S&P Dow Jones Indices

An S&P Global Division

Risk Management

Aligning 2016 Green Finance Expectations with Green Bond Indices

Living up to expectations, 2016 has become "the year of green finance", crowned by the adoption and ratification of the Paris Agreement that entered into force on Nov. 4, 2016. On the heels of this historic agreement and the UN Development Programme's Sustainable Development Goals, the momentum for addressing global environmental issues has moved into the financial mainstream.

Over the past 18 months, a number of industry- and policy-led initiatives have been launched that support the mainstreaming of private-sector capital to address sustainable investment, green finance challenges, and long-term value creation, to mention just a few: the G-20 Green Finance Study Group under the Chinese G-20 presidency, the Task Force on Climate-Related Financial Disclosures established by the Financial Stability Board, the EU Commission's Capital Markets Union program of 33 actions to mobilize capital and the Sustainable Stock Exchange's Green Finance Working Group.

Even the International Monetary Fund, which long held the view that green finance was solely a private-sector matter, has shifted its position and now mandates disclosure of firms› carbon footprints and appropriate stress testing for climate risks to ensure financial stability during the transition to a low-carbon economy.

The Market Opportunity for Green Bonds

Green finance initiatives around the world have led to increasing interest in green bonds, which are plain-vanilla fixed-income investments created to fund projects that have positive environmental or climate benefits. They can play an important role in engaging institutional market participants in the transition to low-carbon and climate-resilient development and growth to meet the UN Framework Convention on Climate Change goal (2009) of limiting global warming to 2-degrees Celsius above preindustrial temperatures. Indeed, the scaling up of green bond issuance for sustainable development has become a key area of focus.

Since the first green-labeled bonds were issued by the European Investment Bank in 2007 and the World Bank in 2008, demand for green bonds has increased significantly. The total amount of green-labeled bond issuances accumulated to USD41.8 billion at the end of 2015, with this year breaking another record year, with issuances totaling USD65.4 billion to date. That represents 1.5 times the amount raised during the entire previous year. Bank of America Merrill Lynch predicts that green bond issuances could even reach up to USD90 billion by year-end 2016.

Defining "Green": From Green Bond Principles and Taxonomies to Ratings

The potential for scaling up green finance, and green bonds, is substantial. However, the speed and scale at which the green bond market can further develop and mature relies on several variables, including policy and regulatory factors, market conditions, and financing trends. It faces a range of specific challenges and barriers such as underdeveloped domestic bond markets, issuer views about costs versus benefits, a mismatch between projects, bonds, and institutional investors, as well as a lack of commonly accepted green standards and definitions.

Since inception in 2014, the Green Bond Principles (GBP), a set of voluntary process and reporting guidelines for the use of proceeds of green bonds, have been at the center of the effort to promote voluntary principles for green finance. The principles aim to provide "more clarity of green finance definitions" to "facilitate cross-border

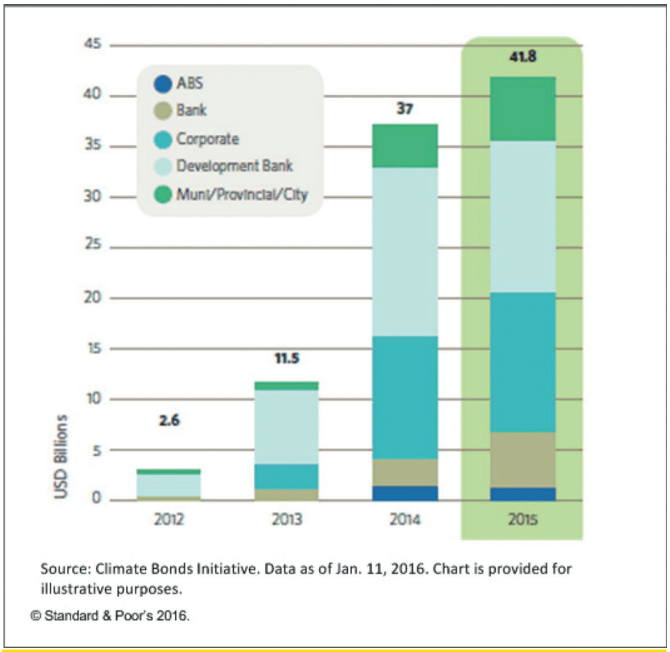

Chart 1: Annual Green Bond Issuances by Issuer Type: 2012-2015

investment in green bonds" and "improve the measurement of green finance activities and their impacts," as called for in the September 2016 "G20 Communiqué on Green Finance."

