuers and municipalities are also supporting the growth of the market.

In developed markets, the most important issuers on the market are evolving as the market is growing. Even though development banks are one of the prominent issuer in emerging markets, « they account for a smaller portion of issuance [in Q1 2018] compared to Q1 2017 : 33% to 44%. Another key difference between 2017 and 2018 is the contribution from sovereign issues. » (Green Bonds Highlights 2017, 2018)



*Figure 6: Issuances per issuers' types, Green Bond Market Summary Q12018, Climate Bond Initiative*

In Q1 2018, the two most important types of issuers are the same in developed and in emerging markets: first sovereign issuers, and secondly non-financial corporate. However, their aggregated contribution to the overall issuances per regional area is lower in emerging markets. Development banks still represent 33% of issuances in emerging markets as capital markets are less developed (Green Bonds Highlights 2017, 2018). Numerous issuers are participating to the



growth of the Green Bond market to finance projects in emerging markets because of the advantages that Green Bonds present.

#### **2.4.2. Incentives for issuances**

Issuing a Green Bond presents various advantages for its issuer, and not only financial ones.

- Green Bond is a tool for issuer to communicate on their sustainability strategy

Green bond is a financial tool that offer communicational and marketing co-benefit: thanks to a green bond issuance, issuers can highlight to the market their sustainability strategy and their willingness to take part to the transition to a more sustainable world (Ross).

- Attract long-term sustainable investors

As a marketing tool, Green Bonds have the power to attract new range of investors to invest in the debt of an issuer. According to M. Frenk van der Vliet, member of the managing board at NWB Bank, « green bonds are a good way to create awareness among investors, while facilitating lending activities. » (Ross). The issuer has then access to a wider pool of potential lender. It is especially true for small issuer or non-conventional issuers in emerging market that might not have been on the field of view of investors' of international capital market. « Diversifying the investor base is important for issuers from the financial risk management point of view. » (Shishlov, Morel, & Cochran, 2016).

Issuing Green Bonds is also a tool to attract SRI investors, even when the issuer is not going through all ESG filter defined by investors. Indeed, SRI investors are more long-term oriented than other investors and it is an asset for issuers on capital market to have a range of long-term investors in its radar because it is « stabilizing and expanding the base of investors - thus helping them ensure that they will be able to fully-subscribe their issuances at an attractive rate. It can become particularly useful when market conditions deteriorate or when organizations' ability to borrow is restricted. » (Shishlov, Morel, & Cochran, 2016)

- Creating synergies within the company between the sustainability department and the financial one

Green Bond issuance contributes to address the 'historical lack of climate change awareness' among the financial executives and the often-marginal role of sustainability departments in large corporations (Kolver, Riess, Zachmann, & Calthrop, 2012). Green Bonds

are a tool to encourage a better understanding of the financial department within the issuer's teams of what is at stake with sustainability aspects and the advantages to do so. It reinforces the relation between the sustainability department and the financial one (KPMG, 2015). It is then contributing to the overall integration of ESG challenges into the overall strategy of the issuer.

- Governments and regulators are encouraging Green Bonds' issuances

By becoming the first issuers on the Green Bond Market on Q1 2018 (Green Bonds Market Summary - Q1 2018), countries are sending a very positive signal to other potential issuers and are trying to have a knock-on effect on the development of Green Bond Markets. Fiji and Nigeria issued their first Green Bonds late 2017. Sovereign issuance have the benefits to 'raise low-cost capital for low carbon infrastructure, signal the country's commitment to low carbon growth strategies, to attract new investors on the national capital market and to catalyse development of domestic green bond market to mobilise private capital for green infrastructure.' (Green Bonds Policy: Highlights from 2017).

Furthermore, regional, national and local entities governments implemented measures to encourage green bond issuances on their domestic markets. Singapore launched a program to absorb additional cost of bonds' issuances labelled as 'green' by reimbursing the cost of external review. Malaysia government implemented tax incitation to Green Bonds issuances. Chinese government gave the priority to Green Bonds over conventional bonds on the approval process for bond issuance (Green Bonds Policy: Highlights from 2017).

By issuing Green Bonds and implementing incentive regulations, governments are driving the growth of Green Bond market, especially in emerging countries.

### **2.4.3. Issuances' risk management**

Issuing a green bond can however raise risks for the issuers. The sustainable quality of the green bond is then defined on the ability of the issuers to manage the risks listed below.

Issuers might face risks on how to market green bonds:

- Omit to disclose relevant information to investors

All material concerns related to projects financed through the bond or to management of proceeds should be disclosed to investors. To avoid omitting any relevant information, issuers should conduct a strict sustainability « due diligence » process. By investigating on Environmental, Social and Governance potential negative externalities related to the issuance, issuers should be

able to provide a complete picture of the risks and opportunities linked to the bond and to communicate to investors a plan to adapt or mitigate those risks (Franklin, 2017).

Another way to insure the sufficient transparency of the issuance is for the issuer to contract an external review of the issuance. External review can be provided before the issuance to reassure investors about the sustainable quality of the bond prior to the issuance or after the issuance to report on the actual projects financed through the bond and about their impact. (Green Bond Principles, V2, 2017) (cf. Annex 2)

Issuers might also face relation to additional legal and reputational expectations of the market because of the 'green' label :

- Risks of not succeeding to report on satisfying ESG aspect

In addition to publish a report on financial accounts every year after the issuance as it is required for a conventional bond, issuers also have to provide ESG indicators of the green benefits of the projects financed through green bonds. At the moment of the issuance, issuers should define indicators that then will be published. This definition stage is risky as the issuer can then be criticized because of too weak indicators or because the issuer might not be able to collect enough data to provide the indicators defined during the reporting (Franklin, 2017). External reviews often includes ESG indicators to report on and are reliable because they are defined by ESG and/or reporting experts (Post Issuance Reporting in the Green Bond Market-Trends & Best Practice June 2017). As the process on reporting on ESG indicators is still voluntary on the green bond market, it is very important for issuers to be transparent to be trusted by its investors. According to the UNDP, « The reputational risk for green bonds issuers, i.e. when bonds labelled as green issued by others are found not to be 'green', remain high and can have an impact on investors' trust (UNDP, 2015). 'Green default' can have as much as prejudice than 'financial default' on the green bond market.

Additionally, issuers of green bond are facing the same risks than when issuing conventional bonds.

- Risk of financial default of the issuer

The financial performance of the issuer and of the bond that is issued remains one of the most important factor to consider for investors. Default on bond issuance can cause long-term prejudice to the issuer and lower its ability to finance itself on capital markets. « Default risks are issuer/bond specific and related to the capacity to generate sufficient cash flow to repay capital

and interest over time. A default in regulated markets might have large and long-standing negative impacts on a company's credit rating. » (UNDP, 2015).

Issuers on emerging markets also face risks related to the fact that investors on the capital markets mostly do not obey to the same jurisdictions and countries:

- Risks of legal and culture differences between issuance market and investment provenance

« If the green bond is issued abroad, additional risks, including changes in foreign market regulations on capital flows, and exchange rates, should be accounted for. Plus, in the long term, offshore markets may draw liquidity away from the domestic market. However, these additional risks are often lower than the ones incurred in issuing bonds in underdeveloped markets. » (UNDP, 2015).

### ***Key findings***

The typology of issuers is getting more and more diverse on the Green Bond markets and also in emerging markets: development banks and supranational issuers are no longer the most issuing entities. Sovereign issuers succeeded in entering the market and are trying to have a knock-on effect on their local markets by incentive Green Bond issuances. Many Green Bond intrinsic advantages are helping to drive the growth of the Green Bond market at the same time as highlighting the sustainability strategy of issuers internally and externally. However, issuers to avoid reputational, financial and legal risks related to the bond, strong processes of due diligence and risk management should be implemented.

## **2.5. Investors' demand for green bonds issued in emerging markets**

### **2.4.1. Typology of investors and their specific demand**

Investors' demand for Green Bond is higher than offer. Nowadays, investors are interesting in financial products, which allow to invest in solutions for a more sustainable world and recognize that they have a duty toward transition (Ross). Even though some obstacles to investment are part of the Green Bond market (ie. As the lack of liquidity), investors appetite is raising (Ross).

The type of investors interested on this market is broader than it used to be. Sustainable investment funds are not sharing the markets with various types of investors, listed below:

- Pension funds: they are historical investors on the Green Bond market. As their investment strategy is long-term, pension funds need to mitigate and adapt risks related to climate change and thus give a lot of thoughts to the resilience of the company on a long-term basis.
- Insurance companies: Their business model is directly related to the materiality of climate change. Insurance companies thus have interest on climate change strategies.
- Banks: They are one of the latest investors to take into account sustainable finance broadly, and especially Green Bonds interest. However, more and more banks are on their way to adopt more sustainable investment strategy and some of them made public engagement.
- Asset managers: There are more and more green bond funds as the asset managers are trying to fit with the asset owners' expectations (SEB, 2017).

This taxonomy is not enough to provide a faithful picture of the state of demand for Green Bonds. Investors also have to be distinguished by their degree of involvement toward financing sustainable development, as following:

- Ethical investors: Asset owners such as churches, charity foundations, but also private banks or specialised asset managers who are determined to allocate their funds (or funds under management) to green, social and/or impactful projects. Some of those actors were integrating those factors into their investment strategy even before the first Green Bond issuance, but this new financial product is complementary to the SRI strategies already in place. Investment in Green Bonds is then a willingness that underlines the ethical conviction of those actors.
- Investors which a recently integrating sustainability into their investment strategies: This class of investors is broader and allocate only a part of their asset owned or under management to green or social projects, while divesting from stranded assets. For them green bonds are another sustainable finance instrument.
- Opportunist investors: This type of investors is not interested in the 'green' or 'social' side of the green bonds but only analyse them through their credit profile and performance (Ross).

Because of the multiplicity of investor profiles toward green bond, the investors' interest on green bonds are numerous and variable too.

## **2.4.2. Incentives for investors to join the Green Bond Market**

Investing in Green Bonds can have various interests for investors, among which:

- Taking better-informed investment decisions

As green bonds issuance have to be accompanied by more information than conventional bonds (ie. Use and management of proceeds description, expected impact of the issuance), investors have more information to build their investment case. This additional disclosure can also help investors to seize investment opportunities in sustainable development projects but with a lower associated risk than with other financial tools (Shishlov, Morel, & Cochran, 2016).

