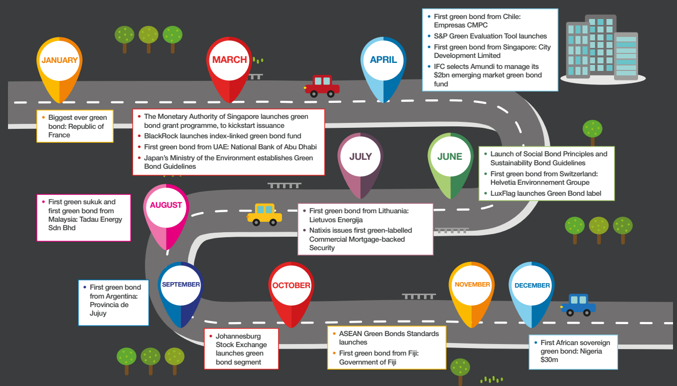
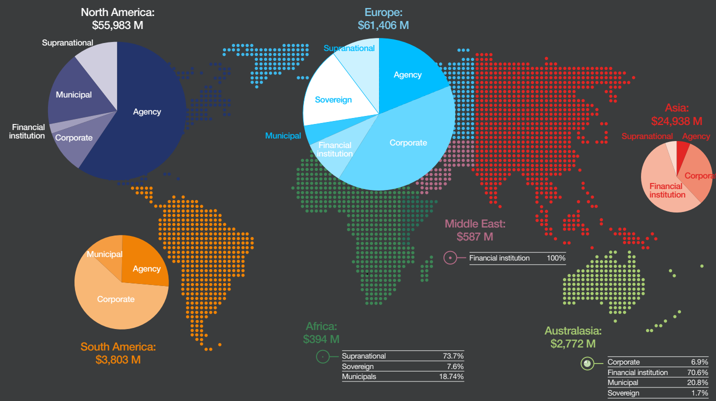
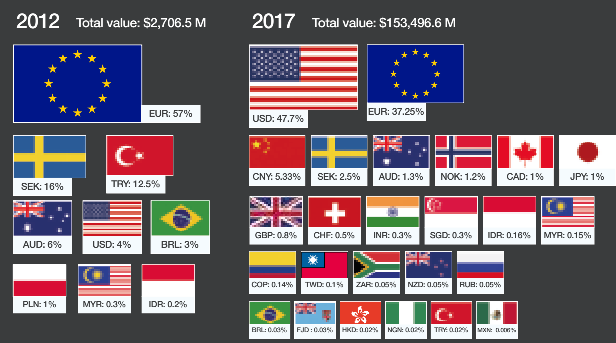
Green Bonds: Review of 2017

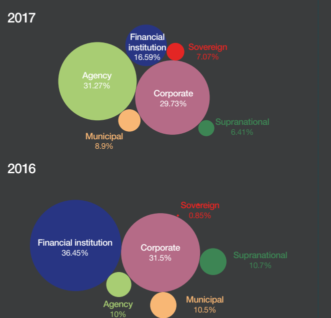




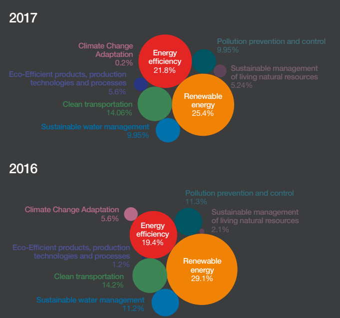
The growing number of currencies issued

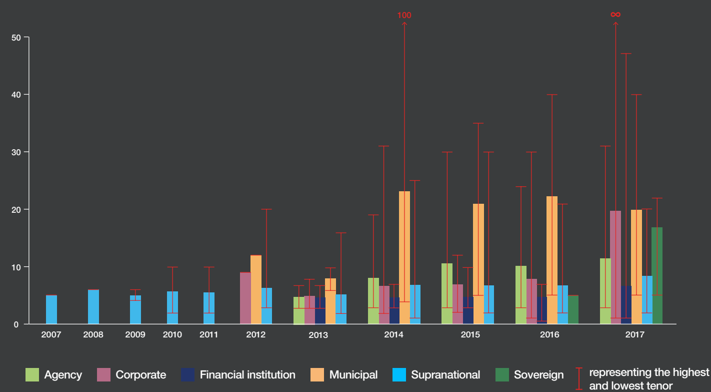


Comparison of issuer types

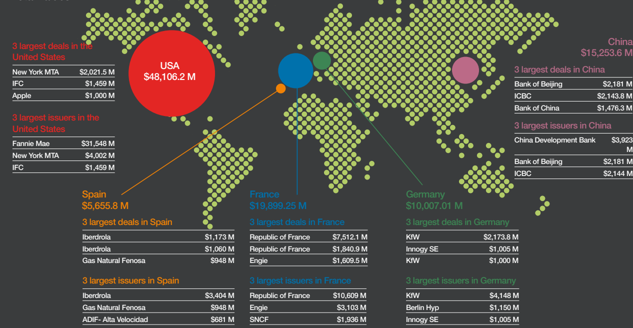


Comparison of use of proceeds





Total values



Data provided by
The Green Bond Database

Environmental Finance

Environmental Finance Events

Last year over **1000** senior-decision makers from **30+** countries attended events organised by *Environmental Finance*

Event	Date / Location	Event	Date / Location
Green Bonds Symposium	28 February 2018 Santa Monica	Environmental Finance Green Equities 2018	16 October 2018 London
Environmental Finance Water: Risk, Opportunity and Sustainability 2018	18 April 2018 London	Environmental Finance / InsuranceERM Insurance & Climate Risk	Insurance & Climate Risk Americas 24 September 2018 New York
Environmental Finance Green Bonds Asia 2018	7 June 2018 Singapore	Environmental Finance Green Bonds Americas 2018	25 September 2018 New York
Environmental Finance Green Bonds Europe 2018	18 June 2018 London	Environmental Finance / InsuranceERM Insurance & Climate Risk	Insurance & Climate Risk EMEA 3 December 2018 London

"Good variety of issues and topics. Look forward to next year's event"
NRW Bank

"Great conference. It sets the standard"
P3 Value

"Excellent content/ top organisation"
HSBC

"Very useful for networking, market updates and developments"
London Stock Exchange

"Great panels + keynotes + audience"
Rabobank

www.environmental-finance.com/events




Contents

Introduction

Environmental Finance is delighted to bring you **Green Bonds: Review of 2017** powered by our leading green bond database www.greenbonddata.org. With the green bond market continuing to evolve in 2017, setting fresh records and attracting issuers in new parts of the world, our database will grow with the market, providing knowledge and transparency.

2017 saw a total of $153.5 billion of green-labelled bonds issued, breaking through the $100 billion mark for the first time. The previous year saw $92.4 billion of issues, which was itself a record.

In its early years, the decade-old market was supported by multilateral development banks, but is now also being driven by municipalities, financial institutions and a growing number of corporates (see page 11).

The US, France and China were the leading countries in the green bond market (see page 6). While in the US and China, issuers were mainly agencies and financial institutions in 2017, French issuers were more diverse. The French sovereign bond accounts for 53% of the value of issuance from the country, but corporates account for 32%, agencies 10%, and financial institutions and municipals the remaining 5%.

The number of countries from which green bonds have been issued continued to grow in 2017, with Argentina, Chile, Fiji, Lithuania, Malaysia, Nigeria, Singapore, Switzerland and the UAE all joining the fray (see page 13).

2017 saw a growing number of green bonds issued in various currencies, illustrating the growth of the green bond market in emerging market countries (see page 14).

One of the big themes of the market's recent evolution is sovereign issuance. Poland was the first national government to issue a green bond, when it raised €750 million ($800 million) in December 2016. It was followed in January 2017 by France, with a €7 billion issue – comfortably the biggest green bond ever issued. It has tapped this twice, bringing the total to more than €9 billion.

