

Next Season's Green Bond Harvest

Innovations in Green Credit Markets

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All figures contained in the document refer to US dollars unless otherwise stated

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INTRODUCTION

Capital markets have been a source of funding for green¹ investments for a number of years, but until recently, financing was predominantly from equity. Private equity, venture capital, and government funding were the most accessible sources of capital when green technologies such as solar and wind were in early stages of development. More recently, as these technologies have been tested, proven, and refined, funders have naturally progressed along the capital structure towards public equity and debt financing to support growth and scale. At the same time, leading financial institutions have provided impetus for expanded green investing.

In 2008, the World Bank Group² issued its “Strategic Framework for Development and Climate Change³,” which outlined the development challenges posed by global climate change and sought to develop an operational response to them. The report’s authoring committee recognized the “enormous financial gap for addressing climate change” and encouraged the development and support of market-based financing mechanisms.⁴ The World Bank Group has made climate action a top priority as part of its twin goals to eradicate extreme poverty and boost shared prosperity.

¹ We use the term ‘green’ to describe investments in climate change mitigation and adaptation. For IFC’s definitions of these terms, please see ifc.org/climatemetrics

² The World Bank Group consists of five organizations: International Bank for Reconstruction and Development (IBRD), International Finance Corporation (IFC), International Development Association (IDA), Multilateral Investment Guarantee Agency (MIGA), and International Centre for Settlement of Investment Disputes (ICSID). More information at www.worldbank.org.

³ World Bank. Development and Climate Change: A Strategic Framework for the World Bank Group. 2012. <http://siteresources.worldbank.org/EXTCC/Resources/FullFrameworkDocument1212008Book.pdf>

⁴ World Bank Development and Climate Change: A Strategic Framework for the World Bank Group. 2012. <http://siteresources.worldbank.org/EXTCC/Resources/FullFrameworkDocument1212008Book.pdf>

Climate change is not just an environmental challenge. It is a fundamental threat to economic development. Unless the world takes bold action now, a warming planet threatens to put prosperity out of reach for millions of people and roll back decades of development gains. Climate change will affect every region of the world, and those least able to adapt will be hit hardest. In the poorest countries, climate change will increase the cost of development by 25% to 30%. Inaction today will mean much higher costs in the medium and long term, plus greater risks.

IFC and the Kellogg School of Management have collaborated to author this paper which attempts to cover the bounty of credit tools available for harvesting by issuers and sponsors, with the aim of attracting new investments to green industry. This paper is the first in a series to proffer avenues to enhance the financial environment towards addressing this gap. In November 2013, IFC produced a stocktaking analysis on existing mechanisms to mobilize private capital for inclusive green growth in developing countries.⁵ While a number of investors and corporates are beginning to embed environmental sustainability governance considerations into their investment strategies, some investors have identified a lack of investment opportunities, short tenors, insufficient track record and liquidity concerns as barriers to their entry into the budding green credit markets. This paper proposes a brief overview of efforts that could circumvent these barriers by introducing a mix of innovative products to attract different kinds of fixed income investors and draw more private capital into funding green technologies.

BACKGROUND

At the United Nations Framework Convention on Climate Change in 2009, world governments agreed to cooperate on limiting the increase in global temperatures to 2° C above pre-industrial levels in order to prevent

⁵ IFC. Mobilizing Public and Private Funds for Inclusive Green Growth Investment in Developing Countries. 2013.

the negative effects of climate change. Without additional efforts to reduce GHG emissions beyond those in place today, emissions growth is expected to persist driven by growth in global population and economic activities. Baseline scenarios, those without additional mitigation, result in global temperature increases from 3.7 °C to 4.8 °C compared to pre-industrial levels. Getting the world on a 2 °C emissions path would mean a different investment landscape. Estimates vary on the level of investment required to achieve this pathway⁶. The International Energy Agency estimates the financing requirement to achieve the 2 °C target is \$53 trillion in cumulative investment to 2035.⁷ Increasing private sector capital is essential to meet this target. To adapt to a world 2° degrees Celsius warmer, developing countries will require \$75–100 billion per year over the next 40 years to build resilience to these changes, and mitigation costs are expected to be in the range of \$140–175 billion per year by 2030.⁸ This is a salient problem given that over the next two decades, greenhouse gas emissions are expected to nearly double in the developing world, although a decline in the industrialized world is expected.

The first ever “Green Bond” was issued by the International Bank for Reconstruction and Development (IBRD) in 2008 – a SEK2.3 billion bond⁹ with a maturity of six years, instigated by demand from a group of Scandinavian investors. Previously, in 2007, EIB had issued a similarly structured bond with ring-fenced proceeds under the label of “Climate Awareness Bond.” Multilateral Development Banks (MDBs) were the sole issuers of Green Bonds up until 2013 and can continue to play a significant role in financing green investment as well as to leverage significant resources from the private sector to do so. An IFC analysis publicized that one dollar of IFC financing was leveraged around four times from private investors across 563

projects examined.¹⁰ However, development bank financing alone cannot meet the overall funding needs necessary to implement resources for climate change mitigation and adaptation. Conversely, institutional investors have trillions of dollars in assets of which only a small percentage reaches green investment with an even smaller amount going to developing countries. This is of critical importance given that much higher greenhouse gas emissions are expected to come from developing countries. Innovation in environmental financing through the use of new instruments and the enhancement of familiar ones could tap a greater portion of private investors’ assets to flow towards clean energy projects.

Since the advent of the first Green Bond, aggregate issuance rose to \$19 billion by the end of 2013. At the start of the year the President of the World Bank Group, Jim Kim, estimated that Green Bond issuance would reach \$20 billion by September and \$50 billion by the end of 2015. By late May 2014, year to date issuance had grown to \$19 billion matching the total raised in the first five years of the Green Bond.¹¹ This growth is heavily owed to the entrance of corporate Green Bond issues. Standard & Poor’s estimates that the corporate Green Bond market in 2014 will reach \$20 billion, double the size of last year’s total Green Bond issuance. Corporate Green Bonds bring competitive risk-adjusted returns to suit varying risk preferences as they offers investors green exposure without increasing their risk appetite as the bonds carry exactly the same credit profile, and pay the same yield, as the issuer’s conventional bonds. JPMorgan Managing Director Marilyn Ceci commented that “A big part of the allure of Green Bonds is that they give investors the opportunity to invest in a climate-friendly agenda without taking the exposure of individual projects.”