- Helping investors to build and implement their long-term investment strategies

Pension funds and insurance companies have an special interest to invest in long-term oriented products that could lower the risks related to climate change and to social imbalance. Investing in climate- and social-friendly assets can also be an opportunity to expose its portfolio to assets well-oriented on a long-term perspectives (Shishlov, Morel, & Cochran, 2016).

- Broaden the opportunities of investment for SRI investors

So far, the social responsible investment had to face a ‘restricted investment base’ (Heinkel, Kraus, & Zechner, 2001). The SRI market was mostly made of stocks but the green bonds are a good opportunities to access different asset classes for ethical and SRI investors. Furthermore, green bonds allow some new issuers to access the SRI market because they would not have pass the ESG filter of most of SRI strategies. It is then widening the base of issuers (Shishlov, Morel, & Cochran, 2016).

- In the Emerging markets, governments are building new incentives for investors

In Asia, favourable governmental practices are blooming. « The government agencies have worked with various think tanks and non-profit agencies to draft a public white-paper exploring the possibilities and key reforms to facilitate the growth of a green bond market » (Zadek & Chengui, 2014). Governments are issuing their own taxonomies or guidelines to incentive and standardize the green bond investment in their national markets. In China, « China’s Green Bond Finance Committee has issued a Green Bond Endorsed Project Catalogue » to standardize which projects can be considered as ‘green’ during an issuance (People’s Bank of China, 2015). India and Indonesia are also supporting the development of green bond in their national market by

issuing green bond support documentation and regulation (Export-Import Bank of India , 2015) (Otoritas Jasa Keuangan, 2014).

Those different regional standards are sometimes criticized because they could create more risks for investors in a regionally divided market of green bonds.

### **2.4.3. Risk management of investment in Green Bonds**

Investors are also subject to the reputation risks burden on the Green Bond market. « The investor faces reputation risk when the green project failed to deliver the expected outcome in terms of environment protection » and as there is no commonly shared ‘green bond’ definition and that the expectations for transparency are not a requirement, this case can happen (Su, 2014).

To promote market integrity, a set of principles, the Green Bond Principles, have been defined by the ICMA. Those principles define what bonds can be considered as green according to set of principles regarding the process of issuance, the use of proceeds (ie. Projects to be financed), the management of proceeds, the segregation of the funds and reporting (Knight, 2015). The Green Bond Principles succeeded on becoming widely recognized principles on the international Green Bonds market.

When issuing a green bond, entities can decide to use external review to verify the ‘green’ label of their bond. Those external verification can be the following :

- Consultant review, including Second Party Opinion
- Verification of the alignment of the issuance with the Green Bond Principles
- Certification
- Rating (Green Bond Principles, V2, 2017) (see Annex xxx)

Other market standards have been defined in various emerging countries as China, India, Indonesia and Brazil. As « international investors typically require higher standards for environmental claims » (Tao, 2015), the threats would be that those standards are not strong enough. However, they all are aligned on the Green Bond Principles. This alignment also helped to mitigate the risks of fractioning of the ‘green’ bond market. Investors can consider the green bond market globally (Green Bonds Policy: Highlights from 2017, 2017).

### ***Key findings***

A wide range of investors are reaching the green bond market. Even if the reasons to do so can be different among investors (ie. Sustainable purpose or more interesting credit profil), there are good reasons to invest in this financial product to all of them. The reputational risks associated to this range of investment can be decreased by requiring verification of the sustainable quality and a tracking of the proceeds against recognised market standards.

## **2.6. Impact of Green Bond on sustainable development**

### **2.6.1. Measuring the impact of investment**

To be considered as ‘green’ according with the Green Bond Principles, a bond need to be accompanied by a reporting on the use of proceeds (Green Bond Principles, V2, 2017). In this reporting, most of the issuers include impact indicators.

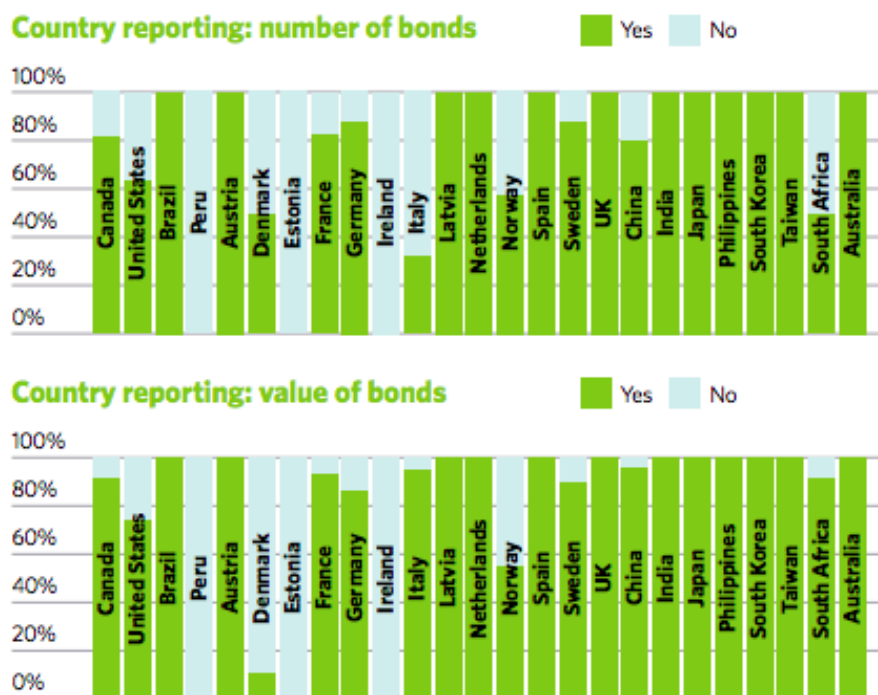
To measure actual impact of a bond, post-issuance reporting is the most useful tool. The Climate Bond Initiative defines a good reporting, as a reporting that occurs annually, that is up to date and that is public is easy to find. This reporting also has to be incorporate ESG impact indicators. However, one of the key problems is that the reportings are as of now not easily comparable between issuers. This problem is related to the fact that there are numerous reporting expectations defined by various market guidelines (Post Issuance Reporting in the Green Bond Market-Trends & Best Practice June 2017, 2017).



Summary of key reporting frameworks			
	Green Bond Principles	Climate Bonds Standard	Country guidance
<b>1. Reporting frequency</b>	Annual	Annual	PBoC: quarterly SEBI: annual Japan: annual
<b>2. Availability of reporting</b>	'Readily available'	Mandatory to bondholders and Climate Bonds Standard Secretariat Public reporting encouraged	PBoC: disclose 'to the market' quarterly, report to the PBoC annually SEBI: public with annual and quarterly financial results Japan: public
<b>3. Location of reporting</b>	<ul style="list-style-type: none"> <li>Annual report and accounts</li> <li>Annual sustainability reporting</li> <li>Separate section of website</li> <li>Investor letter</li> <li>Separate green bond report</li> </ul>	<ul style="list-style-type: none"> <li>Annual report and accounts</li> <li>Annual sustainability reporting</li> <li>Separate section of website</li> <li>Investor letter</li> <li>Separate green bond report</li> </ul>	PBoC: not specified SEBI: 'along with annual report and financial results'
<b>4. Period of reporting</b>	Until allocation is complete	For the life of the bond	PBoC: duration of the bond Japan: until full allocation SEBI: not stated
<b>5. Use of proceeds information to include</b>	<p>Mandatory: Broad categories and % allocated to each</p> <p>Recommended:</p> <ul style="list-style-type: none"> <li>List of projects and assets if not commercially sensitive</li> <li>Description of projects</li> <li>Expected impact of projects</li> </ul>	<ul style="list-style-type: none"> <li>Nominated assets and projects detailed in full 'in line with confidentiality agreements'</li> <li>Percentage of refinancing</li> <li>Description of projects</li> <li>Expected impact of projects</li> </ul>	<p>SEBI and Japan</p> <p>Broad categories and % allocated</p> <p>Recommended: List of projects and assets if not commercially sensitive; description of the projects; expected impact of projects</p> <p>PBoC: Proceeds allocation; assessment to green projects (recommended); associated environmental benefits(recommended)</p>
<b>6. Allocation information</b>	<ul style="list-style-type: none"> <li>Amount allocated to projects</li> <li>Percentage of bond to refinancing</li> </ul>	<ul style="list-style-type: none"> <li>% of bond allocated to date</li> <li>Percentage of bond to refinancing</li> <li>Details of unutilized proceeds</li> </ul>	<p>SEBI: details of unallocated proceeds</p> <p>Japan: details of unallocated proceeds</p> <p>PBoC: amounts allocated</p>
<b>7. External verification</b>	Recommended	Recommended	SEBI: mandatory PBoC: recommended

*Figure 7: Post-issuance reporting in the green bond market, Climate Bond Initiative, 2017*

This comparability problem is still a lighter issue than the green bond without reporting at all. Not reporting is a widely spread phenomenon in developed market. On the contrary, the wide majority of green bond issuances in emerging markets have a reporting process.



*Figure 8: Country reporting by number of by value of bonds, Climate Bonds Initiative, 2017*

An interesting on post-issuance reporting is to include SDGs to the impact framework. This trend could be a useful tool to make issuance more comparable within a scope of impact (Briefing: Green bonds as a bridge to the SDGs, 2018).

### 2.6.2. Additionality of projects financed through Green Bonds

One of the main arguments against green bonds is that they provide no additionality. Additionality can be defined as follow: « Having impact implies causation, and therefore depends on the idea of the counterfactual—on what would have happened if a particular investment or activity had not occurred. » (Brest & Born, 2013)

However, studies of the green bond market proved that the green bond, or at least in the first few years of the emergence of the market, has been mostly used to refinance projects but not to finance them at the first place (Shishlov, Morel, & Cochran, 2016). This refinancing trend across green bond market is undermining the concept of a potential impact of the green bonds: ‘The enterprise itself has impact only if it produces social outcomes that would not otherwise have occurred. And for an investment or nonmonetary activity to have impact, it must increase the quantity or quality of the enterprise’s social outcomes beyond what would otherwise have occurred’ (Brest & Born, 2013).

