For professional clients only

Aon Investment Research and Insights

Green Bonds

Is the grass always greener?

February 2018

Empower Results®

Table of contents

About Aon Investment Research and Insights

Aon's robust portfolio of ideas, tools and researched solutions support trustees and sponsors to anticipate their future investment requirements.

By beginning to identify investment research and communicate ideas before they are needed we can shorten the implementation times for our clients and act in a timely way when opportunities are correctly priced.

To learn more and to access other research and insights from Aon's investment experts, visit **aon.com/investmentuk**

Executive summary

Green bonds are simply bonds issued to finance environmentally-friendly projects. The market for green bonds is growing exponentially, and investors are taking more of an interest. Importantly, green bonds give investors an option for socially responsible investment outside of equities, which have historically dominated this space.

This paper aims to:

- Define green bonds and provide an overview of the green bond market
- Demonstrate how they compare with conventional bonds
- Highlight some of the existing issues within the green bond market

Introduction

Institutional investors are increasingly considering sustainability issues when constructing their portfolios, with industry bodies such as the Pensions Regulator, Association of Member Nominated Trustees, and the Institute and Faculty of Actuaries actively taking an interest in this area.

The universe for sustainable investment has historically been dominated by equities. However, increased issuance of so-called 'green bonds' over the last few years has made credit an accessible global sustainable asset class. Green bonds are increasingly popular and the investment universe has grown tremendously. Where previously green bonds were issued exclusively by supranational institutions, corporates have entered the market with a broader range of credit ratings, and yields, now available.

The market is not without challenges. In particular, lack of standardisation as to labelling bonds as green poses risks to investors, with some green bond issues contested by research houses as not being truly 'green'. Nevertheless, these barriers are gradually being broken down as issuance rises.

What is a green bond?

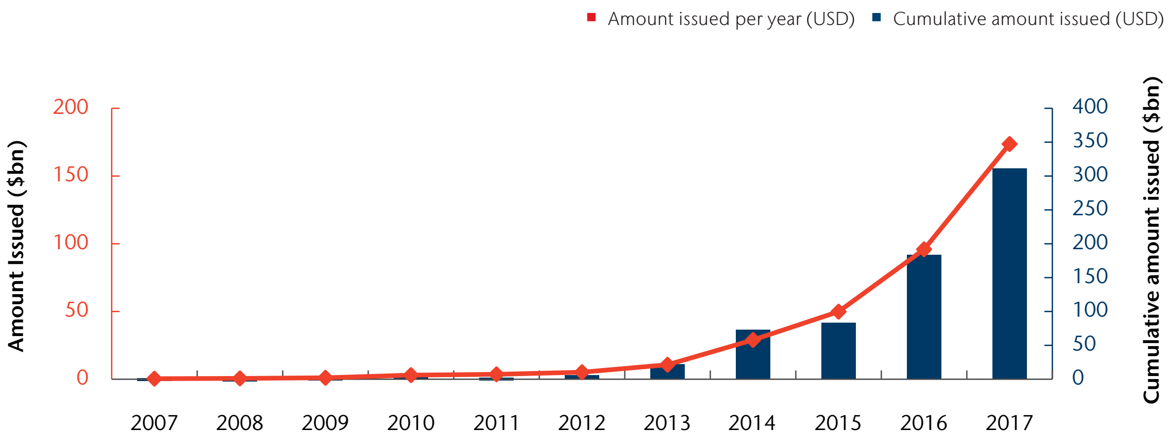
Green bonds are regular bonds, and therefore share many common features with government or corporate bonds, depending on the issuer; the difference lies in the purpose of the bond.

Green bonds are issued to finance specific projects that could be classified as 'green'. The green bond market started in 2007 when the European Investment Bank (EIB) issued a 'Climate Awareness Bond'. The early years of green bond issuance were dominated by supranational organisations, development banks and international agencies. Corporates only started to issue green bonds in 2013, but they are quickly becoming a larger proportion of global green bond issuance.

