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ESG Bond Market

Key topics and trends for 2019 and beyond – getting the harmony right

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London, 23 July 2019 (12:00 CET)

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Introducing the ESG bond market

Defining environmental, social and governance (ESG) bonds

Green bonds

- "Green bonds are any type of bond instrument where the proceeds will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible green projects" – ICMA

Example bond: INTED 2 ½ 11/15/2030

Size: EUR1.5bn

Issuer: ING Groep NV (Baa Sta./A- Sta./A+ Sta.)

Use of proceeds: funding new and existing mortgages for energy efficient residential buildings in Norway

Sustainable bonds

- These encompass elements from both green and social bonds

Example bond: HSBC 3 11/22/2023

Size: USD1bn

Issuer: HSBC Holdings PLC (A2 Sta./A Sta./AA- Sta.)

Use of proceeds: eligible categories include food health and well-being, quality education, clean water and sanitation, affordable and clean energy

Social bonds

- "Social bonds are use of proceeds bonds that raise funds for new and existing projects with positive social outcomes." - ICMA

Example bond: BPCEGP 0 5/8 09/26/2023

Size: EUR1.25bn

Issuer: BPCE SA (A1 Sta./A+ Sta./A+ Sta.)

Use of proceeds: to finance or refinance loans granted to clients whose activities contribute to local economic development across the employment conservation and creation category

Development of the asset class

2007 Primary issuance

- The European Investment Bank (EIB) releases its Climate Awareness Bond as a test issuance.
- This provided a playbook to be demonstrated to other issuers.

2008-12 Market discovery

- Supranationals continue to issue green bonds, although neither the definition nor naming conventions are fixed.
- This is part of their capital market development programme.
- Outside the supranational sector, there are no takers for the market because it is not clear how private issuers gain from such issuance.

2013-14 Catalyst for private issuances

- This occurred in green bonds with the release of the green bond principles (GBP), which allowed issuers to define the features of a green bond, with a particular focus on transparency (use of proceeds and reporting) and governance (management of proceeds and impact assessment).

2015-17 Growth of the market

- Investor and issuer interest was piqued thanks to the Paris Climate Agreement, with sovereign commitments and corporate pledges to this market. Phenomena including natural disasters related to an unusually intense hurricane season also kept the media focus on the issue of climate change.
- Knowing what a green product looks like means that investors can scale their interest, which, in turn, encourages issuers to target these investors, as can be seen in heightened investor diversification.
- This set the scene for record growth in 2014-17 in line with our expectations of USD150-180bn.

2018- Complexity and standardisation

- Moving past what a green product looks like, the market moved on to actually defining what green is.
- This requires a reference to science-based taxonomies such as the EU Taxonomy and increasing specialisation in order to avoid green-washing or misdirected green capital.
- Divergent global standards either converge to make a scalable global product or remain regionalised with divergent investor-driven liquidity and interest.
- The market reaches its next ‘inflexion point’ whereby tightened green standards either consolidate credibility in the product or lead to cost spirals and a reduced incentive to issue.
- Such a fine line probably requires both a bottom-up approach from the market (like ICMA) and a top-down regulatory standard in order to ensure compliance with what could simply be voluntary criteria, which if not adhered to, could remove credibility from the market, owing to disengagement with the product and reneging on commitments.

ICMA's Green Bond Principles

- Green Bond Principles (GBP), defined by ICMA, are voluntary process guidelines that have been in play since 2014. They have helped provide a common set of benchmarks for green bond architecture in relation to transparency and standardisation for all interested parties.
- The ICMA's GBP have been crucial in harmonising the architecture of what a green/social/sustainability bond is and have been instrumental in the growth of the market, with a focus on the use of proceeds. The bond principles focus on the architectural pillars for green bond issues - the steps involved (four pillars) in issuing green/social/sustainability bonds.
- The 2018 update of the GBP, like the previous edition, is limited in scope and substance but reflects the growing maturity of the standard. The update remains framed by the same four core components (use of proceeds, process for project evaluation and selection, management of proceeds and reporting), and maintains the importance of the use of the GBP's recommended templates for issuer alignment as well as recommendations for the use of external reviews.

Four types of ESG bond according to the Green Bond Principles

Source: ICMA, BBVA Credit Research

Green & Social Use of Proceeds Bond

A standard recourse to the issuer debt obligation for which the proceeds shall be moved to a sub-portfolio or otherwise tracked and attested by the issuer through a formal internal process that is linked to the issuer's lending and investment operations for projects.

Green & Social Use of Proceeds Revenue Bond

A non-recourse to the issuer debt obligation in which the credit exposure in the bond is to the pledged cash flows, such as revenue streams, fees or taxes, and the use of proceeds goes to related or unrelated green/social projects. Like the Use of Proceeds Bond, the proceeds are moved to a sub-portfolio and tracked pending investment in known eligible investments

Green & Social Project Bond

A project bond for a single or multiple green/social projects where the investor has direct exposure to the risk of the project (either for construction, operation or both) with or without recourse to the issuer.

Green & Social Securitised Bond

A bond collateralised by one or more specific projects, including but not limited to covered bonds, ABS and other structures. The primary source of repayment is generally the cash flows of the assets. Examples of this type of bond include asset-backed securitisations of rooftop solar PV and/or energy efficiency assets for green bonds and covered bonds backed by social housing, hospitals, schools, etc.

The four types of green bonds and social bonds referred to in Appendix I of the GBP and the SBP, respectively, also apply to sustainability bonds, where green and social projects are combined.

The UN's Sustainable Development Goals mapped against Green Bond Principles (i)

- The Sustainable Development Goals (SDGs) are a collection of 17 global goals set out by the United Nations and adopted by all 193 members of the UN in September 2015. The 17 SDGs consist of 169 individual targets with metrics designed to guide global sustainable development priorities to 2030.
- The SDGs were designed to replace the earlier Millennium Development Goals that ended in 2015. The key difference between the SDGs and the MDGs is that the former make no distinction between developed and developing countries and have specific, distinct metrics.
- The ICMA mapped the Green Bond Principles against the SDG's to show how they compliment each other.

SDG	SBP project categories	GBP project categories	Example indicators
1 NO POVERTY	Access to Essential services (1.4) Affordable Housing (1.4) Socioeconomic Advancement and Empowerment (1.1, 1.2, 1.3, 1.4, 1.5)	Climate change adaptation (1.5)	1.1 Number of products and services serving low-income groups 1.2 Number of people provided with access to financial services, including microfinance 1.4 Number of people provided access to clean energy
2 ZERO HUNGER	Access to Essential Services (2.3) Affordable Basic Infrastructure (2a) Food Security (2.1, 2.2, 2.3, 2c) Socioeconomic Advancement and Empowerment (2.3, 2.5, 2a, 2c)	Climate change adaptation (2.4) Environmentally sustainable management of living natural resources and land use (2.4) Terrestrial and aquatic biodiversity conservation (2.5)	2.1 Number of people provided with safe, nutritious and sufficient food 2.2 Ecologically sustainable agricultural production per hectare (tonnes) 2.4 Products with certified improvements in nutritional value 2.4 Number of people and/or enterprises (e.g. companies or farms) benefitting from measures to mitigate the consequences of floods and droughts
3 GOOD HEALTH AND WELL-BEING	Access to Essential Services (3.1, 3.2, 3.3, 3.4, 3.5, 3.7, 3.8, 3b, 3c) Affordable Basic Infrastructure (3.6)	Pollution Prevention and Control (3.9) Renewable Energy (3.9)	3.1 Number of people reached with improved health care 3.2 Cost reduction for standard treatments and medicines 3.3 Amount of wastewater treated, reused or avoided before and after the project 3.3 Amount of raw/untreated sewage sludge that is treated and disposed of
4 QUALITY EDUCATION	Access to Essential Services (4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4a, 4c) Socioeconomic Advancement and Empowerment (4.4, 4.5)		4.1 Number of people receiving education services 4.2 Number of students attaining standard for education level 4.3 Education facilities for inclusive and effective learning environments

The UN's Sustainable Development Goals mapped against Green Bond Principles (ii)

SDG	SBP project categories	GBP project categories	Example indicators
5 GENDER EQUALITY	Access to Essential Services (5.4) Socioeconomic Advancement and Empowerment (5.1, 5.4, 5.5, 5b)		5.1 Number of equal paying jobs created for women and other under-represented gender groups 5b. Number of women using technology products
6 CLEAN WATER AND SANITATION	Affordable Basic Infrastructure (6.1, 6.2, 6.3, 6.4, 6b)	Sustainable Water and Waste Water Management (6.1, 6.2, 6.3, 6.4, 6.5, 6a, 6b) Terrestrial and Aquatic Biodiversity Conservation (6.6)	6.1 Number of people provided with safe and affordable drinking water 6.2 Number of people provided with adequate and equitable sanitation 6.3 Volume of water saved 6.4 Volume of wastewater treated for reuse 6.6 Area covered by sustainable land and water resources management practices
7 AFFORDABLE AND CLEAN ENERGY	Affordable Basic Infrastructure (7.1, 7b)	Energy Efficiency (7.3, 7a) Renewable Energy (7.2, 7a)	7.1 Renewable energy produced 7.2 Avoided greenhouse gas emissions (tonnes CO_2 eq) 7.3 Number of people with access to clean energy services
8 DECENT WORK AND ECONOMIC GROWTH	Access to Essential Services (8.3, 8.6, 8.10) Employment Generation (8.2, 8.3, 8.5, 8.6, 8.9) Socioeconomic Advancement and Empowerment (8.3, 8.5, 8.6, 8.7, 8.8)	Eco-efficient and/or Circular Economy Adapted Products, Production Technologies and Processes (8.4) Energy Efficiency (8.4) Renewable Energy (8.2)	8.1 Number of loans, deposits or insurance products in line with SDGs or number of people provided these 8.2 Number of jobs created 8.3 Number of jobs retained
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	Access to Essential Services (9.3, 9c) Affordable Basic Infrastructure (9.1, 9a, 9c) Employment Generation (9.2)	Energy Efficiency (9.4) Renewable Energy (9.1)	9.1 Length of sustainable road construction with equitable access 9.2 Length of rail construction 9.3 Number of first-time internet connections 9.4 R&D expenditure in line with SDGs as % of sales
10 REDUCED INEQUALITIES	Access to Essential Services (10c) Socioeconomic Advancement and Empowerment (10.1, 10.2, 10.3, 10.7)		10.1 Number of jobs created in low-income areas, among disadvantaged groups and other target populations 10.2 Number of local SME suppliers and smallholder farmers in supply chain

The UN's Sustainable Development Goals mapped against Green Bond Principles (iii)

SDG	SBP project categories	GBP project categories	Example indicators
11 SUSTAINABLE CITIES AND COMMUNITIES	Affordable Basic Infrastructure (11.1, 11.2) Affordable Housing (11.1) Socioeconomic Advancement and Empowerment (11.5)	Clean Transportation (11.2) Eco-efficient and/or Circular Economy Adapted Products, Production Technologies and Processes (11b) Environmentally Sustainable Management of Living Natural Resources and Land Use (11.7, 11a) Green Buildings (11c) Pollution Prevention and Control (11.6) Renewable Energy (11.3) Sustainable Water and Waste Water Management (11.5) Terrestrial and Aquatic Biodiversity Conservation (11.4)	11.1 Number of people with access to safe, affordable and sustainable housing 11.2 Number of people with access to sustainable transport systems 11.2 Number of electric vehicles deployed 11.2 Number of electric vehicle charging points installed 11.3 Floor space of green real estate 11.6 Waste that is prevented, minimised, reused or recycled before and after the project 11.6 Number of people benefitting from selective collection of recyclables
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Food Security (12.3)	Eco-efficient and/or Circular Economy Adapted Products, Production Technologies and Processes (12.5) Environmentally Sustainable Management of Living Natural Resources and Land Use (12.2) Pollution Prevention and Control (12.3, 12.4, 12.5) Renewable Energy (12.4) Sustainable Water and Waste Water Management (12.2, 12.5)	12.1 Avoided resource waste 12.2 Avoided emissions to air (other than greenhouse gases) 12.3 Avoided emissions to water 12.4 Materials sourced sustainably or recycled 12.4 Absolute or % reduction in local pollutants 12.5 Reduction of hazardous materials used

The UN's Sustainable Development Goals mapped against Green Bond Principles (iv)

SDG	SBP project categories	GBP project categories	Example indicators
13 CLIMATE ACTION		Climate Change Adaptation (13.1, 13.2, 13.3, 13b) Climate Change Mitigation (13.1, 13.3) Renewable Energy (13.1)	13.1 Water storage capacity 13.1 Reduction in weather-related disruption (days p.a.). and/or risk frequency (%) 13.2 Flood-resilient floor space 13.3 High-risk assets with climate insurance cover
14 LIFE BELOW WATER	Socioeconomic Advancement and Empowerment (14b)	Environmentally Sustainable Management of Living Natural Resources and Land Use (14.4, 14.6, 14a, 14b) Terrestrial and Aquatic Biodiversity Conservation (14.1, 14.2, 14.3, 14.5, 14.6, 14a)	14.1 Avoided or reduced marine and fresh water pollution (ecotoxicity, eutrophication) 14.2 Biodiversity loss avoided or reduced (# of species)
15 LIFE ON LAND		Environmentally Sustainable Management of Living Natural Resources and Land Use (15.7, 15.8, 15a, 15c) Terrestrial and Aquatic Biodiversity Conservation (15.1, 15.2, 15.3, 15.4, 15.5, 15b)	15.1 Avoidance or reduction of land pollution (ecotoxicity, acidification, salinization, transformation) 15.2 Avoidance or reduction of biodiversity loss (# of species) 15.3 Certified afforested or reforested land 15.3 Area covered by sustainable land and water resources management practices

02

Market overview and dynamics

ESG bond market highlights

We saw a further maturing of the ESG bond market in 2018, despite reduced issuance volumes. The size of the ESG bond market is now equivalent to 0.5% of total global outstanding bonds, but it is increasing as the market grows.