Green bonds have still the effect to mobilise private capital market to environmental projects and that since a few years, it also allocate those funds to broader range of projects than historical proceeds of green bonds (ie. Renewable energies). This financial tool thus has a positive impact because it contributes to allocate funds to new range of projects (Su, 2014).

Moreover, green bonds created new investment opportunities to a wider range of investors and contributed to the development of green funds and green investments by new entities. It also had the interest to create new debate and to increase awareness across the financial communities that financial entities also have a role to play in the shift to a more sustainable world (World Bank, 2014).

## **2.7. Hypothesis deduction**

### **A – The market of Green Bonds issued in emerging countries is more limited than the market of Green Bond issued in the developed one.**

There is already an investable a Green Bond market in emerging countries. However, the structure of the market is different than the developed market's one. Sovereign and development banks are still representing the majority of the issuances and only a few countries have been issuing green bonds so far. Some countries are trying to incentives both issuances (especially from corporates) and investments in Green Bonds by providing a strong framework for the development of the market.

### **B – Green Bond issuances do not trigger new sustainable solutions implementation but have a positive effect on the sustainability strategy of the issuer**

For most of the green bonds, allocation of proceeds is used to refinance projects that already have been financed in another way. On the project perspective, green bonds might not create additionality. However, green bonds contribute to raise awareness of investors for issuers' sustainable strategy and to increase the funds allocated to green and social finance. They thus have a knock-on effect on sustainability strategy on the issuer perspective.

**C – The transparency and sustainability quality of the projects (re-)financed through Green Bonds in emerging economies are similar to the developed economies ones while the ESG risks remain higher in emerging markets.**

On a project financed through the bond perspective, the sustainable quality of the green bonds issued in emerging markets can be the same as the green bonds issued in developed markets. Thanks to the additional information provided during and after the issuance, the transparency related to the bond is higher than for conventional bonds. This transparency is the first step to insure the high sustainable quality. Moreover, most of green bond issuances in emerging markets are accompanied by an external review against the Green Bond Principles. The regional guidelines which are structuring the emergence of green bond market in emerging markets are aligned with this internationally recognized standards. On a project and issuance level, the sustainable quality of green bonds in emerging markets is as high as developed markets' ones. However, the ESG performance of the issuer himself is generally lower.

**D – The demand for Green Bonds issued in the emerging markets is high, but only among a range of investors.**

Depending on the type of investors, some investors might be interested in the sustainable impact of the green bonds, some others on their credit profile. The widening of the green bond market to emerging markets can provide more offer to a global green bond market were the demand is high. Green bonds are generally oversubscribed.

## **Chapter 3. Empirical phase**

---

### **3.1. Methodology**

#### **3.1.1. Aim of the empirical phase**

The literature review aimed to report some of the key findings of researchers on the subject of green bonds globally and on their potential impact on emerging markets. By conducting this review, some hypothesis emerged on the five key research questions of this paper.

On the empirical phase, these hypotheses will be confronted to the points of view and the thoughts of some experts on green bonds in order to answer to the following problem and to make some proposals to encourage the growth of the green bond market in emerging countries to maximise its sustainable impact:

**Is the Green Bond market also adapted to emerging markets and what could make it more suitable for these markets? How to insure that the green bond issued in emerging countries or financing projects in emerging countries will be sustainable enough to be comparable to issuances in developed markets?**

#### **3.1.2. Data collection tool**

Among different types of qualitative data collection, the choice was made to hold semi-structured interviews. Halfway between the directive interview and the free interview, it allows to propose to the respondent precise themes while allowing him the possibility to go further in his explanations, in order to collect complete answers which can exceed the predefined guide. This type of interview, described by Sophie Duchesne as ‘non-directive’, is one of the most frequently used in the context of qualitative research. (Duchesne, 2000)

To ensure the relevance and quality of the answers obtained during these interviews, preparatory work is necessary. Indeed, if the interest of a semi-directive interview is that it leaves the respondent a certain freedom of speech, it is necessary to guide this one, and to have a common frame for all the interviews, in order to analyze the answers in a relevant way and to benefit from a certain constancy in the research.

The interview guide thus covers the different topics that will be discussed during the interviews. For each major theme, questions have been pre-prepared to guide the discussions. Nevertheless, these questions can be asked in a variable order and slightly modified to correspond to the interviewee's speech.

***a – Semi-directive interview guide***

<i>To every person interviewed</i>	
<b>Green Bond markets</b>	<ul style="list-style-type: none"> <li>• In your point of view, how will the Green Bond Market evolve? Especially in Emerging countries?</li> </ul>
<b>Sustainable quality of a Green Bond</b>	<ul style="list-style-type: none"> <li>• How do you assess the sustainable quality of a green bond? What is a truly ‘green’ or ‘social’ bond for you?</li> </ul>
<b>Issuers of Green Bonds</b>	<ul style="list-style-type: none"> <li>• Which issuers are the most trustworthy / impactful from your point of view? And why?</li> </ul>
<b>Additionality</b>	<ul style="list-style-type: none"> <li>• Do you think that green bonds have a true additionality (ie. that they are a useful tool to finance projects with an additional impact or is it only rebranding)?</li> </ul>
<i>Investors</i>	
<b>Appeal for Green Bonds</b>	<ul style="list-style-type: none"> <li>• Why are Green Bonds appealing / not appealing to invest in?</li> <li>• Does it make any positive / negative difference to invest in green bonds financing projects in emerging markets than in Developed markets?</li> <li>• How important is the aggregation of impact indicators for you?</li> </ul>
<b>Trust in Green Bond Markets</b>	<ul style="list-style-type: none"> <li>• On what do you think is based the trust of investors on Green Bonds (in comparison to Green Washing)?</li> <li>• How to assess the sustainable quality of Green Bonds?</li> <li>• How important are market standards / third-party evaluation from your point of view?</li> </ul>
<b>Risks / additional cost</b>	<ul style="list-style-type: none"> <li>• What are the main risks related to Green Bonds?</li> <li>• Is there an additional cost to green bonds in comparison with regular bonds (from a same issuer)? Is it undermining your willing to invest in green bonds?</li> </ul>
<i>Issuers</i>	

<b>Incentives / drawbacks</b>	<ul style="list-style-type: none"> <li>• What are the key incentives for issuers to issue a Green Bond?</li> <li>• What are the main risks? (ie. Reputational)</li> </ul>
<b>Impact</b>	<ul style="list-style-type: none"> <li>• How to choose which projects to refinance/finance through Green Bonds?</li> <li>• More financing? Refinancing?</li> <li>• How to measure impact in a reliable way?</li> </ul>
<b>Emerging focus</b>	<ul style="list-style-type: none"> <li>• Why to finance in priority projects in emerging markets?</li> <li>• What are the main risks / opportunities in this special geographical areas?</li> </ul>
<i>Banks (underwriters and / or issuers)</i>	
<b>Selection of asset pool</b>	<ul style="list-style-type: none"> <li>• How to select the projects to include into Green Bond asset pools?</li> <li>• Would it be possible to track and report on the location of the projects (by percentage of allocation)?</li> <li>• How easy is it to include private equity and/or small and mid-cap into an asset pool?</li> </ul>
<b>Type of beneficiaries</b>	<ul style="list-style-type: none"> <li>• How easy is it to include private equity and/or small and mid-cap into an asset pool? The advantage of pure players?</li> </ul>
<b>Reporting</b>	<ul style="list-style-type: none"> <li>• Would it be possible to track and report on the location of the projects (by percentage of allocation)?</li> </ul>
<i>Other markets actors</i>	
<b>Sustainable quality</b>	<ul style="list-style-type: none"> <li>• How to assess sustainable quality of Green Bonds? In a special focus of emerging markets? (Issuers, projects, alignments with market standards, ...) - detailed answer is expected</li> </ul>
<b>Evolution of the market</b>	<ul style="list-style-type: none"> <li>• What are the main trends of the past year?</li> <li>• What would you expect as of development of the market?</li> </ul>

	<ul style="list-style-type: none"><li>• What is the role of market standards / states' initiatives / third-party verifier in this future of market green bonds?</li></ul>
--	---

### ***b - Sample characteristics***

In order to understand what is at stake with the development of green bond market in the emerging market, the sample of solicited respondents is voluntarily composed of various profiles. Not having the constraints of representativeness that a quantitative study assumes, the sample of respondents is selective but relevant.

As Sophie Duchesne reminds us, the 'representativeness' of the sample studied in a qualitative study is not in the scale of the sample. It is the person interviewed who is 'representative' of the category to which he/she belongs. Representativeness then involves the meeting of a sample of people who can bring different and complementary views to the subject under study. It is then the principle of 'diversification' of the sample that is preferred to that of representativeness (Duchesne, 2000).

The sample was deliberately made of various profiles, around four main types of population:

- **Investors:** Every kind of investors is considered within this category, whether they are invested in green bonds or not. They are the final stakeholders of the green bond value chain and as they represent the demand of green bonds, their expectations give market development orientations.
- **Issuers:** Every kind of issuer of green bonds, excluding banks, is considered within this category. They are the first stakeholders of the green bond value chain.
- **Banks (as underwriters or issuers):** They can issue bond or underwrite bonds of other issuers. They are thus on of the key stakeholder.
- **Other market actors:** They can be data providers, certifiers, representatives of market associations... They are in charge of following, accompanying and/or structuring the evolution of the green bond market.

As some respondent wanted to remain anonymous, the name of the respondents and of their organizations will not be disclosed on this paper. Interviews were conducted with:

- **Respondent A - A fund manager of a green bond fund at an insurance company's asset manager**



- Respondent B - A fund manager of a green bond fund with a focus on emerging markets at an asset manager
- Respondent C - A fund manager of a conventional bond fund at an asset manager
- Respondent D - An ESG analyst from an asset manager
- Respondent E - A Green Bond Product Specialist at a SPO provider
- Respondent F - A Capital Investment Analyst at a bank underwriting green bond issuances
- Respondent G - A Policy Manager at the Climate Bond Initiative

Limit of the respondent profiles:

- No other investors than asset managers has been interviewed
- No issuer has been interviewed

## **3.2. Key findings of semi-directive interviews**

### **3.2.1. Green bond market in emerging countries is not yet structured for mainstream investments**

Most of the respondents have a strong point of view on the actual state of the Green Bond market in Emerging countries, on what are the key drawbacks for investment in this market and what incentives would be necessary to help the growth of this market.

