# Green Bonds: Adopting a Green Financing Initiative in the Philippines



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## What is a Green Bond?

Asia is the fastest growing economy in the world today. While the global growth is estimated to be around 3% for the coming years, Asia's growth rate is projected to be around 6%. Asia, therefore, leads the growth in global economy. (International Monetary Fund, 2017). While these projections are promising, businesses cannot deny the need for a sustainable approach to doing business in Asia. Issues such as the forest fires in Indonesia, air pollution in China and in the Philippines and the poor waste management in India prevent any form of market developments, whether in the real or financial world, from truly elevating everyone's quality of living (Norton Rose Fulbright, 2016). This sustainable approach to doing business can be achieved through what is called "green financing".

"Green Finance" is the financing of investments that promotes environmentally sustainable developments. (Weidmann, 2017). They are fueled by investors around the world becoming aware of the problems in the environment and recognizing that need to allocate resources for solutions to these. These socially aware and responsible investors, then turn to the financial markets to achieve a positive impact on communities around them while achieving some financial returns (Staley, 2016).

Green bonds are just like ordinary bonds, except that its proceeds must be used for "green" or environmentally-friendly projects. As such, in addition to the normal returns that bond investors get, they get an additional benefit, a positive impact on the environment. Since the issuance of the very first green bond in 2007 by the European Investment Bank, and the World Bank in 2008, demand for green bonds has exponentially increased. (Macpherson, Rieger, Horan, & Sokol, 2017). This growing demand indicates that investors are incorporating the principles of Environmental, Social and Governance (ESG) principles into their investing consciousness. As a testament to this, most initial issuance of green bonds are "oversubscribed" (Cowan, 2017), indicating strong investor confidence. The development and growth of the green bond market likewise bears similarities with that of sukuk, which are Islamic Investment certificates or Islamic bonds. These two types of financing generates passionate followers and investors and are considered more ethical than conventional bonds.

When it comes to financial return, some claim that the yields on these bonds are lower, due to the fact that they are less liquid compared to traditional bonds (Schroders, 2015). In addition, the phenomenon of asset substitution is more prevalent for bonds with specific use of proceeds such as green bonds so the costs of monitoring are higher. Lastly, the costs for the issuer increase as they jump through hoops, in order for the security to pass the definition of a "green" bond (Norton Rose Fulbright, 2016).

Despite these costs, empirical research tells us that investors are still willing to pay the price of being a socially responsible investor (Mohr, Webb, & Harris, 2001). This analysis extends to corporations as well. A study made in 2013, shows a positive relationship between corporate and social responsibility for some

companies.<sup>1</sup> Clearly, the adoption of green finance helps both investors and corporations achieve both ethical and financial goals<sup>2</sup>.

Certain countries issue green bonds in accordance with the Paris Agreement. For example, as part of the agreement, China agreed to lower carbon emissions by around 60-65% by 2030, compared to its 2005 levels. Such goals in carbon dioxide emissions imply huge investments in renewable energy. The Financial Research Institute of China estimated that around RMB 2.9 trillion (\$460 Billion), 70% of which the government hopes to come from the **private sector**, is needed annually to achieve this goal (Reed Smith, 2016). A "green economy" is undoubtedly capital-intensive and while public funds could help in the advancement of this goal, it cannot do so by itself. (Weidmann, 2017). **Therefore, it is not only true that through their participation, the private sector achieves certain financial returns, but that this participation is necessary to even start to develop the green financial market.** 

To get the buy-in of the private investors, thus necessitates developing avenues for which they can participate and invest their funds with the assurance that these will be used for the advancement of this goal, while earning an acceptable financial return. The green bond market, therefore, accomplishes this.

There are several types of green bonds which the issuer can choose according to its purpose and corporate structure. These are found in Appendix 1. Private corporations can therefore issue bonds that falls into any of those categories.

Recent developments in the green financing market includes the following (Macpherson, Rieger, Horan, & Sokol, 2017):

- The first green bond index was released in 2014. This is the S&P Green Bond Index.
- In 2017, the first green bond exchange-traded funds (ETF) is established.

At this point, the discerning readers would notice that the classification and recent developments in the green financing market follows that of a conventional bond market. It would be easy to conclude that if one wishes to develop a green bonds market, it should first develop its conventional bond market. This is certainly the trend apparent to all those with an active green finance market<sup>9</sup>.