USD584bn

- The current size of the green, social and sustainable bond market is **USD584bn, or c.0.5% of total global outstanding bonds** (as of 30 June 2019).
- The percentage of green, social and sustainable bond issuance versus total bond issuance has continued to increase to an **average of 2.6% in 2018 vs. 2% in 2017,** despite the reduction in issuance of ESG bonds in 2018.

USD168bn

- 2018 saw **USD168bn** of issuance of green, social and sustainable bonds, a reduction of USD5bn (2.7%) from 2017 peak issuance of USD173bn.
- This decrease is generally in line with global bond issuance dynamics, as **market conditions deteriorated**, especially in the countries that dominate green bond issuance.
- Nonetheless, the market continued to mature, with a **more diverse basket of issuers** coming to the market and **increased issuance of social and sustainable-labelled bonds**.

USD220bn

- We expect that 2019 issuance of ESG bonds will reach USD220bn.
- The market should continue to diversify as more first-time issuers come to the market and explore the use of social and sustainable-labelled bonds as well as green bonds; however, green-labelled bonds will continue to dominate issuance.
- European utilities will continue to dominate European corporate issuance, as seen this year with Telefonica's (Baa3 Sta./BBB Sta./BBB Sta.) **inaugural EUR1bn green bond** issued on 28 January 2019.

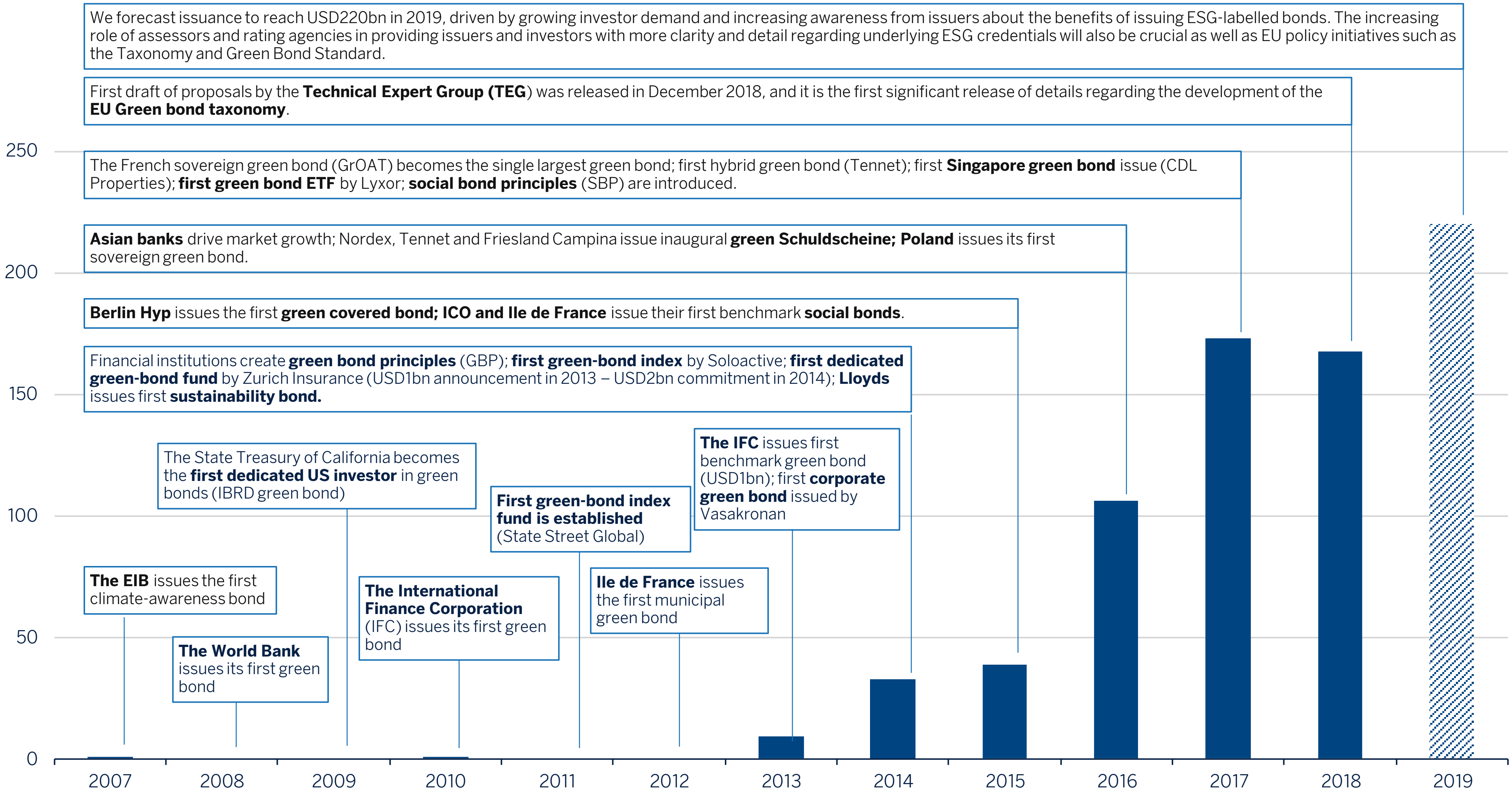
USD45bn

- The contribution from new sovereign issuers will be key in the continued development of the asset class with c.USD45bn issued as of June 2019.
- The Netherlands issued its c.EUR6bn debut green bond in May 2019, one of the highlight issuances of the year so far.
- The Swedish Debt Office plans to carry out a trial green bond issuance at some point in 2020.
- Following the release of the EU Taxonomy, representatives from both Portugal and Italy announced that they are considering issuing green bonds in the future.

Market development and key events

ESG bond market timeline (USD bn)

Source: BBVA GMR, CBI, Dealogic

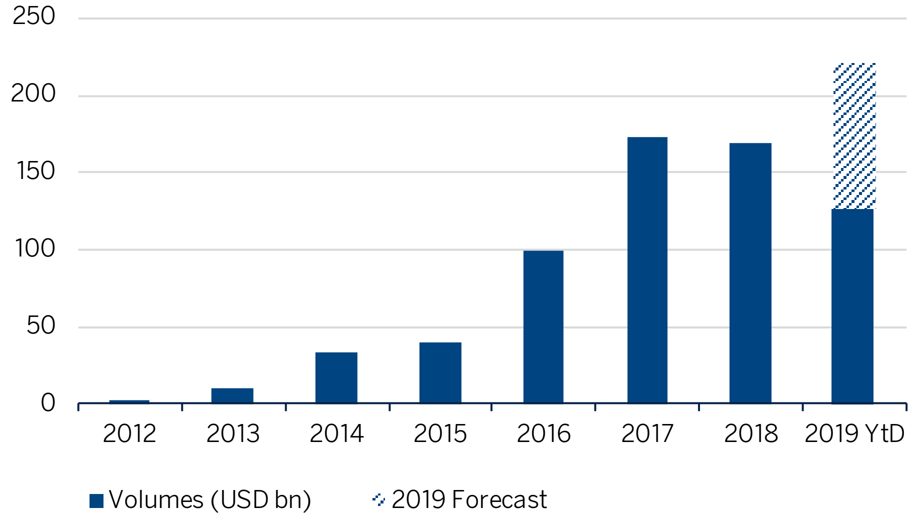


Market growth - issuance levels (i)

- Issuance of green, social and sustainable bonds has increased from **USD320mn in 2012 to a peak of USD173bn in 2017.** 2018 issuance was down slightly YoY at USD168bn, as market volatility impacted bond issuance globally.
- We have also seen an improving mix of the types of bonds being issued, with green bonds still dominating issuance on a relative basis, but **social and sustainable labelled bonds increasing their relative contributions** to overall issuance over the past four years.
- We have witnessed a growth in sustainable-labelled bond growth in 1H19. As a percentage of total ESG bond issuance, sustainable-labelled bonds amounted to **7.85% in 2018,** in 1H19 this has increased to **10.60%**, with **USD13bn** of issuance.
- The proportion of social bonds has remained around the same level in 1H19 as in 2018, at around **6.3%** of total issuance **(USD8bn of issuance).**

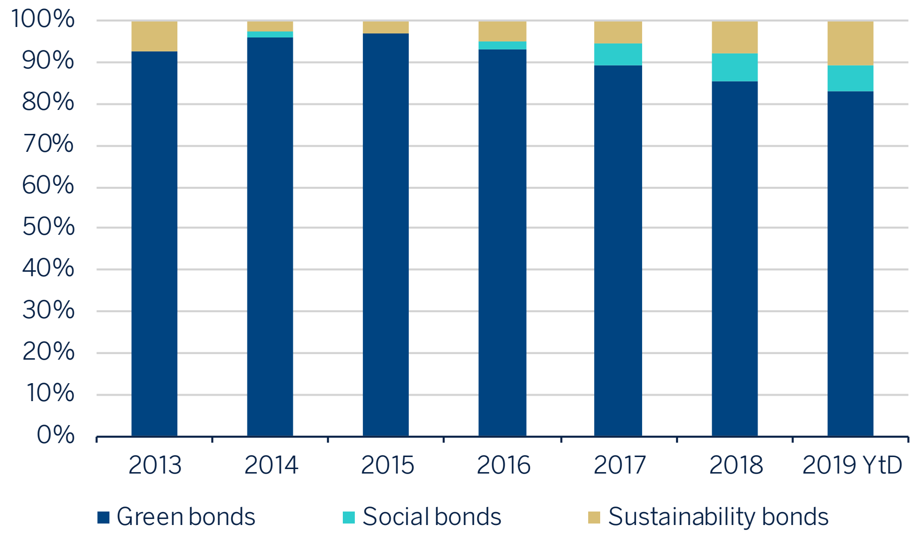
Issuance volumes (USD bn)

Source: Dealogic, BBVA Credit Research



Issuance by bond-type (%)

Source: Dealogic, BBVA Credit Research

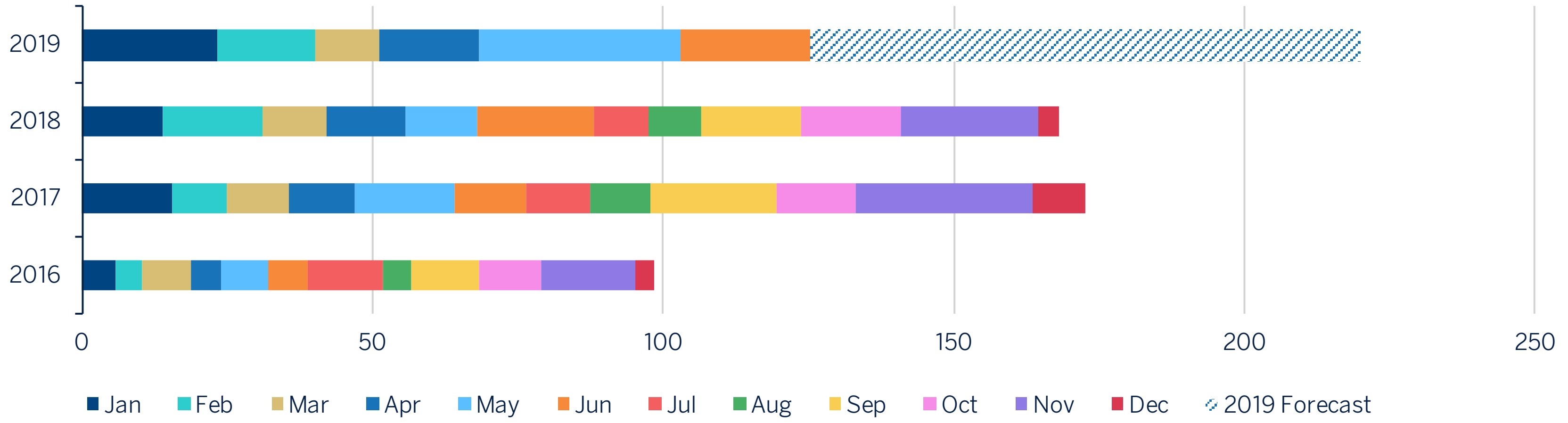


Market growth - issuance levels (ii)

- Worldwide issuance of green, social and sustainable-labelled bonds in 1H19 totalled **c.USD125bn**, **rising by 42% and 64% vs. the same periods in 2018 and 2017**, respectively. USD104bn has been green-labelled, with USD13bn being labelled as a sustainable bond. The remaining USD8bn have been labelled social bonds.
- We forecast that YE2019 will see issuance levels of **USD220bn**, driven by the continued growth in **demand from an increasingly 'green-conscious' investor base** as well as the increasing development of ESG assessment tools by credit rating agencies.
- European policy initiatives such as the **EU Taxonomy and Green Bond Standards** are likely to boost issuance in the medium/long term, but may also have shorter term, issuance boosting, consequences.
- Such tools and initiatives help to give investors and issuers **greater clarity and understanding** on the ESG credentials of issuers and bonds, but also may go some way to fight what is being called 'green-washing'.

