Governments go green: Facts, figures and upcoming deals

by Dr. Luca Cazzulani, Co-Head of Strategy Research (UniCredit Bank, Milan) & Francesco Maria Di Bella, FI Strategist (UniCredit Bank, Milan)

- Investor interest in green bonds is increasing. Healthy demand is mirrored in supply: in 2019, the issuance volume of EUR-denominated green bonds amounted to around EUR 90bn, bringing the outstanding to around EUR 255bn.
- Euro-area sovereigns have started to issue green bonds in recent years but the market is still in its early stages, with four bonds trading and a total size of around EUR 40bn. The market is growing: Germany, Italy and Spain are due to launch inaugural transactions this year.
- Data from syndicated deals suggest that long-term investors play a more important role in green sovereign bonds compared to non-green deals. This should be a positive factor with respect to stability of demand.
- Green bonds issued by supras and agencies tend to trade more expensive than their non-green peers. The premium is less evident for sovereign green bonds.

1. ESG and green bonds are gaining traction

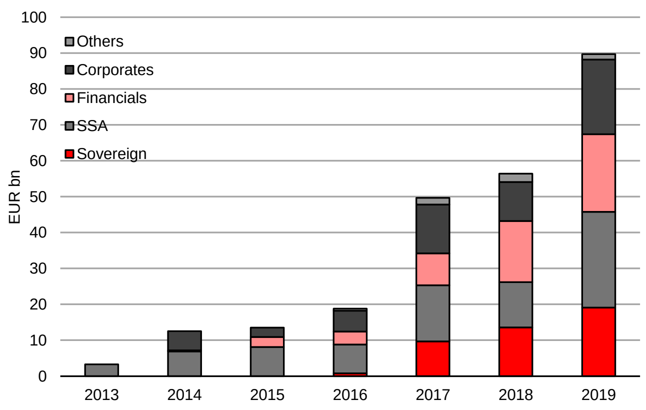
Socially responsible investing has gained in importance over the past few years, reflecting increasing investor awareness about environmental and social issues.

More recently, the ECB has indicated that environmental sustainability will be part of its policy review. There are various ways in which the ECB strategy could turn green. Were the ECB to give more relevance to green bonds in its QE program, this would lend additional support to the asset class.

According to the global sustainable investment review published by Global Sustainable Investment Alliance, ESG investing amounted to USD 30tn globally at the beginning of 2018, of which about half in Europe. In terms of asset breakdown, half of the amount was in public equity and 36% in fixed income.

The supply of fixed income instruments (green bonds) has reacted to growing demand. In 2019, the issuance volume of EUR-denominated green bonds was EUR 90bn, 60% higher than in 2018. Despite the rapid growth, the absolute size of euro denominated green bond market is still small: EUR 253.4bn at the end of 2019, around 1.5% of the overall bond market.

CHART 1: EUR GREEN-BOND ISSUANCE IS ON THE RISE



Source: Climate Bonds Initiative, UniCredit Research

Last year, issuance was split rather evenly among SSA (mainly agencies), financials, corporates and sovereigns. Sovereigns represented around 20% of the overall supply. So far, France, Belgium, the Netherlands and Ireland have issued green bonds. Furthermore, Poland has issued four lines in EUR for a total amount of almost EUR 4bn.

The market is expected to grow in the near future. Germany, Italy and Spain announced their intention to issue a green bond in their respective 2020 funding outlooks. Austria is also a potential candidate in the future. Outside the eurozone, Denmark is considering issuing green bonds.

In the following sections we will discuss in detail our expectations of upcoming supply of sovereign green government bonds and we analyze how existing green bonds trade relative to non-green ones.

2. The family is getting bigger: Germany, Italy and Spain plan to launch green bonds this year

At the end of 2019, the German Finance Agency (Finanzagentur) announced plans to issue green government bonds starting in the second half of this year.