There are now quite a number of participants in the green credit markets including issuers,

⁶ IPCC. Climate Change 2014: Mitigation of Climate Change Report. 2014.

⁷ IEA. World Energy Investment Outlook. 2014

⁸ World Development Report 2010.

⁹ The bond was later increased to a total amount of Swedish kronor (SEK) 2.7 billion.

¹⁰ Patel, S. and Musić, R., (2013), Leverage in IFC’s Climate-Related Investments: a Review of 9 years of Investment Activity (Fiscal Years 2005–2013).

¹¹ Climate Bond initiative reporting.

assurers, underwriters, investors, and advocates. Underwriters and bookrunners are playing an increasingly important part of mainstreaming Green Bonds. A number of banks have publicly declared that they are committed to the growth of the sector through underwriting. Participating in the Green Bond market is also becoming an increasingly important competitive benchmark for underwriters with the introduction of league tables specifically tracking the Green Bond market, such as The Climate Bonds Initiative's Green Climate Bonds Underwriters League Table.¹² Additionally, assurers play a key role in providing credibility within the Green Bond sector as the market expands from the MDB sphere to corporate issuers.

WHAT MAKES A BOND GREEN?

As with any nascent field, it is important to have consensus on definitions and application for Green Bonds. Recognizing this need, a consortium of investment banks came together to form a drafting committee for a set of Green Bond Principles (GBP).¹³ The Principles, released in January 2014, outline guidelines for the issuance of a Green Bond. Not only is the aim to provide clarity to potential issuers, but also to standardize practices and procedures that will improve transparency for underwriters and investors. While the guidelines are voluntary, they are currently supported by 25 investment banks. According to the GBP, the defining characteristic of a Green Bond is how the proceeds are utilized. Still evolving are the sectors in which the proceeds must be invested, but for now the list includes:

- Renewable energy
- Energy efficiency (including efficient buildings)
- Sustainable waste management

¹² <http://www.climatebonds.net/2014/05/green-bond-underwriters-league-table-released-2013-10-billion-biggest-issuance-year-yet#sthash.q0bLGpCK.dpuf>

¹³ Green Bond Principles, 2014: Voluntary Process Guidelines for Issuing Green Bonds. January 2014. <http://www.ceres.org/resources/reports/green-bond-principles-2014-voluntary-process-guidelines-for-issuing-green-bonds/view>

- Sustainable land use (including sustainable forestry and agriculture)
- Biodiversity conservation
- Clean transportation
- Clean water and/or drinking water.¹⁴

The GBP also identifies four types of Green Bonds:

GREEN USE OF PROCEEDS BOND: a standard recourse-to-the-issuer debt obligation for which the proceeds shall be 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 projects. Pending such investment, it is recommended that the issuer make known to investors the intended types of eligible investments for the balance of unallocated proceeds.

GREEN USE OF PROCEEDS REVENUE BOND: a non-recourse-to-the-issuer 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 Green Project(s). The proceeds shall be 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 projects. Pending such investment, it is recommended that the issuer make known to investors the intended types of eligible investments for the balance of unallocated proceeds.

GREEN PROJECT BOND: a project bond for a single or multiple Green Project(s) for which the investor has direct exposure to the risk of the project(s) with or without potential recourse to the issuer.

GREEN SECURITIZED BOND: a bond collateralized by one or more specific projects, including but not limited to covered bonds, ABS, and other structures. The first source of repayment is generally the cash flows of the assets. This type of bond covers, for example,

¹⁴ For IFC's climate definitions, see ifc.org/climatemetrics.

asset-backed securitizations of rooftop solar PV and/or energy efficiency assets.¹⁵

In addition, the matter of certification is touched upon in the GBP. Getting third party certification on the use of proceeds for new Green Bond issuers provides comfort to investors that the issuer is putting funds towards eligible and suitable projects. The GBP lays out three types of assurers, including second party consultants, auditors, and third party or independent verifiers. Typically, corporate bonds are used to raise capital for general funding needs, without specified use of capital. However, with Green Bonds, companies are making a commitment to direct money to very specific types of investment. Rob Fernandez, VP of Credit Research, and Tim Coffin, SVP of Consultant Relations of Breckenridge, believe this could eventually have credit implications: “In the municipal market, the use of proceeds is paramount to the credit. In the corporate market, if a company is issuing a Green Bond, management is demonstrating their commitment to improving their environmental risks. When they do that, we believe the company’s credit profile may be strengthened as well.” As the market continues to expand, we envisage more use of such independent certification, ratings and even auditing.

RATIONALE

To date, the majority of Green Bonds that have been issued fall under the “use of proceeds” category and are generally vanilla in structure. IFC believes that given the enormous size of the investment required to combat climate change, sensible innovative structures in the credit markets should be encouraged in order to mobilize more private capital to finance climate friendly projects. Evelyn Hartwick, Head of Socially Responsible Bonds Program at IFC states that “Since IFC’s first Green Bond in 2010, IFC has raised \$3.4 billion through the program. In 2013, IFC issued a landmark \$1 billion offering, which was the largest Green Bond to date at that time. The size of the bond was in itself an innovation towards building market depth and liquidity. Subsequent issues

have proven that there is tremendous investor interest and much more potential for this product in various structures.”

