

Green Bonds – Sustainable Potential

A Market Review

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Note: Past performance is not necessarily indicative of future results.

The Green Bond Market Is Growing Up

Climate change debate leads to boom in the primary market

Climate change has increasingly become a focus of public and political attention in recent years. This is reflected in bond markets. A global boom in green bond issuance – roughly defined, bonds for the funding of climate-friendly projects – is underway. In 2019 global issuance volume grew by more than 50% compared to 2018 to EUR 213bn (i.e., in EUR terms). Climate change is an all-encompassing concern: supra-national institutions, countries, agencies, financial institutions and corporations are all issuing green bonds. Institutional investors are driving demand. It is a reflection of the growing importance attached to the issue by society, politics and regulators, including central banks.

“Green” is set to converge with the conventional bond universe

In 2007 an issuer from the SSA segment, the EIB, placed the world's very first green bond. With a share of 43%, government-owned and government-related entities represent the largest segment in the market for EUR-denominated green bonds to this day. Green bond issues by non-financial corporations and financial institutions followed from 2012 and 2015, respectively. Their importance continues to grow. Thus EUR-denominated green bond issuance volume by non-financial corporations more than doubled in 2019 vs. 2018. A high yield segment has been established as well. For financial issuers (senior unsecured and covered bonds), 2019 has been the strongest year for green bonds to date. Loans for the construction or renovation of energy-efficient buildings are likely to play a leading role in the development of green bond issuance by banks in the future as well. In the sovereign bond segment Germany plans to establish a continuous green yield curve as a benchmark.

“Green bond 2.0”: regulation leads to uniform standards

In order to counter market fragmentation, the EU Commission is in the process of developing a classification system for ecologically sustainable economic activities. The first parts of this taxonomy should become applicable at the end of 2021. The planned EU green bond standard will include guidelines for green bond issuance. EU-wide harmonized definitions should give non-financial companies outside of the dominant utilities sector an incentive to increasingly issue green bonds. This would provide investors with opportunities for broader diversification. A harmonized EU green bond standard will make it easier for regulators to create incentives for green bond issuance and investment. A tightening of green bond spreads relative to those on conventional bonds would become more likely.

This publication provides a broad overview of the green bond market. After a definition and classification of terms we examine global market trends. After this we focus on the market for EUR-denominated green bonds. We analyze its development segmented by SSA, financial and non-financial corporate issuers with particular attention paid to Austria and the CEE region. In conclusion we discuss the consequences of the regulatory steps taken by the EU in December 2019.

What Is A Green Bond?

Earmarking of issuance proceeds as a core element

Green bonds fund projects with ecological benefits

Green bonds are bonds where the issuance proceeds are used exclusively for funding existing or new projects with ecological benefits ("green projects"). There is a relatively broad spectrum of green project types, with the selection of projects deemed eligible for green bonds up to the discretion of the issuer. Apart from the mitigation of climate change or preparation for it, conservation of resources, preservation of biodiversity as well as combating environmental pollution can be a focus of green projects.

Ecological aspects increasingly important in investment decisions

Green bonds give investors the opportunity to integrate specific ecological aspects into their investment decisions. Thus investors can for example provide funding for renewable energy projects (wind parks, solar plants, etc.) by purchasing the associated green bonds. Green bonds are also suitable for investors who want to avoid investing in environmentally harmful projects based on their investment principles. The increasing prevalence of voluntary or legally required disclosures regarding green investments held by institutional investors (e.g. article 173 of the French energy transition law) should boost the importance of green bonds as investment instruments further.

Moreover, due to their visibility, green bonds help raising awareness of ecological issues among market participants and mobilizing capital for the funding of green projects.

The green bond market is currently self-regulated

A foundation of market standards and voluntary commitments

Issuance of green bonds is not subject to statutory regulations, but is based on market standards and the voluntary commitments of issuers. The "Green Bond Principles" of the International Capital Markets Association (ICMA) are among the most widely used market standards. The Green Bond Principles represent recommendations for issuers with respect to core elements of green bond transactions. The four core areas covered by the Green Bond Principles are:

1. Use of proceeds
2. Process of project evaluation and selection
3. Management of proceeds
4. Reporting

Green bond principles contain no final list of green project categories

The Green Bond Principles include a number of project categories which are deemed to qualify for funding via green bonds. However, this does not constitute a conclusive list, but rather a list of examples. ICMA points in this context to various efforts to introduce a taxonomy, as well as to independent institutions which help with the selection and certification of suitable green projects. In order to enhance transparency, comparability and credibility in the green bond market segment, the European Commission has proposed the creation of a EU green bond standard. One of the core elements of the green bond standard is the EU taxonomy for green bonds (see [page 18](#)).

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The Green Bond Principles are continually developed further and adjusted in order to respond to market developments. Apart from the ICMA Green Bond Principles there are further examples of green bond standards and labels such as the “climate bond standards” of the Climate Bonds Initiative or the “minimum standards for green covered bonds” of the Association of German Mortgage Banks.

Transparency is of great importance

No mixing of issuance proceeds with other business activities

As strict earmarking of issuance proceeds is a core element of green bonds, it is particularly important that the funds are traceable within the balance sheets of issuers. In order to prevent the mixing of issuance proceeds from green bonds with other activities of an issuer, it is customary to use specially marked accounts on the balance sheet of the issuer. Issuance proceeds that are not immediately disbursed to green projects may be invested elsewhere on a transitional basis. However, this is to be disclosed in the framework of regular reporting and must not lead to mixing issuance proceeds with the cash flows from other business activities.

Regular disclosure of use of proceeds and ecological impact

In order to achieve the greatest possible degree of acceptance from investors for the selection of green projects, transparency on the part of issuers is of the utmost importance. This applies particularly to the selection criteria for projects as well as ecological impact to be expected or actually achieved (e.g. lowering of CO₂ emissions) resulting from the projects. The former can be implemented prior to issuing a green bond in the form of green bond program documentation. The ecological impact are usually disclosed on a regular basis via impact reporting, which should inter alia include a detailed breakdown of the use of funds.

Independent review and rating to raise acceptance

Independent reviews lower the risk of “greenwashing”

Reviews of issuance programs or of individual of green bond issues by independent external parties have become the market standard. Such reviews boost an issuer's certainty that the program or placement is aligned with market standards. At the same time such monitoring underpins confidence in the transaction on the part of investors and lowers the risk of “greenwashing”. The term greenwashing is used to describe companies or transactions intended to create a green image without actually implementing measures appropriate to the task.