To sum this, Asia as the fastest economy in the world requires that a sustainable approach be adopted and that socially aware and responsible investors demand this approach. Investments are capitalintensive so the participation of the private sector is needed. Lastly, the development of the green bond market implies the development of conventional bond market as a whole.

<sup>&</sup>lt;sup>1</sup> In the study of Mohr, Webb and Harris, the intention of the issuer has more to do with the association of CSR practices and financial performance. The results came out positive for those who does CSR for strategic choice (*there is an alteration of business model to be more CSR-oriented*) and non-negative for those who conducts CSR activities for altruism's sake.

<sup>&</sup>lt;sup>2</sup> An example of a corporation issuing green bonds would that be of Apple Inc. in 2017. This issuance is the biggest green bond issuance ever sold by a U.S. corporation which will be used for the funding of its project in renewable energy.

<sup>&</sup>lt;sup>9</sup> As of March 28, 2017, the green bonds market, is estimated by VanEck, to be around 20% of the total global bonds and that the issuers and investors of these bonds are conventional bonds issuers and investors.

## Current Issues and Areas for Development

#### Definition of a Green Bond

The Green Bond Principle, developed in 2014, is a set standards on the voluntary process, reporting and use of proceeds of the green bonds. These principles 'provide more clarity of green finance definitions' to 'facilitate cross-border investment in green bonds' and 'improve the measurement of green finance activities and their impacts' (G20, 2016). It details a list of projects that can be considered "green". According to Green Bond Principles (GBP), the following are eligible to be called "green" projects (International Capital Market Association, 2017):

- renewable energy (including production, transmission, appliances and products);
- energy efficiency (such as in new and refurbished buildings, energy storage, district heating, smart grids, appliances and products);
- pollution prevention and control (including waste water treatment, reduction of air emissions, greenhouse gas control, soil remediation, waste prevention, waste reduction, waste recycling and energy/emission-efficient waste to energy, value added products from waste and remanufacturing, and associated environmental monitoring);
- environmentally sustainable management of living natural resources and land use (including environmentally sustainable agriculture; environmentally sustainable animal husbandry; climate smart farm inputs such as biological crop protection or drip-irrigation; environmentally sustainable fishery and aquaculture; environmentally-sustainable forestry, including afforestation or reforestation, and preservation or restoration of natural landscapes);
- terrestrial and aquatic biodiversity conservation (including the protection of coastal, marine and watershed environments);
- clean transportation (such as electric, hybrid, public, rail, nonmotorised, multi-modal transportation, infrastructure for clean energy vehicles and reduction of harmful emissions);
- sustainable water and wastewater management (including sustainable infrastructure for clean and/or drinking water, wastewater treatment, sustainable urban drainage systems and river training and other forms of flooding mitigation);
- climate change adaptation (including information support systems, such as climate observation and early warning systems);
- eco-efficient and/or circular economy adapted products, production technologies and processes (such as development and introduction of environmentally friendlier products, with an eco-label or environmental certification, resource-efficient packaging and distribution);
- green buildings which meet regional, national or internationally recognised standards or certifications.

Not every project will pass as green using these principles, even if they are viewed as positive for the environment of the bond issuer. For example, in Europe, clean coal and fossil fuel projects do not qualify, but passes as "green" for the Asian markets, particularly China<sup>11</sup>. Another is the Repsol bond, which although fits the definition of green bond, is not viewed likewise by investors because it is for oil and refineries (Kidney, 2017).

<sup>&</sup>lt;sup>11</sup> The reason for this is that "clean coal" emits more carbon dioxide and air pollution than other renewable sources. One of the stated goal of the GBP, if not the main one, is the reduction of carbon emission (Boren, 2016).

This may hinder development of some of the countries' green bonds. Investors may not subscribe to these as they look to the GBP for the definition of "green" bond.

One notable problem in using the GBP, however, is that the process of issuing green bonds is 'voluntary' and can therefore be used by companies to label 'ordinary' bonds as 'green'. (Petrova, 2016).

This discrepancy on what is "green" is common. As the G20 noted, in the issuance of a green bond, countries consider their local environmental landscape, issues and policies (G20, 2017).

To resolve this, the New People's Bank of China and European Investment Bank (EIB) established a joint green finance initiative to calibrate definitions across countries, which would make European investors invest in China and vice versa (Kidney, 2017) (European Investment Bank, 2017).