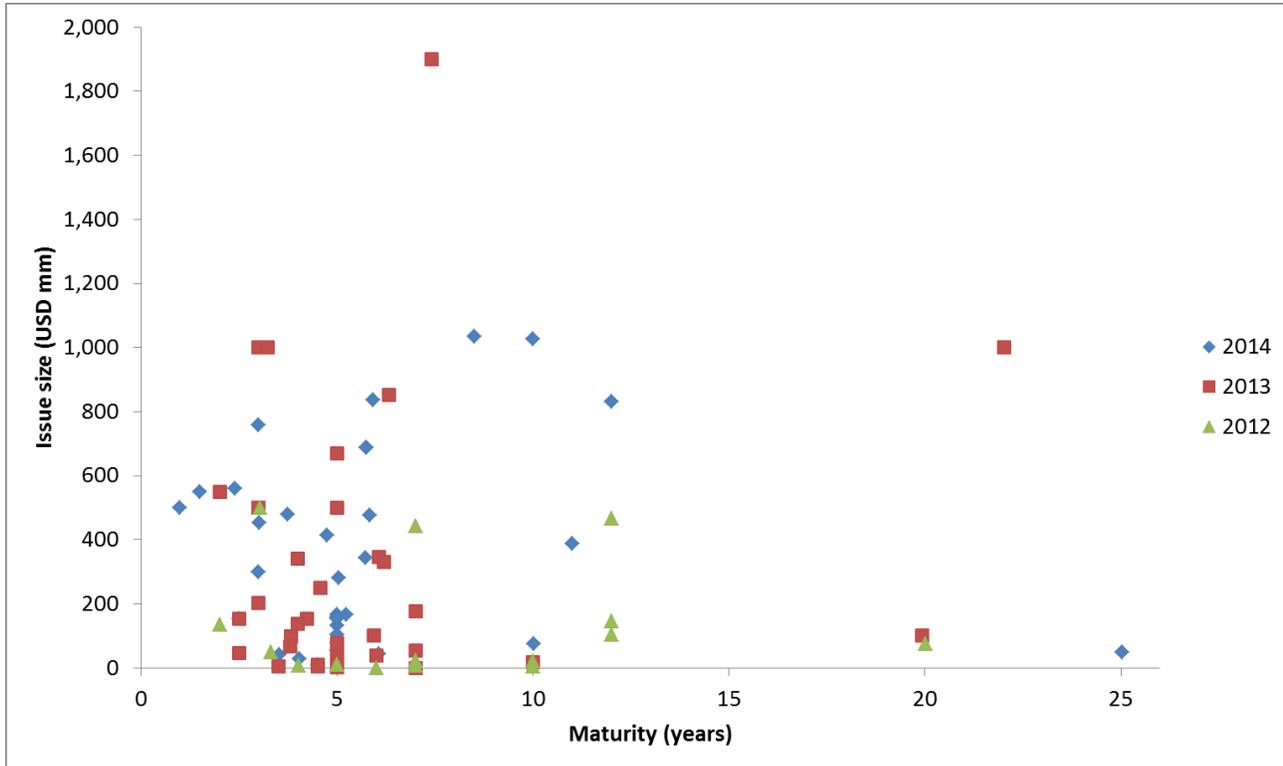
Green Bonds are gaining in popularity as a liquid, easy-to-understand instrument, showing that climate investment can penetrate the \$80 trillion global bond market. For investors, Green Bonds combine an attractive investment proposition with an opportunity to support climate-related projects.

Bond issues can be tailored to the needs of diverse financial market players and support a range of corporate as well as government climate change mitigation efforts. Subsequent to the IFC February 2013 Green Bond which set precedent of a successful jumbo size Green Bond, the average size of Green Bonds grew from c. \$160 million in 2012 to c. \$350 million in 2013 to c.\$420 million in 2014 YTD as illuminated in Figure 2 below. The Green Bond space is gaining prominence, and if current trends are extrapolated for the full year 2014, the global Green Bond market will be roughly 3.2% of value the US corporate bond market, up from 1% in 2013 and 0.4% in 2012.¹⁶

¹⁵ Green Bond Principles.

¹⁶ Bloomberg New Energy Finance. Green Bonds Market Outlook. 2014.

Figure 1: Issue size vs. Maturity for Green Bonds, 2012-April 2014



Source: Bloomberg, Kellogg analysis

As the labelled “green” credit market grows, an array of funding products could be utilized to attract new investors beyond impact investing funds and the few early adopters of a “socially responsible investment (SRI)” mandate. This potential shift in investor type was reflected in the books for IFC’s benchmark Green Bonds in 2013. The February bond’s orderbook contained 85% of socially responsible investors, while the ensuing November bond had 26% allocated to traditional investors. Denise Odaro, Head of Socially Responsible Investor Relations for IFC asserts that “the allocation strategy is a deliberate effort to encourage traditional investors to adopt a green mandate in their investment themes. In order to fill the financing gap for climate mitigation and adaptation, the market should embrace traditional investors to participate”. In addition to progressing environmental goals, Green Bonds also help issuers diversify their investor base. Suzanne Buchta, Managing Director, Bank of America Merrill Lynch (BAML) Debt Capital Markets said of the bank’s inaugural Green Bond: “That was

clearly a focus for us, to target new investors. We were very happy to have achieved additional investor diversification. And we do think that is one of the advantages for issuers in Green Bonds.”

Breckinridge Capital Advisors is one of the more recent investors to move into the Green Bond space. A US fixed income manager that offers sustainable investment strategies, the firm was not initially active in the market for several reasons. Traditionally, portfolio managers’ preference was for US agencies over MDBs. With the introduction of Green Bonds, Breckinridge started to take a closer look at these issuers. However, given the small transaction sizes in the early days of the market, the firm’s investment team had concerns about liquidity. IFC’s landmark \$1 billion issuance in 2013 brought comfort that the market was liquid and growing, and it was with that issuance that Breckinridge began to participate. The credit team at the firm realized that MDB issues provide a solid means of diversification into issues that are AAA rated.

Another Green Bond investor, New York based TIAA-CREF Asset Management (TCAM) has long been involved in SRI fixed-income but notes that the industry in general is just now started to expand offerings in this space. Stephen M. Liberatore, CFA, Managing Director and lead SRI fixed-income portfolio manager for TCAM, mentioned that in the publicly traded fixed-income market, investors can gain exposure to securities that have attractive risk-adjusted return potential along with direct and measurable social and/or environmental benefits. TCAM moved into Green Bonds in early 2010 and has since invested over \$500 million in various Green Bonds, expanding its holdings from supra-sovereign agencies to include those from corporate and municipal issuers as well as structured securities.