Reviews are focused on the framework for the issuance of green bonds (e.g. selection criteria for projects, or traceability of issuance proceeds), as well as the ecological benefits resulting from the green projects concerned. In the course of the external review an independent party confirms that a green bond program or a green bond placement complies with its self-defined criteria or with an existing market standard (e.g. the ICMA Green Bond Principles).

The spectrum of providers of such reviews ranges from auditing companies to traditional credit rating agencies to specialized green bond rating agencies. Sustainalytics and Cicero are among the internationally most prominent providers of external reviews and/or certifications. ISS-oekom is another provider that has established itself primarily in German-speaking countries.

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Green ratings have to be strictly differentiated from traditional credit ratings

In the course of an external review green ratings may be awarded as well. Ratings can be assigned to issuers, as well as individual bond issues or issuance programs. These ratings have to be strictly differentiated from traditional credit ratings and provide no information about default risks. At the same time ecological factors may well affect the risk profile and the credit rating of an issuer or a transaction and are taken into account by credit rating agencies.

Market Overview

The term “green bond” surfaced for the first time in the years 2007 and 2008 when the European Investment Bank and the World Bank placed the first bonds specifically for financing projects with ecological benefits. An important catalyst for the further development of the market consisted of the voluntary process guidelines for green bond issuance (Green Bond Principles, GBP). These were introduced in early 2014 by the International Capital Market Association (ICMA). At the end of 2019 the EU took a further important step for the harmonization of the green bond market (see page 18).

EUR-denominated and investment grade bonds dominate

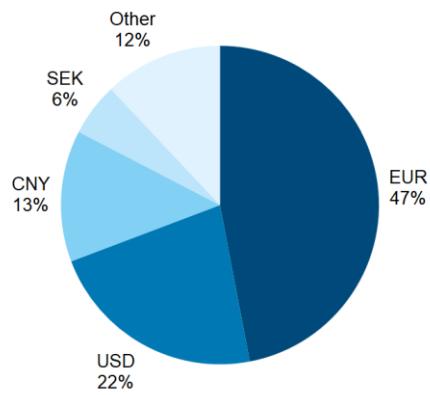
EUR 530bn in outstanding bonds, denominated in four major currencies

Global green bond volume outstanding (in EUR terms) amounted to approximately EUR 530bn at the end of January 2019. More than 40% thereof is denominated in EUR. The euro is increasingly gaining importance in the green bond market. Other important currencies are the US dollar, the Chinese yuan and the Swedish krona.

Looking at the bonds in terms of rating categories, the majority of green bonds have been awarded investment grade (IG) ratings. Green bonds with speculative ratings (high yield, HY) currently represent only a small proportion of the overall market. The EU taxonomy currently being drawn up will provide clear definitions of green bond-eligible investments for numerous industries. Greater clarity regarding the permissible use of funds should incentivize issuers outside of the currently dominant utility sector to take advantage of the green bond market. Participation by high yield issuers should grow.

EUR gains in importance as an issuance currency

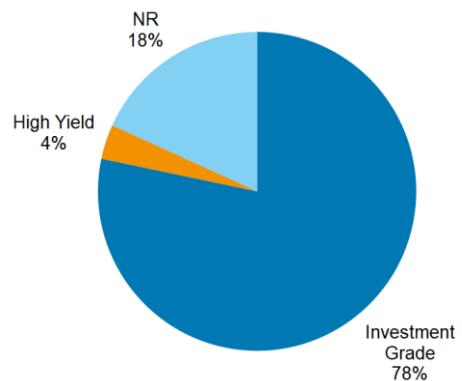
Global share of outstanding issuance volume by currencies (in EUR terms)



Source: Market data providers, Erste Group Research

Investment grade bonds dominate

Global share of outstanding issuance volume by rating categories (in EUR terms)



Primary market for corporate green bonds exhibited strongest relative growth in 2019

Strong primary market

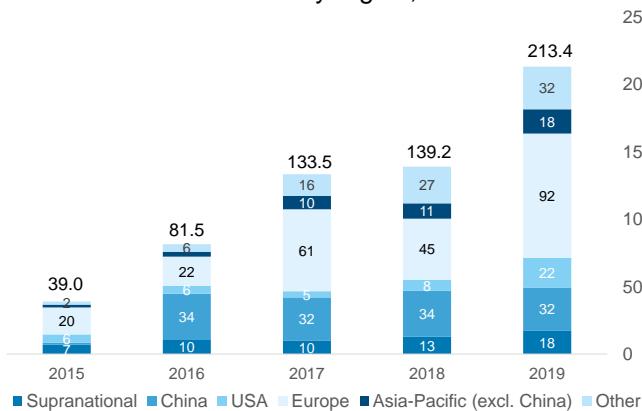
Global primary markets¹ for green bonds have displayed strong growth in the past five years. Thus green bond issuance volumes have risen by more than 400% since 2015. Momentum remained strong in 2019 as well and globally, primary markets reached issuance volume totaling EUR 213.4bn. Compared to 2018 this amounted to a growth rate of more than 50%.

European companies lead

Heterogeneous trends have emerged on the regional level. The sharp increase in issuance by European companies stands out in particular: in 2019 issuance volumes grew by more than 100% y/y to EUR 92.2bn. As a result Europe was able to maintain its leadership position for the third consecutive year. Strong growth was also seen from US-based issuers, but their market share of 10.5% lags significantly behind that of Europe (43.2%). China is another important region: since 2016 issuance volumes have been steady in a range of EUR 32 - 34bn, but China's share of the overall market has declined to around 15% in 2019, primarily as a result of strong issuance activity in Europe.

Green bonds have recently clearly gained in importance in Europe

Global issuance volumes by region, in EUR bn



Source: Market data providers, Erste Group Research

Market share by issuer shifted in favor of non-financial corporations in 2019

Governments and supra-national and/or government-related institutions (SSAs) remained the most active group of issuers in the primary market for green bonds with a 47% share of global issuance volume. This was followed by financial companies (incl. covered bonds) with 27% and non-financial corporations with around 26%. The non-financial corporations segment grew especially strongly, with its issuance volume rising by more than 130% y/y in 2019 to EUR 55bn. This shows that this group of issuers is gaining significantly in importance. Issuance volume in the SSA segment also rose markedly (+79% to EUR 84bn). Financial companies (incl. covered bonds) displayed less pronounced growth, with their issuance activity increasing by around 14% to EUR 58bn in 2019.