#### ***State of Green Bond market in Emerging countries***

According to Respondent G, ‘there has been a huge growth in the past years thanks to some big issuances in Emerging markets as the Mexico City Airport one and issuances of energy-related companies in Brazil, China and India.’ Respondent A adds that the overall green bond market is more and more liquid and that there is no sourcing problem to invest in the Green Bond markets. For him, ‘the size of the green bond market is equal to the Euro high yield one and there is a growing number of funds on this segment’. However, Respondent B explains that so far, there is **no, or a very small, green bond market in Emerging countries.**

#### ***Lack of investors' trust and issuers' confidence***

The limited size of the Green Bond market in Emerging countries can be explained by the fact that some investors still lack trust toward the market and that some issuers are scared to enter the market. According to Respondent F, some scandals on the Green Bond market have been undermining the overall trust on market development. Four of the respondents have been

mentioning the Respol controversial issuance, aimed to finance energy efficiency project in a refinery business. According to Respondent A, some corporate issuers are not reluctant to issue Green Bonds because of the potential negative reputational impact. For him, 'as of now, issuers stick to very few projects' category for which they are sure that there is a consensus on the market.' However, according to Respondent F, controversial issuances are marginal. Respondent G agrees and explains that there is no lack of demand from issuers on the market, only not enough issuances to fulfil investors' expectations.

### ***Sectorial bias in Emerging markets***

One of the key drawbacks of the international Green Bond market is the sectorial bias of issuances, and it is especially the case in Emerging markets according to Respondent B. He states that issuers are 'mostly financials companies'. Respondent A agrees that there are only a few types of issuers on the corporate issuance market which are 'transport, financial, utilities and infrastructures'. Respondent F agrees that corporate issuers are integrated to the market but reminds that banks have always been leading the market, including the emerging one. 'Banks are the most willing to find assets to refinance and they are the best actors to find credit and loans in their assets', she explains. She adds that banks are able to apply sustainability filter in their due diligence process to select projects eligible for their asset pools. They can then create an extra-performance. For this reason, Respondent B explains that in the fund with an Emerging market focus, the investment strategy is to invest only on financial Green Bonds because 'they have a better due diligence process and they are able to put into a pool small assets coming from small pure players. Respondent D also believes that 'nowadays there is a too important sectorial bias on corporate issuances and that there is not enough corporate issuers'. Even though Respondent G states that all issuers in international Green Bond market are represented in the Emerging markets, most of the issuers agree that the market is led by sovereign, sub-sovereign and supranational issuers, but also some issuers which are mostly financial companies.

### ***Disincentives for investors***

There are some disincentives for each type of investors to invest in Green Bond Emerging market.

The first is related to the higher risks in Emerging markets. For institutional investors, it is difficult to invest in Emerging markets according to Respondent A. For him, 'institutional investors have a limited exposition to Emerging market as they are not allowed to be too much exposed to risks and are also limited to issuers financial ratings'. As issuers on Emerging markets are riskier than the ones in developed markets, institutional investors cannot be too much

exposed to this market. He also reminds that this limited exposure is not only a Green Bond bias. Respondent B agrees with this statement.

The second disincentive is directly related to Green Bonds. According to Respondent C, in the asset managers' perspective, the overall Green Bond market does not fit the risk / profitability expected. 'The profitability is too low because the quality of the credit profile is too high'. He also adds that 'pricing is higher because Green Bond issuance are attracting more investors than a conventional one for the same issuer because they are willing to finance a specific project and not the entire company'.

### ***Initiatives to develop Green Bond market in Emerging countries and expected outcomes***

According to Respondent G, Green Bond issuances in EM will continue to grow as it is a great tool to finance transition. For her, this market didn't pick yet and is far from picking. To help the growth of this market, both of Green Bonds funds' managers interviewed explain that their investment strategy within their fund is built to encourage issuances in Emerging markets and to provide trust and safety to asset owners which would like to invest in this market.

Respondent A's Green Bond fund has been created in 2015. This fund is an impact fund more than an ESG or SRI one because 'it does not consider in a strict way ESG rating of issuers as provided by rating agencies.' The aim of the investment strategy is to capture the willingness of issuers to lower their negative impact and to operate a transition toward a business model more aligned with a low-carbon economy. This fund has a strong bias on corporate issuances. According to him, 'corporate issuers should join massively the Green Bond market in Developed and in Emerging Countries to fulfil the Paris agreement objectives and to create a greener economy.' Encouraging those corporate issuers to join the market is on the goals of Respondent A. For him, 'Green Bonds market in Emerging countries will continue to grow and more sectors will be involved when strong taxonomy will be defined.'

Respondent B's Green Bond and low-carbon assets' fund has a focus on Emerging markets. This fund is the answer to a tender of the IFC to help developing Green Bond market in emerging countries by finding investors and by encouraging issuances. The aim of this fund is to help green assets and green investment needs to meet on the Emerging markets. To do so, fund's strategy can be sum up in two key points:

- Reinsuring investors by lowering the risk: a first tranche of the fund is designed to absorb losses in case of default.

- Only investing in Bonds with a moderate underlying risk: so far, the funds' managers are only investing in Green Bonds from financial issuers.

Thanks to this process, fund's managers aim to attract investors that are not used to invest in Emerging markets, regardless of the green aspect, as institutional investors.

Some other organisations, as the IFC, have programs to help potential issuers on the emerging markets according to Respondent B. Those include training for issuers on the expected greenness of the bonds and on the requirement of investors. This organisation is also allowing budget to reimburse the extra-cost of a green bond issuance (ie. External review-related costs).

Respondent C agrees on the need for incentives, and especially for corporate issuers. For him, 'there is a need for more issuers, in more sectors to have a better diversified and wider market to attract investors.

**By focusing more on projects than on ESG quality of the issuer, by defining a strong taxonomy of what 'green projects' are, by lowering the risks for investors and incentive corporate issuances to diversify and broaden the market, there is a consensus of respondents on the huge potential of growth on the market.**

### **3.2.2. Countries, as issuers and regulators, are playing a key role on the emerging market development**

According with most of the respondents, sovereign entities are a key driver of growth of Green Bond market in Emerging countries.

#### ***Sovereign as an issuer***

According to Respondent D, Green Bond is 'a good tool for sovereign and sub-sovereign issuers to finance their green and social policies as it allows investors to know what they actually finance'. For respondent B, 'states can issue Green Bond to give the example to other local issuers and to raise awareness of international investors that there is a market in Emerging markets'.

#### ***Governments as a regulator***

For Respondent F, it is the public-sector duty to accelerate the Green Bond market's growth. According with Respondent B, more than only issuing Green Bond on their own, states can also 'provide for tax incentives, define some targets of emissions and recognize a common taxonomy to build the issuances against.'

According to four of the respondents, the most impactful initiative of governments is the launching of regional guidelines. For Respondent G, 'several countries are launching their own national guidelines, as China, Brazil or Singapore. This phenomenon highlights the willingness of Emerging countries' government to encourage issuances in their countries. It also underlines the global aspects of this financial tool'. According to Respondent F, the Kenya Guideline shows that Green Bond is having a knock-on effect on improving transparency and mitigating governance risks in Emerging markets. However, investors remain quite sceptical about the overall quality of those guidelines. For Respondent A, 'as those guidelines are aligned with the Green Bond Principles, they can be used to insure the quality of the issuance.' However, he would still prefer documentation aligned with an international standard such as the Green Bond Principles in itself or the Climate Bonds Initiative Standards. Fund manager B does not recognize those standards as an eligible criteria so far. Respondent F suggest that those regional guidelines are a useful tool to encourage the number of issuances, but that those issuances still should be accompanied by an external review on an international standard.

**Countries, as issuers and regulators, have a key role to play on the Green Bond market growth on Emerging markets. However, issuers should still verify their issuances against an international standard to insure the trust of investors.**

### **3.2.3. Sustainability analysis of green bonds issued in emerging markets should be based on the same topics than the ones in developing market but not with the exact same expectations**

According to most of the respondent, **the same criteria apply to the evaluation of the sustainable quality of issuances in emerging markets and in developed markets.** For most of the respondent (Respondents A, B, D and E), the criteria to take into consideration while assessing sustainable quality of an issuance are the following:

- The alignment with the Green Bond Principle;
- Projects financed through the bond and whether they are part of a green category of projects;
- The sustainable quality of the issuers

The analysis of those criteria is following the credit analysis on the issuance.

Even though the same criteria are to be considered for the sustainability analysis, most of the respondents agree that to assess those criteria, there are different expectations in emerging

markets than in developed ones. Respondent C reminds that the ‘interest to invest in Emerging markets is to help countries to develop and to emerge, but the governance and social drawbacks on those economies are disincentive for investment.’ According to Respondent F, the assessment of the sustainable quality of the bond can mitigate market risks.

Here is the review of how to assess the three aspects quoted above on the perspective of the Emerging markets according to some of the respondents:

### ***Alignment with the Green Bond Principles***

According to respondent A, B, D and E, alignment with this market standard is the key aspect to verify whether a bond is green or not. To be considered as green, the issuance should be compliant with the four core components of the Green Bond Principles which are Use of proceeds, Process for project evaluation and selection, Management of proceeds and Reporting.

According to Respondent A, alignment with a regional standard as the one published by China is reliable too if the standard is itself aligned with the Green Bond Principles. As most of the standards on the market are, they can be considered as reliable. Respondent B does not agree with this statement and requires the bond to be explicitly aligned with the Green Bond Principles to be eligible to his fund.

To assess the alignment with this standard, investors have different methodologies. For the fund of Respondent A, the SRI team is analysing itself the alignment thanks to the information disclosed by the issuer and discussion with this issuer. Respondent B only relies on alignment verification such as Second Party Opinion. The greater flexibility of the fund managed by Respondent A, on the standard to be aligned with and on the way to verify this alignment, has been designed to allow a wider range of Emerging markets Green Bonds within the fund.