A BUNDLE OF FIRSTS

Thus far, 2014 has seen a number of debuts in the public green credit markets. Noteworthy transactions include Toyota as the first auto services company to enter this arena and the first to bring an asset backed transaction with its \$1.75 billion multi-tranche Green Bond in March. Unilever was the first company in the consumer packaged goods industry as well as the first issuance in pound sterling with its GBP250 million (\$411 million) bond also in March. In the same month, Solactive AG launched Solactive Green Bond Index, first index in the market to provide exposure to Green Bonds. The MDBs have also continued to innovate in the market: EIB issued the first Green Bond in Samurai format while IBRD issued the first benchmark “Kangaroo” Green Bond in April. In May, Regency Centers became the first US Real Estate Investment Trust (REIT) to enter the Green Bonds space with a 10 year, \$250 million corporate bond linked to their portfolio of shopping centers. Until recently, the biggest single issue Green Bond was EDF’s November 2013 EUR1.4 billion bond (\$1.9 billion), the first Green Bond in euros by a large corporate. It was twice oversubscribed and was a great success among institutional investors. In May 2014, French multinational electric utility company, GDF Suez, issued its first Green Bond in two tranches of six and twelve year tenors

respectively amounting to a total of EUR2.5 billion (\$3.5 billion). The bond’s orderbook was only open for 2.5 hours and was three times oversubscribed with \$10 billion of orders received reflecting continued strong investor demand for the product.¹⁷ The city of Johannesburg South Africa issued a \$136 million Green Bond in June 2014 which was 1.5 times oversubscribed. It was the first Green Bond to come from a municipal authority in an emerging market and the first Green Bond to list on the Johannesburg, Stock Exchange.¹⁸

READY FOR HARVEST

As noted earlier in the paper, the majority of Green Bonds issued so far have fallen under the use of proceeds category; the bond payment cash-flows are not dependent on revenues from the funded projects but rather from the issuer’s balance sheet. Therefore the use of proceeds bonds rely on the credit rating of the issuer which, prior to the entrance of corporates, has been mainly triple-A rated MDBs. Towards broadening and sustaining the growth of the environmental finance market, there are some interesting innovations, some already employed, that could deepen the types of credit available in the green market. Here, five are presented.

GREEN PROJECT BONDS

Project bonds have been outlined in the Green Bond Principles as a potential source of financing for green projects. There are several aspects which distinguish them from use of proceeds bonds in terms of their risk profile. As their name suggests, project bonds are used to fund pre-identified projects, with investors directly exposed to the risk of those projects. This is in contrast to the use of proceeds bonds where proceeds go into a carved out sub-portfolio within general funds and where investors are exposed only to the risk of the issuing institution. While use of proceeds

¹⁷ <http://www.environmental-finance.com/content/news/gdf-suez-issues-record-breaking-%E2%82%AC2.5bn-green-bond.html>

¹⁸ <http://www.bloomberg.com/news/2014-04-17/johannesburg-plans-meetings-in-may-to-market-debut-green-bond.html>

bonds are recourse to the issuer, that is not necessarily the case with project bonds. Instead, the bonds may be secured by the assets for which construction is being funded.

There are a number of reasons why project bonds have not been widely used in the Green Bond market thus far, although they show potential. Primarily, project finance does not represent a large portion of the traditional fixed income space, and thus one would not expect it to represent an outsized portion of the Green Bond space either. In 2013, there was \$204 billion of project finance issuance, or about 3% of the \$6.1 trillion issued in debt capital markets globally.¹⁹ Investors have waded into the Green Bond market at the low end of the risk spectrum, flocking to issues with triple-A ratings having yields very similar to those offered by non-Green Bonds. Project bonds are more likely to be either lower rated or unrated altogether. This is because projects entail a certain level of construction and delivery risk which prevent a premium rating. According to a KPMG report addressing the project finance market, the majority of UK public/private partnership projects have had an underlying rating of BBB-/BBB. Meanwhile, the most significant liquidity in the bond markets occurs at credit ratings of BBB+ and above.²⁰

However, as investors become more comfortable with the Green Bond space and start to seek diversity in the credit ratings and duration of their investments, project finance is one structure in which they are expressing interest. The most recent project financing bond to come to market was from Arise, a Swedish wind power company. In April 2014, the company raised SEK 1.1 billion (\$160 million) to refinance 10 wind projects through a

¹⁹ \$204 billion figure from Thomson Reuters. "Asian Banks Top Project Finance Deals in 2013." January 17, 2014.
<http://www.reuters.com/article/2014/01/17/projectfinance-rankings-idUSL5N0KR1L820140117>

\$6.1 tn figure from Dealogic. Global DCM Review, Full Year 2013.
http://www.dealogic.com/media/89098/dealogic_global_dcm_review_-_full_year_2013_-_final.pdf

²⁰ KPMG. Project Finance and the Capital Markets: Bridging the Divide.
https://www.kpmg.com/AE/en/IssuesAndInsights/ArticlesPublications/Documents/markets/Project_finance_and_Capital_Markets.pdf

five year, secured offering²¹. They noted that interest in the bond was strong, and that the "environmental quality stamp has been important for many investors."²² They also provided a second opinion from the assurer DNV that the bond meets the criteria of the Green Bond Principles. Given that the bond was not rated, this second opinion may have been something the company felt was important to provide investors additional comfort.

MidAmerican Energy, a US-based utility, has also come to market with two project finance bonds, albeit ones with very different terms than the Arise issue. In February 2012 the company issued its first Green Bond, a 28 year, \$850 million issue to finance the Topaz solar project. This was upsized from an initial \$700 million after being oversubscribed. At the time, this represented the largest bond offering for a renewable-energy project without a U.S. government guarantee, demonstrating that green capital markets can be supported through the private sector. The company followed up on that offering with a \$1 billion, 22 year bond in June 2013. The maturities of these bonds were significantly longer than the average Green Bond outstanding at 6.5-7 years.²³ Both issues were rated initially Baa3 by Moody's and later upgraded to Baa2 in April 2013. These bonds demonstrate proof of concept for the project financing market, given their maturity and credit rating do not match the typical Green Bond profile but were by all measures well received by the market.