#### Verification of Use of Proceeds

While the growth of green bonds is phenomenal, the issues are still bedeviled over how the proceeds will be used if there are no third-party verifications. In China's case, only 10% of the bonds are verified. (BusinessWorld, 2017). Debt, in particular, has always been exposed to ethical issues, particularly that of asset substitution or risk shifting. Since green bonds are only a subset of the conventional bonds, green bonds suffer from similar ethical issues.

Asset substitution or risk shifting is the tendency of firms to take on higher-risk projects at the expense of bondholders (Eisdorfer, 2010). One popular form of this is when the firm uses funds it promised to a particular project, such as green projects to another and, oftentimes, riskier project.

Since green bonds are ethical investments, these are subject to a great deal of scrutiny and investors are often very interested on real impact resulting from the use of the funds. Some institutional investors such as pensions and trust funds, which often comprise the majority of the investor base, require in their investment policy that a certain portion of their investments be invested in sustainable investments (Norton Rose Fulbright, 2016). Without proper verification and assurance, these investors may shy away from green bonds, slowing its growth and development.

#### Regulation of Green Bonds

Most countries only require registration of green bonds but China goes further by instituting regulatory bodies that approve the issuances of bonds (Kidney, 2017). Simple governance of registration is not entirely the same as regulating the green bond market so it is safe to say that only China regulates its green bonds market.

One problem with the overly rigorous regulations of China is the potential for regulatory arbitrage. China allows different classes of instrument to be issued (*See Appendix 2*). The problem with China, however, is that depending on the class of instrument, the regulator changes (each one of them also developed their own guidelines) (Reed Smith, 2016). If a single regulation should be created or drafted, this should address the issuance of international (*known as the "panda" bonds*).

## Philippines and Green Finance

The preceding sections introduced the concept of green finance and the current issues surrounding its development. In this section, it should be apparent why the Philippines is one of the those markets with the potential to grow and develop its green finance market. A suggested approach for the development will follow after that.

#### Philippines as an Archipelago

The Philippines as an archipelago has a huge potential to develop renewable energy as it is surrounded by natural resources (Chua, 2016). In addition to that, the Philippines aim to have an ambitious goal of 50% of its energy source to be renewable by 2030; almost double the target of the European Union of 27% (Reuters, 2011) (European Commission, 2017).

On the other side, the Metro Manila is cited to have pollution levels that are 'beyond tolerable levels' (Roces, 2002). Clearly, with these features and issues, the Philippines is an ideal issuer and recipient of green finance.

#### Philippines as an Emerging Markets

Investors seeking higher returns turn to emerging markets to increase their returns while achieving the diversification brought about by green bonds (Chasan & Eckhouse, 2017). The Philippines, therefore, can serve the needs of this particular clientele.

The huge demand of Chinese green bonds, particularly of the international investors, can be explained through the huge yield differentials. The yields of the developed markets are much lower compared to that of the emerging markets.

To make the figure more concrete, examine the rates of AP Renewables Inc's green bonds. AP Renewables is currently the only company in the Philippines to issue green bonds (Asian Development Bank, 2016). The bond issue amounting to PHP 10 Billion is split into two tranches. PHP 6.6 Billion will mature in 2021 with a yield of 5.205% and PHP 3.4 Billion will mature in 2026 with a yield of 6.1%.

According to VanEck, the average yield, globally of green bonds is around 1.67%. Thus, there is a 3.5% to 4.43% differential. This may be higher if the bonds came from China, where there are more bonds in issuance. (Appendix 3).

Another reason why investors prefer the emerging markets bond is that it is not as risky as the other emerging bonds. Guarantees and Insurance are being issued to make emerging market bonds "investment grade". Thus, the bond can be investment-grade even though its issuer is not (Chasan & Eckhouse, 2017). In the case of AP Renewable bonds, a credit enhancement is provided by the ADB, making the bond more secured for investors.

#### Current and Prospective Projects

Philippine president, Rodrigo Duterte, recently approved the first ever subway project for Manila. The \$5 Billion project is estimated to be completed by 2024. This electric form of transportation is passable under the GBP as a green project. The government can therefore use this opportunity, seeing as the capital needed is enormous, to ask for the participation of the private sector.

It was discussed in the preceding section that AP Renewables Inc. issued the Philippines' first green bonds. AP Renewables, however, has a lot of competitors in the same line of business which is in the business of producing renewable energy. These competitors can likewise follow the lead of AP Renewables in the issuance of green bonds, as an alternative to bank loans, to develop the bond securities market.