The green bond market today

The green bond universe has grown tremendously; over the last four years the volume of issuance has been increasing dramatically. The biggest issuers of green bonds are China, the United States, and France.

Rise of the green bond market: year-on-year issuance is increasing rapidly

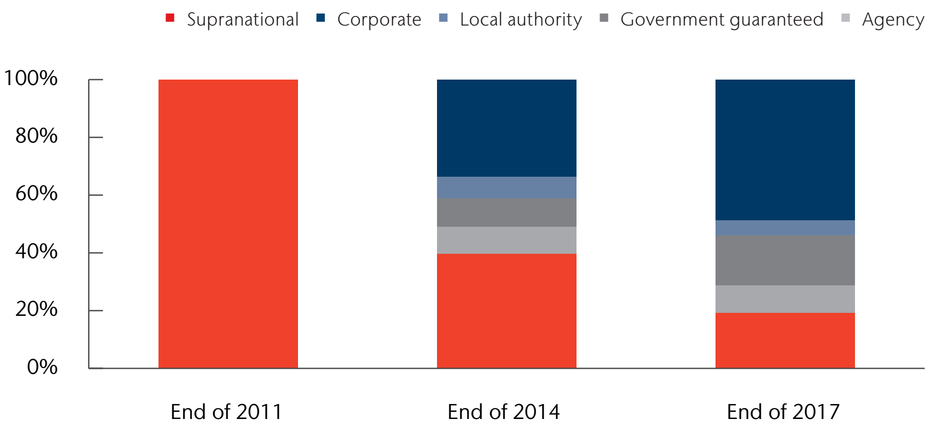


Source: Climate Bond Initiative

The rapid growth in issuance is altering the nature of green bond indices. In particular, the number of new corporate green bond issues is changing the average credit rating of indices. It is important to keep in mind that the credit rating is based on the issuer of the bond, not on the project the bond proceeds will finance. Investors therefore take the same risk buying a bond from a given issuer, irrespective of whether the bond is green or not.

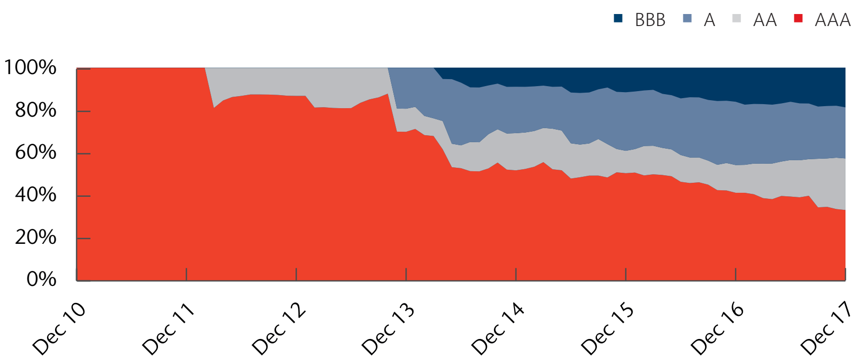
Nevertheless, green bonds are still a new asset class and should be monitored carefully. The average credit rating has deteriorated over the years with more BBB green bonds being issued. In 2014, the first green high yield bonds were issued: one rated 'B' by S&P and one rated 'Bb1' by Moody's.