**The verification of the alignment of the issuance with the Green Bonds Principles is a requirement for all fund managers but can take different forms: verified by a third party or not, explicit or not.**

### ***Sustainability of the projects financed through the bonds***

The sustainable quality of the projects financed through the bond is based on the CBI taxonomy of categories of projects for respondent A. However, fund managers are always questioning whether a project is truly green or not. ‘There is no automatic process’ for Respondent A. According to Respondent B, the projects are screened against environmental, but also social and governance criteria to assess whether they are sustainable or not. For him, it is important to take into consideration social aspects, especially while financing great infrastructure

projects to take into consideration externalities such as displacement of populations in the wake of construction of a hydroelectric dam. Respondent D agrees with the importance of taking into consideration sustainable aspects that are not only green to assess the impact of externalities.

According to Respondent F, considering negative externalities, but also positive co-benefits is an absolute requirement in emerging markets which have to face multiple sustainable challenges at the same time. 'It is important to capture the whole picture' she states. As the CBI standards and certification focus on alignment with a 2° economy according to the Science Based Target methodology, it might not be a sufficient verification in the Emerging markets context. Respondent E adds that the controversy risks assessment related to projects and the overall lack of transparency in the emerging markets make it even more important to consider potential externalities of the pool of projects.

**Even though there is no common rule on how to assess sustainable quality of the bonds, considering projects categories and the externalities of those projects seems to be a trend on the market.**

### ***Sustainable quality of the issuers***

Respondent E insists on the importance of assessing the sustainable quality of the issuer itself, in every markets but especially in the emerging ones. To do so, the verifiers should analyse the ESG quality of the issuer and define a level above which the sustainability of the issuer is sufficient. This level can be based on rating provided by data providers.

Respondent B shares this point of view as the methodology to select eligible green bonds to his fund includes an analysis of the ESG policy of the issuer, which is related to the investment policy of the IFC. This methodology is a tool to exclude from the investable universe the worst performing issuers in a best-in-class approach. However, Respondent B also underlines the importance to truly discuss and engage with the issuers to understand the strategy of the issuer towards transition to a more sustainable world. Respondent D also believes that meeting the issuer during roadshow is a good way to assess the credibility of the issuance.

Respondent A states that for him, the focus should be more on the strategy of the issuers towards transition than to its current ESG performance. For him, 'taking into consideration the strategy of the issuer toward sustainability and assessing the credibility of this strategy is the only way to include emerging market issuers within the investment universe of the fund'. The willingness of the issuer to integrate transition to a low-carbon and ecological future is the most important part. For him, the interest of the Green Bond market is to allow issuers that would

have been excluded from conventional ESG fund to access the Socially Responsible Investment market by focusing on projects. By using ESG rating, the risk is to only consider issuers that are already aligned with a 2° future and not the ones which are currently operating a transition, or which are willing to do so.

**Sustainable quality of the issuance is considered through ESG rating by some of the investors or by estimating the sustainable transition probability of issuers which are still not performing well on ESG aspects.**

### ***Importance of external reviews***

For some respondents, external review is an absolute requirement, as for Respondent B. Respondents E, F and G are also strongly recommending issuers to make a second or third party verify their issuance. Respondent A is however sceptical on the quality of some of those external reviews but still believes that they are very useful to reinsure investors and to provide a narrative of the issuance aims. There is then a consensus on the interest of providing investors with an external review when issuing.

One of the most common external review on the market is the audit. According to respondent G, investors are demanding audit a lot. Audits aim to verify all the documentation related to the issuance, ex-ante and ex-post. Ex-post audits include ‘a review of the proceeds allocation and a review of the projects financed which is very useful to create trust toward investors’ according to Respondent D. Respondent A and B agree on useful characteristic of audits: for them, it is a good tool to sum-up all information available on the issuance and insure trust on the green bond market. According to Respondent B, audits are ‘lowering the risk of wrong governance by insuring that the allocation of the funds will be correctly tracked’. However, Respondent G points that audits do not provide any sustainable impact indicators or Key Performance Indicators. But Respondent D reminds that audits are a tool meant to certify the impact metrics ex-ante and ex-post defined elsewhere, as in Second Party Opinion and in reporting.

Second Party Opinion are a requirement to be eligible to the fund of the Respondent B as it is verifying both the process of issuance by checking the alignment with the Green Bond Principles and the sustainability of the underlying projects. For Respondent G, ‘the key advantage of Second Party Opinion is to provide a narrative on the ‘greenness’ of the bond and on the overall green strategy of the issuer.’ According to her, a lot of investors are happy to have those verifications. According to Respondent F, this tool is especially powerful for issuances with a



complex portfolio of underlying projects. Respondent A also believes it is a useful tool even though not always reliable. For him, some of the providers of Second Party Opinion also includes ESG analysis of the issuer which is not the investment philosophy of the fund of Respondent B. The provider of Second Party Opinion for which is working Respondent E does not provide verification to issuances from issuers coming from Emerging markets because of the lack of ESG performance of those issuers.

Finally, Climate Bond Initiative certifications are an ‘especially useful tool in Emerging markets where there are no local standards to assess Green Bond issuances’ according to Respondent F. To her, the process of certification is quicker and less expensive than the other verifications and are more reliable as the verifiers are themselves approved by the Climate Bonds Initiative. However, other respondents believe that there are some drawbacks with those certifications. Respondent G states that CBI Certifications are ‘least convenient than Second Party Opinions because the projects have to fit with the categories of projects defined by the taxonomy’. However, she believes that ‘it is still a useful tool to prove the sustainable quality of the bonds’. Respondent D thinks that ‘the process is too heavy for issuers’.

**All the respondents believe that issuance from Emerging markets should always be accompanied by an external review: audits seem to be the most popular; followed by Second Party Opinion which are taking into account ESG quality of the issuers and then CBI Certification.**

### ***Measuring the impact on sustainable development to legitimate the Green Bond market***

Respondents A and B agree on the importance of having access to impact indicators for investors. For Respondent B, ‘there is a true need to aggregate the impact indicators at a portfolio scale to demonstrate the sustainable benefits of investing through Green Bonds.’. The easiest indicator to aggregate is avoided CO<sub>2</sub> emissions. Other indicators are not as easy to aggregate as they are not fitting to a wide range of categories of projects. However, respondent D believes that avoided CO<sub>2</sub> emissions is not a indicator as comparable as it might seems. To her, ‘it depends on energetic mix of the regions and countries and it does not take into account the potential evolution of those mix by the time of operation of projects financed through green bonds.’ According to Respondent D, the aim of impact reporting is not necessary to aggregate indicators at a portfolio scale but more to stay as close as possible from reality. She would then prefer sectorial indicators that are more materials. **Investors do not seem to agree on this topic: there is**

a debate between the need to aggregate impact indicators at a portfolio scale and between publishing only more material sectorial indicators.

### **3.2.4. Green bond has an overall knock-on effect on its stakeholders' ecosystem**

One of the main criticism of the green bond market is that this financial tool is used to finance or refinance projects that would have been financed in another way. According to Respondent G, green bond does not have an additionality on the 'common sense' of the term as it has been mostly used to refinance assets. Respondent F reminds that green bond is only one out of many green finance tools and is not meant to finance all kind of projects and to address all sustainability topics. According to him, '**so far green bond is mostly refinancing**'. Respondent B shares this point and explains that for him additionality is a complex concept, very difficult to measure.

#### ***Knock-on effect on issuers***

Respondents A and F believe that green bond is a useful tool to refinance projects. According to them, 'refinancing is not the contrary of additionality'. For respondent F, green bond is still an incentive tool for issuers to finance green projects: 'it is easier to finance projects when you know that you will be able to refinance them afterwards'. For respondent A, 'some issuers find it more convenient to subscribe to several small loans and refinance it through a bond afterward, than financing everything at the same time once'. According to them, the **ability to refinance projects create additionality because it encourages projects financing at first.**

Green bonds also have the interest to lowering the cost of capital for financing green projects. According to Respondent C, as many investors are interested in green bonds, most of issuances are oversubscribed and the cost of capital for this project is lower. But thanks to green bonds, the cost of capital for green projects is not only lower, it is already postponed to the time 'when the projects will already be operating and profitable hopefully' according to Respondent H. For Respondent B, the cost of capital is decreasing even more for issuances in Emerging markets than for those of Developed markets because of some regulatory incentives and because of potential oversubscription which are less likely in those economies normally. **Green projects' cost capital is then postponed and lower, especially in emerging markets.**

Green bonds also have a positive effect on the overall sustainability strategy of issuers. First, as the focus is on the assets sustainability and credit quality and not on the entity, green

bonds allow some new kind of issuers to enter the sustainable finance market according to Respondent F. For this Respondent, ‘the most important aspect is issuer's strategy towards transition and a 2° Scenario alignment, not on the actual ESG performance of the issuers’. Moreover, green bonds are not only a financial tool, but also a communication one. Thanks to the requirement of transparency, disclosure and narrative of what is financed through the bond, green bonds allow issuers to ‘highlight their commitment to environment and social issues, to raise awareness about their environmental and social strategies and to collect more funds to implement the green strategy defined by issuers’ according to Respondent G. **Green bond is an opportunity for issuers to demonstrate their commitment to a transition toward a more sustainable future.**

To conclude, Respondent D explains that ‘there is no debate: as long as you can verify the green, social and governance quality of the projects financed through the bond, there is an obvious additionality both for issuers and investors’.

#### ***Knock-on effect on investors***

According to Respondent G, there is ‘no lack of the demand from the investors' side’ as most of the issuances are oversubscribed (and also even more than the conventional ones which are too). For him, green bonds also have the power to ‘attract potential new investors’. They can both be appealing for the range of investors which is interested in investing in bonds labelled as 'green' for their sustainability perspective. More and more sustainable investors are interested in financial products which are labelled because those investors are taking commitment to finance green assets or also because they have dedicated funds for those projects. Respondent E agrees and states that there is more and more demand from investors for green bonds, but also for social bonds (even though there is no social bond market so far). **Investors' demand for green bonds is growing.**

The respondents who are investors are all explaining this interest by two key factors on which they all agree: first, investors want financial tool to meet the expectations of the new generation of final savers; and then, they all believe that asset managers have a duty towards sustainability as they have the power to decide on which assets, green or stranded, they want to invest in.