The list, however, of the projects that would pass extends to more than these two discussed above as it can be used to establish green buildings. Green buildings are buildings, newly created, for which the construction and operation promotes a healthy environment for all involved. These buildings do not disrupt the land, water, resources and energy in and around the building (Kukreja, 2016). The first green building in the Philippines, though not funded using green bonds, was built in 2015 in Cagayan De Oro<sup>12</sup> (Mahendriyani, 2015). Thus, any corporations, especially property companies, can choose to issue green bonds.

#### Current Issues

While there are "green" loans, the use of the bond, as an alternative to loans, likewise provide alternative investment vehicle and mobilizes cost-effective, long-term capital to help close the Philippine's infrastructure gap. (Churchill, 2016)

One particular problem in this area is that most companies resort to bank loans rather than issuing bonds, which are supposedly cheaper (Tanaka, 2005). Bonds are supposedly cheaper form of financing when compared to bank loans because bonds has liquidity (*they can be traded*) and the monitoring of the public makes the monitoring costs cheaper. This should be true for green bonds as these are for projects for which the public interest are high.

Examining, however, the debt capital structure of AP Renewables' competitors, such as First Gen Corporation or Energy Development Corporation for this matter, for a term loan expiring in 2022 (*closest to the maturity of the first tranche of AP Renewables' Green Bond*), the loans have lower rates than that of the bonds. AP Renewables have term loans as well but the rates are not disclosed so the competitors' data were used in the analysis.

Examining First Gen's and EDC's structures, the term loans ending in 2022 have rates lower (4.74% + 5.25%) than bonds with virtually same maturity (5.25% + 6.611%). Note that the term loans even have the higher loan amounts, but these managed to secure lower rates than bond.

The reasons for this may go deeper than simply claiming that bonds might be harder to issue than it is to secure a loan. While this certainly is a different topic to be researched on, it is worth noting that the bonds market, at least for the renewable energy sector of the Philippines, do not follow the theory where bonds are the cheaper source of financing.

<sup>&</sup>lt;sup>12</sup> This is the second tower of Primavera Green Residences located at Trade Street, Pueblo Business Park in Cagayan de Oro City (CdeO), Mindanao.

## Proposed Governance Structure of the Green Bond Market

For the green bond market to develop and thrive, this paper provides several guidelines, taking into consideration the circumstances surrounding the Philippines and the experience of markets who initially adopted and developed green bonds. These recommendations are direct responses to the issues initially introduced in the preceding sections.

#### Adoption of the GBP Principles and Process of Issuance

The previous sections highlighted one of the biggest hindrance on the development of the green financing market which is the lack of harmony of the definitions of the projects that can be considered as "green". Johan Frijns<sup>13</sup> commented on this and said that "Principles which allow banks to decide for themselves what is and isn't 'green' do not exactly inspire confidence" (Kidney, 2014).

It is mandatory, therefore, to adopt the GBP or create a local version to guide issuers on the definition, processes and procedures for the issuance.

The success of the green finance market in the Philippines, likewise, requires good selection of green projects that considers the most relevant environmental and financial issues, geographic landscape, including the current political environment. This should be selected in consensus by the Department of Finance and the Department of Environmental and Natural Resources regardless of the issuer.

#### Requirement of Second Opinion for Verification of Proceeds

Second Opinions from independent entities should be required from the issuer of the bond, whose compensation is paid in forms that discourages conflicts of interests. A second opinion is a third party certification which audits procedures, processes and verifies that proceeds are used in accordance to the bond agreements. Chinese green bonds treat this as optional but countries such as in Norway, treat these as mandatory.

The same point was provided by Veys (2010) because unlike normal bonds, the asset substitution phenomenon is more critical, as the intended is use is restricted and has ethical implications. (Veys, 2010). In addition to that, the presence of a second opinion mitigates the information asymmetry problem and therefore lowers the transaction costs for green bonds (Tiselius & Kronqvist, 2015).

Covenants should be attached to green bonds to lessen the asset substitution problem. It has not been the practice of the market to include covenants or events of default in green bond documentation which would penalize an issuer for failing to apply the proceeds of its bond issue towards the specified green use. This documentation or bond indenture, therefore, does not provide assurance for the investors. Covenants are one efficient way to counter the problem of asset substitution. In the event of misuse of funds, the investors could hold the company in default which may involve calling back the principal that they invested in the said bonds.