Fiji and Nigeria also came to the market, with smaller issues of $48.2 million and $29.7 million, respectively.

Poland's €1 billion ($1.243 billion) repeat issue in 2018 has kicked off issuance in what is expected to be an important year for the sovereign market. There are thought to be more than 10 sovereigns planning issues, including Hong Kong and Sweden, while Belgium has announced plans to raise several billion euro through a green bond, and Indonesia is set to issue the first green sovereign sukuk.

The infrastructure supporting the green bond market also continued to grow in 2017, with S&P launching its green evaluation tool, The Monetary Authority of Singapore launching a green bond grant programme, Japan's Ministry of the Environment establishing Green Bond Guidelines and the launch of the ASEAN Green Bond Standards (see page 5) .

Marine Durrieu, Green Bond Analyst, marine.durrieu@environmental-finance.com

Largest in 2017

The biggest deals and issuers of the year

Largest Single Green Bond

Republic of France
Value: $7,512 M

Largest Issuer

Fannie Mae
Total value: $31,548 M

Largest Agency

Fannie Mae
Number of deals: 1,148

Largest Sovereign

Republic of France
Total value: $10,609 M

Largest Supranational

European Investment Bank
Total value: $4,741 M

Largest Corporate

Mexico City Airport
Value: $4,000 M

Largest Municipal

New York MTA
Value: $2,021 M

Largest Financial Institution

Bank of Beijing
Value: $2,181 M

Largest Second Opinion Provider

Sustainalytics
Number of second options: 65

Key developments in the market in 2017

A timeline of some the most important events during the year

JANUARY

- Biggest ever green bond: Republic of France

MARCH

- The Monetary Authority of Singapore launches green bond grant programme, to kickstart issuance
- BlackRock launches index-linked green bond fund
- First green bond from UAE: National Bank of Abu Dhabi
- Japan's Ministry of the Environment establishes Green Bond Guidelines

APRIL

- First green bond from Chile: Empresas CMPC
- S&P Green Evaluation Tool launches
- First green bond from Singapore: City Development Limited
- IFC selects Amundi to manage its $2bn emerging market green bond fund

JUNE

- Launch of Social Bond Principles and Sustainability Bond Guidelines
- First green bond from Switzerland: Helvetia Environnement Groupe
- LuxFlag launches Green Bond label

JULY

- First green bond from Lithuania: Lietuvos Energija
- Natixis issues first green-labelled Commercial Mortgage-backed Security

AUGUST

- First green sukuk and first green bond from Malaysia: Tadau Energy Sdn Bhd

SEPTEMBER

- First green bond from Argentina: Provincia de Jujuy

OCTOBER

- Johannesburg Stock Exchange launches green bond segment

NOVEMBER

- ASEAN Green Bond Standards launches
- First green bond from Fiji: Government of Fiji