Issuance volumes (USD bn)

Source: Dealogic, BBVA Credit Research

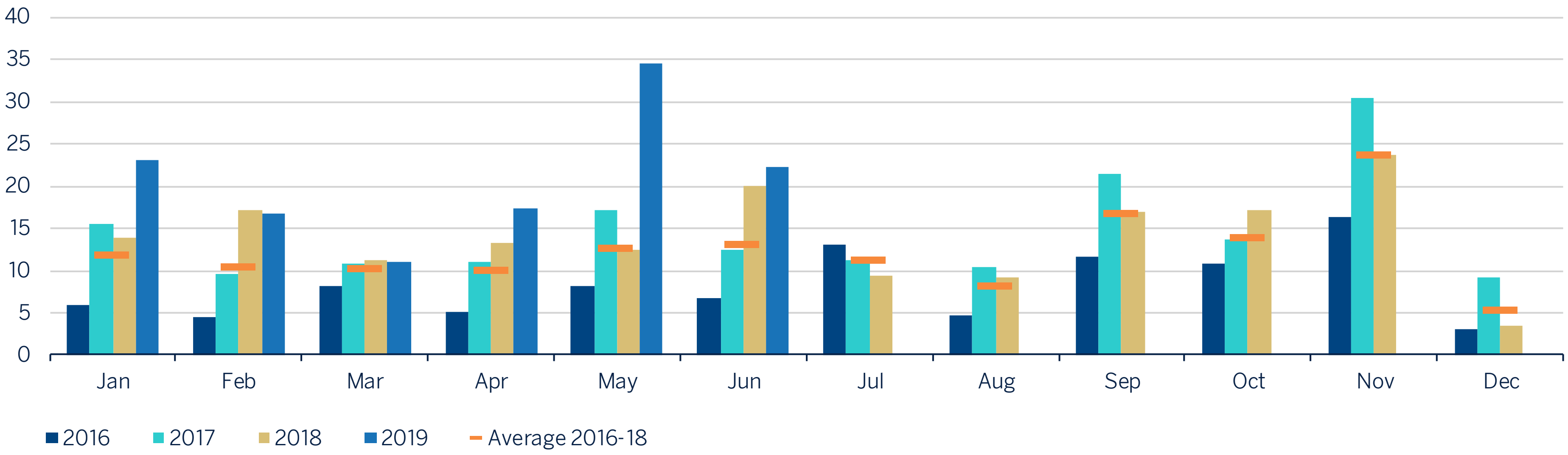


2019 issuance consistently above monthly averages

- Issuance throughout 2019 of green, social and sustainable bonds has consistently exceeded the average of the previous three years.
- January saw issuance of USD23.2bn, almost 100% over the three year average of USD11.8, whilst February was 62% above (despite a 2% YoY decline in issuance volumes). March was somewhat more subdued at 10% above the three-year average with USD11.1bn in the month. This is traditionally one of the slowest months for issuance of ESG bonds.
- April kicked the ESG market back to life with issuance that was 91% above the monthly average at USD18.9bn, whilst May saw a record-high USD35bn of issuance, 175% above the three-year average.

Monthly issuance vs. three-year average (USD bn)

Source: Dealogic, BBVA Credit Research

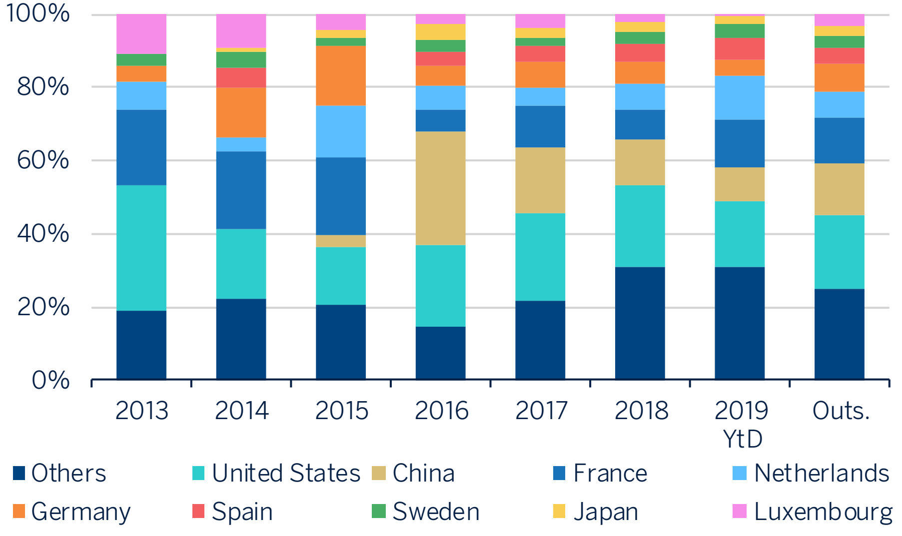


Geographical distribution of issuance is changing

- Issuance of ESG bonds has typically been dominated by European issuers, which issued a total of c.USD70bn of green, social and sustainable bonds in 2017 and c.USD78bn in 2018. Issuance from the two largest countries fell YoY in 2018, with US-based issuers declining to USD38bn from USD42bn in 2017 and Chinese issuance falling to USD21bn from USD30bn.
- The increasingly diverse investor base led to the emergence of new issuers in 2018, with a total of 177 new issuers globally, and eight new countries in which these issuers are based, including Ireland (IRISH 1.35% 03/18/31) and Portugal (EDPPL 1 ⅞% 10/13/25).
- This diversification has continued in 2019 with a greater distribution of issuance outside the dominant markets. Both France and the Netherlands are the standout sources of ESG bond issuance in 2019, having already surpassed their total 2018 issuance volumes.

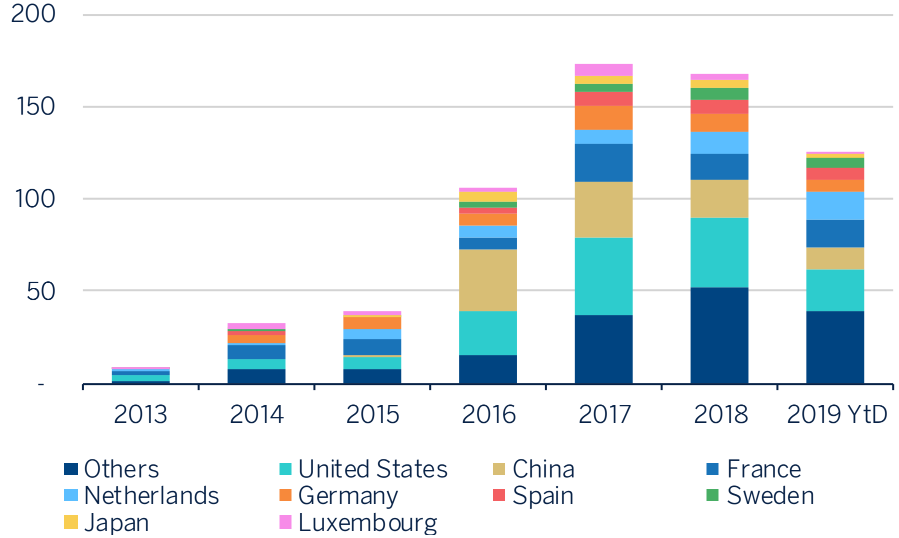
Issuance volumes by country (%)

Source: Dealogic, BBVA Credit Research



Issuance distribution by country (USD bn)

Source: Dealogic, BBVA Credit Research

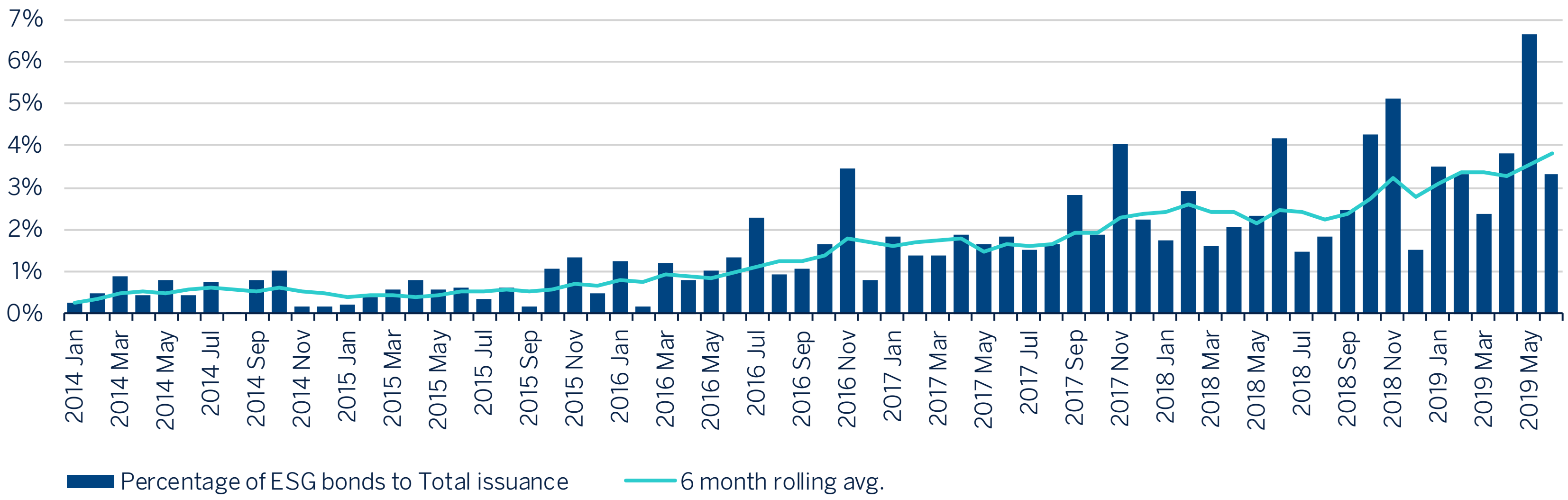


Share of ESG issuance has been increasing

- In 2014-15, the market was still in its infancy and thus ESG-labelled bonds only made up 0.50-0.60% of total bond issuance globally. On only a few occasions did their share reach close to 1%.
- At the start of 2016, their share began to increase, peaking in November 2016 when over **3%** of issuance was ESG-labelled.
- Throughout 2017, the share of ESG bonds **edged towards 2%.** Indeed, it broke through this threshold on multiple occasions over the year, notably in November again. 2018 was somewhat more inconsistent, with a number of months showing a high percentage of ESG bond issuance whilst **July, March and January remained well below the six-month rolling average**.
- **May 2019 saw the highest percentage of ESG issuance to date, with c.6.7% of total bond issuance in the month being labelled either green, social or sustainable.**