Breakdown by type of issuer:
Supranationals no longer dominate



Source: Bank of America Merrill Lynch *Data as of 31/12/2017*

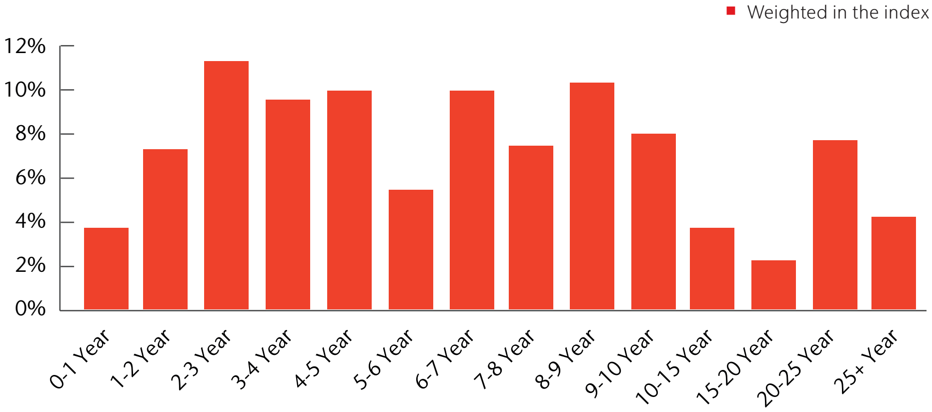
Breakdown by rating:
Corporate issuance has led to a more diverse range of credit ratings



Source: Bank of America Merrill Lynch *Data as of 31/12/2017*

The green bond universe provides investors with a large choice of different maturities, which can help to match a range of different institutional investor liabilities, as illustrated by the composition of the Bank of America Merrill Lynch index.

Breakdown by maturity:
Green bonds cover the full range of maturities



Source: Bank of America Merrill Lynch *Data as of 31/12/2017*

How green bonds differ from regular bonds

As the green bond market is still developing and growing, it can be difficult to compare with other bond markets.

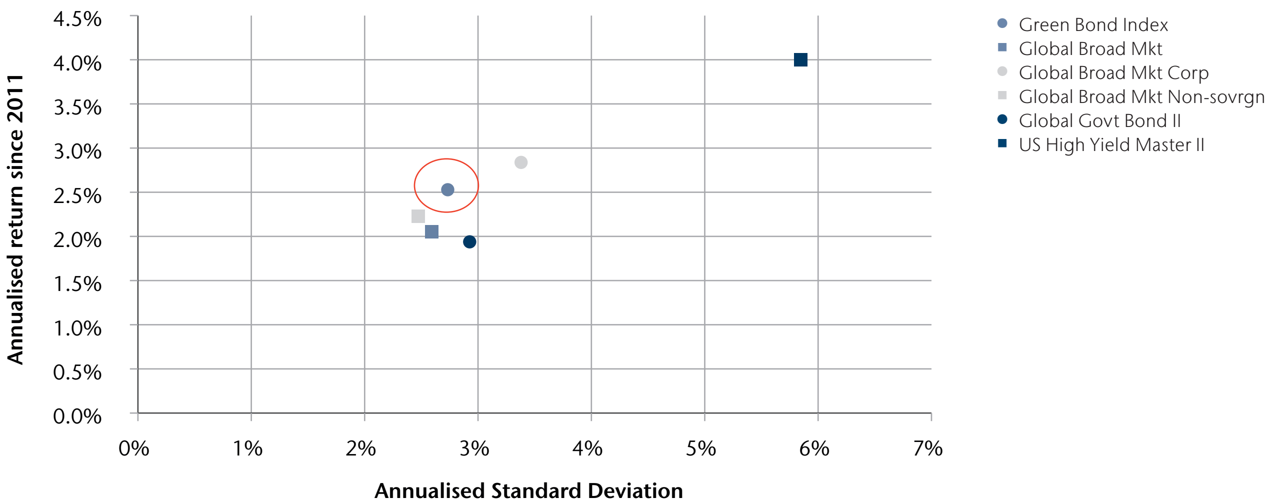
However, there are some broad observations:

- Yields are low, as with most of the fixed income universe
- Credit spreads (the difference in yield with government bond yields) are currently slightly tighter than other parts of the credit universe; however, investors may be prepared to pay a premium in order to invest in a socially responsible way
- The average credit rating has historically been higher than typical corporate bond indices due to the large number of supranational issues, but this is deteriorating as corporate issues increase
- Duration and the range of maturities are broadly similar to other bond indices