¹ Issuance volumes in all currencies are converted to EUR

Green bond status currently barely impacts prices

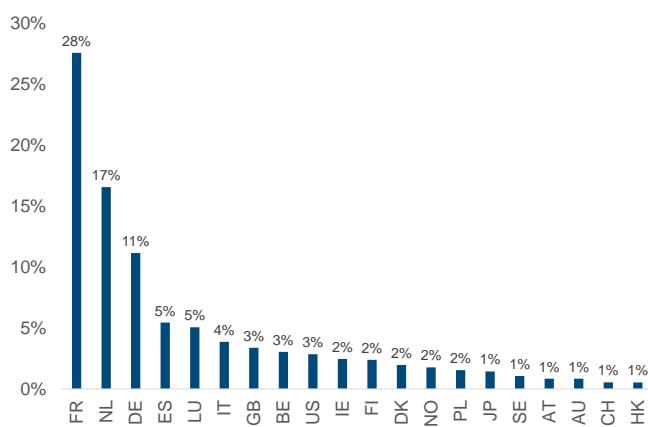
Regulations and technical factors may lead to tighter spreads on green bonds in the future (“greenium”)

Currently there are barely any price differences detectable between the green and conventional bonds of an issuer. We believe this is attributable to the fact that irrespective of “green” use of proceeds, the issuer default risk remains the same. In addition to this, the low level of interest rates and the securities purchases of the ECB have generally resulted in less price differentiation in bond markets, which hampers the formation of a “greenium”. However, in the future regulatory developments affecting green bonds (e.g. exemption from capital yield tax) may justify tighter spreads. The ECB is currently conducting a strategic review that will continue until year-end. In this context the overweighting of green bonds in the CSPP portfolio or other incentives such as preferred treatment of green bonds as collateral in ECB repo operations are under discussion. The Austrian government is advocating the introduction of lower capital requirements for “green loans” at banks (and implicitly, also green bonds). This measure is quite controversial in Europe and seems unlikely to be adopted.

Two groups of issuers dominate the market for EUR-denominated green bonds

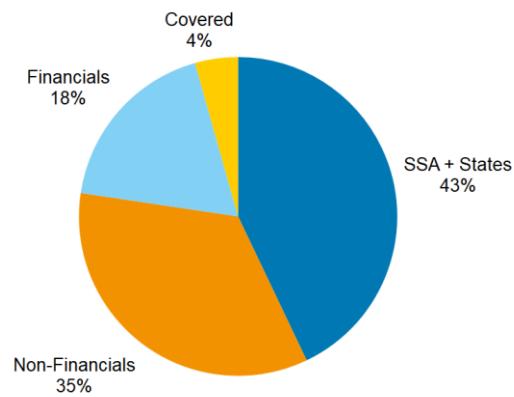
Our further analysis is based on the market for EUR-denominated green bonds. At the end of January 2020 outstanding volumes totaled approximately EUR 245bn. On the country level, France (28%), the Netherlands (17%) and Germany (11%) have the largest shares of outstanding market volume. Overall, the top 10 countries represent around 80% of outstanding volumes. With a market share of around 1%, Austria is a comparatively small market.

Top 3: France, Netherlands and Germany
Share of outstanding EUR-denominated green bond volume by country



SSAs and governments currently the most active issuers

Share of outstanding EUR-denominated green bond volume by issuer group



Source: Market data providers, Erste Group Research

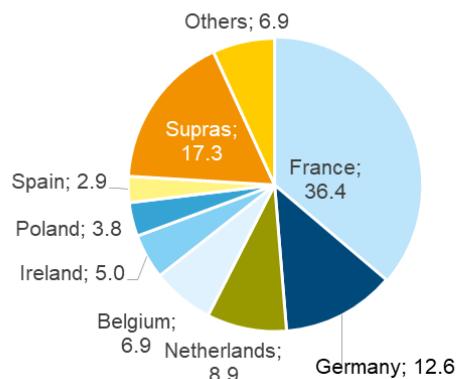
SSAs and governments are the largest issuers in terms of outstanding market volume with a share of 43%, followed by non-financial corporations with 35%, financial companies with 18% and covered bonds with 4%. The following sections provide a detailed analysis of individual issuer groups.

Sovereigns, Sub-Sovereigns & Agencies

First green bond issued by the EIB in 2007

The green bond market started out in 2007 with the world's very first placement of a green bond ("[climate awareness bond](#)") by the European Investment Bank (EIB, Aaa/AAA/AAA). Today there are around EUR 106bn of EUR-denominated green bonds outstanding in the sovereign, sub-sovereign and agencies segments. Thus government-owned and government-related issuers remain the largest segment of the EUR-denominated green bond market. However, their market share is declining due to the growing popularity of corporate green bonds. In 2019, around EUR 33bn of green bonds were issued, increasing the total volume of green bond placements since 2007 to EUR 347bn.

Outstanding volume of SSA EUR green bonds By countries and/or supra-nationals, in EUR bn



Source: Market data providers, Erste Group Research

Record volume of green bond issuance by SSAs Issuance volume by SSA segments, in EUR bn



France is the largest issuer of EUR-denominated green bonds

Sovereign green bonds: Poland and France in the lead

Sovereign issuers have only begun to enter the primary market to a sizable extent in 2017. Among the pioneers were Poland (A2/A-/A-) in December 2016, followed shortly thereafter by France (Aa2/AA/AA) in 2017, as well as Fiji (Ba3/BB-) and Nigeria (B2/B/B+) as the first emerging market issuers also in 2017, the latter however with bonds denominated in local currency. The largest single issuer is the Republic of France itself, with placements totaling more than EUR 20bn. The world's second sovereign green bond maturing in 2040 was issued in 2017. The "[green OAT](#)" framework is designed to support the leadership role of France with respect to the development of green financing in six designated sectors via investment, subsidies and tax measures, *inter alia* in order to achieve domestic climate policy objectives. Thus almost one third of outstanding volume in the EUR segment on the country level is attributable to France, which is in the leading position with volume totaling more than EUR 36bn. Sovereigns providing sizable green bond liquidity also include Belgium with a EUR 6.9bn benchmark bond issued in 2018 that matures in 2023 and the Netherlands (Aaa/AAA/AAA) with a EUR 7.4bn bond issued in 2019 that matures in 2040.