Percentage of ESG bonds vs. total global bond issuance

Source: Dealogic, BBVA Credit Research

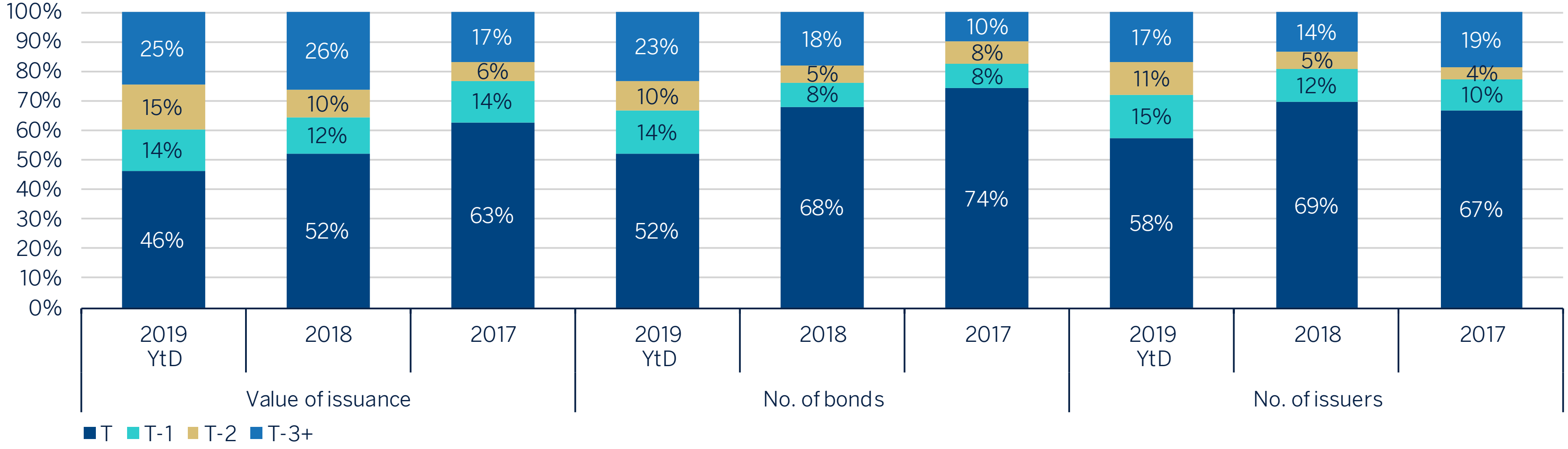


Repeat issuers to contribute more in 2019

- The value of total issuance attributed to first-time issuers in 2018 was 11% less than the contribution from first-time issuers in 2017, as repeat issuers returned to the market, contributing larger issuance volumes on average. This was despite the fact that the number of first-time issuers actually rose in 2018, along with the percentage of first-time issuers vs. repeat issuers.
- Issuers whose first issue was in 2017 contributed 10% of total issuance value in 2018, a reduction of c.1% YoY, whereas first-time issuers from 2015 or before (i.e. longer-term market participants) contributed 23%, vs. 14% in 2017.
- In 2019 YtD, repeat issuers have accounted for 54% of the total value of issuance, with the remaining 46% from first-time issuers .
- We expect repeat issuers to continue to increase their contributions as they develop their green bond frameworks and organically grow the amount of green-, social- and sustainable-labelled instruments. However, given that the market is still developing and growing, we still expect the contribution of first-time issuers to remain significant.

Breakdown of first-time issuers' contribution to issuance

Note: i) Figures do not include issuance from Fannie Mae, ii) T-1, T-2 and T-3+ indicate first time issuers from one year, two years and three-plus years prior to the year indicated in the graph. For example, T-2 in 2018 indicates first time issuers from 2016, T-2 in 2019, is first time issuers from 2017 etc.
Source: Dealogic, BBVA Credit Research

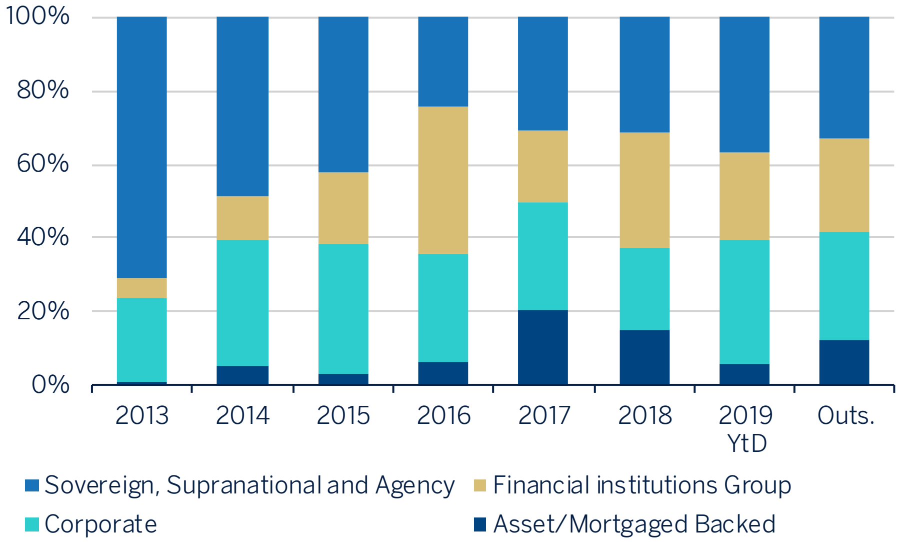


More diverse issuer profiles to continue in 2019

- Prior to 2016, there was very little issuance from financial institutions compared to SSAs and corporates. 2016 saw not just a large jump in global issuance volumes of green, social and sustainable bonds, but also a large increase in the contribution from financial institutions to issuance volumes.
- 2018 saw a slight rebalancing of volumes issued by different sectors. Whilst non-financial corporates still accounted for 40% of first-time green bond issuers, financial institutions entered the ESG market in greater numbers (38% of all new issuers).
- The end of the CSPP is likely to bring about a noticeable decrease in issuance by non-financial corporates in Europe. The consequences for ESG issuance are varied. We expect a larger proportion of issuance to be green/socially-labelled as issuers try to mitigate reduced investor demand by marketing to a broader, more diverse investor base. We also expect increased issuance from non-traditional ESG issuers.

Green bond issuer by type (% of total issuance volume)

Source: Dealogic, BBVA Credit Research



New issuers by sector (% of new issuers)

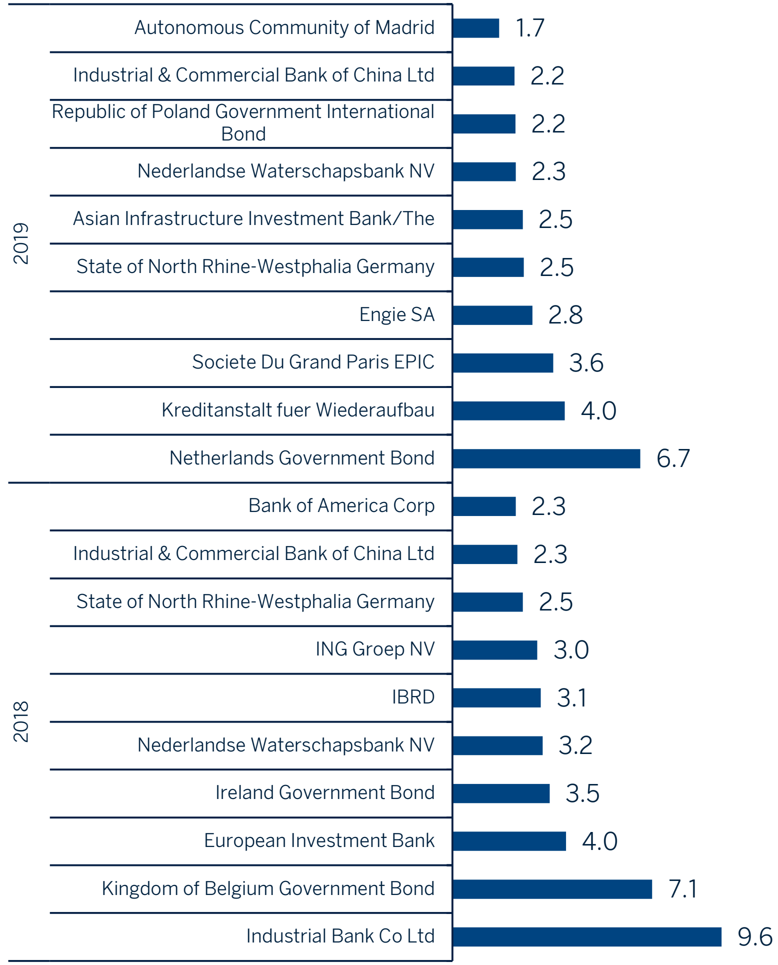
Source: Dealogic, BBVA Credit Research

	2016	2017	2018	2019 YtD
Corporates	48%	48%	40%	58%
Financial Institutions	31%	28%	38%	33%
Sovereigns / Agencies	16%	16%	18%	7%
Asset-backed Securites	6%	8%	4%	2%

The European Investment Bank is still the largest issuer of ESG bonds

Largest ESG bond issuers 2018-2019 YtD (USD bn)

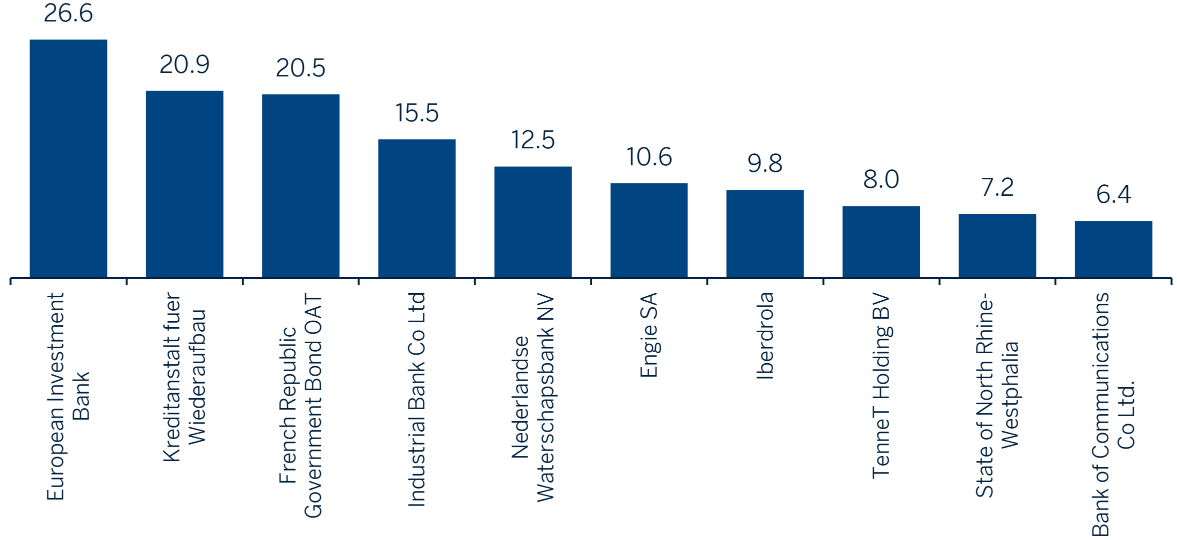
Source: Bloomberg, BBVA Credit Research



- The European Investment Bank continues to be the largest issuer of ESG-labelled bonds, having issued the first instrument of its kind in 2007. In recent years, the bank has issued USD2-5bn of ESG labelled instruments per year for a total of c.USD26.6bn as of June 2019.
- 2018 saw Belgium and Ireland among the ten largest issuers of the year with USD7.1bn and USD3.5bn of ESG bond issuance, respectively.
- The largest issuer so far this year is the Netherlands government with EUR6bn issuance, whilst Engie also appears in the top issuers with EUR2.5bn of green bonds issued YtD.

Outstanding ESG bond volumes by issuer (USD bn)

Source: Bloomberg, BBVA Credit Research



The three major issuance markets differ significantly in their characteristics

ESG bond market size:
USD290bn

- Highly diversified. Banks contributed 21% of total ESG bond issuance in 2018; no other single sector contributed more than 15% of total issuance.
- Most issuers align themselves with the GBP, which has been adopted as the de-facto market standard.
- Legislative developments, most significantly the developing EU taxonomy, will help to further harmonise standards across the region.

ESG bond market size:
USD140bn

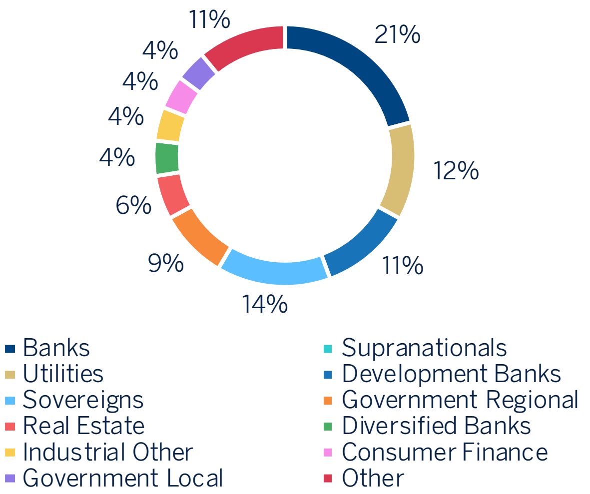
- Market is largely self-regulated, with entirely voluntary regulatory systems related to ESG-labelled bonds.
- Investors are generally considered less well-educated about ESG investments and largely less willing to consider them than their European peers.
- Over 91% of 2018 ESG bond issuance was from banks, supranationals, utilities and real estate, suggesting a lack of diversification.