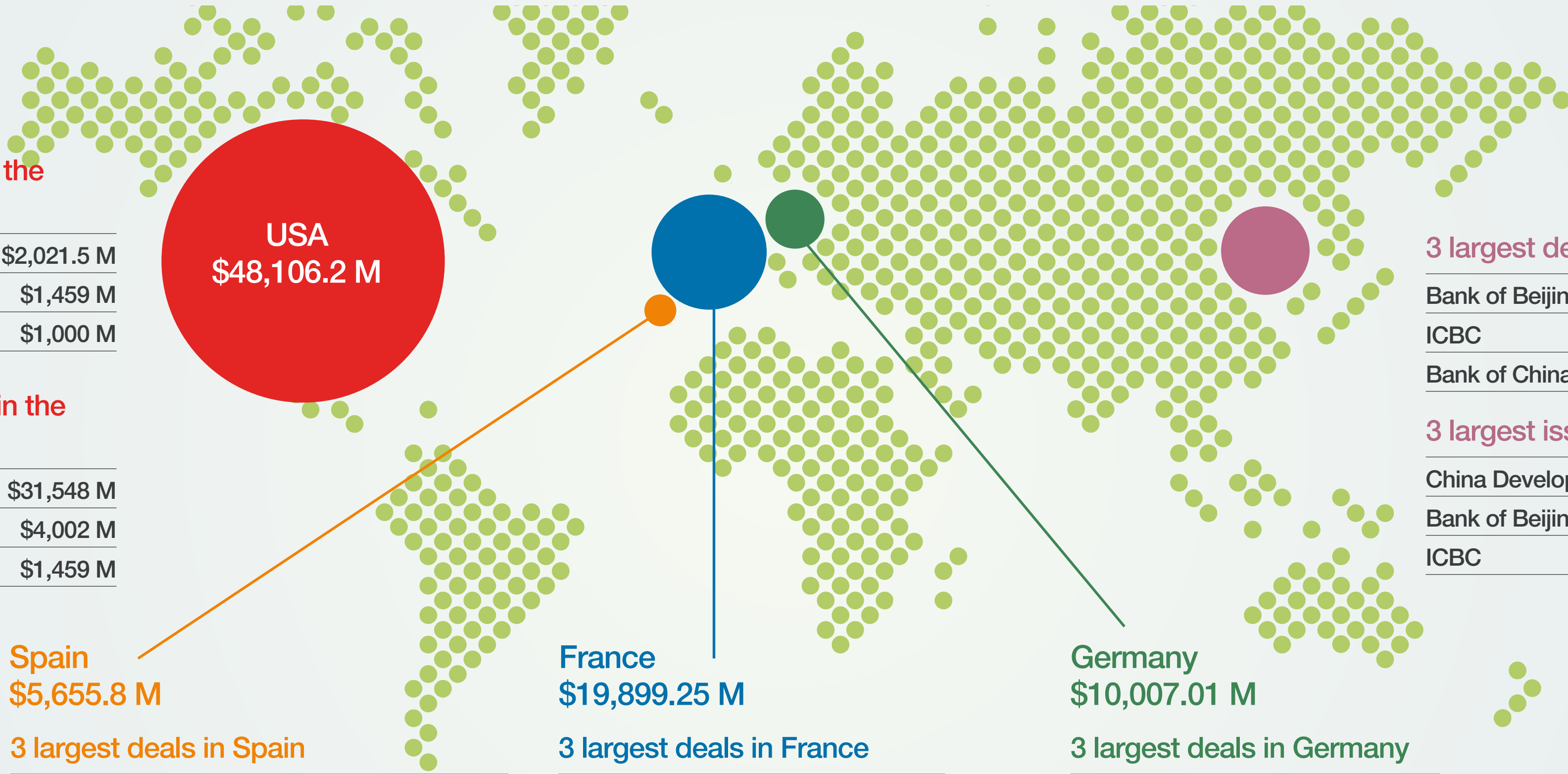
DECEMBER

- First African sovereign green bond: Nigeria $30m

Top 5 largest issuing countries in 2017

Fannie Mae helped secure the US's place as biggest issuing country

Total values



3 largest deals in the United States

New York MTA	$2,021.5 M
IFC	$1,459 M
Apple	$1,000 M

3 largest issuers in the United States

Fannie Mae	$31,548 M
New York MTA	$4,002 M
IFC	$1,459 M

China
$15,253.6 M

3 largest deals in China

Bank of Beijing	$2,181 M
ICBC	$2,143.8 M
Bank of China	$1,476.3 M

3 largest issuers in China

China Development Bank	$3,923 M
Bank of Beijing	$2,181 M
ICBC	$2,144 M

Spain
$5,655.8 M

3 largest deals in Spain

Iberdrola	$1,173 M
Iberdrola	$1,060 M
Gas Natural Fenosa	$948 M

3 largest issuers in Spain

Iberdrola	$3,404 M
Gas Natural Fenosa	$948 M
ADIF- Alta Velocidad	$681 M

France
$19,899.25 M

3 largest deals in France

Republic of France	$7,512.1 M
Republic of France	$1,840.9 M
Engie	$1,609.5 M

3 largest issuers in France

Republic of France	$10,609 M
Engie	$3,103 M
SNCF	$1,936 M

Germany
$10,007.01 M

3 largest deals in Germany

KfW	$2,173.8 M
Innogy SE	$1,005 M
KfW	$1,000 M

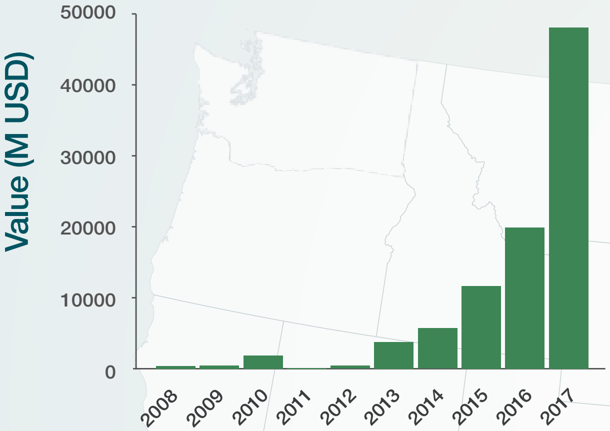
3 largest issuers in Germany

KfW	$4,148 M
Berlin Hyp	$1,150 M
Innogy SE	$1,005 M

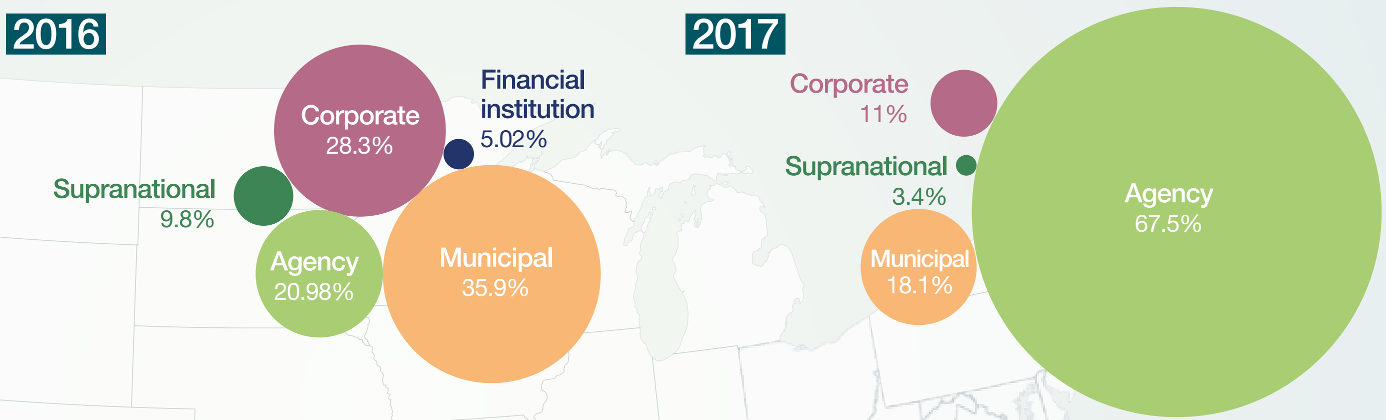
The United States green bond market in 2017

The value of issues by agencies rose in 2017 (due to Fannie Mae), while renewable energy's share of the use of proceeds declined

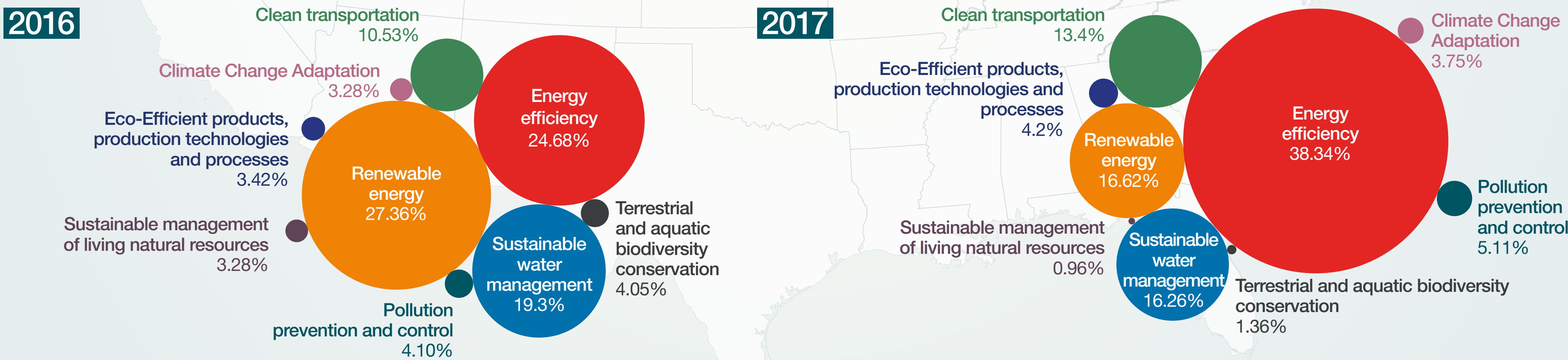
The United States green bond market



Comparison of issuer types and use of proceeds for 2016 and 2017 in the US market



Use of proceeds (comparing 2016/2017)



Methodology: When bonds have more than one designated 'use of proceeds', the value of the bond has been divided between all of the named 'use of proceeds' types, assuming an equal share for each.

Top 5 deals Q1, Q2, Q3, Q4 2017

Republic of France and Mexico City Airport issued some of the biggest green bonds

Top Deals: Q1	Top Deals: Q2	Top Deals: Q3	Top Deals: Q4
Republic of France $7,512.1 M	Bank of Beijing $2,181 M	Mexico City Airport $4,000 M	ICBC $2,143.8 M
Engie $1,609.5 M	KfW $2,173.8 M	Engie $1,493.3 M	NY MTA 2,021.5 M
Enel $1,315.8 M	Republic of France $1,840.9 M	Asian Development Bank $1,250 M	Bank of China $1,476.3 M
SNCF Reseau $1,080 M	European Investment Bank $1,500 M	European Investment Bank $1,124 M	Republic of France $1,256.3 M
Iberdrola $1,060 M	TenneT $1,119.1 M	Greenko $1,000 M	Iberdrola $1,173 M
Total value Q1 $34,351.81 M	Total value Q2 $35,485.31 M	Total value Q3 $36,877.38 M	Total value Q4 $45,929.53 M