The first step when dealing with green bonds is to identify the amount of resources that qualify for green issuance. In the case of Germany, much environmental spending is done at the local level and would not be financed by issuance from the central government. As indicated in an interview by Dr. Tammo Diemer, member of the executive board of the Finanzagentur, Germany could fund 2-4% of its annual budget (around EUR 360bn) with green bonds. Annual supply could hence be around EUR 7-14bn.

One crucial aspect for the German Finance Agency is that the introduction of the new instrument will not negatively affect the liquidity of existing securities. This could happen, for example, as a result of a reduced issuance amount on standard instruments to make room for the issuance of green bonds. At the same time, Germany aims to provide green investors with a mechanism that supports the liquidity of the new instrument.

To cope with these goals, Germany will issue green bonds via a twin-bond structure, which is different compared to other sovereign issuers. How does it work in practice?

Germany will issue a green bond with the same maturity and coupon (but different ISIN) of an already existing and liquid plain-vanilla bond. Each time the green bond is issued, Finanzagentur will also issue an equivalent amount of the regular bond, which it will retain in full.

The retained amount might be used by Finanzagentur in case of shortage in the regular bond to provide liquidity on a temporary basis. At the same time, Finanzagentur will stand ready to buy the green bond from investors. This will ensure the presence of a buyer in case the new asset class is not liquid enough or demand remains weak.

In a nutshell, the twin-bond mechanism should contribute to preserving the liquidity of traditional bonds and enhancing the pricing of green bonds.

Germany has not yet specified the maturity of its first green bond; we expect the first issue to be in 10Y area, as this is the most liquid across the curve.

One question is whether Eurex would consider green bonds as eligible for delivery. For the time being, this is still being assessed. We note that, if demand for green bonds is healthy enough, they would be unlikely to become cheapest-to-deliver (CTD) even if they are included in the basket of deliverables. Unfortunately, there are not many sovereign bonds outstanding in the eurozone; thus, a comparison to other jurisdictions with respect to deliverability is not possible.

With time, Finanzagentur might issue additional green bonds to build an entire green curve. Extra-long green benchmarks, which are expected to meet abundant demand from pension funds, are unlikely to be issued before 2021.

Further details will probably become available in the next few months.

As stated in its 2020 funding guidelines, Italy plans to start issuing green bonds this year. The amount of green-bond issuance will be proportional to public projects that have a positive environmental impact. In this respect, Italy is carrying out an analysis of public expenditures to identify items and expenses that may be eligible for green projects. Italy is also envisaging an external certification mechanism for such expenses and projects. The timing and maturity of the new instruments will be determined after extensive discussion with the key market players.

The Spanish treasury is also planning the launch of its inaugural green bond in 2020. In this regard, a specific Green Bond Framework will be designed to best support new issuance. In terms of maturity, the Spanish Treasury aims to issue bonds with long maturities and with a sufficient size to provide the appropriate liquidity conditions.

3. Green Sovereign bonds in the eurozone: state of the art

As of February 2020, we count four bonds issued by sovereigns in the eurozone, for a total outstanding amount of EUR 42bn. All these bonds were originally issued via syndication and were tapped via regular auctions. The OAT Jun39 was tapped once (June 2018) via syndication.

The original maturity of sovereign green bonds ranges between 10 years and 20 years. This reflects investor preference as well as the fact that projects that back these bonds tend to be long-term in nature.

TABLE 1: OUTSTANDING GREEN GOVERNMENT BONDS

Country Bond	France OAT Jun39	Belgium OLO Apr33	Ireland IRISH Mar31	Netherlands DSL Jan40
Amt. (EUR bn)	22.7	6.9	5.0	7.4
Cpn	1.75	1.25	1.35	0.50
Issue date	31-Jan-17	5-Mar-18	17-Oct-18	23-May-19
Maturity	25-Jun-39	22-Apr-33	18-Mar-31	15-Jan-40
Original maturity	22	15	12	21
Residual life	19	13	11	20
No. of taps	8	3	1	1