Respondent A explains that ‘new generations of savers are more willing to have an impact through the money they invest than to make those investment profitable’. In this context, one of his key aim in the investment strategy of this green bond fund is to meet the retailers

expectations towards risk-profitability profile to reach the final savers. For him, as institutional investors can invest directly anyway, the most important target is retailers, and then final savers. Respondent B agrees: for him, final savers expectations are one of the key drivers to invest on labelled green bonds. For him, millennials especially care about what their money is used for. **Labelled green bond is a good tool to insure final savers that the investment strategy of the vehicles is fulfilling their sustainability requirements.**

More broadly, all the investors interviewed are sharing the acknowledgement of the duty of investors toward transition into a more sustainable world. For respondent A, the duty of an asset manager is to ‘allocate funds’: as asset managers have this role, they have a combined power of choosing what they want to invest in. With this power comes a great responsibility for Respondent A. Accordingly, Respondent B believes that as a powerful investor, the asset manager for which he is working should encourage the development of a financial market oriented into green projects and especially in least developed countries. As green bonds are, according to Respondent C, ‘a useful tool to finance projects aligned with a more sustainable future’ **they seem like a very adapted tool to meet final savers expectations and to fulfil investors duty toward stakeholders.** According to Respondent B, ‘more transparency will broaden the market and create new opportunities of investment in Emerging markets.’

## **Chapter 4. Discussion**

---

To answer the problem stated at the beginning of this essay, a discussion between the key findings of the literature review and the point of views of the expert respondents' of the qualitative study is necessary.

As a reminder, the key problem of this essay is the following: Is the Green Bond market also adapted to emerging markets and what could make it more suitable for this market? How to ensure that the green bond issued in emerging countries or financing projects in emerging countries will be sustainable enough to be comparable to issuances in developed markets?

To address this problem, the discussion between literature review and empirical phase findings is organised by research questions.

### **4.1. On hypothesis A - The Green Bonds market is indeed limited, especially in terms of issuers' profile, but is growing and is getting more diversified thanks to regional incentives.**

According to the literature review findings, there is an investable Green Bond market in emerging countries even though it is not structured as the developed markets' ones. On this market, sovereign and development banks are still representing the majority of the issuances, as it was the case at the beginning of the Green bond market in developed countries. Furthermore, only a few countries have witnessed issuances from their national economy. According with empirical phase findings, the green bond market in emerging markets is still at its infancy and is still very limited. The empirical phase highlight that this market have a too strong sectorial bias because of the 'green' part and are too risky because of the location of the projects and the issuers to attract mainstream investors. International investors seem to lack of trust toward green bond market in emerging markets and issuers seem to be afraid to issue potential controversial green bond. The reputational risk on this market is still too high.

To mitigate this risk and incentive the development of this market more broadly, the empirical phase underlines some potential incentives for the future growth of this market, among which focusing more on projects than on ESG quality of the issuer, defining a strong taxonomy of what 'green projects' are, lowering the risks for investors and incentive corporate issuances to diversify and broaden the market. Some countries are trying to implement those incentives to build trust on the market and some fund managers are trying to implement strategy that include

green bonds which issuers are based in emerging markets to demonstrate the capacity of this market to be reliable.

#### **4.2. On hypothesis B – The additionality of Green Bonds stands in its capacity to have knock-on effects on the sustainability approach of SRI's ecosystem**

The literature review highlighted that for most of the green bonds, allocation of proceeds is used to refinance projects that already have been financed in another way. On the project perspective, green bonds might not create additionality. Empirical phase underlines that green bonds does not have additionality in the common sense of financing projects that would not have been finance elsewhere. However, according to both literature review and empirical phase, there are various positive knock-on effects for issuers:

- The ability to refinance encourages issuers to finance green projects at the first place.
- Issuing green bonds is a tool for the issuer to communicate about its sustainability strategy and to attract a broader range of investors, including SRI ones.
- Green bonds allow to collect more easily fund and to increase the budget allocated to green projects on the issuer perspective. They thus have a knock-on effect on sustainability strategy of the issuer.
- With green bonds, the cost of capital is postponed at the time when the projects are operating and the cost of capital is lower, especially in emerging markets.

For investors, there are also various knock-on effect thanks to green bonds :

- Investors' demand fro green bonds is growing
- Green bond are a great tool to insure the 'greenness' of the strategy of the fund toward final savers because they are labelled.

Overall, green bond is a tool to widen the sustainability strategy of the issuers and to prove investors' commitment to financing transition toward a more sustainable economy.

### **4.3. On hypothesis C –The sustainable quality of the projects and process related to an emerging market Green Bond issuance is indeed as good as one issued in developed market while but the ESG profile of the issuer is often not**

Literature review's findings are that the sustainability of the projects financed through a bond is generally as good as the one of comparable developed market ones. The processes also are as reliable in both markets. Thanks to the additional information provided during and after the issuance, the transparency related to the bond is higher than for conventional bonds. This transparency is the first step to insure the high sustainable quality and reliable process.

According to empirical phase's findings, the analysis of the sustainable quality of an issuance should be based on the same criteria. However, the way to assess those criteria and the requirement to assess them should not be the same. The alignment of the issuance with the Green Bond Principles is an absolute requirement but can take different forms: verified by a third party or not, explicit or not. Issuances' best practice is to be verified by an external review for all issuances in emerging markets, or at least explicitly mentioned on the documentation of the bond issuance before the issuance.

Another key finding of the literature review and of the empirical phase is that projects should be part of 'green categories' for which there is a consensus on the market. Categories of projects as described in the Green Bond Principles, the Climate Bond Initiative standards and other regional guidelines have the approval of a wide range of actors on the market. However, taking into consideration only the 'green' aspects of the projects financed is not enough. Social and governance aspects should also be part of the analysis to capture the potential negative externalities and positive co-benefits of the projects.

On the projects and management of proceed level, the sustainable quality of issuances is generally as good in emerging markets than in developed markets. However regarding the ESG quality of the issuer, it is generally lower in emerging markets. According to the empirical phase, considering to ESG quality of the issuer in emerging markets as the one in developed market would lead to not investing in emerging markets. The solution is to consider the strategy of the issuer to improve its sustainable strategy and its action plan to achieve transition toward a better alignment of its business model with a 2° economy.

External review can help investors to distinguish good quality issuances in Emerging markets. Empirical phase highlighted that issuance from Emerging markets should always be

accompanied by an external review: audits seem to be the most popular; followed by Second Party Opinion which are taking into account ESG quality of the issuers and then CBI Certification.

Measuring the actual impact of projects financed through the bond might also be a good tool to prove the positive impact of the green bond market in emerging countries. However, there is still a debate on what to indicators to report.

#### **4.4. On hypothesis D – Not all types of investors are willing to invest in the green bond market of emerging market so far, but all recognize the credit and sustainable potential of this market**

In the current market, there is no common rule to all range of investors: some are interested in investing in the green bond market in emerging countries, some other cannot do so.

Overall investors are still lacking of trust toward this market because of structural governance problems in some emerging markets and because of the higher risk on those markets. Some investors are threatened by this high risk profile and are not willing and/or authorised to invest in such risky markets. This is the case of institutional investors. On the contrary, asset managers which are more likely to choose higher risk profile are disincentive by the credit profile of some green bond issuance in comparison with conventional bonds of the same issuer because the quality is too high.

However, most of investors are willing to invest in green assets to fulfil the requirement of new generations of final savers which require more impact and meaning in the their investments. The empirical phase outlines a consensus on the huge potential of the Green Bond market: more corporate issuers, with diversified business model would attract more investors.



## **Chapter 5. Conclusion**

---

For inspiration: The commons is a concept that is increasingly widespread in the world of research and among practitioners. A growing number of social activists mention them as a grassroots alternative to counterbalance market and state forces in regulating social and economic life (Bollier & Helfrich, 2014; Klein, 2001). Accordingly, the commons are community institutional arrangements that aim to promote another way of organizing, with a view to sharing resources, cooperating among users, and creating communities. Despite a strong tradition in environmental and informational resources, little is known about how the lens of the commons could be applied to human-made resources. Thus, human-made commons face many organizational challenges in terms of management and governance, but also as regards influencing their institutional environment to consolidate and institutionalize their activities. This dissertation has sought to address these empirical challenges through a multifaceted analysis of financial commons. We focused on two types of social finance services and organizations, determined the extent to which they can be considered as commons, analyzed how they mobilize community institutions for building alternative institutional arrangements, and studied their scaling strategies. Our conclusion is composed of five sections. First, we provide a summary of our work and findings. Second, we present our main theoretical contributions to social and community entrepreneurship research, organization theory, and social issues in management. Third, we establish some of the limitations of the commons and our research. Fourth, we examine some policy and managerial implications of our findings. Finally, we conclude by suggesting avenues for further research

### **5.1. Summary**

The number of green bond issuances has been growing in the past few years, led by issuances from development banks and sovereign issuers. Those two types of entities were also the ones who led the growth of green bond market in developed countries since 2008.

The growth of green bond market in emerging markets has been driven by the need for financing green and social projects in markets where the level of development are lower than elsewhere, where access to basic services and resources is not achieved for an important range of the population. Sovereign issuers and financial entities has been incentive to issue by the need to access private capital market to face this sustainable challenge, but also to communicate their willingness to achieve a transition toward a more sustainable economy and attract investors who

are currently investing in international green bond market. On this market, demand of investors is huge and most of the issuances are oversubscribed. On the emerging market, investors' demand for green bond is more shy because of the inherent risk related to emerging markets and because of the fear of green-washing or over negative externalities. The current green bond market in emerging market is then promising, but there is still a lack of confidence and reliable opportunities to become mainstream and to truly unlock its knock-on effect potential on sustainable development on this economies.

## **5.2. Policy and Managerial Implications**

To help the growth of a mainstream green bond market in emerging markets, some measures should be taken:

- **Sustainable quality assessment should consider the specific context of emerging markets and their level of development**

Even though there is a consensus on what criteria to consider while assessing sustainable quality of an issuance (eg. Sustainable quality of projects financed through the bonds, sustainable quality of the issuer and alignment with the Green Bond Principles), there is still no consensus on how to assess those criteria.