Over the years, multiple taxonomies in line with the Green Bond Principles have been developed, including Second Party Opinions, the CBI Standard; and the Chinese government-backed "Green Bond Guidelines" and the "Green Bond Endorsed Project Catalogue" (published by the People's Bank of China and the Green Finance Committee of China Society of Finance and Banking, 2015-2016). Supported by the Sustainable Stock Exchanges Initiative, issuer and investor demand, the Luxembourg Stock Exchange and the London Stock Exchange Group launched green bond listing requirements and trading models. And just last week, ShareAction, 2 Degrees Investing Initiative, Client Earth, Carbon Tracker, Eurosif, and the World Wildlife Fund announced that they will urge the European Commission to support speedy development of standards for green bonds--echoing Bank of England Governor Mark Carney›s recent call – as well as recommending policy makers should look at tax incentives to encourage market growth.

Still, the question about how to define, measure, and benchmark "green" remains unclear. The "greenwashing" of projects financed by labeled green bonds could undermine the short-term credibility of the market, and with it, its long-term growth. Defined "green" eligibility criteria, more disclosure and transparency, and an independent assurance for green bond issuances remain key areas of investor concern. There has been global investor commitment to address these, most notably via the "Paris Green Bond Statement" which was signed by 27 investors representing over USD11.2 trillion of total assets under management, in December 2015.

Industry developments have followed suit: In 2016, S&P Global Ratings recently developed a tool to evaluate green bonds and a framework for assessing corporate issuers' exposure to environmental, social, and governance (ESG) risk. The proposed "Green Bond Evaluation" tool will score a given bond issue in at least three areas--transparency, governance, and mitigation/adaptation, as relevant--with these scores then amalgamated and weighted to produce a final score. The proposed methodology looks beyond the governance and management of a bond by providing an analysis and estimate of the environmental impact of the projects or initiatives financed by the bond's proceeds over its lifetime relative to a local baseline. This is in addition to assessing the governance and transparency surrounding the bond. When evaluating environmental impact, the methodology considers both climate change mitigation and adaptation projects.

The Investment Case for Green Bond Indices

There has been growing engagement in the areas of sustainable development and green finance issues within the investment community. Signatories of the Principles for Responsible Investment have grown every year since it was introduced in 2006, and now represent over USD60 trillion of assets under management. The Montreal Pledge, which commits investors to measure and disclose the carbon footprints of their portfolios, has been signed by more than 120 investors with over USD10 trillion in assets under management, and the Portfolio Decarbonisation Coalition, which commits institutional investors to reduce the carbon intensity of their portfolios, has grown substantially since it was launched in 2014. It now includes 25 investors overseeing the decarbonization of USD600 billion in commitments.

The rationale for investor engagement regarding sustainability issues goes beyond "doing well by doing good." It's driven by a growing consensus that that acting to build sustainability into capital markets will bring significant economic gains, while inaction could lead to economic losses. These losses for global assets from climate

Martina Macpherson, Global Head of Sustainability Indices Product Management, S&P Dow Jones Indices change are estimated at USD4.2 trillion in present value terms, with the potential to rise to USD7 trillion if global temperatures are allowed to increase by an average of 5 degrees C. And related industry studies estimate that cumulative lost GDP from climate change impacts could amount to more than USD44 trillionon an undiscounted basis.

However, despite the emphasis that investors have put on sustainable investment and green finance issues, the green bond market itself remains still relatively small, particularly when considering benchmark size deals for government and agency bonds. Hence, it's not a surprise that green bonds, despite their rapid growth from USD11 billion in December 2013 to USD65.4 billion in November 2016, still constitute less than 1% of the overall global bond market.

So from theory into practice: how can the green bond market live up to investor expectations? Green bond indices can help, by aligning investors' sustainable investment and green finance goals with their long-term risk-return objectives. In the past 24 months, several green bond indices have been launched, including:

- The Solactive Green Bond Index (March 2014),
- The S&P Dow Jones Green Bond Index (July 2014),
- The Bank of America Merrill Lynch Green Bond Index (October 2014), and
- The Barclays MSCI Green Bond Index family (November 2014).