Source: Bloomberg, UniCredit Research

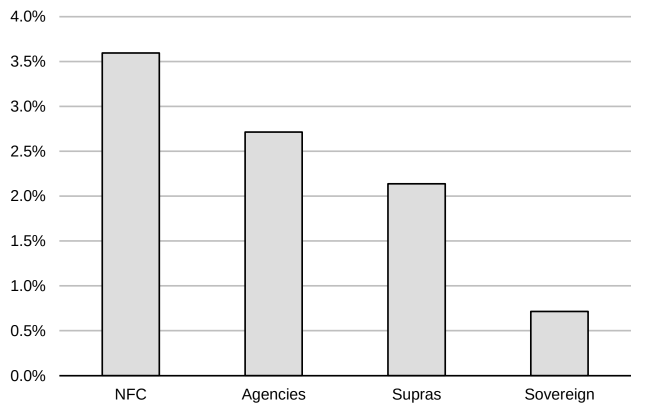
The overall amount of outstanding green government bonds is still modest, especially if compared with other market segments in the eurozone (agencies and supras).

Further indication on the relative development of the various market segments is the ratio between the outstanding of green and non-green bonds. We use iBoxx indices as a reference.

Chart 2 shows that sovereigns have so far been less active compared to other issuers, with green issues representing less than 1% of the outstanding stock.

Importantly, the room for market growth is potentially very large: to reach a ratio of green/non-green in line with that of agencies and supras, eurozone sovereigns would have to issue nearly EUR 100bn in green bonds.

CHART 2: LEADERS AND LAGGARDS IN GREEN BONDS



The chart shows, for each issuer segment, the ratio of amount outstanding of green vs. non-green bonds from iBoxx indices

Source: iBoxx, UniCredit Research

TABLE 2: GREEN VS. NORMAL BONDS' ALLOTMENT

Country	France	Belgium	Ireland	Netherlands
Bond	**OAT Jun39**	**OLO Apr33***	**IRISH May31**	**DSL Jan40**
Issue date	**24 Jan 2017**	**25 Feb 2018**	**9 Oct 2018**	**20 May 2019**
Geographical allocation				
Domestic	20%	-	-6%	17%
Germany	-9%	-	3%	4%
Other EU	10%	6%	16%	-4%
UK	-15%	-5%	-10%	-13%
US & others	-6%	-1%	-3%	-5%
Investor allocation				
InCo	16%	14%	3%	20%
AM	2%	0%	5%	3%
Banks	-3%	-13%	-2%	-14%
Officials	-6%	11%	-1%	-6%
HF	-9%	-12%	-5%	-3%

*The shares allotted to eurozone investors are combined

Source: eurozone DMOs, UniCredit Research

4. Buyers of green EGBs: what we can learn from syndicated deals

The green EGBs currently traded were initially issued via a syndicated deal. Statistics relating to the allotment of these deals are a good starting point to analyze how and whether demand for green EGBs differs from that for conventional government bonds.

The starting point is to identify two deals that have as many characteristics in common as possible except for the green label. In our exercise, we compare the green bond allotment with the average of two syndicated deals from the same issuer.

An important caveat to bear in mind is that, as is typical for syndicated deals, such statistics refer to the allotment and, while they should reflect demand, they do not mirror it perfectly.

The table below depicts the difference in the allotment of green bonds relative to standard EGBs.

The first point to highlight is that UK and US investors are represented less in green bonds compared to plain-vanilla benchmarks. This probably reflects a lower presence of hedge funds in these deals but more broadly the fact that green investing is more popular in Europe than in the US. Indeed, European investors tend to be relatively more represented in green bonds than in plain-vanilla ones.

Compared to non-green bonds, insurance companies have been more active investors, by a significant share, given that their relatively long investment horizon matches the relatively long maturity of green bonds. Banks, in contrast, have been less active investors. To sum up, looking at these statistics, we deduce that the investor base of green bonds tends to be more stable as domestic and long-term investors play a more significant role than for normal syndicated deals.