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Agency green bonds mainly issued by development banks and railway companies

Development banks are particularly active

Development banks remain among the most important individual issuers of green bonds in the agency segment. Sizable volumes and a broad range of maturities are currently provided by the EIB with outstanding volumes of EUR 7.4bn and Germany's Kreditanstalt fuer Wiederaufbau (KfW, Aaa/AAA/AAA) with EUR 9.5bn. The EIB offers a broad range of currencies with outstanding placements denominated in altogether 13 different currencies. On a global and cross-currency basis the EIB remained one of the largest issuers in 2019, with EUR 27.7bn in total, of which EUR 3.4bn were EUR-denominated. However, French railway infrastructure companies SNCF Réseau (Aa2/AA/AA) and Société du Grand Paris (Aa2/AA) have also firmly established themselves in the green bond segment with outstanding volumes of around EUR 5bn each.

Green bond market in the CEE region: apart from Poland still in the start-up phase

Green bond issuers in the CEE region: Poland a green bond pioneer

Among sovereigns in Central and Eastern Europe (CEE), apart from Poland, only Lithuania (A3/A/A) has to date been active in the green bond market with a small placement in 2018. Poland issued the world's first green government bond at the end of 2016. The proceeds of more than EUR 750mn were used for the reduction of greenhouse gas emissions, the development of renewable energy projects as well as investments in the transportation sector (primarily railway). To date Poland has raised altogether EUR 3.75bn by placing four green bonds in benchmark format with maturity dates ranging from 2021 to 2049. More than 40% of the bond issues were placed with green/SRI investors.

CEE agencies: SID Bank and Russian Railways

In the agencies segment, Slovenian development institution SID Bank (AA-) also placed its first green bond in 2018. The proceeds were invested in numerous projects, inter alia in renewable energy, buildings and transportation. In 2019 Russian Railways (via RZD Capital plc, Baa2/BBB) became the first Russian issuer placing a EUR 500mn green bond maturing in 2027. Oesterreichische Kontrollbank (OeKB, Aa1/AA+) has implemented a [sustainability bond program](#) in 2019 and issued a 7-year, EUR 500mn benchmark bond. The majority of the proceeds (around 70%) will be invested in social projects, and around 30% in environmental projects.

Government green bonds in Central and Eastern Europe

Sovereign	ISIN	Date of issue		Volume (EUR bn)	Coupon (%)
		Maturity	Coupon (%)		
Poland (A2/A-/A-)	XS1536786939	20.12.2016	20.12.2021	750	0.50
	XS1766612672	07.02.2018	07.08.2026	1,000	1.13
	XS1960361720	07.03.2019	08.03.2049	500	2.00
	XS1958534528	07.03.2019	07.03.2029	1,500	1.00
Lithuania (A3/A/A)	LT0000610305	03.05.2018	03.05.2028	20	0.01
SID Bank (AA-)	XS1921553803	12.12.2018	12.12.2023	75	0.01
Russian Rail (RZD, Baa2/BBB)	XS1843437036	23.05.2019	23.05.2027	500	2.20

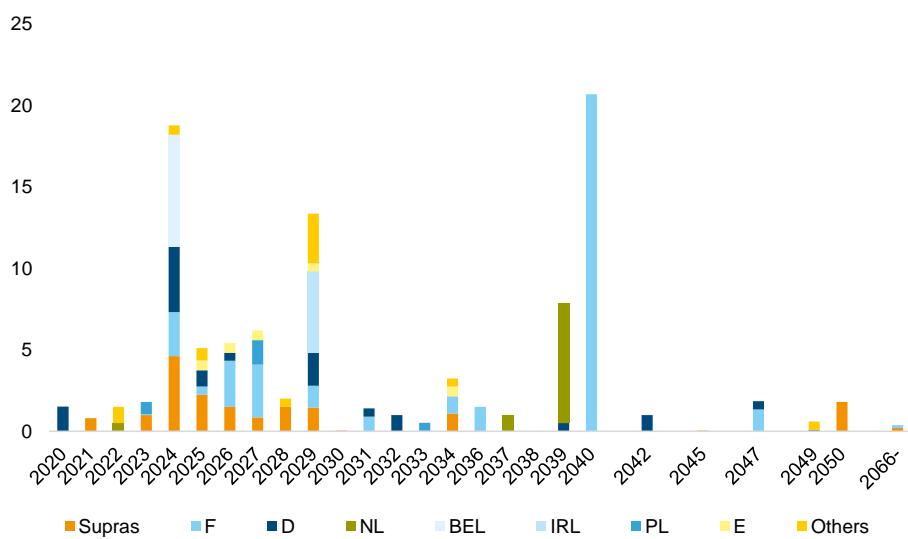
Source: Market data providers, Erste Group Research

Germany plans to create green benchmark yield curve**Outlook: Germany and Sweden plan to issue green bonds**

Among sovereigns, both Germany (Aa1/AAA/AAA) and Sweden (Aaa/AAA/AAA) have already announced their first green bond placements for 2020. In the longer term, Germany plans to offer green bonds across the entire maturity spectrum. Thus, the federal government intends to establish a liquid, green benchmark yield curve for the euro area. To this end a first issue is to be placed in the second half of 2020. While Austria (AA1/AA+/AA+) has not yet announced a time table, the government has committed itself to issuing green bonds through the federal financing agency (OeBFA).

Maturities by countries

In EUR bn



Source: Market data providers, Erste Group Research

Financials & Covered Bonds

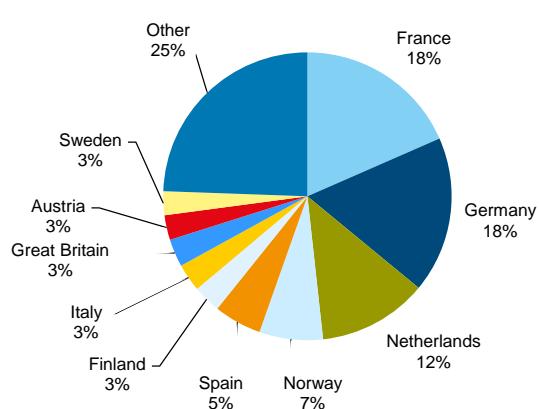
Berlin Hyp issues first green mortgage covered bond**German, French and Dutch credit institutions dominate the primary market for EUR-denominated green bonds**

Banks first entered the EUR-denominated green bond segment in 2015 when they placed a total volume of EUR 2.8bn. German, French and Dutch banks played a market-leading role from the beginning, which they have maintained to this day. The first and to date largest issuer was and remains German bank Berlin Hyp, which was also the first bank to issue a green mortgage covered bond.