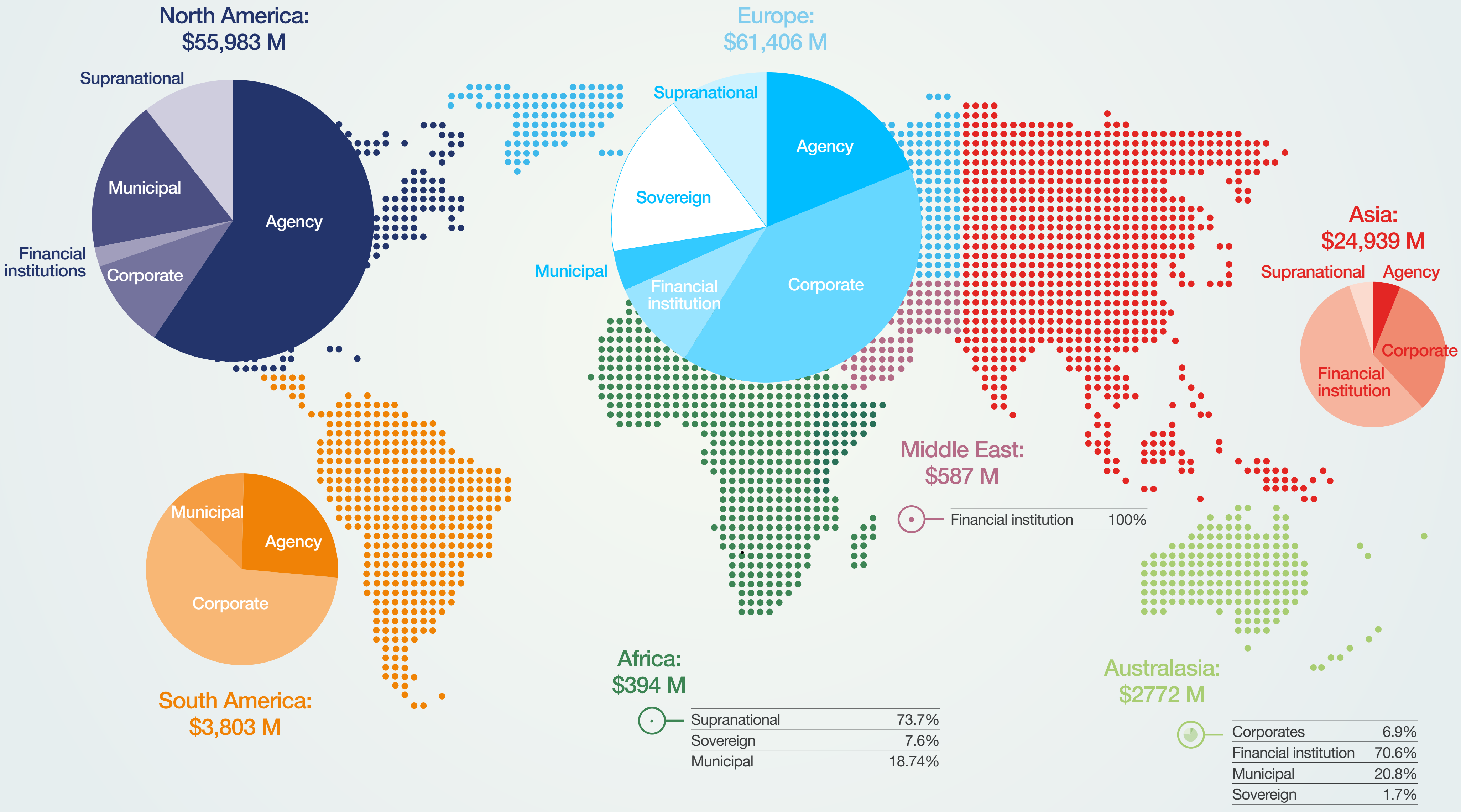
Top 20 lead managers 2017

LEAD MANAGERS	VALUE ($M)	NUMBER OF DEALS
CRÉDIT AGRICOLE CORPORATE & INVESTMENT BANK	8,952	81
HSBC	7,425	48
citi	7,103	36
Bank of America Merrill Lynch	6,690	47
J.P.Morgan	6,168	43
BNP PARIBAS	6,081	34
SOCIETE GENERALE Corporate & Investment Banking	5,044	23
BARCLAYS	4,658	30
SEB	4,384	30
Morgan Stanley	3,590	31
NATIXIS GLOBAL ASSET MANAGEMENT	3,424	17
Goldman Sachs	2,785	18
Santander	2,567	15
Nordea	2,519	20
MUFG	2,388	13
	2,096	19
BBVA	1,795	9
TD	1,788	11
LBBW	1,681	8
ABN·AMRO	1,584	11

Methodology: An equal amount is allocated to each manager by dividing the total size of the deals by the number of lead managers. The figures refer to bonds settled in 2017.

Issuer type by region

A regional breakdown of the types of entities issuing green bonds

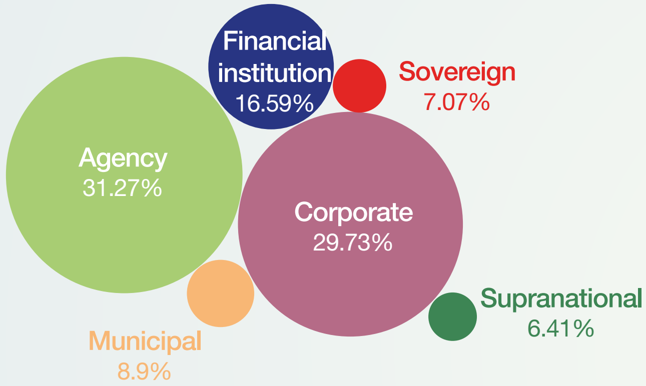


Comparison of issuer types and use of proceeds for 2016 and 2017

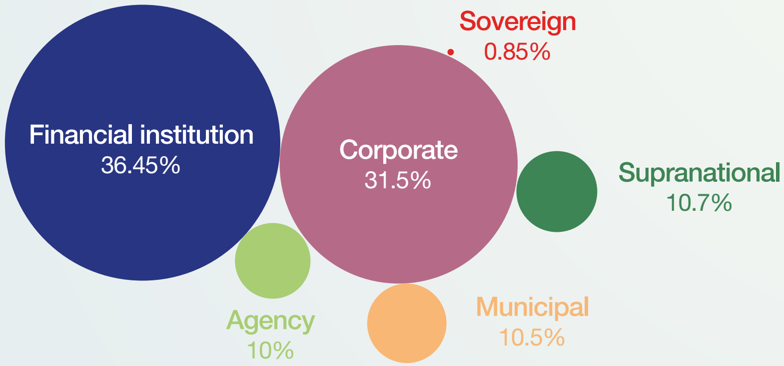
The value of issues by sovereigns rose in 2017, while renewable energy's share of the use of proceeds declined.

Comparison of issuer types

2017

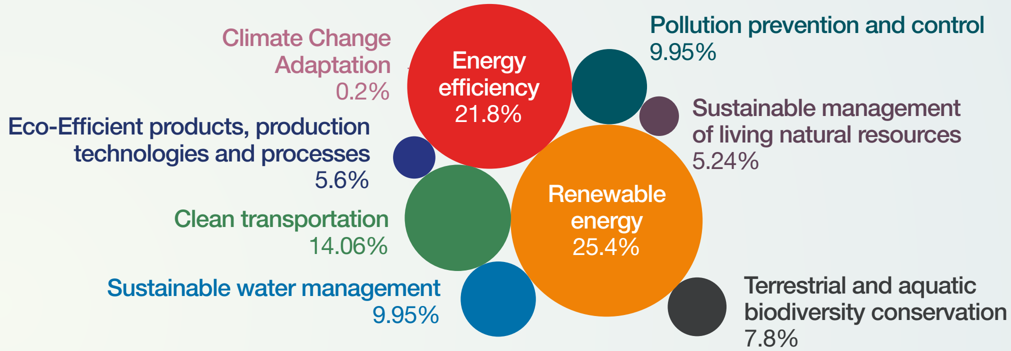


2016

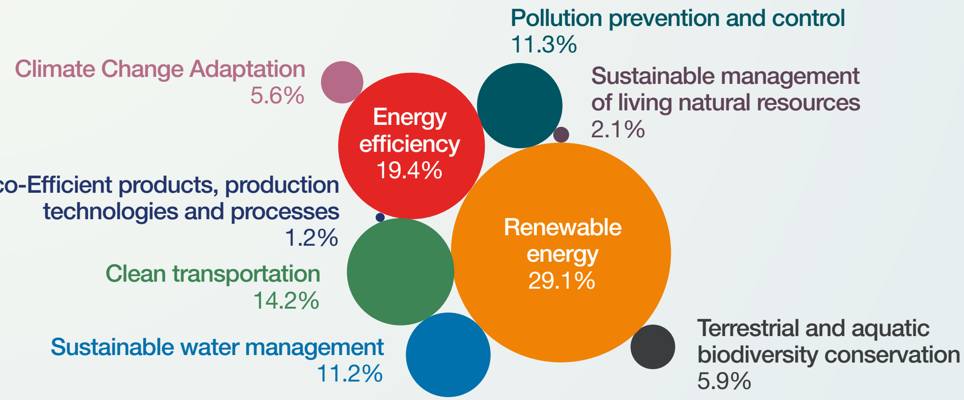


Comparison of use of proceeds

2017



2016



Methodology: When bonds have more than one designated 'use of proceeds', the value of the bond has been divided between all of the named 'use of proceeds' types, assuming an equal share for each.