5. Green EGBs: how they trade relative to non-green

There are several elements that affect green-bond pricing in such a way that they may trade at different levels compared to regular bonds with similar tenor. The magnitude of this "green premium/discount" is influenced by the following:

- **Demand for green paper:** as the number of investment funds with a specific mandate to invest in sustainable assets is increasing, we are facing a situation of potential excess demand. This is likely to make green bonds richer than normal bonds.
- **Liquidity level**: the relatively high presence of real-money investors with a buy-and-hold approach may negatively affect liquidity. In fact, the high presence of buy-and-hold investors makes it more difficult to buy the securities in the secondary market, reduces trading and makes it more difficult to arbitrage the curve. This could lead to a cheapening bias for green bonds.

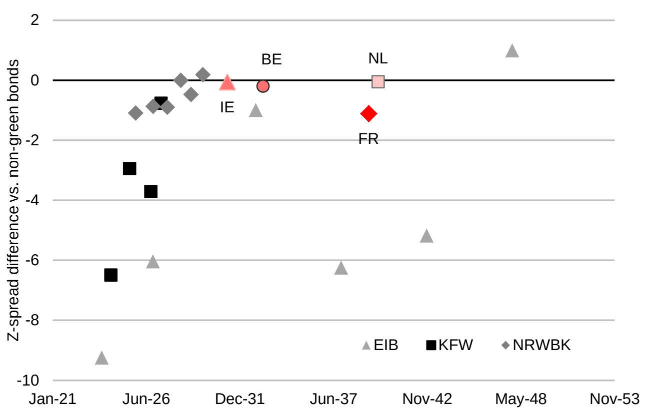
There is, however, a flip side: if green bonds are likely to be easy to sell, they would offer low liquidity for buyers but high liquidity for sellers, a feature that is desirable for investors.

- **Price stability:** a more stable investor base should contribute to keeping volatility subdued.

Chart 3 shows the premium in Z-spread versus the respective curve for a number of green bonds.

Empirically, we observe that most green bonds trade more expensive compared to their non-green peers. This is especially the case for supranationals and agencies, while for sovereign bonds the premium tends to be smaller. The chart also suggests that there is no visible relation between the premium offered by green bonds and their maturity.

CHART 3: GREEN BONDS TEND TO TRADE RICH RELATIVE TO THEIR NON-GREEN PEERS



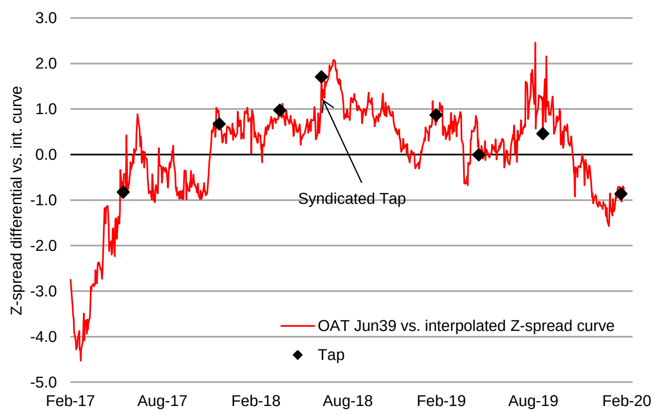
Source: Bloomberg, UniCredit Research

Chart 3 shows what the green vs. non-green pricing looks like currently. It would also be interesting to analyze the historical behavior of the premium to get a better understanding of how it has evolved over time.

Although the green EGB market is still young, we already have some examples that can offer an interesting guideline with respect to how the pricing of green Bunds might differ from normal Bunds.

Chart 4 shows the premium relative to the OAT curve for the French green bond (Z-spread of OAT 1.75% Jun39 vs. interpolation of OAT Oct38 and OAT Apr41).