The launch of these green bond indices can be interpreted as a sign of the market's growing maturity. Still needed are investment tools like exchange-traded funds (ETFs), index funds, or investment funds benchmarked against green indices instead of conventional benchmarks – such as the State Street Global Green Bond Index Fund (launched in 2015).

S&P Global Ratings and Trucost, a wholly-owned indirect subsidiary of S&P Dow Jones Indices, are also collaborating with S&P Dow Jones Indices on the development of a dedicated a Green Bond Evaluation Index, which can facilitate the expansion of green finance and foster sustainable development practices across divisions--a strategic goal for S&P Global in 2017.

The S&P Green Bond Index

S&P Dow Jones Indices has focused its efforts on providing investors with access to the labeled green bonds market. The S&P Green Bond Index comprises a global universe of 1,320 bonds that are labeled "green" by their issuers, with an additional filter applied. There are currently no restrictions in relation to the size, type, currency, or jurisdiction of the issuer. The index is designed to provide transparency into the characteristics of the green bond market and independently track and report its performance. It is defined by a set of transparent eligibility criteria mandating multiple layers of "green" disclosure at issuer level (e.g. through websites, sustainability reports, public filings, and Second Party Opinions). In addition, bonds must be flagged as "green" by Climate Bonds Initiative (CBI) to be eligible for index inclusion. The vast majority of the constituents carry top investment-grade ratings.

Over a seven-year backtested time horizon, the S&P Green Bond Index achieved an annualized return of 2.18% versus its parent index, the S&P Global Aggregate Developed ex Collateralized Index, which achieved a return of 2.05%.

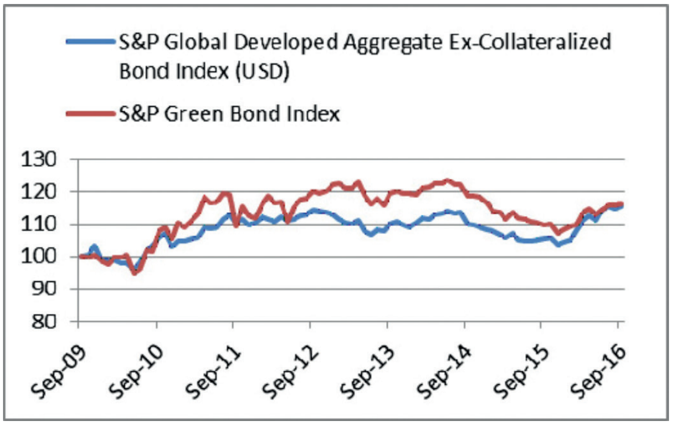

Chart 2: Seven-Year Backtested Historical Performance As Of Sept. 30, 2016

Global Sustainable Development in the Making

Here is a brief overview of green bond developments in the past two years that stand out:

As one of the largest emerging-market countries with a high level of pollution, China has become a leading green bond market issuer in 2016, with issuance of more than USD15 billionin the first-half of 2016 alone. Ahead of COP21, China committed to reduce its greenhouse gas emissions per unit of GDP by 60%-65% of 2005 levels by 2030 and to a target of 20% of non-fossil fuel energy production. To achieve these targets, China requires annual investments in its economy of between around 2 trillion to 4 trillion yuan (USD315 billion to USD625 billion) and some of this has and will come from green bonds.

The diversification of issuer types was another key trend that continued throughout 2016 and will continue into 2017. And after issuances by supranationals, federal and local government agencies, commercial banks and corporations, municipalities and cities, the first green bond issued by a sovereign will be issued next year by the French government. The sovereign was the first country to introduce mandatory climate change-related reporting for institutional investors this year («Energy Transition Law»), and Paris just issued a 15-point plan to become «the green financial center of the world." It seems like a logical step to use green bonds to fund some commitments on the international climate change and sustainable development agenda. Once governments receive clear guidance about how to predetermine and monitor the use of proceeds over the lifecycle of a green bond, more growth is expected from this issuer segment.

Last but not least, 2016 saw an increasing amount of social, ESG, and sustainability bonds that take a broader view of sustainable and societal development. The Green Bond Principles came out with a set of defined social metrics in June 2016 and are paving the way for the diversification of issuance types.

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Read S&P's new Green Finance Book: Scaling Up to Meet the Climate Challenge.