External reviewer share of deals in the green bond market in 2017

Although the number of external review providers continue to increase, 30.2% of green bonds in 2017 did not obtain a review

SUSTAINALYTICS 20.5%

°CICERO 17.9%

vigeo eiris 6.2%

Climate Bonds INITIATIVE 4.7%

KPMG 4.7%

oekom 3.4%

MOODY'S ANALYTICS 3.3%

DNV·GL 3.0%

EY 2.2%

S&P Global 1.7%

CECEP 0.8%

EVI Sustainable Solutions for the Planet 0.5%

CARBON TRUST 0.3%

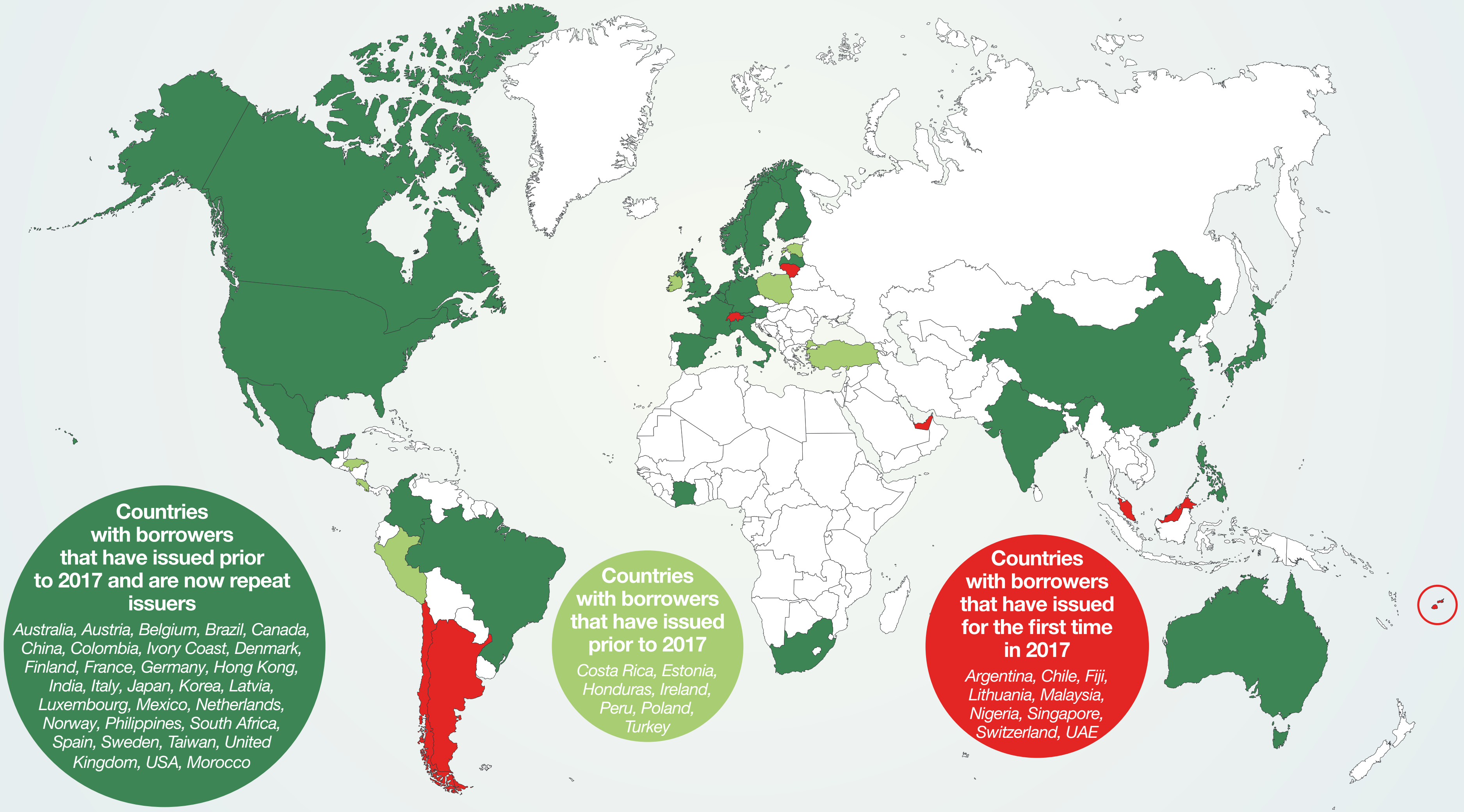
中诚信国际 CCXI 0.3%

F1RST ENVIRONMENT 0.3%

NONE: 30.2%

Countries joining the green bond market in 2017

Green bonds were issued by borrowers from nine new countries – Argentina, Chile, Fiji, Lithuania, Malaysia, Nigeria, Singapore, Switzerland and UAE – during the course of the year