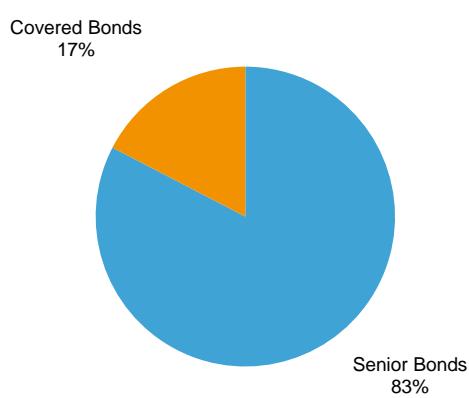
At the end of 2019 the volume of outstanding EUR-denominated green bonds totaled EUR 57bn. Even though as mentioned above, the trailblazer was active in the mortgage covered bond segment, the majority of green bonds issued by the banking sector consist of senior unsecured bank bonds with a share of 83%. Hence the covered bond share stands just at 17%. The five largest issuers in the primary market for EUR-denominated green bonds are Germany's Berlin Hyp (EUR 4bn outstanding, both covered and senior unsecured bonds), German Landesbank Baden-Württemberg (EUR 2.5bn, senior unsecured bonds and one mortgage covered bond), French BNP Paribas (EUR 2.5bn of senior unsecured bonds), Dutch ABN AMRO Bank (EUR 2.5bn of senior unsecured bonds) and French Société Générale (EUR 2bn of covered bonds).

French and German banks are the largest green bond issuers

Outstanding EUR volume YE 2019 by country

**Senior bank bonds dominate the market**

Outstanding EUR volume YE 2019 by collateral type



Source: Market data providers, Erste Group Research

Green covered bonds for financing of energy-efficient buildings**Covered bonds combine safety with green purpose**

Due to their segregated cover pools for the protection of creditors, covered bonds play a special role in the green bond segment as well. Green covered bonds are primarily collateralized by real estate loans for the construction or renovation of energy-efficient buildings. Apart from the requirement of a green purpose, the loans have to comply with the requirements of the respective covered bond regulations (e.g. LTV caps). As a rule no separate green cover pools are created for the issuance of green covered bonds. Instead issuers commit themselves to holding green cover assets value at an amount that corresponds at least to the volume of their outstanding

2019 strongest issuance year

green covered bonds. Compliance with other cover requirements (e.g. minimum overcollateralization rate) is not affected by this.

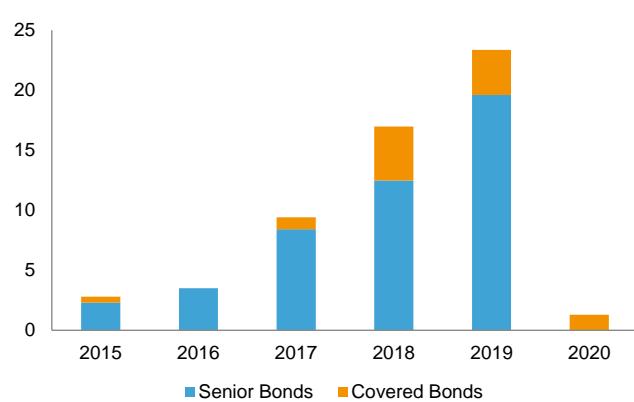
Since 2017 the green bond market in the banking sector has gathered significant pace. 2019 was to date the strongest year, with new issues totaling EUR 23.4bn, consisting of EUR 19.6bn in unsecured bank bonds and EUR 3.8bn in covered bonds. No green bonds have to date matured in the banking segment. The first bonds are coming up for refinancing in 2020, the peak in prospective redemptions is currently in 2024, when bonds in the amount of EUR 11.5bn are set to mature.

Growth potential primarily provided by new issuers

We expect that with a growing number of issuers in the green bond segment, issuance volumes will continue to grow as well in coming years. Loans for the construction or renovation of energy-efficient buildings are likely to keep playing a major role in the development of the green bond market in the banking sector. However, funding of renewable energy projects could also contribute to the market's growth potential.

Uptrend in new issuance volumes

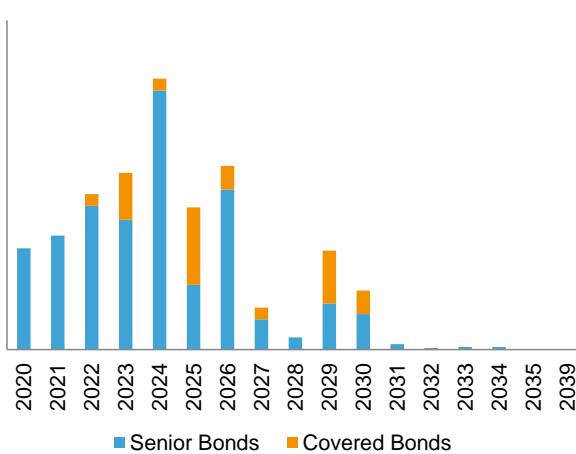
Issuance volume by collateral type, in EUR bn



Source: Market data providers, Erste Group Research

First green bonds will mature in 2020

Redemptions by collateral type, in EUR bn



Austrian banks still on the green starting blocks

Austria currently has two green bond issuers – Hypo Vorarlberg was the trailblazer

There are currently two green bond issuers in Austria, which have issued a volume of EUR 1.8bn in total. In September 2017 Hypo Vorarlberg was the first Austrian financial institution that entered the market with a green bond issue in sub-benchmark format (EUR 300mn). The issuance proceeds of the senior unsecured green bond were earmarked for the funding and/or refinancing of energy-efficient apartments and commercial real estate in Vorarlberg. Sustainability rating agency ISS-oekom (formerly oekom research) has awarded a sustainability rating of 'C' on a scale from 'A+' to 'D-' to Hypo Vorarlberg as a whole.

RBI holds primarily CEE assets in its green portfolio

Raiffeisen Bank International AG (RBI) followed suit in June 2018 with a EUR 500mn benchmark senior green bond and again in September 2019 with a EUR 750mn bond issue in the same category. The bank intends to use the proceeds to fund sustainable projects both in Austria and the CEE region, with CEE assets representing a share of around 78% of the portfolio.

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The green loan portfolio of RBI had a volume of EUR 1.1bn as of 2Q 2019, with 78% attributable to commercial real estate (offices, logistics buildings, shopping malls and hotels) and 22% attributable to “clean transportation” (primarily loans to electric vehicle makers or their parts suppliers). RBI has a sustainability rating of “C+” from ISS-oekom (oekom research).