The most obvious candidates for future project finance issues are companies pursuing large scale renewables projects as well as public sector entities with climate resilience projects. Real estate developers like Vasakronan that

²¹ Arise AB press release. "Arise successfully issues a five year green bond of SEK 1.1 billion." April 15, 2014.
<http://globenewswire.com/news-release/2014/04/15/627276/0/en/Arise-successfully-issues-a-five-year-green-bond-of-SEK-1-1-billion.html>

²² Climate Policy Initiative. The Global Landscape of Climate Finance 2013. October 2013.
<http://climatepolicyinitiative.org/wp-content/uploads/2013/10/The-Global-Landscape-of-Climate-Finance-2013.pdf>

²³ Kellogg calculation based on size-weighted average maturity of currently outstanding bonds from Bloomberg

are emphasizing green construction could also conceivably raise capital through project financing. Municipalities pursuing infrastructure projects such as water or waste treatment facilities might also employ green project financing. Investors could vary depending on the nature of the issue. In the corporate realm, Google has been an active project financier, committing over \$1 billion to wind and solar projects. It would also make sense for individuals, mutual funds and insurance companies to begin to take a look at this space, given their interest in long-dated assets.

Having said that, project bonds are only really accessible to well-capitalized project sponsors developing onshore wind or solar PV projects in relatively established renewable energy markets. Otherwise sponsors would have to raise the coupon significantly to attract investors. Clean Energy Pipeline reported that of the eleven project bonds completed between 2012 and 2013, only one (Soitec Solar's Touwsrivier solar CPV project) was for a project that did not have a major energy company or an institutional investor sponsor. Also, as of October 2013, no project bond had ever been executed for a biomass or offshore wind project, undertakings which are much riskier from a technology perspective.²⁴

GREEN ASSET BACKED BONDS

Asset backed bonds (ABB) typically allow financing to be based primarily on the risks of asset pools rather than solely on the credit risk of a project sponsor. ABB can play a role in expanding sources of funding and possibly reduce borrowing costs for climate projects. For sponsors unable to access funding at the desired tenor and cost because of perceived credit risk, ABB can be employed. In the climate space, solar and energy efficient buildings securitizations have been done in the US in recent months. However, this remains an infantile market. A key hurdle limiting the growth of this asset class is that the size of green investments are relatively smaller than those in other sectors where securitization has

historically been the mainstay. A step towards achieving scale adequate for green securitization would be the use of credit enhancement by public or private entities to lower the credit risk for investors in early clean energy ABB issues.

Hannon Armstrong Sustainable Infrastructure pioneered the green ABB market in 2013 with its issuance of a \$100 million ABB backed by the cash flows of over 100 wind, solar and energy efficiency projects at 20 properties across the US. Total green asset-backed bonds issued since that date – across five deals from four different issuers – is \$2.08 billion. In November 2013, SolarCity's initial solar-backed ABB marked the first step sounding out investor demand for the product, although small at \$54.4 million. The company issued a second ABB (\$70.2 million) in March 2014. Toyota Financial Services issued the auto industry's first green ABB in the amount of \$1.75 billion. The offering was upsized from \$1.25 billion to accommodate demand as institutional investors demonstrated strong interest in investment opportunity. Toyota's bond takes the form of a standard auto-loan backed asset backed security whose cash flows are tied to repayments of outstanding loans for the company's cars. Proceeds of the bond will be used to fund new retail finance contracts and lease contracts for Toyota and Lexus vehicles that meet specific green criteria, including powertrain, fuel efficiency and emissions.

Green mortgage-backed securities are also an option. As the US Energy Efficiency Mortgage Program explains, lower energy costs mean that building owners are more able to repay mortgages—and they are a better credit risk²⁵. As mentioned above, commercial banks could participate in this market and possibly offer a price advantage for green mortgages. Such loans could then be preferentially treated for capital ratio purposes, or securitized and sold as Green Bonds with an enhanced credit rating compared to “ordinary” mortgages.

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<http://www.cleanenergypipeline.com/download/cleanenergypipelineweeklyreview8123413.pdf>

²⁵U.S. Department of Housing and Urban Development, 2013.

BANK GUARANTEED ISSUANCES

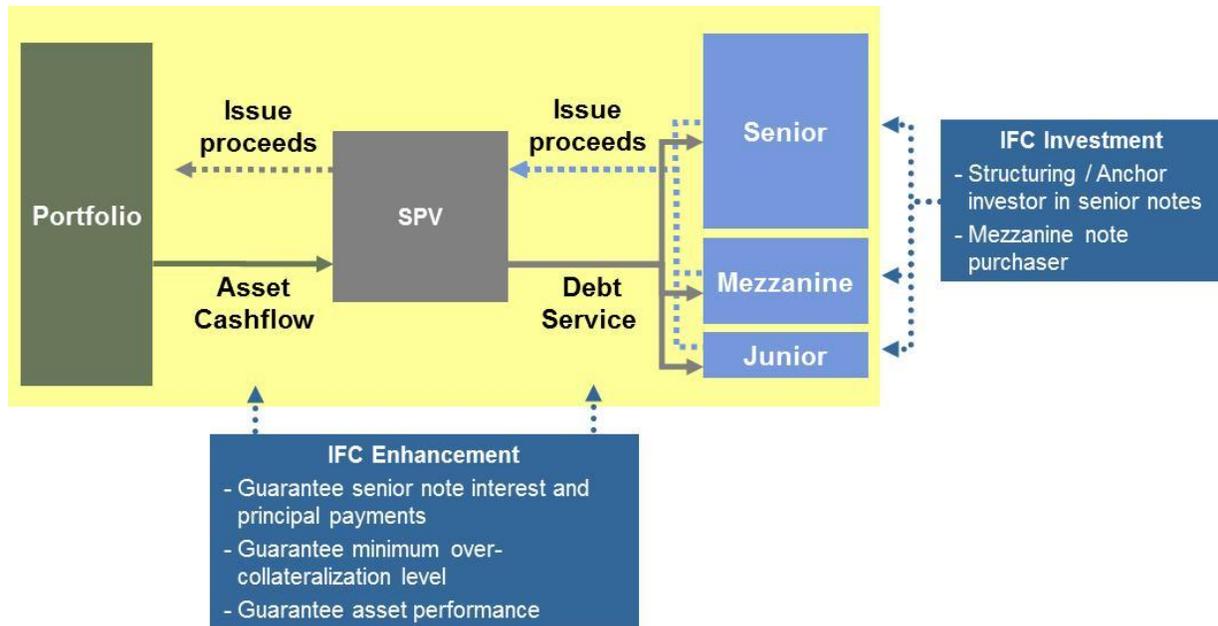
There is an opportunity to expand the market further by adding on credit guarantees or enhancements. There are a couple of ways to achieve this: a bank could provide a loan to the issuer at the outset of the project, or it could provide a contingent credit line to be drawn upon if the revenues of the project are not sufficient to ensure senior debt service. The effect of either option would be the same, namely elevating the credit quality of the senior debt sold to investors. The bank guarantee would enable issuers who are developing projects with a certain degree of risk to access investors who otherwise might not be interested in the credit.