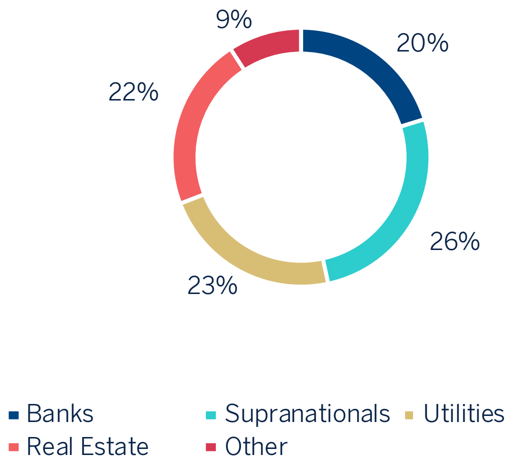
ESG bond market size:
USD90bn

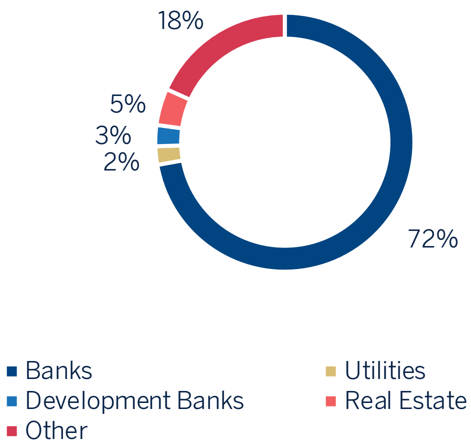
- Banks contributed 72% of total ESG bond issuance in China in 2018.
- The People's Bank of China (PBoC) has made efforts to harmonise green bonds by issuing green bond certification guidelines.
- Banks are required to report quarterly on how the proceeds from green bonds are being deployed under further guidance from the Chinese Securities Regulatory Commission (CSRC).

Issuance breakdown by sector (2018)

Source: Bloomberg, BBVA Credit Research







Sovereign issuers to continue to meet climate objectives by issuing green bonds

Sovereign issuance of green, social and sustainable bonds

Note: Bold indicates debut issuance.
Source: Dealogic, Bloomberg, BBVA Credit Research

Issuer	Curr.	Amount Issued (USD mn)	Issue Date	Maturity Date
Poland	**EUR**	**794**	**13-Dec-16**	**20-Dec-21**
France	**EUR**	**7,513**	**24-Jan-17**	**25-Jun-39**
France	EUR	1,650	01-Jun-17	25-Jun-39
Fiji	**FJD**	**20**	**01-Nov-17**	**01-Nov-22**
Fiji	FJD	80	01-Nov-17	01-Nov-30
France	EUR	1	07-Dec-17	25-Jun-39
Nigeria	**NGN**	**30**	**20-Dec-17**	**22-Dec-22**
Poland	EUR	1,239	31-Jan-18	07-Aug-26
Belgium	**EUR**	**5,532**	**26-Feb-18**	**22-Apr-33**
France	EUR	1,346	05-Apr-18	25-Jun-39
Lithuania	**EUR**	**24**	**30-Apr-18**	**03-May-28**
France	EUR	4,670	26-Jun-18	25-Jun-39
Ireland	EUR	3,444	10-Oct-18	18-Mar-31
France	EUR	1,894	07-Feb-19	25-Jun-39
Poland	EUR	1,707	28-Feb-19	07-Mar-29
Poland	EUR	569	28-Feb-19	08-Mar-49
Belgium	EUR	1,441	18-Mar-19	22-Apr-33
France	EUR	2,128	02-May-19	25-Jun-39
Netherlands	**EUR**	**6,681**	**21-May-19**	**15-Jan-40**
Hong Kong	**USD**	**1,000**	**21-May-19**	**28-May-24**
South Korea	**USD**	**500**	**12-Jun-19**	**19-Jun-24**
Chile	**USD**	**1,418**	**17-Jun-19**	**25-Jan-50**
Chile	EUR	981	25-Jun-19	02-Jul-31
Total		**44,663**		

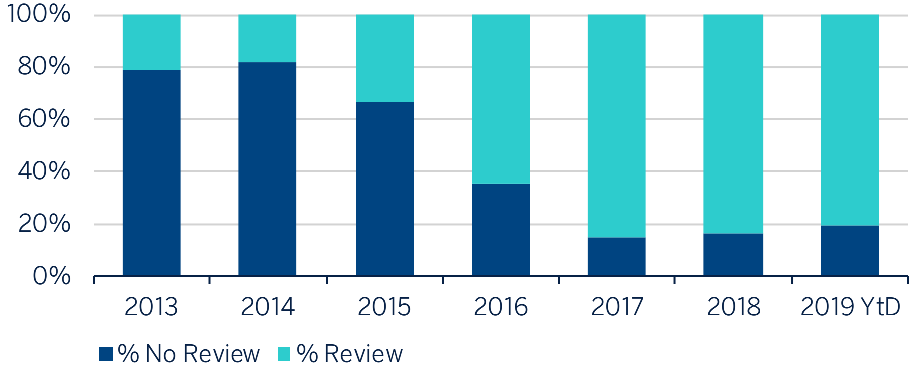
- 2018 again saw increased green bond issuance from sovereigns, including debut issuances from Belgium, Ireland and Lithuania. Issuance in 2018 from sovereigns amounted to c.USD16.2bn, an increase of almost 75% over 2017's USD9.3bn figure.
- 2019 has so far raised the bar once again for sovereign issuers, especially due to the emergence of new players. Sovereign issuance has already reached over USD18bn, c.12% higher than the full-year total for 2018.
- This was bolstered by the EUR6bn inaugural issuance by the Netherlands, as well as inaugural issuances from Hong Kong, South Korea and Chile.
- We expect more sovereigns to issue green/social/sustainable bonds over the near/medium term.
- Sovereign issuers are increasingly turning to green bonds to achieve their sustainable-development strategies, as the ability to appeal to a broader, more diverse range of investors is likely to increase demand, particularly in EMs, and potentially lead to pricing advantages.
- Sovereign issuance is playing a key role in the continued development of the green, social and sustainable bond universe as it brings increased attention and legitimacy to the market. This is especially important in the early years of the development of the asset class.

Use of second-opinion providers is on the rise

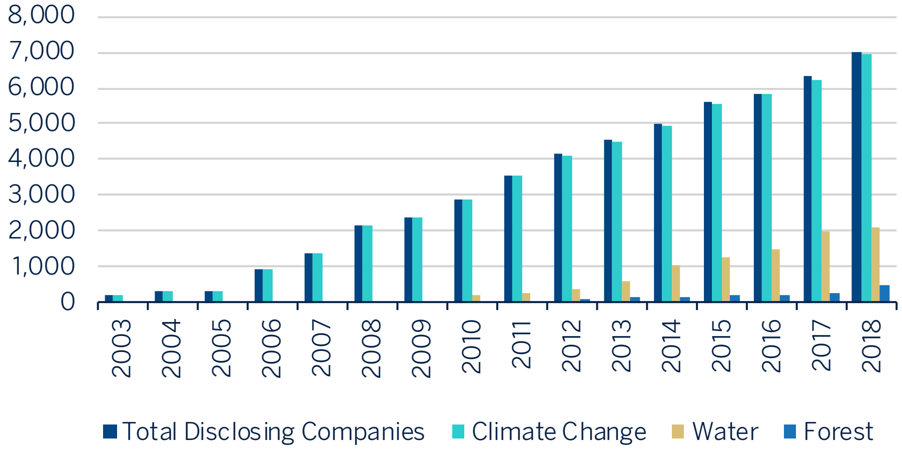
- Issuers self-label bonds as green. At the very least, issuers qualify the label by providing details on the green eligibility criteria for the use of proceeds.
- Second-opinion providers review the green eligibility criteria for the financing of green projects independent of the issuer and/or arranging bank.
- The most common type of reviews are conducted via ESG service providers, scientific consulting firms and rating agencies**.**
- The use of second-opinion providers in bond issuances has been increasing since 2014, when only 20% of issuances used second-opinion providers. 2017 saw the highest percentage of deals with these providers (85% of deals).

Rating agencies	ESG service providers	Scientific experts
Moody's S&P Global Ratings	oekom research Sustainalytics DNV·GL	CICERO Center for International Climate Research Climate Bond Certified

Use of second-opinion providers
(% of total number of bonds issued)
Source: Dealogic, BBVA Credit Research



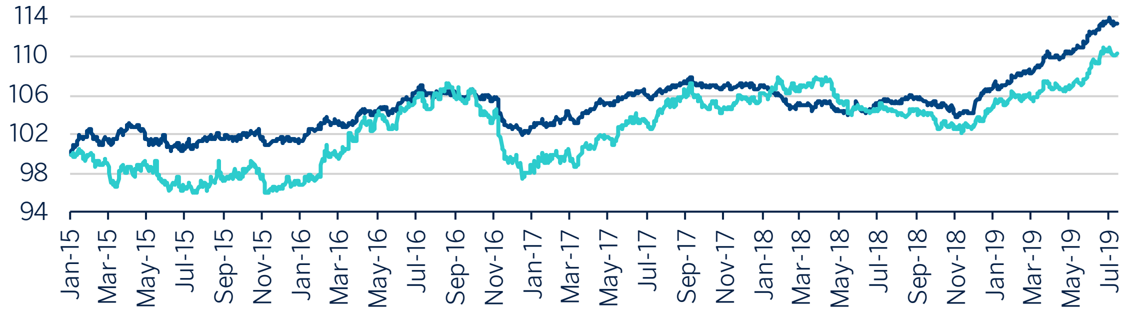
Companies reporting to CDP
Source: CDP, BBVA Credit Research



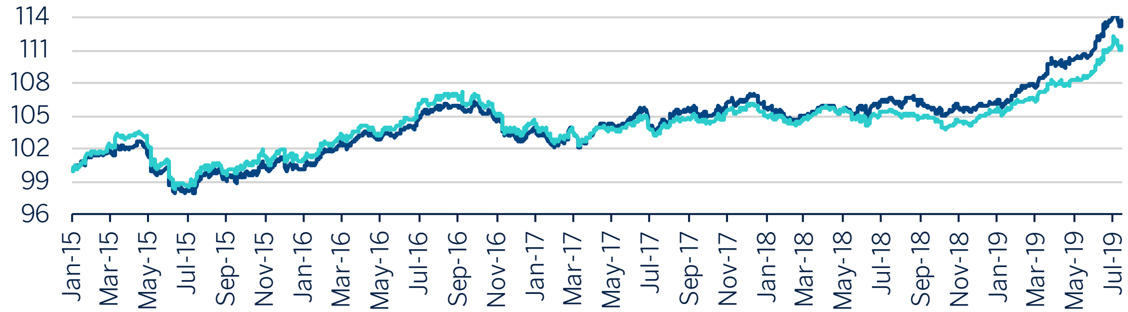
No significant outperformance for green bond indexes vs. vanilla benchmarks

- There are differing views as to whether incorporating ESG into fixed-income investments contributes to higher financial returns, as the theory is that considering ESG risk factors should contribute to more stable returns over time given the reduced exposure to climate change related risks.
- On the other hand, by narrowing the potential universe of investments, ESG could lower returns.
- Therefore, we analyse the return of the Barclays MCI Green Index since 2015 (base=100) vs. the conventional bond index in a period when, given the ECB's accommodative policies, there has been very little differentiation between issuers in a hunt-for-yield scenario.
- In 2019 YtD, the USD and EUR green bond indexes have returned 6.8% and 7.5%, respectively, outperforming their conventional indexes by 1.23pp and 1.56pp.