This study highlights that there is a consensus on the need of alignment with the Green Bond Principles to insure that the issuance process is reliable and to mitigate governance risks on emerging markets. However, regional guidelines are divided the market in some investors' point of view even if they are all based on Green Bond Principles. Market association such as the Climate Bond Initiative should publish report to highlight that those regional guidelines are all built on the same roots to reinsure investors. Issuers in Emerging markets shall accompanied their issuances with an external review: audits are perfectly fitting investors disclosure and certification requirements and Second Party Opinion are a good extra-verification for issuances with a complex issuances.

This paper also highlight that there is a consensus on the need to verify the 'greenness' of projects financed through the bonds. To assess the sustainable profile of those projects, issuers, verifiers and investors should base their analysis on commonly recognized taxonomy as the Climate Bonds Initiative standards. Thanks to a common understanding of what projects are green or not, issuers will dare to issue green bonds fitting with this taxonomy without fearing reputational controversies and investors' trust will be reinsured. Moreover, externalities of

projects' financed through the bond should also be considered by the assessment to avoid controversies on social or governance aspects.

Regarding sustainable quality analysis of issuers, there is fewer consensus on the market. Some verifiers refuse to verify green bonds issued in emerging markets because of the too low ESG rating of their issuers. On the contrary, some investors decided not to take into account those ESG rating to only consider the strategy of issuers toward a transition to a more sustainable economy. However, green bonds allow focusing on projects financed and not on issuers. The main advantage of green bond market is to allow some issuers that would not attract SRI investors elsewhere to access private capital market to finance their transition. Thanks to the alignment to the Green Bond Principles, the proceeds of the bond are segregated and managed in separate accounts. In this context, being very strict on the ESG profile of the issuer is not a requirement. Engaging with issuers to understand their strategy to improve their alignment to a 2° economy thanks to projects financed through the bond might be the best way to consider issuers' sustainable performance without excluding them from green finance.

To measure the actual impact of investment through green bonds, this paper underlines that there is a debate between a trend to aggregate impact indicators at the portfolio scale and a willing to only report on indicators that are actually material for the projects financed. There is only a few indicators that can be aggregated at a portfolio scale, among which CO<sub>2</sub>-related data. Even though this data is quantitative, it depends to the energy mix against which the projects are compared and might then not be as comparable as they seem. The best practice is maybe to only report indicators at project scale to remain as close of the reality as possible. Qualitative description of the benefits of issuances, as provided by Second Party Opinion, should be enough to highlight the key sustainable benefits of an issuance.

- **To attract broaden range of investors, corporate issuances in emerging markets must boom**

Corporate potential issuers should be reinsured regarding potential reputational risks. Regulators in emerging countries are trying to incentive further issuances by corporate by publishing regional guidelines and implementing tax incentives for issuers of green bonds. This paper shows that it is the key driver of the market of green bond in emerging countries so far. Investors should also communicate more broadly what are their sustainability expectations to inform issuers. Underwriters of green bonds have a key role to play as counsellor prior to

issuances. Initiative of countries that are reimbursing the additional cost of green bond issuances could help issuers to be well advised prior to the issuance.

- **There is a lack of social consideration of the green bond market**

This study showed that the international social bond market is nearly inexistent. Even though the Social Bond Principles have been published in 2017, there is a lack of visibility of social topic on the bond market. Market associations such as ICMA should work on taxonomy of social projects to finance through social bond to allow the raise of the market. The same incentives could be applied to Social Bond market than to green bond market. Social challenges in emerging markets are as urgent than environmental ones and addressing one can also encouraging the other. Environmental and social distinction is only artificial: planet and human beings are both stakeholders of all categories of projects that could be financed through green or social bonds.

### **5.3. Academic literature implications**

At the first sight, one could think that the literature on Green Bonds is very limited, and inexistent when it comes to the application of this fixed income product in the Emerging Markets. However, the potential power of Green Bond stands in its integration to the widest financial markets in terms of value: the conventional bond market. Green Bonds only differ from conventional bonds thanks to its additional transparency and intentionality. On conventional bonds, many academic papers are available, dealing with most of the topics that can be related to bonds. A wide amount of work has also been conducted by the academic market on the specificity of emerging economies and of their integration to the worldwide financial markets. Thus, this paper aims to bridge the gap between those two outstanding consistent literature to start feeding one related green bonds. The academic literature on sustainable investment and sustainability opportunities and challenges, even if somehow more limited, also fed the reasoning behind this paper. The articulations between those three range of available articles and publications should be pushed further in the scope of upcoming publications on the green bond topics.

Market-oriented researchs, both quantitative and qualitative, from private and public market associations or stakeholders, gave the overall orientation to this study paper and fed most of the practical reasoning behind it.

Connecting academic studies on related fields, market research and professional stakeholders of the recent market of green bond in emerging markets is the key academic output that should be pushed further in further papers.

The academic community has a role to play in accompanying the understanding of what a green bond is and of what sustainable finance is and of its ability to reconnect the financial markets to the real economy.

#### **5.4. Limitations**

This essay lacks green bond issuers' input even if many of them have been contacted. Moreover, very few credit considerations have been included in this study because a lack of expertise in this field. Those two limits might be addressed in a following paper.

#### **5.5. Direction for further research**

Addressing the two limitations should be part of further research.

The ongoing work for the High-Level Expert Group and Technical Expert Groups from the European Union Commission should also be followed closely because they might help to erase some of the market growth barriers, while increasing the risk of too strong limitation of the green bond market that would excludes some stakeholders as the emerging ones. The potential impact of the adoption of a recognized taxonomy and of a related green bond label could be studied in further research.

Studying the possibilities to measure and to report on the actual environmental, social and financial impact of the green bonds would also be an interesting topic for the academic community as well as for the managerial and legislative one.

## **Bibliography**

---

- Accenture. (2011). *Carbon Capital: Financing the low carbon economy*. Barclays.
- Alvarez, C. (2018, February 28). DANONE, EDF, PHILIPS ONT CHOISI DE SOUMETTRE LEURS TAUX DE CRÉDIT À LEURS PERFORMANCES ENVIRONNEMENTALES ET SOCIALES . *Novethic* .
- Amadeo, K. (2018, March 22). What are Emerging markets? Five Defining Characteristics, How to Pick the Real Winners. *The Balance* .
- Berger, A. (2017). L'essor des green bonds : potentialités et limites. *Annales des Mines - Responsabilité et environnement* .
- Brest, P., & Born, K. (2013). Up for Debate: When can impact investing create real impact? *Stanford Social Innovation Review* .
- CBRC. (2007). *Green credit policy*.
- Climate Bond Initiative. (2017). *Post Issuance Reporting in the Green Bond Market-Trends & Best Practice June 2017*.
- Climate Bonds Initiative. (2018). *Briefing: Green bonds as a bridge to the SDGs*.
- Climate Bonds Initiative. (2014). *Climate Bonds for Beginners*. Retrieved 05 18, 2018 from Climate Bonds Initiative: <https://www.climatebonds.net/resources/overview/climate-bonds-for-beginners>
- Climate Bonds Initiative. (2018). *Green Bonds Highlights 2017*.
- Climate Bonds Initiative. (2018). *Green Bonds Market Summary - Q1 2018*.
- Climate Bonds Initiative. (2017). *Green Bonds Policy: Highlights from 2017*.
- Dr. Mahbudi Ali, M., & Dr. Mah Abdullah, S. (2018). Green sukuk: Present state of future outlook. *International institute of Advanced Islamic Studies (IAIS)* .
- Dybdahl, D. (2015). *Environmental Insurance: Just the Facts*. Retrieved October 04, 2017 from IRMI: <https://www.irmi.com/articles/expert-commentary/environmental-insurance-just-the-facts>
- Export-Import Bank of India . (2015). *Exim Bank of India Raises US\$500 million 5 year Tenor Reg S Green Bond At a Coupon of 2.75%* .

Fantom, N., Khokhar, T., & Purdie, E. (2016, April 15). *The 2016 edition of World Development Indicators is out: three features you won't want to miss*. From The Data Blog: <https://blogs.worldbank.org/opendata/2016-edition-world-development-indicators-out-three-features-you-won-t-want-miss>

Flaherty, M., Gevorkyan, A., Radpour, S., & Semmler, W. (2016). Financing Climate Policies through Climate Bonds-A Three Stage Model & Empirics. *Schwartz Center for Economic Policy Analysis and Department of Economics*.

Franklin, A. (2017). How to minimise the legal risks of green bonds. *Environmental Finance*.

Garcia Paret, C., & Lorenzo, S. (2015). Adapter les marchés financiers aux changements climatiques. *Revue d'économie financière*.

Heinkel, R., Kraus, A., & Zechner, J. (2001). The Effect of Green Investment on Corporate Behavior. *The Journal of Financial and Quantitative Analysis*.

International Capital Market Association. (2017). *Green Bond Principles, V2*.

International Capital Market Association. (2018). *Green loans principles*.

International Capital Market Association. (2017). *The Social Bond Principles*.

International Capital Market Association. (2017). *The Sustainability Bond Principles*.

International Finance Facility for Immunisation. (2017). *Scially Responsible Investing through Vaccine Bonds*. Retrieved June 21, 2018 from IFFIm: <https://www.iffim.org/bonds/vaccine-bonds/>

International Monetary Fund. (2009, July 20). Q. How does the WEO categorize advanced versus emerging and developing economies?

JP Morgan Chase & Co. (2017). *JPMorgan Chase to be 100 Percent Reliant on Renewable Energy by 2020; Announces \$200 Billion Clean Energy Financing Commitment*.

Kidney, S., Cleanaghan, S., & Oliver, P. (2014). Climate Bonds - The investment case. *Investment Opportunities for a Low-Carbon World*, pp. 241-249.

Knight, Z. (2015). Le développement d'une « finance 2 °C » et l'exemple des green bonds. *Revue d'économie financière*.

Kolver, A., Riess, A., Zachmann, G., & Calthrop, E. (2012). Investment and Growth in the Time of Climate Change.

KPMG. (2015). Gearing up for Green Bonds.

Ladd, P., & Conceição, P. (2015). *SDGs, FfD and Every Single Dollar in the World*.

Mustunsir, M. A. (2015). Sustainability vs economic growth: a third world perspective. *World Journal of Entrepreneurship, Management and Sustainable Development*.

OECD. (2017). *Mobilising Bond Markets for a Low-Carbon Transition, Green Finance and Investment*. OECD.

Organisation for Economic Cooperation and Development. (2011). *Towards Green Growth*. OECD.