For corporate bonds, IFC provides partial credit guarantees to enable issuers to gain access to the market (through rating enhancement for example, if they need to reach a specific rating to attract key institutional investors). The recent Ciputra Residence transaction in Indonesia is a good example of this. This is the first IFC green building project in the East Asia-Pacific region with a commitment from the client to reduce energy consumption by at least 20% compared with benchmarks for equivalent buildings. It sets a precedent for the housing and property sector.

IFC provided a 20% guarantee to Ciputra Residence's IDR²⁶ 504billion (\$44 million) three-tranche bond. The bond proceeds will go towards constructing buildings that meet environmental standards. The bond sale was divided into three tranches – an IDR200 billion three-year with a coupon of 11.4%, an IDR224 billion five-year with a coupon of 12.4% and an IDR80 billion seven-year with a coupon of 13.0%. IFC's partial guarantee bumped up the ratings of the bonds by one notch to single-A. The partial guarantee reduces the loss severity in the case of a default. The rating increase was based on an overall recovery estimate, taking into consideration the execution of the guarantee and the proceeds from company liquidation. Orders for the bonds reached more than IDR1trillion. The structure of the transaction can be seen in Figure 2 below.

²⁶ Indonesian Rupiah (IDR).

Figure 2: Structure of IFC Credit Enhancement Offering



The EIB and the European Commission have also begun to explore this option through the Project Bond Initiative, which was created to foster institutional investment in eligible infrastructure projects throughout the European Union. The funding provided through this pilot program is specifically geared towards projects in the energy, transport, and information and communication technology sectors, although it is not exclusive to green projects. However, one green project has already been supported through the initiative. In November 2013, the Greater Gabbard offshore transmission link (OFTO), a UK-based offshore wind project, issued a GBP²⁷ 305 million project finance bond with a 4.137% coupon due in 2032. The proceeds of the bond were used to finance a new transmission link to connect the wind farm with the mainland electric grid. The EIB provided a GBP45.8 million guarantee in the form of a contingent credit line, which represented 15% of the bond issued. This enabled a credit rating of A3 from Moody's, which the rating agency noted was one notch higher than a standalone credit would have received. The structure of the transaction can be seen in Figure 3.

The European Commission's interim report on the pilot phase of the Project Bond Initiative

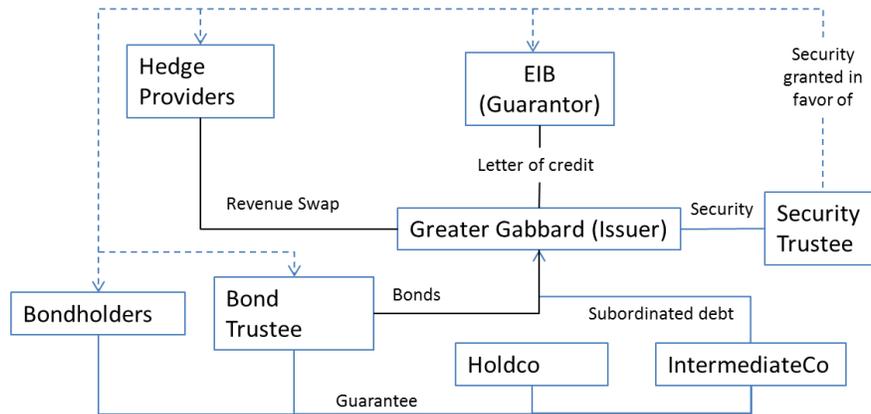
²⁷ British Pound Sterling.

mentioned that the Gabbard deal was "the first round 1 OFTO of sufficient size to have attracted the interest of the capital markets."²⁸ The credit guarantee was exactly what was needed to entice institutional investors, one of the goals of the program. Indeed, the announcement of the deal highlighted that "unlocking support of institutional investors to provide long-term investment in European energy infrastructure is crucial for stimulating economic growth and creating new jobs."²⁹ While this example utilizes an MDB, it is conceivable that a commercial bank could create a Special Purpose Vehicle (SPV) to fund its next large scale green projects and provide a credit guarantee in order to attract investors and achieve a lower cost of capital.

²⁸ European Commission Interim Report on the Pilot Phase of the Europe 2020 Project Bond Initiative. December 2013. <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=COM:2013:929:FIN&qid=1395926421930&from=EN>

²⁹ European Investment Bank. "Second Project Bond Issue for Great Gabbard OFTO Demonstrates Strong Investor Interest." December 2, 2013. <http://www.eib.org/projects/press/2013/2013-204-institutional-investor-support-for-greater-gabbard-offshore-transmission-link-encouraged-by-first-use-of-project-bond-credit-enhancement-scheme-in-uk.htm>

Figure 3: Structure of Greater Gabbard OFTO November 2013 Bond Offering



Source: Greater Gabbard OFTO Plc Prospectus Filing

The mechanism might also be particularly appealing to issuers whose credit ratings are on the cusp of investment grade. Many pension and insurance funds have explicit restrictions against high yield investments written into their by-laws. An increase of one to two points into investment grade territory provided by a credit enhancement could make all the difference in attracting those types of investors.