<sup>&</sup>lt;sup>13</sup> John Frijns is a director of BankTrack. BankTrack is a global network of civil society groups tracking the operations and investments of commercial banks and "their effect on people and the planet.

#### Regulation of the Green Bond Market

#### Regulatory Structures and Processes

It should be noted that the Philippines do not have a solid regulatory framework for bonds. The Philippines, can therefore, adopt similar regulatory processes adopted by China, as these have been proven and tested over time. In addition, China has the most rigorous regulation of green bonds in the world. It should be noted that the regulation should be rigorous yet not excessively to the point that the processing burden of the issuance of green bonds would be too costly.

The regulatory process, following China's, should be according to the following (Kidney, 2017):

• First, is the application and submission of required information to a designated central regulatory authority/ies. The information should contain the chosen project, criteria for choosing said project, and discussions regarding procedural steps to take and how the company intends to manage the proceeds from the issuance. The designated central authority or authorities may be the Securities and Exchange Commission and Department of Finance or may a different institution.

It should be noted that the registration being referred to in this part of the process is that of securing the label "green" bond. While the three regulatory bodies mentioned before can govern the established process of bond issuance, the labeling of an issuance as "green" can be managed, like in China, by a separate commission. The labeling as "green" is crucial because along with it comes the benefit of investor clientele and incentives, which will be discussed below.

- Second, after the approval of the "green" bond, issuances can take place in accordance with existing rules and regulations for issuers. Currently, the Securities and Exchange Commissions govern the non-government institutions' bond issuances but this does not include the government issuances. Regulation should, at least, be harmonized regarding the green bonds to avoid regulatory arbitrage.
- Third, post-issuance assessments should be carried out including the verification of the use of the proceeds. China has yet to issue guidelines on the issuance of this and the Philippines, should likewise do the same. In addition to this, the requirement of a second opinion can be required in this step of the process. This will be discussed in detail below.
- Lastly, establish a standard reporting procedure for those with approved green bonds labels. There should be an established reporting frequency, which may be periodic (quarterly, semiannually or annually) or when there is a significant update in the project, whichever comes first. This should be a requirement to keep the designation "green" bonds and should be in addition to the reporting requirement of the regulatory body of the issuer such as Bangko Sentral or the SEC. Non-compliance should result to the revocation of the green status and loss of incentives that comes with that status.

In terms of the content of this report, this should contain:

- A list of approved financed projects (if the proceeds are not yet allocated at the beginning of the projects)
- Impact of the selected projects and
- Development of the fund

The method of allocation should also be available to public access. The Green Bond Principles (2017) already addresses most of these procedural and reporting issues and it uses four core principles. (International Capital Market Association, 2017). These are:

- Use of Proceeds
- Process for Project Evaluation and Selection
- Management of Proceeds
- Reporting

Thus, a strict adherence to these core principles, following local adaption, will be necessary to achieve most recommendations provided above.

The Philippine securities market has been expressing positive sentiment on the matter so all these may be a real possibility. The Securities and Exchange Commission (SEC) Commissioner Ephyro Amantong, noted that it plans to allow green bonds within the year, and along with it is the establishment of listing rules particularly for shelf registrations (Mariano, 2017).

In terms of institutional support and framework, the Philippine Dealing and Exchange Corp (PDEx) and SEC, can follow the lead of Luxembourg and London Stock Exchanges in detailing green bond listing requirements and trading models (Macpherson, Rieger, Horan, & Sokol, 2017).

#### Incentives for the Green Finance Market

Incentives should accompany the issuances to encourage private participation. Projects, when financed by the private sector, become more efficient than if the same projects were to be finance by the government. The three most common incentives for the green bonds are: guarantees or insurance, tax incentives and letters of comfort (Veys, 2010).

While there is no doubt that a genuine interest on the environment drives the demand for green bonds, incentives for these bonds are necessary due to the long-term nature of the bond. The bond is not easy to sell in panic. This means that investors of the bonds are actually long-term traders as opposed to speculators. Investors know, however, that along with the length of the bond's maturity, the risks associated with it, such as default, inflation and market volatility increases as well. (Petrova, 2016). Thus, for the demand to be cultivated, incentives that either increases return or minimizes the risk are commonly put together with the issuance of green bonds.

Certain incentives are brought in place such as the lifting of the bond quota, which would have been binding for the Chinese market. A tax-break, on the other hand, would work effectively in the Philippines.