Otoritas Jasa Keuangan. (2014). *Roadmap for Sustainable Finance in Indonesia 2015-2019*.

People's Bank of China. (2015). *Announcement No. 39*.

Redclift, M. (2005). Sustainable development (1987-2005): an oxymoron comes of age. *Sustainable development (1987-2005): an oxymoron comes of age*, 11.

Ross, U. *Green Bond Drivers*. HSBC Global Publishing Services.

Sachs, J. (2014). Climate Change and Intergenerational Well-Being. *The Oxford Handbook of the Macroeconomics of Global Warming*.

SEB. (2017). Green Bonds - Key Facts and Finding. Mumbai.

Shishlov, I., Morel, R., & Cochran, I. (2016). *Beyond transparency: unlocking the full potential of green bonds*. Institute for climate economics.

Su, M. (2014). Can Green Bonds Help Air Pollution Mitigation in China ? - Potential and Challenges.

Tao, J. Y. (2015). *Utilising Green Bonds for Financing Renewable Energy Projects in Developing Asian Countries*.

UNDP. (2015). *Green Bonds*. Retrieved April 30, 2018 from Financing Solutions for Sustainable Development: <https://www.undp.org/content/sdfinance/en/home/solutions/green-bonds.html#risksandchallenges>



UNESCAP. (2015). *What is Green Growth?* United Nations Economic and Social Commission for Asia and the Pacific. UNESCAP.

United Nations. (2015). *Adis Ababa Action Agenda*.

United Nations Development Programs. (2012). *International Guidebook of Environmental Finance Tools A Sectoral Approach: Protected Areas, Sustainable Forests, Sustainable Agriculture and Pro-Poor Energy*.

United Nations Environmental Program. (2011). *Towards a green economy. Pathways to sustainable and poverty eradication (a synthesis for policy makers)*. Green Economy Report.

United Nations. (2015). *Paris Agreement*.

United Nations Statistics Division. (2003). *Millennium Development Indicators: World and regional groupings*.

World Bank. (2015). *From Billions to Trillions: Transforming Development Finance. Post-2015 Financing for Development: Multilateral Development Finance*.

World Bank. (2012). Inclusive green growth the pathway to sustainable development. *Inclusive Green Growth, The World Bank*.

World Bank. (2014). *What are Green Bonds?* From The World Bank: <http://treasury.worldbank.org/cmd/htm/Chapter-1-Bonds-in-Global-Financial-Markets.html>

World Commission on Environment and Development. (1987). *Our Common Future - Bruntland Report*. Oxford: Oxford University Press.

Zadek, S., & Chengui, Z. (2014). Greening China's Financial System, An Initial Exploration. *International Institute for Sustainable Development*.

## Annexes

---

### **Annex 1 : List of emerging countries, World Bank, 2016**

List of countries for which the per capita gross national income is below \$4,036 as calculated by the World Bank on data of 2016.

<b>AFG</b>	<b>Afghanistan</b>	<b>L</b>
<b>AGO</b>	Angola	LM
<b>ARM</b>	Armenia	LM
<b>BGD</b>	Bangladesh	LM
<b>BEN</b>	Benin	L
<b>BTN</b>	Bhutan	LM
<b>BOL</b>	Bolivia	LM
<b>BFA</b>	Burkina Faso	L
<b>BDI</b>	Burundi	L
<b>CPV</b>	Cabo Verde	LM
<b>KHM</b>	Cambodia	LM
<b>CMR</b>	Cameroon	LM
<b>CAF</b>	Central African Republic	L
<b>TCD</b>	Chad	L
<b>COM</b>	Comoros	L
<b>COD</b>	Congo, Dem. Rep.	L
<b>COG</b>	Congo, Rep.	LM
<b>CIV</b>	Côte d'Ivoire	LM
<b>DJI</b>	Djibouti	LM
<b>EGY</b>	Egypt, Arab Rep.	LM
<b>SLV</b>	El Salvador	LM
<b>ERI</b>	Eritrea	L
<b>ETH</b>	Ethiopia	L
<b>GMB</b>	Gambia, The	L
<b>GEO</b>	Georgia	LM
<b>GHA</b>	Ghana	LM
<b>GTM</b>	Guatemala	LM
<b>GIN</b>	Guinea	L
<b>GNB</b>	Guinea-Bissau	L
<b>HTI</b>	Haiti	L
<b>HND</b>	Honduras	LM
<b>IND</b>	India	LM
<b>IDN</b>	Indonesia	LM
<b>JOR</b>	Jordan	LM
<b>KEN</b>	Kenya	LM
<b>KIR</b>	Kiribati	LM
<b>PRK</b>	Korea, Dem. Rep.	L
<b>XKX</b>	Kosovo	LM
<b>KGZ</b>	Kyrgyz Republic	LM
<b>LAO</b>	Lao PDR	LM

<b>LSO</b>	Lesotho	LM
<b>LBR</b>	Liberia	L
<b>MDG</b>	Madagascar	L
<b>MWI</b>	Malawi	L
<b>MLI</b>	Mali	L
<b>MRT</b>	Mauritania	LM
<b>FSM</b>	Micronesia, Fed. Sts.	LM
<b>MDA</b>	Moldova	LM
<b>MNG</b>	Mongolia	LM
<b>MAR</b>	Morocco	LM
<b>MOZ</b>	Mozambique	L
<b>MMR</b>	Myanmar	LM
<b>NPL</b>	Nepal	L
<b>NIC</b>	Nicaragua	LM
<b>NER</b>	Niger	L
<b>NGA</b>	Nigeria	LM
<b>PAK</b>	Pakistan	LM
<b>PNG</b>	Papua New Guinea	LM
<b>PHL</b>	Philippines	LM
<b>RWA</b>	Rwanda	L
<b>STP</b>	São Tomé and Príncipe	LM
<b>SEN</b>	Senegal	L
<b>SLE</b>	Sierra Leone	L
<b>SLB</b>	Solomon Islands	LM
<b>SOM</b>	Somalia	L
<b>SSD</b>	South Sudan	L
<b>LKA</b>	Sri Lanka	LM
<b>SDN</b>	Sudan	LM
<b>SWZ</b>	Swaziland	LM
<b>SYR</b>	Syrian Arab Republic	LM
<b>TJK</b>	Tajikistan	LM
<b>TZA</b>	Tanzania	L
<b>TLS</b>	Timor-Leste	LM
<b>TGO</b>	Togo	L
<b>TUN</b>	Tunisia	LM
<b>UGA</b>	Uganda	L
<b>UKR</b>	Ukraine	LM
<b>UZB</b>	Uzbekistan	LM
<b>VUT</b>	Vanuatu	LM
<b>VNM</b>	Vietnam	LM
<b>PSE</b>	West Bank and Gaza	LM
<b>YEM</b>	Yemen, Rep.	LM
<b>ZMB</b>	Zambia	LM
<b>ZWE</b>	Zimbabwe	L

"L" stand for "low income countries": \$1,025 or less

"LM" stand for "Lower middle-income countries": from \$1,026 to \$4,035

## **Annex 2: Lower-middle income countries, World Bank, 2016**

Albania	Ecuador	Nauru
Algeria	Fiji	Panama
American Samoa	Gabon	Paraguay
Argentina	Grenada	Peru
Azerbaijan	Guyana	Romania
Belarus	Iran, Islamic Rep.	Russian Federation
Belize	Iraq	Samoa
Bosnia and Herzegovina	Jamaica	Serbia
Botswana	Kazakhstan	South Africa
Brazil	Lebanon	St. Lucia
Bulgaria	Libya	St. Vincent and the Grenadines
China	Macedonia, FYR	Suriname
Colombia	Malaysia	Thailand
Costa Rica	Maldives	Tonga
Croatia	Marshall Islands	Turkey
Cuba	Mauritius	Turkmenistan
Dominica	Mexico	Tuvalu
Dominican Republic	Montenegro	Venezuela, RB
Equatorial Guinea	Namibia	

## **Annex 3: Pre-issuance and post-issuances reviews, The Green Bond Principles V2, 2017**

<b>Pre-issuance reviews</b>		
<b>Type of review</b>	<b>What it covers</b>	<b>Example of providers</b>
First party (issuer) green bond framework	Disclosure of how proceeds will be managed and allocated. Best practice will also provide the definition of green eligible assets	Performed by issuers of bond
Independent third party Assurance	Assurance reports state whether the green issuance is aligned with the Green Bond Principles and the Climate Bonds Standard	Audit firms as EY or KPMG
Second Party Opinion	Provide an assessment of the issuer's green bond framework, analysing the "greenness" of eligible projects/assets. Some second party opinions also provide a sustainability rating, giving a qualitative indication (e.g. CICERO rates green bond frameworks according to three grades - light green, medium green, dark green - that reflect the alignment of the framework to a low-carbon economy)	ESG Providers as ISS-oekom and Vigeo Eiris ; scientific experts as CICERO
Green Bond Rating	A number of rating agencies assess the bond's alignment with the Green Bond Principles and the integrity of its green credentials	Rating agencies as Moody's and S&P Global Ratings
Climate Bonds Certification	The Climate Bonds Standard is the only Paris Agreement aligned standard available in the market. Third party verification confirms that the use of proceeds adhere to the Climate Bonds Standard and sector specific criteria (e.g. Low Carbon Transport)	Verifiers approved by the Climate Bond Standards : audit firms as EY and ESG service providers as ISS-oekom

<b>Post-issuance reviews</b>		
<b>Type of review</b>	<b>What it covers</b>	<b>Example of providers</b>
First party disclosure of proceeds allocations	Disclosure of allocation of proceeds to eligible green projects and, where relevant, performance indicators. This can be provided as a part of the issuer's annual reporting	Performed by issuers of bond
Independent second party or third party assurance report	Assurance of allocation of proceeds to eligible green projects.	Audit firms as EY or KPMG ; ESG Providers as ISS-

		oekom and Vigeo Eiris ; s scientific experts as CICERO
Impact reporting	Reporting that seeks to quantify the climate or environmental impact of a project/asset numerically	Issuers ; Auditors ; ESG Providers
Climate Bonds Certification	Assurance against the Climate Bonds Standard, including the allocation of proceeds to eligible green projects and types of green projects	Verifiers approved by the Climate Bond Standards : audit firms as EY and ESG