SOCIAL IMPACT BONDS

Social Impact Bonds (SIBs) made their debut in 2010 as an innovative way to finance projects or interventions that have a positive social impact and result in public sector savings. Their label is a misnomer, as SIBs are not actually credit instruments. In fact, they allow for private capital to fund long term projects, with governments providing a variable return at the end of project through repayment of a portion of the cost savings. A generic structure for an SIB can be seen in Figure 5.³⁰ The innovation in SIBs is that governments can support services without providing upfront

payment, and only have to commit their resources to a solution once results are achieved. The external organizations that are providing an intervention are guaranteed a long term funding source, and investors are able to earn both financial and social returns.

Up until this point, SIBs have exclusively addressed human capital challenges, but there is reason to think the structure could work for environmental ones as well. When considering a commitment to combat climate change, the same factors are at play. Governments are often theoretically supportive of the investments required, but do not have the upfront capital required to make them. Through such investments, governments have the potential to see cost benefits both directly in areas such as energy savings, and indirectly in areas such as the healthcare or infrastructure costs (which may be associated with environmental factors such as air or water quality). There are plenty of organizations that can execute energy efficiency improvements, climate mitigation and other green strategies, but lack a steady long term capital source to do so. Finally, as demonstrated by the successful reception of Green Bonds thus far, there are investors who are interested in funding projects that deliver both social and financial returns.

In a working paper from the CASE i3 Initiative, David Nicola provides a case study of how an SIB could be applied to a \$400 million market opportunity in the storm water system of

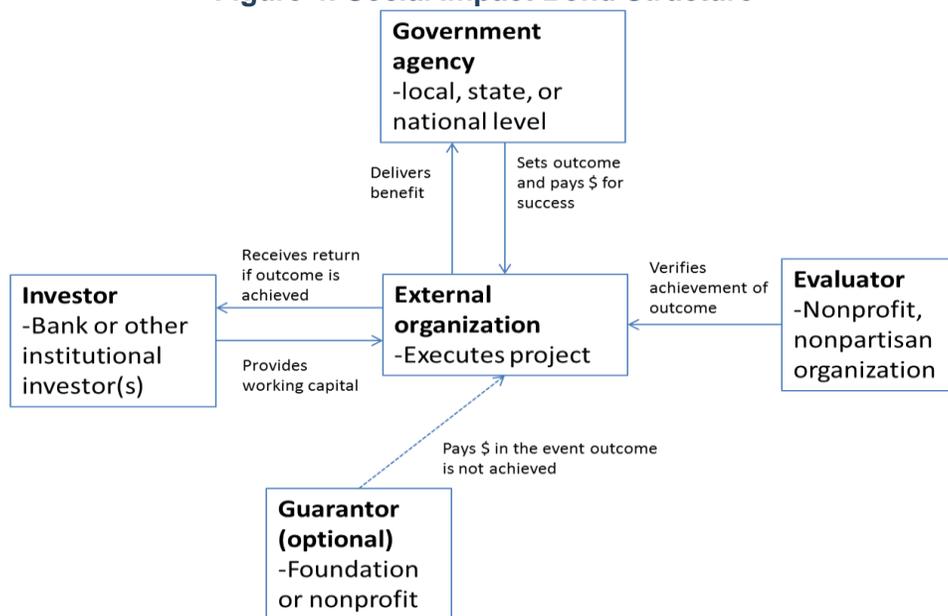
³⁰ Costa, Kristina and Jitinder Kohli: "Social Impact Bonds: New York City and Massachusetts to Launch the First Social Impact Bond Programs in the United States." Center for American Progress. November 5, 2012.

<http://www.americanprogress.org/issues/economy/news/2012/11/05/43834/new-york-city-and-massachusetts-to-launch-the-first-social-impact-bond-programs-in-the-united-states/>

Philadelphia, Pennsylvania. Storm water has the potential to be a massive environmental issue, as poor management of a system is tied to water pollution, which generates adverse health effects as well as remediation costs. Cities can stave off these challenges by developing “green” infrastructure. An SIB could provide upfront capital for green infrastructure. In this case, the project’s success would be measured by the reduction of storm water runoff which translates into cost savings that Nicola estimates could be paid out within five years. He outlines several different payment mechanisms, each with varying degrees of risk. Private investors could expect to achieve anywhere from a 4.6% to 13.4% IRRs if the project met or exceeded expectations.³¹ Given the high degree of variance in the potential return scenarios, SIBs are unlikely to appeal to traditional fixed income investors who gravitate

to the asset class for its secure income stream and low risk profile. Cathy Clark, Director of the CASE i3 Initiative on Impact Investing at Duke University’s Fuqua School of Business, argues that Environmental Impact Bonds (EIBs) may even have advantages over SIBs. One of the challenges with SIBs is that it is difficult to create and track social metrics. Clark notes: “In the EIB ecosystem, however, many standardized metrics already exist, and thanks to scientific knowledge and rigorous environmental monitoring already underway, we can readily develop new ones.”³² Additionally, she points out that while an improvement in social outcomes such as reduced recidivism may have positive cash flow consequences for a municipality, natural resources have actual revenue streams associated with them. This simplifies structuring and would allow, Clark argues, for payment streams during the life of the EIB that could “entice more conservative investors.”³³

Figure 4: Social Impact Bond Structure



Source: Based on Center for American Progress diagram of Goldman Sachs recidivism SIB

³¹ Nicola, David J. “Environmental Impact Bonds.” CASE i3 Working Paper. November 2013. http://sites.duke.edu/casei3/files/2013/03/CASEi3_EIB_Report_FINAL-links.pdf

³² Clark, Cathy: “Bringing Social Impact Bonds to the Environment.” Stanford Social Innovation Review. November 26, 2013. http://www.ssireview.org/blog/entry/bringing_social_impact_bonds_to_the_environment

³³ Ibid.