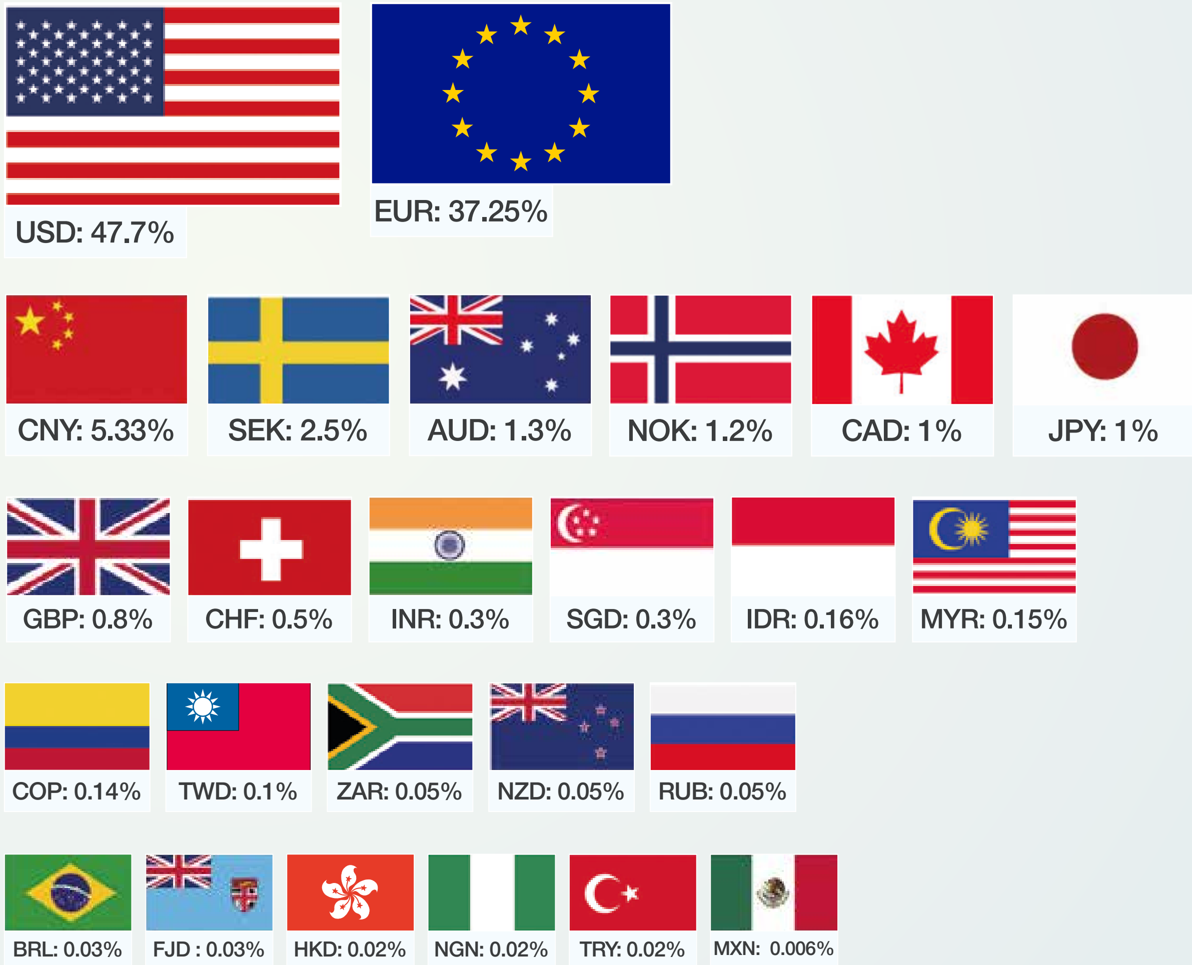


The growing number of currencies issued

The number of currencies issued in 2017 has risen drastically compared with five years earlier. Figures are for percentage of value of market

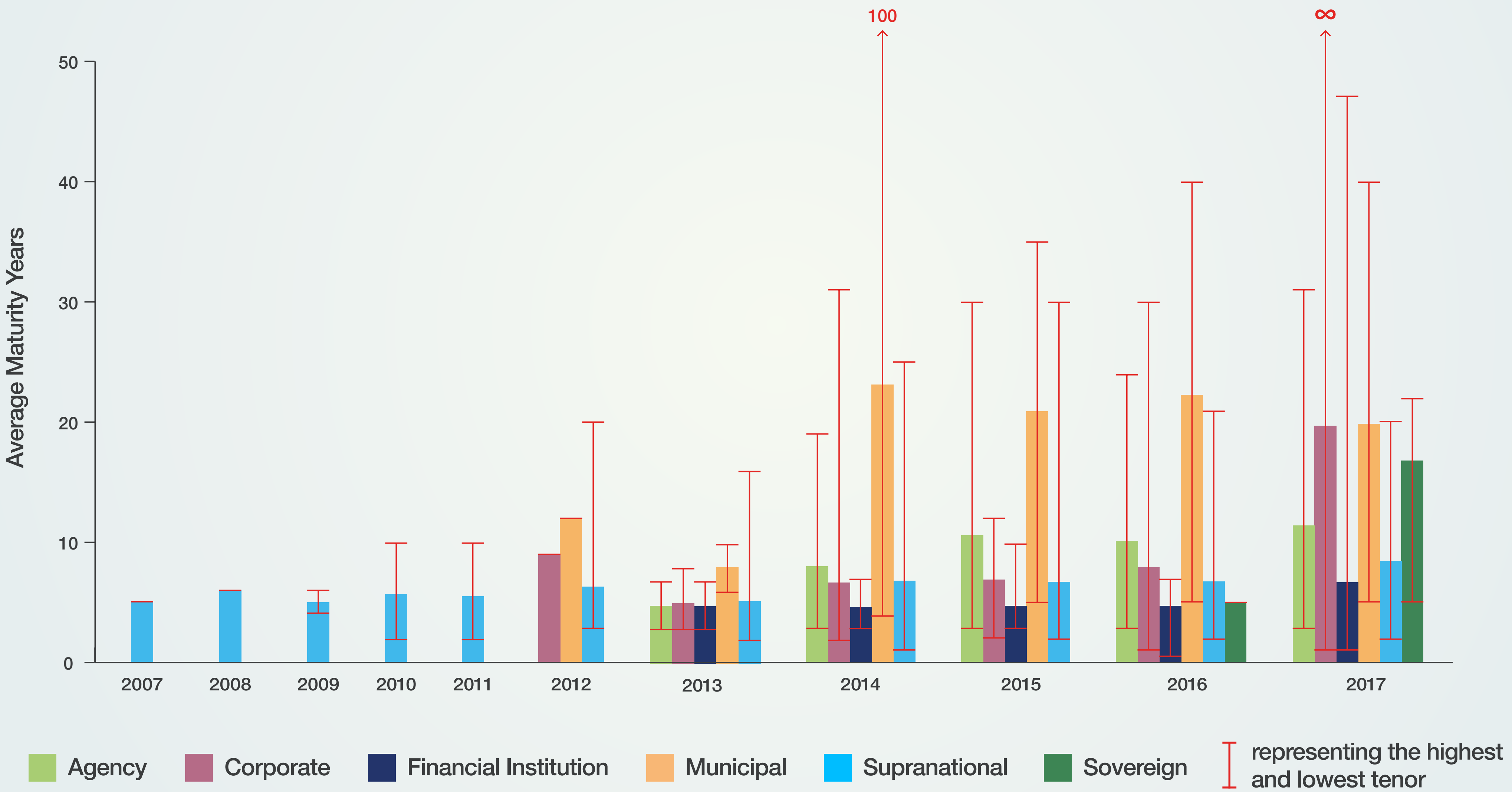
2012 Total value: $2,706.5 M

2017 Total value: $153,496.6 M



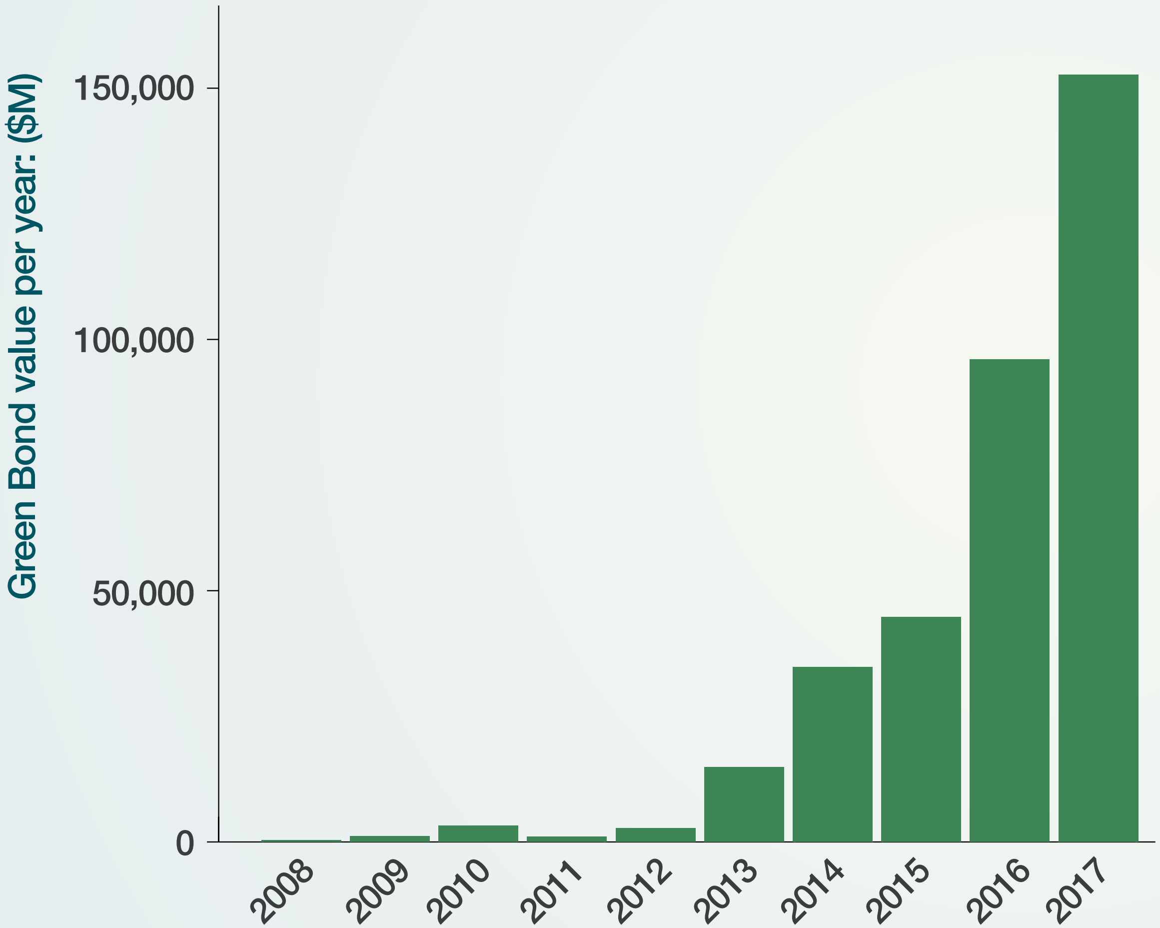
Maturity profile of green bonds by sector