Bloomberg Barclays MSCI green vs. vanilla bond index
(global) (price, re-indexed Jan 2015 = 100)
Note: Figures do not include issuance from Fannie Mae. Source: Dealogic, BBVA Credit Research



Bloomberg Barclays MSCI green vs. vanilla bond index
(Euro) (price, re-indexed Jan 2015 = 100)
Note: Figures do not include issuance from Fannie Mae. Source: Dealogic, BBVA Credit Research



Highlight issuances of 2019

Deal overview

Source: company data, BBVA Credit Research

Comment	Issuer	Instrument	Instrument type	Amount Issued	Pricing Date	Used of Proceeds	Second Opinion Provider
Telefónica's debut green bond		TELEFO 1.069% 02/05/24	Senior unsecured	EUR1bn	28/01/2019	"Proceeds to be allocated towards eligible green investments: energy efficiency in the network transformation from copper to fibre optic in Spain"	Sustainalytics
BNP's second green bond proves a hit with green investors		BNP 1.125% 08/28/24	Senior non-preferred	EUR750mn	21/02/2019	"Financing and/or refinancing, in whole or in part, of Eligible Green Assets"	Oekom
ICO issues its inaugural green bond, six times over-subscribed		ICO 0.2% 01/31/24	Senior unsecured	EUR500mn	09/04/2019	"Renewable energy, energy efficiency, clean transportation, pollution, prevention and control etc."	Sustainalytics
The State of the Netherlands becomes the latest sovereign to issue an ESG bond		NETHER 0.5% 01/15/40	Unsecured	EUR5,985mn	21/05/2019	"Solar energy, Marine renewable energy, water infrastrucutre, low carbon buidings and low carbon land transportation"	Sustainalytics
Engie brings both an 8Y and a 20Y green bond to the market		ENGIFP 1.375% 06/21/39 ENGIFP 0.375% 06/21/27	Senior unsecured	EUR750mn EUR750mn	21/06/2019	"Renewable energy projects, energy efficient projects, eligible natural resources preservation projects"	Vigeo Eiris

Key themes for 2019 (i)

Theme 1

New sovereign issuers to emerge in the ESG universe

- We expect the number of sovereign issuers to increase in the coming years as governments seek to raise capital for climate mitigation and adaptation activities.
- A number of sovereigns have already issued in 2019, most notably the Netherlands with a c.EUR6bn issuance in May. They were joined by Chile, South Korea and Hong Kong as inaugural sovereign issuers of ESG bonds.

Theme 2

Increased issuance of social- and sustainable-labelled bonds

- We expect that as awareness and understanding of ESG investing deepens on the part of issuers and investors, both supply and demand of a more diverse range of instruments will lead to further balancing of green-, social- and sustainable-labelled instruments.

The Social Bond Principles

Theme 3

European non-financial corporates to become more green

- We expect a larger percentage of issuance to be green-/socially-labelled as issuers try to mitigate lower investor demand by marketing to a broader, more diverse investor base. We also expect increased issuance from non-traditional ESG issuers. A prime example is Spanish engineering conglomerate ACS Group's subsidiary ACS Servicios Comunicaciones y Energía, which brought a EUR750mn green bond to market in April 2018.

Telefónica IBERDROLA ENGIE enel

Key themes for 2019 (ii)

Theme 4

Credit rating agencies' tools to increase awareness

- Continuing efforts by credit rating agencies to give investors and issuers greater clarity and insights into the impact of green, social and sustainable bonds will serve to increase their attractiveness.
- This will work in conjunction with the continued emergence of socially and environmentally conscious investors that have driven much of the demand for ESG-compliant investments in recent years.

Theme 5

EU taxonomy to harmonise the EU market

- The EU's development of a taxonomy for sustainable investments will help to create greater understanding on the part of issuers and investors regarding the ESG credentials of their instruments and contribute to the EU's wider sustainable-finance action plan.

EU HIGH-LEVEL EXPERT GROUP ON SUSTAINABLE FINANCE

Theme 6

Green secured issuance to increase

- In December 2018, the energy-efficient mortgage (EEM) initiative unveiled its definition of an energy-efficient mortgage. EEMs are intended to finance the purchase, construction and/or renovation of both residential and commercial buildings, given some conditions.
- One outcome of the EeMAP's push should be a greater number of more easily identifiable energy-efficient mortgages that can constitute collateral for green covered bonds/securitisations.

EeMAP Energy efficient Mortgages Action Plan

03

Policy and regulatory developments in the EU green bond market

Market harmonisation is an essential issue to tackle – the EC is leading the way

- Work by the European Commission's High-Level Expert Group on Sustainable Finance (HLEG), established in 2016, has been crucial to setting **standards and guidelines for how European issuance of green, social and sustainable bonds** can be further harmonised as well as to "steer the **flow of capital towards sustainable investments**; identify steps that financial institutions and supervisors should take to **protect the financial system from sustainability risks;** and deploy these policies on a pan-European scale" (source: Final Report 2018 by the High-Level Expert Group on Sustainable Finance).
- In a January 2018 report, the HLEG identified a number of items that the group considers top priorities, including:
  - Establishing an EU sustainable taxonomy.
  - **Clarifying investor duties** to put a greater focus on ESG factors in investment decision-making.
  - Upgrading disclosures to **make sustainable opportunities and risks more transparent**.
  - Developing official European sustainability standards for some financial assets, starting with green bonds.
  - Establishing 'Sustainable Infrastructure Europe' to **deploy development capacity in EU member states** for infrastructure necessary for **a more sustainable economy.**
  - **Integrating sustainability within the governance of financial institutions** as well as in financial supervision.
- The creation of a subsequent Technical Expert Group (TEG) allowed for the development of **a green bond taxonomy** in order to further harmonise 'green' reporting and disclosures by identifying activities and assets that are eligible as 'green' and establish metrics and thresholds against which their 'green-ness' can be judged.
- The deepening involvement of bodies like the EC is crucial for the continued expansion of this asset class, because it increases **exposure and legitimacy for potential market participants** and ensures that the **standards and underlying guidelines are maintained**. This benefits issuers and investors as well as the causes for which the bonds are being issued, and thus the environment and society as a whole.

EU green bond policy initiatives in focus

EU Taxonomy

Defining green projects and setting metrics & thresholds

- Taxonomy provides issuers and investors with a comprehensive list of **mitigation and adaption activities** that qualify as environmentally sustainable for investment purposes.
- Provides a list of **eligible activities as well as a set of metrics and thresholds** against which many may be judged (e.g. Energy Production (Geothermal), measured using direct GHG emissions, threshold <125g $CO2e/kWh$).
- Gives issuers and investors **greater clarity and understanding** of green-labelled bonds' actual green credentials.

EU Green Bond Standard

Create harmonised rules to define EU green bonds

- Green Bond Standard (GBS) is more of a high-level initiative than the Taxonomy, setting out criteria for issuers to be able to issue an **'EU Green Bond'.**
- This includes adherence to the EU Taxonomy, whilst also **requiring issuers to have third-party reviews**. Reporting of proceeds is required at least annually, and there are rules governing issuers' frameworks.
- The final report released in June 2019 also has 10 recommendations for the European Commission to help **establish and grow the EU green bond market.**

Disclosure rules

Encourage investors to disclose ESG considerations

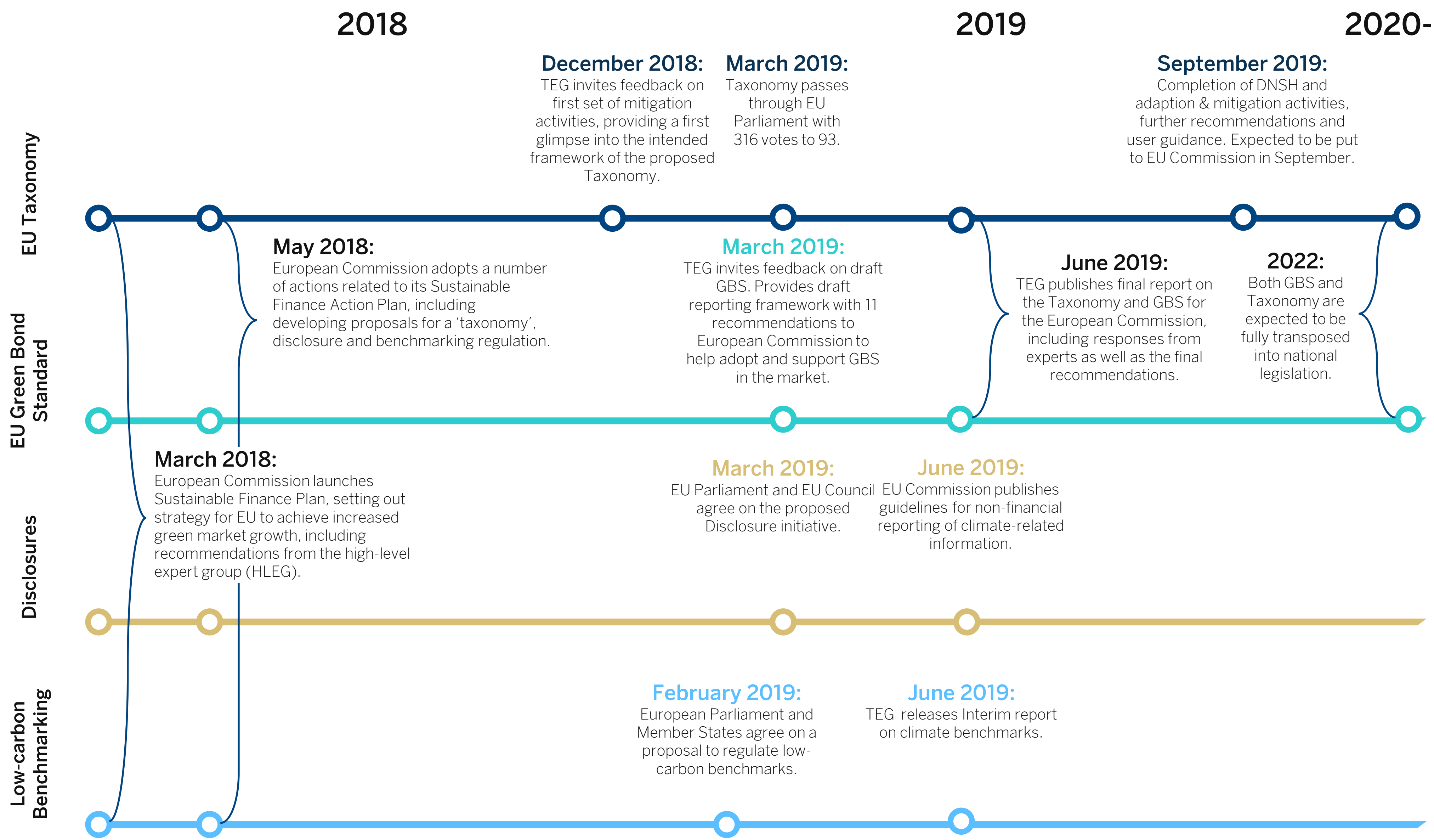
- Designed to incentivise institutional investors to disclose their commitment to ESG, making them more aware of risks stemming from ESG related factors in the process.
- Disclosure should also help prevent 'greenwashing', the false marketing of green products.
- Investors must disclose the procedures they have in place to integrate ESG risks into their strategies, the potential impact on profitability stemming from those risks, and also how ESG-friendly strategies are implemented.

Benchmarking regulation

Create low-carbon benchmarking regulation

- The use of investment benchmarks allows investment managers to gauge the performance of their financial products.
- The European Commission's proposal to create two benchmarks, a low-carbon and a positive-carbon impact benchmark, should provide clarity to investors regarding comparative performance.

EU green bond initiative timeline



EU taxonomy: defining what is green

- The EU's Technical Expert Group on Sustainable Finance (TEG) released its final report on the EU Taxonomy on 18 June 2019.
- The final report details the motivation, methodology and expected impact of the Taxonomy – providing ESG bond market participants with a comprehensive classification of 76 economic activities from seven industry sectors including agriculture, manufacturing and transportation.
- The current Taxonomy looks at both climate mitigation and climate adaption activities, whilst future iterations will aim to tackle a further four environmental objectives: i) sustainable use and protection of marines resources; ii) transition to a circular economy, waste prevention and recycling; iii) pollution prevention and control; and iv) protection of healthy ecosystems.
- When compared to similar publicly available taxonomies (namely the Climate Bond Initiative Taxonomy, and the People's Bank of China (PBoC) Green Bond Endorsed Project Catalogue), the EU taxonomy provides a tangible step-up in terms of depth and clarity of assessment.