	Green Bond Index	US High Yield Master II	Global Broad Mkt	Global Broad Mkt Corp	Global Govt Bond II	Global Broad Mkt Non-Sovrgn
Yield to maturity	1.56%	6.20%	1.68%	2.63%	1.11%	2.33%
Duration	6.85	4.87	7.07	6.67	7.92	6.08
Credit rating	AA3	B1	AA2	A3	AA2	AA3
Spread (bps)	58	363	37	97	14	63

Source: Bank of America Merrill Lynch
Past performance is not a guide to future returns
Data as of 31/12/2017

Performance and risk since 2011



Source: Bank of America Merrill Lynch *Data as of 31/12/2017*

Are all green bonds really 'green'?

In January 2014, to help streamline green bond issuance, and provide greater clarity about the investable green bond universe, the International Capital Market Association (ICMA) established the Green Bond Principles (GBP).

The Green Bond Principles encourage a high level of transparency, in particular, in four key components:

- Use of proceeds
- Process for project evaluation and selection
- Management of proceeds
- Reporting

The proceeds of a green bond can only finance climate and/or ecological friendly projects. The ICMA use the following classification for projects:

- Renewable energy
- Energy efficiency (including efficient buildings)
- Sustainable waste management
- Sustainable land use (including sustainable forestry and agriculture)
- Biodiversity conservation
- Clean transportation
- Sustainable water management (including clean and/or drinking water)
- Climate change adaptation

However, the definition of an environmentally-friendly project is itself open to interpretation. Despite the Green Bond Principles, which mainly focus on governance, there is no globally controlled framework for labelling bonds as green. This means many bonds are 'self-labelled' as green bonds by the issuer.

Investors require assurance that proceeds from green bonds are going towards genuine 'green' projects. Independent reviewers provide additional due diligence on green bond issues; assessing the Environmental, Social and Governance (ESG) aspects to determine if the bond is deserving of a green label. The major independent reviewers are a mixture of ESG research houses and scientific standards groups, including: CICERO (Center for International Climate and Environmental Research – Oslo), Vigeo Rating, DNV GL, Oekom Research, KPMG and Sustainalytics. S&P also provide a green evaluation solution.

The absence of a universally accepted global framework means there is a lack of standardisation and regulation in the green bond market, which poses risks to investors. However, this issue shows signs of diminishing as green bond issuance increases.

Below are examples which highlight the variety of existing issuance and, in some cases, the problems which may occur.

Example: Bank of America

Bond issuer	Bank of America
Issue date	November 2013
Amount	$500,000,000
Term	3 years
Independent reviewer	-
Use of proceeds	Eligible Green Projects, but not all the proceeds will necessarily be used for this purpose

According to the Climate Bonds Initiative, this bond did not have its green label confirmed by an independent reviewer. Uses of the proceeds are outlined in the prospectus, but there is no guarantee all of the proceeds will be used for green projects. Investors would need to read the criteria supplied by Bank of America and determine for themselves if they agree the bond should have a green label. This is an example of a self-labelled green bond.

Example: Repsol SA

Bond issuer	Repsol SA
Issue date	May 2017
Amount	$500,000,000
Term	5 years
Independent reviewer	Viego
Use of proceeds	Eligible Green Projects, including emission reduction from refineries and other infrastructure

The bond issue satisfies the Green Bond Principles and eligible projects are approved by Vigeo, an independent reviewer. However, the Climate Bonds Initiative refused to include it in their green bond listing since the issue of green bonds by Repsol, a Spanish oil and gas company relying on fossil fuels, is itself controversial.

Example: Anglian Water

Bond issuer	Anglian Water
Issue date	August 2017
Amount	£250,000,000
Term	8 years
Independent reviewer	DNV GL
Use of proceeds	Sustainable projects such as innovative water abstraction, progressive water recycling, and water resource management

Anglian Water's bond was the first Sterling green bond issue by a utility company. The bond has been approved by DNV GL, an independent reviewer; however, it has not yet been certified by the Climate Bonds Initiative. The issue is in line with Anglian Water's environmental goals, which include a pledge to become carbon neutral by 2050.