CHART 4: GREEN OAT JUN39 RELATIVE TO THE CURVE



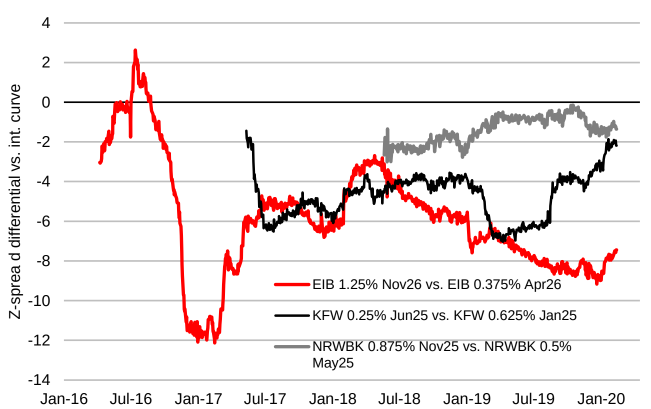
Source: Bloomberg, UniCredit Research

As shown in the chart above, in its early stages, the green bond was trading with a very high premium relative to the French curve. After the first few months, the premium has settled at +/-1bp area versus the OAT curve. More recently, the green OAT has again become slightly expensive relative to the curve.

SSAs have been more active in issuing green bonds and, although SSA markets are somewhat different from EGB markets, especially in terms of liquidity and depth, a comparison of pricing of green vs. non-green SSA bonds may help shed further light on pricing.

Chart 5 shows the Z-spread difference between two green/non-green pairs (EIB, KfW and NRW bank). Although in both cases the green bonds are longer, they have been trading consistently richer in terms of Z-spread. This is an indication that, in the case of SSA bonds, investors are willing to receive a lower yield to hold a green investment and that demand for ESG assets has more than offset potential liquidity issues.

CHART 5: SPREAD GREEN VERUS NON-GREEN BONDS



Source: Bloomberg, UniCredit Research

To sum up: within SSAs, green bonds tend to trade significantly richer than non-green bonds. Sovereign green bonds also trade expensive relative to non-green bonds, although the premium is relatively small. This may serve as an indication that up-coming new green government bonds.

6. A look at investor size

In this section, we look at how demand for green financial products has evolved in recent years. Increasing interest in socially responsible investment (SRI) is reflected in a growing amount of products offered to investors and an increasing level of assets under management.

According to a report by Global Sustainable Investment Alliance, sustainable investments amounted to USD 30tn at the beginning of 2018, thereof almost 50% in Europe and about one third in the US. The report indicates that sustainable investment in Europe represents about 50% of total managed assets, a larger proportion compared to the US.

Public equity accounts for the lion's share and fixed income ranks second with a share of global allocation of 36%.

Performance of green bonds can be tracked with the Bloomberg-Barclays MSCI Global Green Bond Index. There is also a convenient sub-index with a specific focus on Europe.

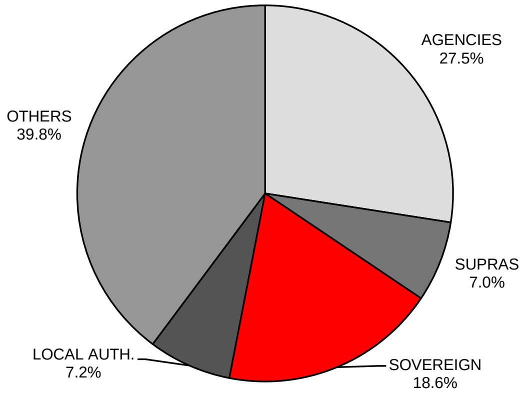
TABLE 3: BLOOMBERG BARCLAYS MSCI GREEN BOND INDICES

Index	BBG ticker	Dur.	Market cap	# bonds	Y.t.w.
Global Green Bond Index	GBGLTRUU	7.7	359	457	0.74
Global Green Bond Index EUR	GBEUTREU	8.8	212	246	0.15
Global Green Bond Index EUR capped	I33869EU	8.4	172	197	0.13