Poland is the green pace-setter in the CEE region

Green signals from Poland

In the CEE region Poland is currently the most promising candidate for developing a green bond market. In 2019 PKO Bank placed two green mortgage covered bonds through its wholly-owned subsidiary PKO Bank Hipoteczny, albeit denominated in local currency, with a face amount of PLN 250mn each (together around EUR 116mn). Green bond issues are in principle conducted under the existing issuance program (national and international). The proceeds are used both for funding new projects and refinancing already existing ones. This includes *inter alia* loans which are used for the renovation of private residences (e.g. thermal insulation). The second party opinion for the bank's green covered bond framework is provided by Sustainalytics.

PKO, ING and in the future also mBank to be active in the green segment

ING Bank Śląski also entered the market with a green bond issue through its mortgage banking subsidiary ING Bank Hipoteczny (established in 1Q 2018). The bank placed its first bond in the amount of PLN 400mn (around EUR 93mn) in October 2019, which was the second green mortgage covered bond issued in Poland. In 2020 a third issuer may enter the market in Poland. At the ESG conference in Warsaw at the end of 2019, mBank Hipoteczny announced that it is also working on a 2020 debut issue of a green covered bond which will be denominated either in local currency or in EUR.

Corporate Bonds

Strong issuance momentum in corporate green bonds

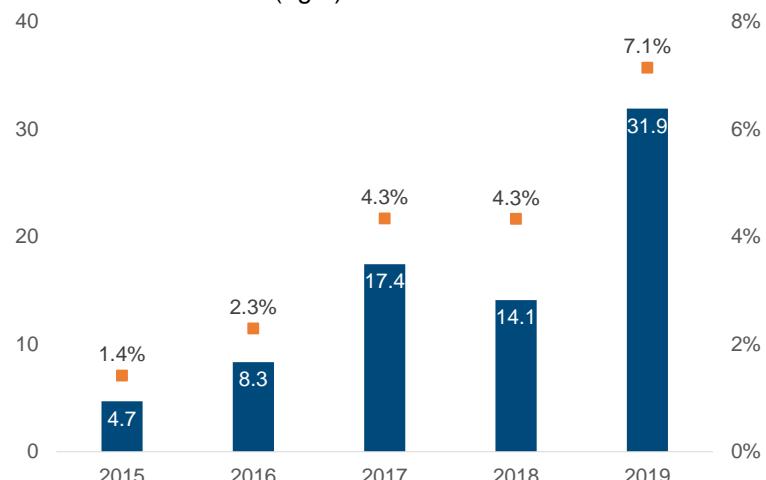
Issued for the first time in 2012, green bond issuance volumes reach EUR 32bn in 2019 – and counting

The first green bond from the corporate sector was issued in 2012. Since then, green issuance volumes have grown significantly, particularly last year. In 2019 EUR 31.9bn of corporate green bonds were issued; this corresponded to around 7% of total EUR-denominated corporate bond issuance volumes.

Issuance momentum remains strong in 2020 as well. We therefore expect that corporate green bond issuance volumes will reach new record highs this year.

Uptrend in green bond issuance from the corporate sector

Issuance volume of green bonds in EUR bn (left), share of total bond issuance volume in % (right)



Source: Bloomberg, Erste Group Research (author's calculations)

Utilities dominate corporate green bond universe

Around 35% of the EUR-denominated green bond universe consists of corporate bonds

EUR 85.3bn or around 35% of the total EUR-denominated green bond universe (outstanding as of the end of January 2020) is attributable to the corporate sector.

Broken down by countries of origin, French issuers have the largest market share with 23%, followed by companies from Spain (16%), Italy (12%) and the Netherlands (12%). The highest volumes from non-euro zone countries were issued by US (8%), British (3%) and Chinese (2%) companies.

First Austrian green bond issued by Verbund

In the Austrian corporate sector, only Verbund (A3/A) has issued a green bond to date. The placement was conducted in 2014 with a face amount of EUR 500mn, a 10-year term to maturity and a coupon of 1.5%. According to statements by the company, the offering was more than three times oversubscribed. The issuance proceeds are used for the (re-) financing of energy efficiency measures at Austrian hydro power plants as well as of

Strong participation in green bond issuance from CEE companies

Numerous companies in the CEE region (incl. Russia and the Baltic nations) have raised funds with green bond issues over the past several years: CPI Property (Baa2/BBB) from the Czech Republic raised EUR 750mn, Ignitis (BBB+) from Lithuania EUR 600mn, DTEK Renewables (B-/B) from Ukraine EUR 325mn, Latvenergo (Baa2) from Latvia EUR 125mn and Nelja Energia from Estonia EUR 50mn.

France and Spain most prominent

Outstanding corporate green bonds, by country of domicile

Country	Percentage
FR	23%
ES	16%
IT	12%
NL	12%
US	8%
DE	7%
PT	4%
GB	3%
CN	2%
DK	3%
Other	10%

Utilities the most active green bond issuers

Outstanding corporate green bonds by sectors

Sector	Percentage
Utilities	66%
Real Estate	11%
Industrials	8%
Cons. Discr.	4%
Energy	3%
Telecom	3%
Technology	2%
Other	3%

As of the end of January 2020

Source: Bloomberg, Erste Group Research (author's calculations)

Utilities by far the most active issuers of corporate green bonds

Looking at a breakdown by sectors, utilities are the by far most active issuers; they represent two thirds of total outstanding corporate green bond volume. A further 11% are attributable to real estate companies and 8% to manufacturing companies.

The large market share of utilities can probably be explained by the fact that it is significantly easier for them to justify or prove the earmarking of issuance proceeds for green projects than for companies in other sectors such as e.g. technology or telecoms. In the meantime almost all utility companies have entered the renewable energy field – even if only to a small extent and completely independent of their primary power generation source.

Among the largest issuers of corporate green bonds are Engie (A3/A-/A-) with 11%, Iberdrola (Baa1/BBB+/BBB+) with 10% and TenneT (A3/A-) with 8% of outstanding issuance volume, all representatives of the European utilities sector. Even among the top 10 corporate issuers only two non-utilities can be found: real estate group Digital Dutch (Baa2/BBB/BBB) with 3% and technology group Apple (Aa1/AA+) with 2% of outstanding corporate green bond volumes.

Investment grade segment dominates green bond market

Based on ratings as the criterion, around 85% of issuance volumes - but only slightly more than 60% of outstanding bonds - are attributable to the investment grade segment. This is mainly due to the fact that hybrid bonds

of investment grade issuers are often awarded high yield ratings; slightly more than 10% of outstanding green bond volumes consist of hybrid bonds.