Example: Manulife

Bond issuer	Manulife
Issue date	November 2017
Amount	$500,000,000
Term	12 years
Independent reviewer	DNV GL
Use of proceeds	Sustainable projects in renewable energy, energy efficient buildings, and sustainably-managed forestry

The first ever green bond issue by a life insurer and first Canadian bond to be certified by the Climate Bonds Initiative, Manulife's green bond framework, which is aligned with the Green Bond Principles, states that investments in renewable energy, energy efficient buildings, sustainably-managed forestry and other long term assets are a good match for long dated life insurance liabilities.

Example: China Three Gorges Corporation

Bond issuer	China Three Gorges Corporation
Issue date	June 2017
Amount	€650,000,000
Term	7 years
Independent reviewer	EY
Use of proceeds	Production and transmission of renewable energy through wind energy projects

This bond was the first Chinese bond issue to be certified by the Climate Bonds Initiative, and the first Euro green bond issued by a Chinese corporate (Chinese green bond issues have typically been in US Dollars). The bond also carries approval from an independent reviewer, EY. The bond proceeds will be used to finance two wind projects: an offshore wind project in Germany and onshore wind farms in Portugal.

Since the establishment of the GBP, banks' involvement in green bonds has significantly increased. Several green bond indices have been launched, including the S&P Dow Jones Green Bond Index in July 2014, the Bank of America Merrill Lynch Green Bond Index in October 2014, and the Barclays MSCI Global Green Bond Index in November 2014.

Outlook for the market

Record green bond issuance looks set to continue into the future, and means past experience in the green bond market will be a poor guide to future performance. With greater issuance and more market participants has come higher standards and consistency, aided by initiatives like the Green Bond Principles, which is expected to address issues around the lack of standardisation.

In the future, differentiation between government related and corporate green bonds will be needed not only to ensure clarity to investors, but also to attract more diversified investors with different risk constraints.

With rapid growth, demand for green bonds has also increased greatly, in certain cases outstripping supply. There are therefore concerns around a 'greenium' coming into play in the market, whereby investors have to pay a premium in order to access green bonds over regular bonds. Investor activism is also increasingly popular, which places more emphasis on investments with sustainable and ethical nuances.

The green bond market could continue to rise very quickly as interest increases further from US and Chinese corporations to issue green bonds. Low interest rates in developed economies have meant investors are looking to increase portfolio allocations to higher yielding assets, such as emerging market debt, to assist meeting liabilities. Demand from developed market investors is in turn driving an increase in issuance of green bonds in emerging markets.

Fundamentally, the development of green bonds offers the opportunity to have a global socially responsible investing approach in investor portfolios, which is not restricted to equities only.

We're here to empower results

For more information visit
aon.com/investmentuk
or contact your Aon representative.

Contacts

John Belgrove
Senior Partner
john.belgrove@aon.com
+44 (0)20 7086 9021

Kate Charsley
Partner
kate.charsley@aon.com
+44 (0)117 900 4414

Sion Cole
Senior Partner and Head of Client Solutions
sion.cole.2@aon.com
+44 (0)20 7086 9432
Follow me on twitter – @PensionsSion

Tim Giles
Head of UK Investment Consulting
tim.giles@aon.com
+44 (0)20 7086 9115

With thanks to our author

Oscar Archer
Associate Consultant

Matthieu Tournaire
Asset Allocation Specialist

About Aon

Aon plc (NYSE:AON) is a leading global professional services firm providing a broad range of risk, retirement and health solutions. Our 50,000 colleagues in 120 countries empower results for clients by using proprietary data and analytics to deliver insights that reduce volatility and improve performance.

For further information on our capabilities and to learn how we empower results for clients, please visit http://aon.mediaroom.com.

Registered Office:
The Aon Centre
The Leadenhall Building
122 Leadenhall Street
London EC3V 4AN

aon.com

Empower Results®