Source: Bloomberg, UniCredit Research

The index breakdown by issuer type is as follows:

CHART 6: BLOOMBERG-BARCLAYS MSCI GLOBAL GREEN BOND INDEX



Others include green bonds issued by Financial institutions & Non-financial institutions

Source: Bloomberg, UniCredit Research

Authors

Dr. Luca Cazzulani
Co-Head of Strategy Research, FI Strategist (UniCredit Bank, Milan)
+39 02 8862-0640, luca.cazzulani@unicredit.eu

Francesco Maria Di Bella
FI Strategist (UniCredit Bank, Milan)
+39 02 8862-0850, francescomaria.dibella@unicredit.eu

Editor

Dr. Luca Cazzulani
Co-Head of Strategy Research, FI Strategist (UniCredit Bank, Milan)
+39 02 8862-0640, luca.cazzulani@unicredit.eu

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This report was completed and first published on 13 February 2020 at 14:58.

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k) UniCredit Bank Romania, Bucharest 1F Expozitiei Boulevard, 012101 Bucharest 1, Romania. Regulatory authority: National Bank of Romania, 25 Lipscani Street, 030031, 3rd District, Bucharest, Romania

l) UniCredit Bank AG New York Branch (UniCredit Bank, New York), 150 East 42nd Street, New York, NY 10017. Regulatory authority: “BaFin“ – Bundesanstalt für Finanzdienstleistungsaufsicht, Marie-Curie-Str. 24-28, 60439 Frankfurt, Germany and New York State Department of Financial Services, One State Street, New York, NY 10004-1511

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UniCredit Research*

Strategy Research

Erik F. Nielsen
Group Chief Economist
Global Head of CIB Research
+44 207 826-1765
erik.nielsen@unicredit.eu

Dr. Ingo Heimig
Head of Research Operations
& Regulatory Controls
+49 89 378-13952
ingo.heimig@unicredit.de

Heads of Strategy Research

Dr. Luca Cazzulani
Co-Head of Strategy Research
FI Strategist
+39 02 8862-0640
luca.cazzulani@unicredit.eu

Elia Lattuga
Co-Head of Strategy Research
Cross Asset Strategist
+44 207 826-1642
elia.lattuga@unicredit.eu

FI Strategy Research

Michael Rottmann
Head
+49 89 378-15121
michael.rottmann1@unicredit.de

Dr. Luca Cazzulani
Co-Head of Strategy Research
FI Strategist
+39 02 8862-0640
luca.cazzulani@unicredit.eu

Francesco Maria Di Bella
FI Strategist
+39 02 8862-0850
francescomaria.dibella@unicredit.eu

Chiara Cremonesi
FI Strategist
+44 207 826-1771
chiara.cremonesi@unicredit.eu

Kornelius Purps
FI Strategist
+49 89 378-12753
kornelius.purps@unicredit.de

FX Strategy Research

Roberto Mialich
FX Strategist
+39 02 8862-0658
roberto.mialich@unicredit.eu

Credit Strategy Research

Holger Kapitza
Credit & High Yield Strategy
+49 89 378-28745
holger.kapitza@unicredit.de

Dr. Stefan Kolek
EEMEA Corporate Credits & Strategy
+49 89 378-12495
stefan.kolek@unicredit.de

Equity Strategy Research

Christian Stocker, CEFA
Lead Equity Sector Strategist
+49 89 378-18603
christian.stocker@unicredit.de

Cross Asset Strategy Research

Elia Lattuga
Co-Head of Strategy Research
Cross Asset Strategist
+44 207 826-1642
elia.lattuga@unicredit.eu

UniCredit Research, Corporate & Investment Banking, UniCredit Bank AG, Am Eisbach 4, D-80538 Munich, globalresearch@unicredit.de
Bloomberg: UCCR, Internet: www.unicreditresearch.eu

SR 19/6

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