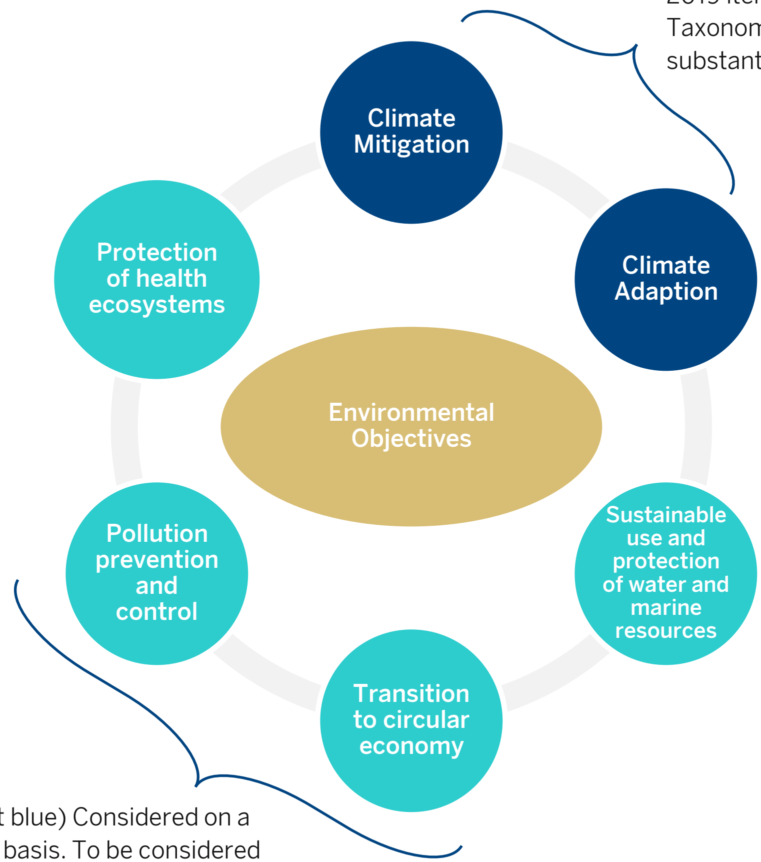
Activity eligibility: are they passing the test?

- According to the 'Proposal for a regulation on the establishment of a framework to facilitate sustainable investment', economic activities must fulfil the following requirements in order to be considered Taxonomy-eligible.

Taxonomy Eligibility Criteria

1. **Contribute substantially to one or more of the environmental objectives:**
    - Whilst this version of the Taxonomy covers only two of the six environmental objectives set out by the regulations, there will be subsequent Taxonomy inclusions of the remaining four in the coming years.
2. **Do no significant harm to other environmental objectives:**
    - Taxonomy eligible activities must avoid significant harm to the other five environmental objectives.
    - This will be assessed through a series of technical screening criteria.
3. **Comply with minimum social safeguards:**
    - This includes conducting due diligence on labour policies and governance, labour management systems, etc.
4. **Comply with technical screening criteria:**
    - In accordance with Article 14 of the regulation.

Addressed in the June 2019 iteration of Taxonomy regarding substantial contribution



(Light blue) Considered on a DNSH basis. To be considered on a substantial contribution basis in future versions of Taxonomy.

Climate mitigation & climate adaption; what is the difference? (i)

"An economic activity shall be considered to contribute substantially to climate change mitigation where the activity substantially contributes to the stabilisation of greenhouse gas concentrations in the atmosphere at a level which prevents the dangerous anthropogenic interference with the climate system by avoiding or reducing greenhouse gas emissions or enhancing greenhouse gas removals"

- The processes that the TEG lists as climate mitigating are: i) generating, storage or using renewable/climate neutral energy; ii) improving energy efficiency; iii) increasing clean or climate neutral mobility; iv) switching to use of renewable materials; v) increasing carbon capture and storage use; vi) phasing out anthropogenic emissions of greenhouse gases; vii) establishing energy infrastructure required for enabling decarbonisation of energy systems; and viii) producing clean and efficient fuels from renewable or carbon-neutral sources.

Climate mitigation activities

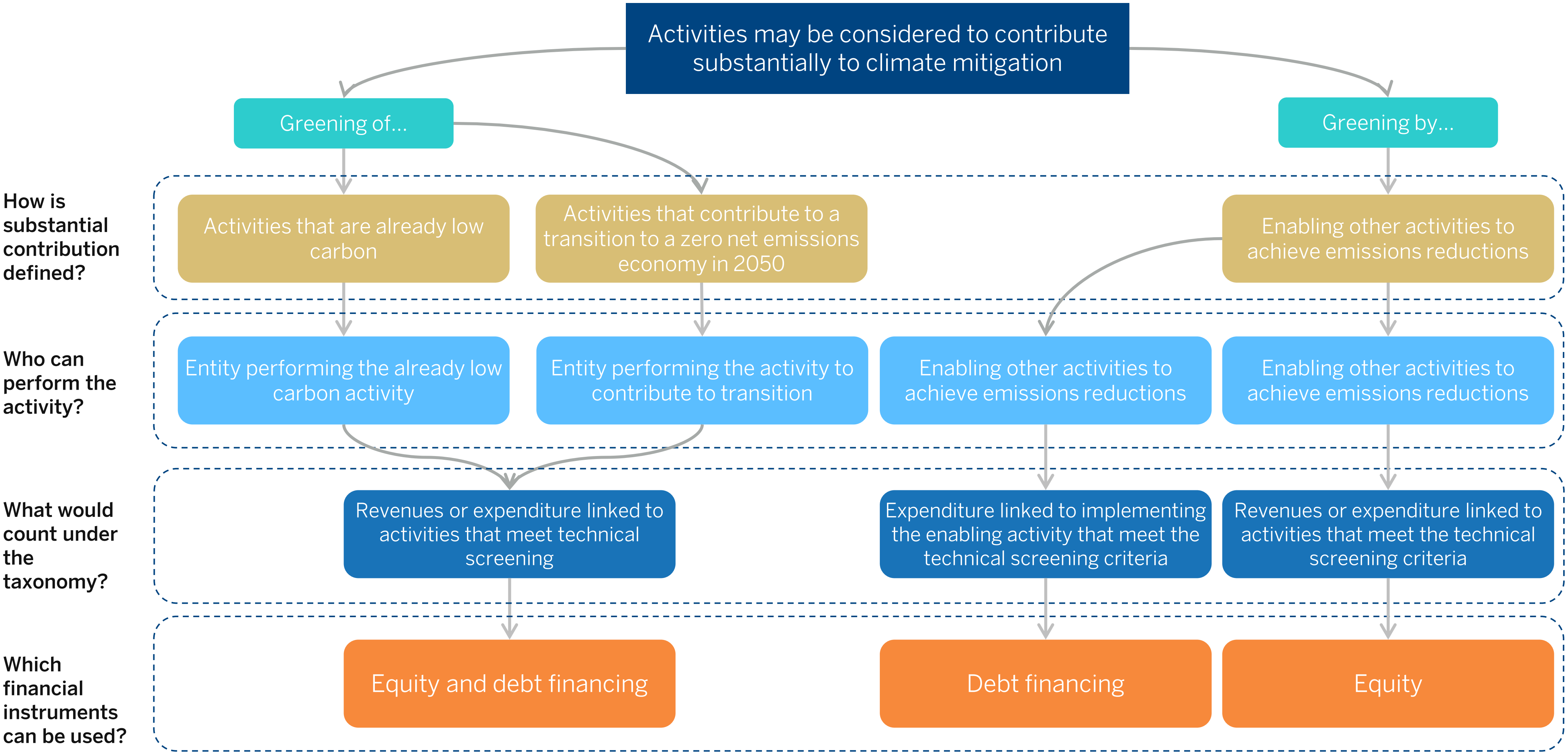
Source: TEG and BBVA Credit Research

NACE Macro - sector	Agriculture, forestry and fishing	Manufacturing	Electricity, gas, steam & air conditioning supply	Water, sewerage, waste & remediation	Transportation and storage	ICT Data processing, hosting & related activities
Activities	✓ Livestock production	✓ Manufacture of cement	✓ Production of electricity from solar PV	✓ Water collection, treatment and supply	✓ Passenger rail transport (inter-urban)	✓ Data-driven solutions for GHG emissions reductions
	✓ Afforestation	✓ Manufacture of aluminium	✓ Transmission and distribution of electricity	✓ Centralised wastewater treatment systems	✓ Freight rail transport	✓ Construction and real estate services
	✓ Rehabilitation, restoration	Manufacture of iron and steel	✓ Storage of energy	✓ Anaerobic digestion of sewage sludge	✓ Public transport	✓ Construction of new buildings
	✓ Reforestation	✓ Manufacture of hydrogen	✓ Production of heat/cool using waste heat	✓ Transport of CO2	✓ Inland passenger water transport	✓ Renovation of existing buildings

Climate mitigation & climate adaption; what is the difference? (ii)

Choosing climate mitigating activities

Source: TEG, BBVA Credit Research



An example of climate mitigation; transmission and distribution of energy

Climate mitigation example: transmissions and distribution of energy

Source: TEG and BBVA Credit Research

Transmission and distribution of energy	
Description of activity	Construction and operation of transmission lines/distribution systems that transport the electricity on the high-voltage interconnected system with a view to its delivery to final customers/distrbutors.
Principle	• Support the integration of renewable energy into the power grid. • Lead to significant GHG emissions reductions, from fuel switching or merit order optimisation, as a direct result of the investment. • Decreases direct emissions from T&D infrastructure.
Examples of metrics & thresholds*	The following T&D grid infrastructure-related activities are eligible, irrespective of whether the system is on a pathway to full decarbonisation: • Direct connection of low carbon electricity generation below the threshold of 100 gCO2e/kWh declining to 0g CO2e/kWh in 2050 measured on an LCE basis. • EV charging stations and electric infrastructure for public transport.
Rationale	Increasing access to electricity throughout Europe will support its decarbonisation by enabling more consumers to transition from carbon-intensive energy supply, while increasing the utilisation of renewable energy. As Europe continues to fulfil its decarbonisation objectives, there will be fewer and fewer investments in transmission and distribution which are not climate aligned. Under this logic, we propose that virtually all investments in electricity transmission and distribution infrastructure should be considered climate-aligned under the EU Taxonomy. This includes investments to electric grid infrastructure which improve the overall systems architecture. Naturally, there are a variety of exceptions to this rule and this is reflected within the criteria.

Notes: * this is a small selection of metrics and thresholds. The full selection can be found in the technical report.

Climate mitigation & climate adaption; what is the difference? (iii)

"An economic activity shall be considered to contribute substantially to climate change adaptation where that activity contributes substantially to reducing the negative effects of the current and expected future climate or preventing an increase or shifting of negative effects of climate change"

- Activities can make a substantial contribution to adaption objectives if:
  1. All material physical climate risks identified for the economic activity are reduced to the extent possible and on a best effort basis; and/or
  2. It reduces material physical climate risk in other economic activity

- Economic activities can contribute to adaption objectives in two different ways:
  1. Adaptation of an economic activity: an economic activity is made more climate resilient by integrating measures to reduce all material physical climate risks to the extent possible and on a best-effort basis.
  2. Adaptation by an economic activity: an economic activity contributes to adaptation of other economic activities to physical climate risks and must also be resilient to physical climate risks itself.

Climate adaption activities

Source: TEG and BBVA Credit Research

	Climate change adaption activities				
NACE Macro - sector	**Agriculture, forestry and fishing**	**Electricity, gas, steam & air conditioning supply**	**Water, sewerage, waste & remediation**	**ICT**	**Finance and Insurance / Professional, scientific and technical activities**
Activities	✓ Growing of non-perennial crops ✓ Silviculture and other forestry activities	✓ Production of electricty from hydropower ✓ Transmission lines	✓ Sewage	✓ Provision of speclialised telecommunications applications for weather monitoring and forecast.	✓ Non-Life insurance ✓ Research and development (natural sciences and engineering) ✓ Engineering activities and related technical consultancy.

Climate mitigation & climate adaption; what is the difference? (iv)

- The Taxonomy provides a set of **adaption screening criteria** to define whether an activity provides a **significant contribution to climate change adaption** depending on whether an activity is classified as contributing through the **adaption of or by an economic activity:**

Adaption of economic activity:

Reducing material physical climate risks

A1.1. The activity integrates physical and non-physical measures aimed at reducing - to the extent possible and on a best-effort basis - all material risks that have been identified through a risk assessment.

A1.2. The above-mentioned assessment has the following characteristics: i) considers both current weather variability and future climate change, including uncertainty; ii) is based on robust analysis of available climate data and projections across a range of future scenarios; and iii) is consistent with the expected lifetime of the activity.

Supporting system adaption

A2.1. The activity does not lead to increased climate risks for others or hamper adaptation elsewhere, for example, upstream flood defence causing increased risk downstream in a river basin.

A2.2. The activity is consistent with sectoral, regional, and/or national adaptation efforts.

Monitoring adaption results

A3.1. Adaptation results can be monitored and measured against defined indicators. Recognising that risk evolves over time, updated assessments of physical climate risks should be undertaken at the appropriate frequency where possible.

Adaption by economic activity:

Supporting adaptation of other economic activities

B1.1. The activity reduces or facilitates adaptation to the physical climate risks beyond the boundaries of the activity itself. This includes activities that: i) promote a new technology, product, practice or governance process or innovative uses of existing practices (including those related to natural infrastructure); or ii) remove information, financial, technological and capacity barriers to adaptation by others.

B1.2. In the case of infrastructure-based activities, the economic activity must also meet the screening criteria A1, A2 and A3 for adaptation of an economic activity.