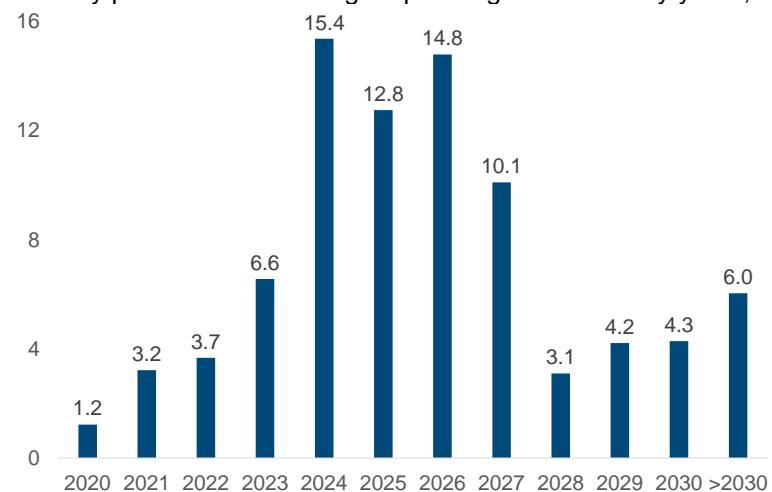
Non-investment grade issuers are significantly outnumbered in the green bond universe. Representatives of the high yield segment include inter alia BRF (Ba2/BB-/BB), Getlink (BB/BB+), Nordex (B3/B), Paprec (B2/B) and O-I (Ba3).

Redemptions peak in 2024 – 2027

As of the end of January 2020, three quarters of outstanding corporate green bonds had maturities ranging from five to ten years. This is reflected in the overall maturity structure: the largest redemptions are scheduled for the years 2024 – 2027, most of these bonds were issued in the boom years 2017-2019.

Largest green bond rollovers expected in the years 2024 – 2027

Maturity profile of outstanding corporate green bonds by years, in EUR bn



As of the end of January 2020

Source: Bloomberg, Erste Group Research (author's calculations)

In the slipstream: green corporate Schuldscheindarlehen**First green corporate Schuldscheindarlehen placed in 2016**

While green securities have been firmly established in the corporate bond market for several years, they first emerged in the Schuldschein (promissory note) market in 2016. Among the first issuers were Nordex (B3/B), TenneT (A3/A-) and Friesland Campina (BBB/BBB+).

In 2019 around EUR 2.5bn in green corporate Schuldscheindarlehen were issued, more than ever before. This figure also includes the hitherto largest ever green Schuldschein issue in the amount of EUR 1bn, placed by Porsche. It was issued for the purpose of funding the first fully electric vehicle developed by Porsche (project "Porsche Taycan") and was expanded by EUR 700mn in response to strong investor demand.

In the Austrian corporate sector Verbund (A3/A) made the first move in 2018, when it placed EUR 100mn in the first ever digital green Schuldschein transaction. In 2019 Porr followed suit with EUR 200mn, as well as Lidl with EUR 150mn. Issuers from the CEE region have so far not placed any green Schuldscheindarlehen.

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**EU-wide standardization
should promote market growth**

We are firmly convinced that the green idea will persist and become even stronger both in the corporate bond market and the Schultschein market. Increasing market acceptance in the wake of EU-wide standardization and possible price differentiation should promote further growth. We will therefore certainly see more securities of this type in the future.

EU Taxonomy As The Basis For An EU Green Bond Standard

On December 18 2019 the European Parliament and the European Council agreed on developing the world's first classification system for sustainable investment ("taxonomy" regulation).

EU defines catalog of ecologically sustainable economic activities

The taxonomy regulation provides the framework for the development of the classification system and for examining the question whether an economic activity is ecologically sustainable or not. The regulation lists six environmental objectives. If an economic activity is to qualify as sustainable in terms of the taxonomy, it has to contribute to the fulfillment of at least one objective²:

1. Climate change mitigation
2. Climate change adaptation
3. Sustainable use and protection of water and marine resources
4. Transition to a circular economy
5. Pollution prevention and control
6. Protection and restoration of biodiversity and ecosystems

In order to qualify as sustainable, economic activities furthermore have to comply with four criteria:

- They have to provide (as already mentioned) a substantial contribution to at least one of the six environmental objectives listed above.
- They must not do substantial harm to any of the other environmental objectives.
- They are in compliance with robust and science-based technical screening criteria.
- They comply with minimum social and governance safeguards

The list will be released in two stages and will become applicable in 2022 and 2023, respectively

The regulation contains no final list of ecologically sustainable economic activities yet. A technical expert group (TEG) is currently working on the (further) development of this list. The publication will be effected in the form of two delegated acts. The first one will contain economic activities which contribute directly to achieving the climate change objective and to climate change adaptation (objectives 1 and 2). It is to be adopted by the Commission until 31 Dec. 2020 and will become applicable from 31 Dec. 2021 onward. Economic activities in line with environmental objectives 3 – 6 will be defined in a second delegated act; the latter is to be adopted until 31 Dec. 2021 and will become applicable from 31 Dec. 2022 onward.

² Questions and Answers: political agreement on an EU-wide classification system for sustainable investments (Taxonomy):
https://ec.europa.eu/commission/presscorner/detail/en/QANDA_19_6804.

Three types of ecologically sustainable activities

What are “transition” and “enabling” activities?

In essence three types of ecologically sustainable activities are distinguished:

- Activities which contribute directly to achieving the six climate change objectives (e.g. energy generation from renewable sources, reforestation, emission-free transportation services)
- “Transition activities”, which enable the transition to a climate-neutral economy. These include *inter alia* renovation of buildings, electricity generation <100g CO₂/kWh, cars <50g CO₂/km.

The following requirements have to be fulfilled in order to qualify for classification as a transition activity:

- Its greenhouse gas emission levels correspond to the best performance in the sector or industry.
 - It must not hamper the development and deployment of low-carbon alternatives.
 - It does not lead to a lock-in in carbon-intensive assets – taking into account the economic lifetime of those assets.
 - The technical screening criteria for these activities have to follow a credible path toward climate neutrality. In order to ensure this, the technical screening criteria should be adjusted accordingly at regular intervals.
- Activities that in turn enable other activities which contribute directly to achieving the climate objectives (“enabling activities”). Examples: entrepreneurial activities such as the manufacturing of wind turbines or the installation of triple glazed windows or installation of efficient boilers in buildings.