• One of the possible benefits for this is that the issuance of green bonds could potentially increase small-time, retail investors participation in the market. More than companies, small-time investors are the ones expressing particular interests in climate-change initiatives.

### **Further Developments**

There are current developments in the green finance market apart from the development of green bonds. Some of these developments (creation of index and ETF) have been discussed in the introduction but those same developments can be applied to non-bonds securities such as green equity securities. These are equity securities of companies, solely devoted to green and environmentally-friendly business models such as pure-play renewable companies.

Common in China, there are also what is called a "green bank loan". Philippine corporations seem to be more fond of bank loans so this might be easier to implement. If such development will be adapted, the BSP should examine the recommendations mentioned in this paper.

Lastly, there seems to be other private or angel investors who focus on green investments as well. All of these contribute positively to our goal of sustainable finance and one would most likely see more in the years to come.

### Conclusion

While Asia's growth and emergence is truly impressive, businesses cannot deny the need for a sustainable approach to doing businesses in Asia. This sustainable approach to doing business can be achieved through what is called "green financing". The growth in acceptance of the green bonds in the financial market in the recent years implies that traders are becoming more socially responsible in their investments (Petrova, 2016).

The potential for scaling and developing green finance, most notable of which are the green bonds, together with the development of indices and formation of ETFs, signifies that the market can be as developed as the conventional bonds market. (Macpherson, Rieger, Horan, & Sokol, 2017).

The current issues surrounding the green bonds are its definition, the verification of proceeds and regulation. These issues are due to the fact that green finance is relatively novel compared traditional corporate finance. Despite these issues, however, the Philippines is an excellent match with green finance as both issuer and investor.

For the green bond market to develop and thrive, this paper provides several guidelines, taking into consideration the circumstances surrounding the Philippines and the experience of markets who initially adopted and developed green bonds. These recommendations are direct responses to the issues initially introduced by this paper in the preceding sections. This paper recommended the harmonization of definition of a "green" project, requirement of a third-party verification or second opinion, and institution of regulatory frameworks and processes.

Certain incentives are necessary as well to entice both issuers and investors but also to mitigate the risks that comes with investing in a long-term bond. Finally, there are a lot of other avenues for green finance to develop in the Philippines such as green bank loans, green equity and green private equity. As investors become more aware of the need for sustainable investments, one can expect more of these avenues to develop and thrive in the coming years.

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## Appendix:

## Appendix 1: Types of Green Bonds According to Climate Bond Certified and the Green Bond Principles (GBP)

- Standard Green Use of Proceeds Bond A standard recourse-to-the-issuer debt obligation for which the proceeds shall be credited to a sub-account, moved to a sub-portfolio or otherwise tracked by the issuer and attested to by a formal internal process that will be linked to the issuer's lending and investment operations for Eligible Projects & Assets<sup>14</sup>.
- **Standard Green Use of Proceeds Revenue Bond** A non-recourse debt obligation in which the credit exposure in the bond is to the pledged cash flows of the revenue streams, fees, taxes etc., and the use of proceeds of the bond goes to related or unrelated Eligible Projects & Assets<sup>15</sup>.
- **Project Bond** A project bond for a single or multiple Eligible Projects & Assets for which the investor has direct exposure to the risk of the project(s) with or without potential recourse to the issuer<sup>16</sup>.
- Securitized Bonds A bond collateralized by one or more specific Eligible Projects & Assets, including but not limited to covered bonds, Asset Backed Securities ("ABS"), Mortgage Backed Securities ("MBS"), and other structures. The first source of repayment is generally the cash flows of the assets<sup>17</sup>.
- **Green Covered Bond (***new***)** this was issued in Germany during 2016. Covered bonds are safer compared to other unsecured bonds because of its 'dual recourse structure'. This means that investors have access to the protection a covered pool of assets have. As such, they have superior credit ratings and have low funding costs. (Initiative, 2017)

<sup>&</sup>lt;sup>14</sup> The issuers of this type of bond, as of the writing of this research, are National Australia Bank (NAB), Australian and New Zealand (ANZ) bank, ABN AMRO Bank, Axis Bank, Westpac, Deutsche Kredit Bank, Treaury Corporation Victoria and National Thermal Power Corporation Limited (NTPC) India.