The average tenor of green bonds has gradually increased over the 10 years since the market's inception



Market size predictions for 2018

What can we expect from 2018?



2018 Predictions

Climate Bonds Initiative: $250-300 B

Moody's Analytics: $250 B

S&P Global: $200 B

HSBC: $180 B

SEB: $175 B

TD: $160 B

On the search for sovereigns

The next growth spurt for the green bond market could come from sovereigns, reports **Michael Hurley**

Poland's ground-breaking €750 million ($792 million) green bond, issued in December 2016, was a thunderstrike moment in green finance. In the form of sovereigns, the green bond market suddenly had an exciting new source of financing, which promised to bring liquidity and deliver large-scale investment opportunities.

Even before Poland's issuance, industry observers held their ears keenly to the ground as they anticipated the arrival of sovereigns eager to market their green credentials.

Yet, to date, only four countries have issued green bonds – Poland, France, with its €7 billion issue, and Fiji, which raised 100 million Fijian dollars ($48 million) and Nigeria, which raised 10.69 billion naira ($30 million). France has subsequently tapped its issue twice, taking the total raised to nearly €10 billion, according to Environmental Finance's Green Bond Database, making it comfortably the biggest green bond ever issued. Poland, meanwhile, returned to the market with a second green bond, worth €1 billion, at the end of January.

That could soon change, with as many as 15 sovereigns queuing to issue green bonds, according to Columbia Threadneedle's lead portfolio manager Simon Bond, speaking in November at Environmental Finance's inaugural Insurance & Climate Risk conference.

As this article went to press, Belgium was planning its inaugural issue in the first quarter of 2018, to raise between €3 billion and €5 billion, which will finance railways, energy-efficient renovations of public buildings and research and development into storing energy.

Pierre Blandin, head of sovereign, supranational and agency debt capital markets at Credit Agricole CIB, one of the lead managers on France's issue and a structuring advisor on the planned Belgian transaction, says: "You could argue that, since the France sovereign green Obligation Assimilable du Trésor (OAT), nothing has happened – Fiji's green bond was not a game-changer from a bond market perspective.

"But I do believe the sovereign issuers are focusing more on the green bond market. They have taken notice of the fact that France has managed to overcome some of the hurdles that some [potential] sovereign issuers raised in the past," adds Blandin.

> "Sovereigns are only now realising that green bonds provide easy access to a large and diverse funding pool to provide a low-cost injection of capital"
>
> **Mindy Hauman, White & Case**

"The Belgian green bond will target the same kind of investor base as the French green OAT."

"Nothing has been finalised in terms of structure," he says. "The underlying assets might be different from the French OAT, but it's the same concept, I would say."

Stephanie Sfakianos, head of sustainable capital markets at BNP Paribas, another of the lead managers on the French sovereign green bond, says she frequently has discussions with other sovereigns and she is "completely confident that there's going to be a lot more sovereign issuance".

"We need that real bedrock of liquidity, and sovereigns can provide that."

Blandin says: "The first step is to analyse the French and Polish green bonds – the ones that are interested have done so.

"I think Hong Kong has announced it will be looking at doing a green bond, and Sweden has a commission which is responsible for analysing whether or not issuing a green bond would make sense - it will release its conclusion at the beginning of next year," says Blandin.

France was widely expected to become the first sovereign issuer until, in December 2016, Poland beat them to the table – by one month. "Poland sees itself as a pioneer," says Piotr Nowak, undersecretary of state in Poland's ministry of finance. "We set a precedent, started the discussion, and attracted attention to sovereign green financing, and we hope others follow suit.

"For those who want our advice, we may serve as an example," Nowak offers. He says Poland, along with France, is a benchmark for other sovereigns looking into the possibility of issuing because it overcame barriers: "We see the interest from other issuers. To be honest, we don't tell them that the process is smooth and easy."

Mindy Hauman, counsel at law firm White & Case's capital markets practice in London, says one of the major challenges was devising a framework. White & Case was an advisor on the first Poland green bond.

The framework had to "reflect Poland's unique status as a sovereign and the characteristics of its green finance needs and its assets," she says. In addition, some investors viewed Poland's planned green bond with scepticism, "given that Poland relies on coal to generate the majority – more than 80% – of its electricity needs.

"Nonetheless, other investors applauded Poland for demonstrating its commitment to diversifying into green energy and a more sustainable future," she says.