In focus: Industries with a strong impact on the climate

Buildings account for 36% of CO₂ emissions in the EU

In a first step the expert group tasked by EU Commission with developing the taxonomy has identified those industries which are particularly important for the mitigation of climate change (based on their CO₂ emissions or the potential for avoiding them). These are:

- Agriculture, forestry and fishing
- Manufacturing industries (such as manufacturing of low-carbon technologies, production of cement, aluminum, iron and steel, hydrogen, chemicals and fertilizers as well as plastics)
- Electricity, gas, steam and air conditioning supply
- Water supply, sewerage, waste management and remediation activities
- Transportation and storage (railways, public transportation, motor vehicles)
- Information and communication technology
- Construction and real estate activities (buildings contribute 36% to the EU's CO₂ emissions)

Within these broad sectors the experts have identified specific activities which have a strong impact on climate change. They have defined what a “substantial” contribution to climate change mitigation consists of, and have developed a screening system with reference metrics and threshold levels

No decision on nuclear energy and natural gas for the time being

that have to be complied with in order to be eligible for the attribute of "ecologically sustainable". The development of the list of ecologically sustainable economic activities is an ongoing process. The sectors mentioned above were examined first due to their significant importance for climate change. Naturally, this is by no means a complete list yet.

Whether controversial nuclear energy as well as natural gas will be classified as transitional activities has not been decided yet. Experts are tasked with providing the decisive ideas in this context. In any event, power generation from solid fossil fuels is definitely ruled out.

Taxonomy users: Governments, financial product providers, large corporations**Large corporations will also have to report on the conformity of their activities with the taxonomy**

Who will apply the classification system, and how?

- EU member countries for the identification of ecologically sustainable financial products or corporate bonds.
- Financial market participants who offer financial products have to disclose information (in the spirit of the EU taxonomy) about the ecological sustainability of the investments underlying the products. Should they not be aligned with the EU taxonomy, this fact must be disclosed as well.
- Large financial corporations and non-financial corporations that are subject to the non-financial reporting directive, in the future have to report how and to what extent their business activities are in compliance with the ecological sustainability criteria of the EU taxonomy. This applies to companies with more than 500 employees. Altogether around 6,000 companies in the EU are concerned; they are already subject to the non-financial reporting guidelines.

EU-wide harmonized standards to prevent market fragmentation and boost investor confidence

EU-wide harmonized standards aim to:

- Decrease market fragmentation, which results from private initiatives and national practices. Different national classification systems for ecologically sustainable economic activities would make Europe-wide placements of green bonds more difficult and expensive in the long term. Investors would have to stay abreast of differences between the standards.
- Counter so-called "greenwashing" - i.e., the promotion of investment products as "green" or "environmentally friendly" although they are not.
- Redirect more capital into sustainable economic activities.

EU green bond standard based on existing market practices

In order to support achieving these objectives, experts (currently the "TEG") are working in parallel on the development of a EU-wide green bond standard which issuers are expected to comply with voluntarily. The experts are basing their work on the ICMA "Green Bond Principles", the hitherto dominant and tried and tested market practice. The EU green bond standard aims to enhance credibility, transparency and comparability in the green bond market³. When (corporate) bond issuers comply with this standard, their green bonds could be awarded a kind of EU green bond "label".

³ Summary of the TEG report on the EU green bond standard, 18 June 2019:
https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/190618-sustainable-finance-teg-report-overview-green-bond-standard_en.pdf.

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EU green bond standard makes use of taxonomy

Planned EU green bond standard unifies review and reporting processes

The planned EU green bond standard inter alia provides for:

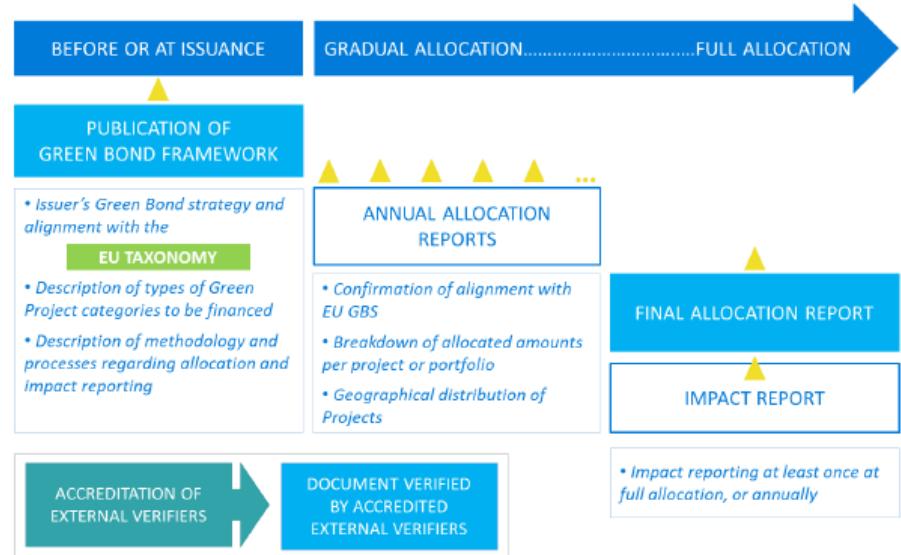
- EU green bond issuance proceeds have to be used for the funding/refinancing of projects that contribute at a minimum to achieving one of the six environmental objectives according to the EU taxonomy, do not substantially harm any of the other objectives and comply with minimum social and governance standards.
- Issuers have to publish a green bond framework. This serves to confirm the voluntary alignment of bond issues with the EU green bond standard and explains the issuer's strategy with respect to achieving the environmental objectives and provides details on all aspects of the use of proceeds, processes and reporting.
- Mandatory reporting by the issuer on the use of issuance proceeds and the environmental impact of the (re-) financed projects.
- Verification of the green bond framework documentation and the final allocation report by an external reviewer. Whether ESMA could e.g. be tasked with the accreditation of external reviewers is being discussed.

Regulatory incentives for compliance with EU green bond standards conceivable

The EU green bond standard unifies review and reporting processes. It establishes a voluntary standard which could be linked to incentives (such as tax exemptions/tax breaks, subsidies to offset the costs of external reviews).

Transparency regarding use of proceeds is important for green bonds

Green bond issuance process according to the planned EU green bond standard



Source: EU TEG on Sustainable Finance, Report on EU Green Bond-Standard (Overview), Erste Group Research

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