GREEN TRADE FINANCE

Trade finance provides a market-based solution to the differing needs of importers and exporters, and is an essential part of the global economy. About \$125 billion of trade financing transactions occurred worldwide in 2013.³⁴ The provision of letters of credit, loans for import/export, and performance guarantees are all included under the trade finance umbrella. Trade finance is characterized by its low risk profile. The International Chamber of Commerce trade register reports a 0.021% default rate on short term trade finance instruments from 2008-2011, despite high volatility in the global capital markets during this timeframe.³⁵ Until Basel III, banks had developed few products to package and sell trade finance instruments to investors, as they were content to hold them on their own balance sheets. However, a change in the regulatory environment has meant stricter capital requirements, which has in turn prompted banks to look for ways to pass project finance investments on to investors.

The key group of institutions that currently act as intermediaries in general trade finance are MDBs and Export Credit Agencies (ECAs). For example, IFC has a \$5 billion Global Trade Finance Program (GTFP), which provides guarantees to banks involved in financing trade in emerging markets. These guarantees are transaction-specific and can take the form of letters of credit, trade-related promissory notes, accepted drafts, bills of exchange, guarantees, bid and performance bonds and advance payment guarantees. An expansion into corresponding green versions could be considered. IFC also has an initiative called "Climate Smart Trade"³⁶, which provides support in the form of price incentives or longer

tenors for the financing of equipment and projects that have climate change benefits. In fiscal year 2013, 8% of IFC's trade transaction volume was climate-related. A number of players active in the traditional trade finance space have already carved out portfolios dedicated to financing green trade. For example, the US Export-Import Bank has a program called "Renewable Express," which provides funding to small-scale solar projects developed for the export market.

In time, given the right regulatory and policy environment, commercial banks could be encouraged to follow suit and offer a price incentive or longer tenors for equipment and projects that have clearly defined climate change benefits as IFC has with its Climate Smart Trade. A simple structure could be implemented such as bundling loans or letters of credit into a vanilla product that institutional investors could buy. In fact, Korea's Export-Import Bank (KEXIM) has done something along those lines already. In February 2013, the bank came to market with a Green Bond. It was structured as a use of proceeds bond, and KEXIM only described the proceeds as going to extend loans to climate-friendly projects. So it was not exactly advertised as a trade financing product, but the bulk of KEXIM's business is conducted in that market. Investor uptake of the issue was extremely strong. The \$500 million offering received \$1.8 billion of orders and ended up being priced at a slight premium to a comparable non-green KEXIM issue.³⁷

The composition of the investor pool in the case of the KEXIM issue was about 70% impact funds and 30% mainstream funds. So it is likely that impact investors would be strong supporters of green trade finance products. But institutional investors would also benefit from the low volatility and portfolio diversification that trade finance provides. In a 2011 interview, the vice chancellor for investments at Vanderbilt University explained the school's investment in a trade finance fund:

³⁴ Dealogic. Trade Finance League Tables, Full Year 2013. January 7, 2014

³⁵ International Chamber of Commerce. 2013 Global Risks Trade Finance Report. April 2013.

<http://www.iccwbo.org/products-and-services/trade-facilitation/icc-trade-register/>

³⁶ http://www.ifc.org/wps/wcm/connect/industry_ext_content/ifc_external_corporate_site/industries/financial+markets/trade+and+supply+chain/gtfp/gfm-tsc-gtgp-ee-info

³⁷ Kidney, Sean: "Korean Exp-Imp Bank \$500m Green Bond: way-oversubscribed, 95bps over UST. Bingo & bravo!" Climate Bonds Initiative.

<http://www.climatebonds.net/2013/02/kexim-green-bond/>

“In a broadly diversified portfolio you need strategies like this—ones that are not immediately sensitive to spreads widening or interest rates rising.”³⁸ So as long as the product looks roughly comparable to non-green trade finance, institutional investors are likely to line up as well.

THE PATH AHEAD

Many of the efforts to develop new financing instruments that address climate change have been successful thus far. Although the seeds of the green market have only just begun to sprout, there is vast potential ahead. Attracting private investors to the climate finance arena is an imperative element towards addressing the financing gap for climate change mitigation. Institutional investors are a subject to varied regulatory constraints with a complex array of service providers and multiple investment approval steps which makes introducing new asset classes or investment themes a lengthy process. In spite of this, a number of investors and corporates are beginning to embed environmental sustainability and governance considerations in their investment strategies. Still to be considered is the regulatory environment in which these green credit markets are developing. The next paper will explore what policies and regulatory changes could support their continued growth.

³⁸ Tuinick, Britt Erica: “How hedge funds are financing the Latin American trade Boom.” Institutional Investor. April 1, 2011.

<http://www.institutionalinvestor.com/popups/printarticle.aspx?ArticleID=2796745>

ABOUT IFC

IFC, a member of the World Bank Group, is the largest global development institution focused exclusively on the private sector in developing countries.

Established in 1956, IFC is owned by 184 member countries, a group that collectively determines our policies. Our work in more than a 100 developing countries allows companies and financial institutions in emerging markets to create jobs, generate tax revenues, improve corporate governance and environmental performance, and contribute to their local communities.

IFC's vision is that people should have the opportunity to escape poverty and improve their lives.

IFC provides financing for a variety of sustainable energy and climate change mitigation ventures. Through its sustainable energy investments, IFC has played a pioneering role in helping to remove barriers for clean energy technologies and services in emerging markets.

ABOUT THE KELLOGG SCHOOL OF MANAGEMENT

The Kellogg School of Management is one of the world's top business schools. Located in Evanston, IL, near Chicago, Kellogg was founded in 1908 and has earned a global reputation as a leading management institution, particularly in the marketing discipline. Kellogg is known for its collaborative, team-oriented student culture. For more information about the Kellogg School, visit <http://www.kellogg.northwestern.edu>.

ABOUT IMPACT INVESTING AT KELLOGG

Impact investing at Kellogg is linked with the school's work in social innovation, which is designed to address the converging challenges that students and industry professionals face today as they strive to create inclusive global prosperity. As part of the growth and scaling track of the Kellogg Innovation and Entrepreneurship Initiative, impact investing is developing the next generation of investment professionals who serve a dual mandate of benefit and returns, and is advancing thought leadership in this emerging field.

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