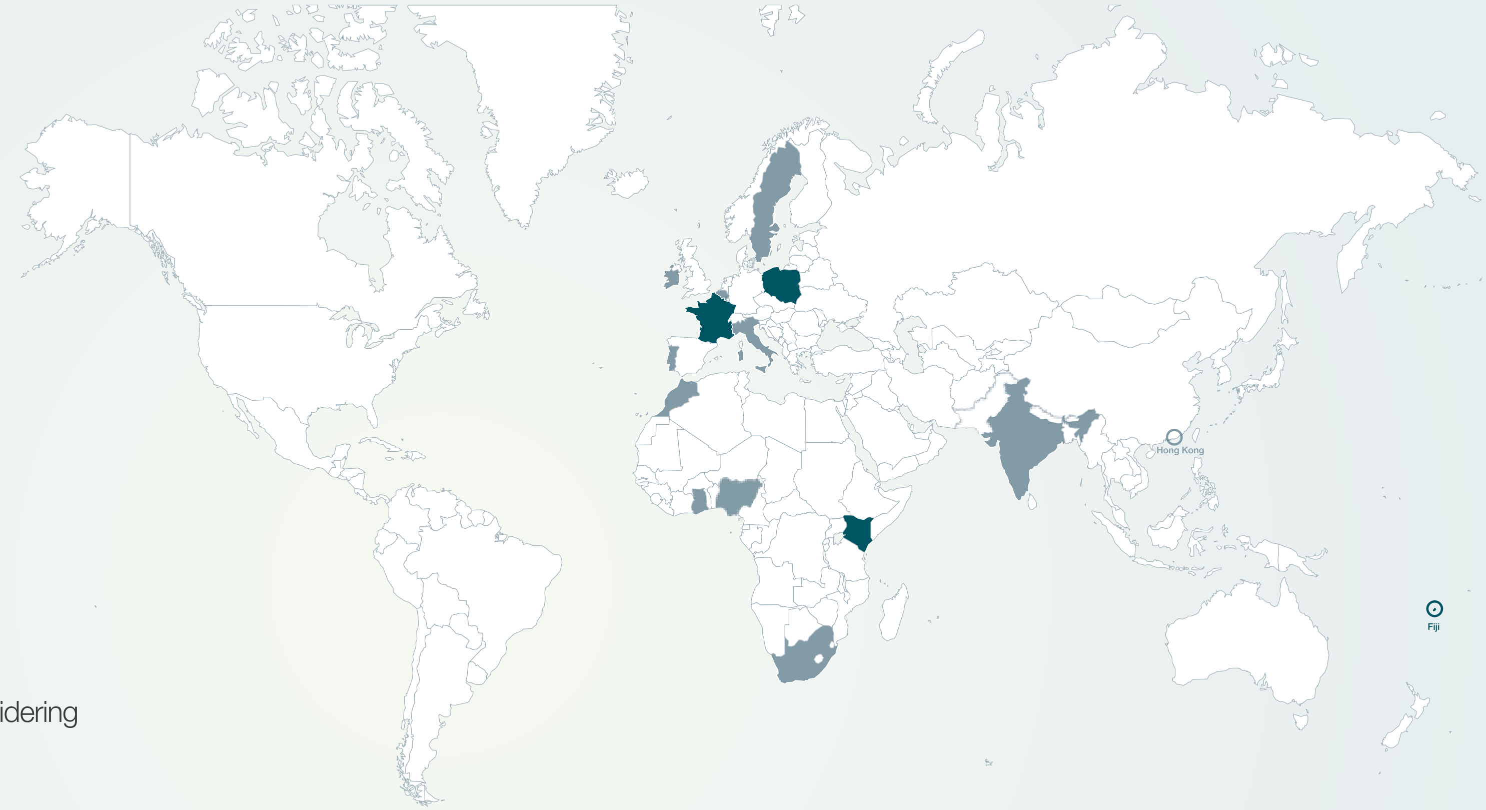
Where next for sovereign green bond issuance?

2018 is likely to see a number of first-time sovereign green bond issuers come to market. Some of the rumoured candidates include:

- Belgium
- Hong Kong
- India
- Morocco
- Kenya
- Ghana
- South Africa
- Italy
- Ireland
- Portugal
- Sweden

Countries that have already issued sovereign green bonds:

- France
- Fiji
- Poland
- Nigeria



Sovereign green bonds issued

Countries rumoured to be considering issuing sovereign green bonds

"The issuance also helped clear up the misconception about sovereign green bonds that they are more complicated to issue than conventional sovereign bonds. Poland's bond took only a few months to devise and future bonds may take less time still now that the framework is in place," according to Hauman.

Nowak says that although the process of issuing a green bond "is convoluted and required much more work" than a non-green bond, "it is totally worth it - the results exceeded the difficulties."

To issue its first green bond, the Polish government passed legislation that allows the State Treasury to manage segregated funds. The proceeds go into a 'green cash account', which was previously not allowed until the law was changed.

Because the funds are segregated, the green bond proceeds are insulated against policy risk that could otherwise be caused by a change in government, where the new administration was less inclined to pursue green objectives.

Blandin says the innovation at the heart of France's transaction "was probably an eye-opener for a number of sovereign issuers".

"One of the hurdles, initially, was the perception that a green bond should finance investments - France included a number of other eligible expenditures, such as tax credits,

"I would not rule out a sovereign coming to market with a sustainability bond, combining green and social investments"

Pierre Blandin, Credit Agricole

R&D, operating expenditures. France committed to invest an equivalent amount to €7 billion for all the projects and expenditures listed at the time of issuance - what we call the notional equivalence model," he says.

Unlike Poland, France did not create an act of parliament to issue its green bond. The French government instead implemented two control mechanisms. An ex-ante, or forecast-based, control will involve the intervention of an independent rating agency and the issuance of an annual report by the French Government on the allocations of the funds invested.

Secondly, an ex-post, or results-based, control will be based on the opinion of a committee of experts in environmental issues on the environmental impact of the financed projects. The seven-member committee held its first meeting in December, and will reconvene in June 2018, with the first evaluation reports on the impact of eligible green expenditure to be published next year.

In this way, the French OAT served as a case study for other potential issuers on how to structure a transaction. Hauman, at White & Case, says there are multiple reasons other sovereigns should want to follow the examples of Poland and France.

Most sovereigns have a need for infrastructure, a large portion of which could be financed through green financing initiatives, she says, and they are in the unique position of being able to provide favourable conditions that attract private capital, through tax incentives or subsidies. Many sovereigns have strong creditworthiness and are able to make very large-scale issuances, she adds.

Blandin adds that many countries could see a green bond as an opportunity to help meet their Nationally Determined Contributions made under the Paris Agreement.

"Sovereigns are only now realising that green bonds provide easy access to a large and diverse funding pool to provide a low-cost injection of capital," which is one reason sovereigns in emerging markets are becoming particularly interested in the asset class, says Hauman.

"Investor appetite for green bonds outstrips supply globally and even more so in the sovereign space due to the scarcity of supply versus high investor desirability.

"Emerging market sovereigns in particular should not miss the opportunity to be a pioneer of this movement while the initiative is still for the taking," urges Hauman.

BNP Paribas' Stephanie Sfakianos is confident that there's going to be a lot more sovereign issuance

India, Hauman suggests, "is a good bet for a green bond issue" due to the country's ambitious target to increase renewable power capacity to 175GW by 2022.

In Africa, the Moroccan Capital Markets Association published a green bond framework and guidelines for green bond issuance, signalling that Morocco may enter the market, while in Kenya, Dutch development bank FMO has signed a memorandum of understanding with the Kenya Bankers Association to develop a green bond framework, which could pave the way for a sovereign issuance.

Municipal issues by the Cities of Cape Town and Johannesburg, respectively, were "perhaps testing the waters for a potential sovereign issue from South Africa," Hauman suggests.

BNP's Sfakianos concurs that "issuance will be biased towards emerging markets in terms of numbers of green bond issuances, but towards developed markets in terms of volumes".

"In a couple of years we will see a big change. We are confident that will be a big boost to the market," adds Sfakianos.

However, not every country will view issuing a green bond as an attractive way to raise capital. "Germany, for example, is opposite to France in the sense that it's libertarian, and the markets are expected to come up with solutions", says one German banker who asked not to be named.

Similarly, the UK has not committed to coming to market with a green bond, with the UK climate minister, Claire Perry, saying the UK may consider issuing one only after standard definitions of sustainable and green finance have been drawn up.

France will continue tapping its first issuance until it reaches the size of a non-green OAT, says Credit Agricole's Blandin: "Within two to three years that bond should reach the €15 billion to €20 billion mark."

However, potential investors might have to wait some time for other sovereigns to issue, he adds: "I'm not expecting the floodgates to open – it's such a lengthy process that requires the alignment of so many different stars, at a sovereign level, that I don't see dozens suddenly rushing to the market in January.

"We should not underestimate that sovereigns also have social objectives - green is probably the most relevant right now because of the Paris Agreement, but objectives could be combined: investments that can tick a green, but also a social box. "I would not rule out a sovereign coming with a sustainability bond, combining green and social investments, to the market," Blandin argues.

"The local authority sector is probably closest to the sovereign sector - almost all large sustainability benchmarks that have been issued by local authorities were not purely green, but sustainability or social. Look at Ile de France, NRW, Communidad de Madrid – they have all issued sustainability bonds.

"If you extrapolate that to what a sovereign can do, it's logical to say that some might focus on sustainability, not only green," he concludes. ■