<sup>&</sup>lt;sup>15</sup> The issuers of this type of bond, as of the writing of this research, New York Metropolitan Transport (MTA) and San Francisco Public Utility Commission (PUC).

<sup>&</sup>lt;sup>16</sup> The issuers for this type of bond, as of the writing of this research, are AP Renewables Inc (*with Asian Development Bank*) and ReNew Inc (India).

<sup>&</sup>lt;sup>17</sup> The issuers for this type of bond, as of the writing of this research, are Flexigroup (Australia) and Obvion NV (Netherlands).

## Appendix 2: Types of Green Bonds According to Climate Bond Certified and the Green Bond Principles (GBP)

The regulatory body of the green bonds differ depending on the class of instrument used. Not all of the regulatory bodies discussed below have published their green bond guidelines.

Class of Instrument	Market	Relevant Regulator			
Treasury bonds, local government municipality bonds	Interbank Exchange <sup>4</sup>				
Financial bonds <sup>5</sup>	Interbank	PBoC			
SOE enterprise bonds	Interbank Exchange	NDRC			
Non-financial enterprise debt financing instruments <sup>6</sup>	Interbank	National Association of Financial Markets Institutional Investors(NAFMII)			
Corporate bonds <sup>7</sup>	Exchange	China Securities Regulatory Commission (CSRC)			

- 5 These include bonds issued by financial institutions that are development banks, policy banks, commercial banks, financial companies of enterprise groups and other financial institutions established under law.
- 6 These include super and short-term commercial paper, commercial paper, medium term notes, small and medium size enterprise (SME) collective notes, private placement notes, etc.
- 7 These include bonds issued by all companies (including SMEs) to the general public and qualified investors through public offerings or specific investors though private placements. Depending on the issuance methods and the type of investors, company bond issuance is subject to the approval by the CSCS or filing with the Securities Associate of China or the relevant exchange.

#### Source: ReedSmith - Navigating the Green Bonds Markets in China



#### Appendix 3: Green Bonds as a Percentage of Global Bonds

Source: S&P Dow Jones Indices, Bloomberg Barclays and Morningstar, as of 2/28/2017. Green Bonds are represented by the S&P Green Bond Select Index. Global Aggregate Bonds are represented by the Bloomberg Barclays Global Aggregate Bond Index. Correlation based on monthly returns between the S&P Green Bond Index and the Bloomberg Barclays U.S. Aggregate Bond Index, July 2014 to February 2017. Yield as measured by yield to worst. Index returns are not representative of fund returns. For fund returns current to the most recent month-end visit vaneck.com. Past performance is no guarantee of future results

## Appendix 4: Debt Capital Structure of EDC and FGEN (Comparison of Bank and Bond Loans)

First Gen Corporation (FGEN-PH)								
Instrument ID	Description	Balance Sheet Amt Out	Current Amt Out	Reported Coupon Rate	Coupon Type	Maturity	Curr*	Seniority
FDS0P49L6	Senior Unsec. Term Loan - EDC - 500m PHP	9.9	9.9	4.740%	-	06/2022	PHP	SNR Unsec
FDS0NFXF9	Senior Unsec. Term Loan - Green Core Geothermal Inc - 8.5b PHP	127.1	127.1	5.250%	-	03/2022	PHP	SNR Unsec
FDS02M4N2	Energy Development Corp - Tranche1 - 3b PHP	52.6	52.6	5.250%	Fixed	04/2022	PHP	SNR Unsec
FDS02M4Q5	Energy Development Corp - Series 2 - Tranche 2 - 4b PHP	70.1	70.1	6.611%	Fixed	04/2022	PHP	SNR Unsec

Energy Development Corp. (EDC-PH)							
Instrument ID	Description	Balance Sheet A	Current Amt Out	Reported Coupor	Coupon Type Maturity	Curr*	Seniority
FDS0P49L6	Senior Unsec. Term Loan	497.54	498	4.740%	06/2022	PHP	SNR Unsec
FDS0H2954	Senior Unsec. Term Loan	6416.30	6,416	5.250%	03/2022	PHP	SNR Unsec
FDS02M4N2	Energy Development Corp - Series 1 - Tranche 1	2,652.5	2,652.5	5.250%	Fixed 04/2022	PHP	SNR Unsec
FDS02M4Q5	Energy Development Corp - Series 2 - Tranche 2	3,537.8	3,537.8	5.250%	Fixed 04/2022	PHP	SNR Unsec

Source: FactSet Inc.