Examples of climate adaption; sewerage & telecommunications

Climate adaption example: sewerage and telecommunications

Source: TEG and BBVA Credit Research

Sewerage

Description of activity	Operation of sewer systems or sewage treatment facilities that collect, treat, and dispose of sewage.				
Type of climate adaption activity:	Adaption of economic activity				
Examples of adaption measures: *	**Specific hazards**	**Sensitivity of activity to hazard**	**Associated impacts**	**Illustrative examples of adaption measures**	**Suggested performance metrics**
	Temperature-related (acute) - Cold waves/frost	Typically sensitive	Changes in physical, chemical and biological reactions	Adjust water and wastewater management and treatment processes	Reduced number of days of disrupted operation.
	Water-related (chronic) - Increase in frequency and severity of droughts	Typically sensitive	Undermining sewer function and operations	Construction, extension and upgrading of: - Network connectivity infrastructure.	No or limited reduction in the quantity of wastewater treated in the occurrence of drought / reduced water availability.

Provision of specialised telecommunications applications for weather monitoring and forecasting

Description of activity	Other telecommunication activities: provision of specialised telecommunications applications for weather monitoring and forecast and early warnings (see example contribution): • provision of specialised telecommunications applications, such as satellite tracking, communications telemetry, and radar station operations • operation of satellite terminal stations and associated facilities operationally connected with one or more terrestrial communications systems and capable of transmitting telecommunications to or receiving telecommunications from satellite systems. Satellite communications can support monitoring, forecast, early warning, and emergency communications through extreme weather events and enhance climate resilience of other economic activities.		
Type of climate adaption activity:	Adaption is enabled by this activity		
Examples of adaption measures: *	**Climate-related hazards**	**Associated physical climate risks**	**Contribution to reduction of physical climate risks**
	• Temperature-related • Wind-related • Water-related • Solid mass-related	Damages and disruption to natural and built environment	The provision of specialised telecommunications applications for weather monitoring, forecast and early warning improves preparedness and response planning for small-scale and large-scale drought, floods, cyclones, storm surges, and other climate-related hazards, and reduce the risk of death, injury, asset loss and damage. By providing and delivering climate-related information to authorities and the general public, specialised telecommunications applications for weather monitoring, forecast and early warning empowers individuals, institutions and public and private organisations to adapt.

Key Taxonomy takeaways: transition activities and green asset bubbles

Inclusion of transition activities

- The inclusion of not just activities that are considered 'dark-green' but also those that are considered transition activities as well (e.g. passenger vehicles) is a crucial development.
- The thresholds for these transition activities are, however, significantly more stringent.
- Passenger vehicles, for example, are only eligible if they have a tailpipe emission intensity of less than 50gCO_2/km until 2025 and then 0gCO_2/km from 2026 onwards.

Focus on usability

- Whilst the use of the Taxonomy is focused on financial market participants (fund managers, insurers, etc.), usage by local authorities as well as corporates in identifying sustainable investments or integration into strategy decisions.

Other considerations

- The TEG acknowledge the concern of the creation of a 'green asset bubble' due to an increased level of interest in sustainable assets vs. others.
- Whilst this may create instability in the long term, if it occurs at all, the Taxonomy is only one component of a wider climate strategy and thus, the risk of asset bubbles forming as a result of the Taxonomy alone is minimal.

- The Taxonomy is by no means set in stone. There are further activities to be included under the remaining four environmental objectives, further technical screening criteria and Do No Significant Harm (DNSH) evaluations to complete.
- This version of the Taxonomy is merely a first iteration of a significant body of work to come in the future.
- It is however a significant step in the right direction. It will serve as a substantial foundation for market participants and will hopefully prove to be a landmark moment in the ESG market.
- It is now up to issuers and investors to absorb and digest this detail, we await for the first EU Taxonomy aligned products to emerge in the coming months/quarters.

Next steps: Delegated Acts and Platform on Sustainable Finance

- From July 2019 until September 2019, the Taxonomy remains in a consultation phase. The TEG has extended it's mandated period to the end of the year in order to further support the Taxonomy and EU Commission. A final report is likely to be submitted to the Commission at some point in late-2019.
- In order for the Taxonomy to enter legislation, the development of a 'Delegated Act' is required by the European Commission which will include the Taxonomy. This can only be done following the approval by the Trialogue, which is due to begin discussions in September 2019. Following this, there is usually a two-month grace period, in which the Parliament and Council are able to put forward any objections.
- Assuming that there are no considerable objections to the Taxonomy or associated Delegated Acts, it is suggested that the regulation is to be published by the end of 2019, with the Delegated Act adopted a number of months afterwards and the regulation entering into force six months after this point (around July 2020).
- The TEG also recommends the creation of a Platform on Sustainable Finance which will provide 'technical assistance and recommendations of the technical screening criteria'. The TEG suggests that the Platform on Sustainable Finance also allows for stakeholders to periodically provide suggestions for amendments and updates to the Taxonomy.
- Every three years, starting from 31 December 2021, there will be a review of the relevant regulation including the Taxonomy.

July 2019 – September 2019
- Consultation phase

September 2019 (expected) – Y/E 2019
- Publication of regulation

End of 1H20 (approx.)
- Regulation enters into force

December 2021 (every subsequent three years)
- Review of relevant regulation

EU GBS: setting the standard

- In June 2019, the TEG published the final report of the EU GBS, which included the motivation and goals of the EU GBS and to what extent it may be able to support and foster further growth in the c.USD250bn European (USD538bn global) green, social and sustainable bond market.
- The purpose of the GBS is to lay out **exactly what can be classified as an 'EU green bond',** building on the ICMAs green bond principles to try to further the endeavour **to harmonise the standards and principles of not just the European, but also the global green bond market.** In order to be labelled an 'EU green bond', issuers must ensure that all of the following requirements are met:

"The issuer's green bond framework shall confirm the alignment of the EU green bond with the EU GBS"

"The proceeds, or an amount equal to such proceeds, shall be exclusively used to finance or refinance in part or in full new and/or existing green projects"

"The alignment of the bond with the EU GBS shall have been verified by an accredited external reviewer"

- The GBS is built upon four principles:

01 EU GBS should be a voluntary standard

Issuers have the choice of issuing in alignment with the EU GBS. If they do choose to do so, alignment is to be verified by an accredited external reviewer.

02 The EU GBS should be built on market best practices

Current market practice is based upon transparency and standards of reporting.

03 The EU GBS should be both a European and International Standard

Scope of the EU GBS is not limited to geography or form of instrument.

04 The EU GBS should be open to existing green bond transactions and to all types of issuers

The standard should not discriminate between issuers, allowing new and existing issuers of green bonds to align their issuance frameworks to the standard.

EU GBS: what do you recommend?

- The TEG initially provided eleven recommendations for the EU Commission in their March 2019 invitation for feedback. These have been revised to ten recommendations in the final report:

Ten recommendations for EU Commission by the TEG

- **Create a voluntary green bond standard**
- The EU-GBS should comprise four core components: (1) **alignment of Green Projects with the EU Taxonomy**, (2) **Green Bond framework,** (3) **reporting** and (4) **verification by accredited verifiers.**
- **Encourage the set-up of a voluntary interim registration process for Verifiers of EU Green Bonds for an estimated transition period of up to three years.**
- Investors, in particular institutional investors, are **encouraged to use the requirements of the EU-GBS** when designing their green fixed-income investment strategies and to **communicate their preference and expectations actively to green bond issuers as well as to underwriters**.
- The TEG welcomes the recent political compromise on the sustainability-related disclosures regulation and recommends that the European Commission adopts an **ambitious disclosures regime on green bond holdings for institutional investors.**
- Consider promoting greening the financial system by **expressing and implementing a preference for EU Green Bonds.**
- Consider developing **financial incentives to support the EU Green Bond Market alignment with the EU-GBS**.
- The TEG encourages all types of bond issuers to issue their future green bonds **in conformity with the requirements of the EU-GBS.**
- Promote adoption of the EU-GBS through the **EU Ecolabel for financial products.**
- **Monitor impact on the alignment of financial flows with the EU Taxonomy's Environmental Objectives** and consider further supporting action including **possible legislation after an estimated period of up to three years.**

These recommendations are designed to address what the TEG consider to be the main barriers for growth for the ESG bond market in Europe: 1) Lack of Green projects, 2) Issuers concerns over reputational risks and green definitions, 3) Absence of clear economic benefit for issuers, 4) Complex and potentially costly procedures for reporting and external review, 5) Labour intensive reporting procedures, 6) Uncertainty on the type of assets and expenses that can be financed.

EU GBS: four key components

Green Projects

Linking the Taxonomy with the Green Bond Standard

- The definition of Green Projects is explicitly linked to the EU Taxonomy.
- Green Projects can include green assets and expenditures that ‘contribute to improving and maintaining the value of such green assets’.
- This may include: physical/financial assets (i.e. loans or share of working capital), capex/selected opex (i.e. maintenance costs to increase lifetime of green assets) and sovereign expenditures for green public investments.
- Opex is not normally eligible, but exceptional cases may be considered.

Green Bond Frameworks

Formalising the role and usage of issuers Green Bond Frameworks (GBF)

- The use of green bond frameworks by issuers of green bonds under the green bond standards must include the following:
  - Environmental objectives of the EU Green Bond, how issuers’ strategy aligns and rationale for issuing the bond.
  - Process for determining alignment with EU Taxonomy.
  - Description of green projects to be financed.
  - Details of the link between the investment in green projects and green bond.
  - Methodology and assumptions of impact metrics.
  - Description of reporting.

Reporting

Clarifying the requirements of reporting guidelines

- Many of the concerns of the emerging investor base have been the quality and consistency of impact reporting following the issuance of a green bond.
- The GBS addresses this by laying out what is required of issuers.
- Two types of reporting are required under the GBS: i) allocation reporting (i.e. how much capital is being allocated to Green Projects); and ii) impact reporting (description of environmental impacts of the projects being financed).
- This can be done on a project-by-project basis or on a portfolio basis.

Verification

Use of accredited external reviewers is mandatory under EU GBS

- External verifiers (e.g. Sustainalytics, Vigeo etc.) play a vital role in the green bond market.
- The usage of these verifiers in mandatory under the GBS.
- Verifiers must be accredited through the recommended ESMA-led centralised accreditation regime.
- The verification of estimated impact reports is not mandatory, however.

EU GBS: standards with substance?

- As mentioned, the aim of the EU Green Bond Standard is to address and tackle the perceived barriers for growth for the green bond market, not just in the EU, but globally.
- We consider that the GBS has been fairly successful in addressing these issues, although on a case-by-case basis, we are more positive than others when it comes to the degree of success achieved:

1. **Lack of eligible green projects:** EU taxonomy will provide issuers with significantly greater visibility of the eligible 'green' activities including those that were previously thought 'out of scope'.
2. **Issuers' concerns regarding reputational risks and green definitions:** the clarity and level of detail of the Taxonomy and green bond standards will provide market participants with a significantly greater understanding of exactly what activities qualify as eligible for green financing.
3. **Absence of clear economic benefits for issuers:** there is undoubtedly still very little in the way of clear or substantial economic benefits for issuers. The GBS mentions some potential incentives to grow the green bond market, including incentivising banks to enhance pricing for green assets, providing financial incentives to support EU green bond market and – of the incentives deemed 'more complex to implement' – the introduction of tax incentives for both issuers and investors of green assets.
4. **Complex and potentially costly procedures for reporting and external review:** whilst the clarity with which the GBS has stated the necessary requirements for external reviewing and reporting of green bond issuers, the cost aspect remains unsolved. Despite the interim report containing a recommendation for a subsidy for issuers to offset the cost of external verification, this is not mentioned in the final report.
5. **Labour-intensive reporting procedures:** as above, more clarity has been given about the requirements regarding the reporting standards of the EU GBS, however, the labour costs are not necessarily going to be reduced dramatically as a result.
6. **Uncertainty on the type of assets and expenses that can be financed:** the GBS outlines in fairly explicit terms the types of financing that are eligible, including physical or financial assets and capex.

✓ EU GBS adequately / sufficiently addresses this concern

? Progress made but more clarity needed

Benchmarking rules: what are we up against?

- The increasing use of indexes that are ESG-themed or designated 'low carbon' to benchmark portfolio or investment performance has allowed investors **greater exposure to climate-risk hedging strategies**. However, there has been little in the way of regulation to stipulate **minimum requirements and standards for the underlying assets,** resulting in a lack of harmonisation and clarity of objectives.
- This results in confusion on the part of investors when it comes to **comparability of benchmarks**.
- To address this, the EU Commission agreed to create two new classes of benchmark: **i) EU Climate Transition Benchmark (EU CTB);** and **ii) EU Paris Aligned Benchmark (EU PAB),** as well as providing recommendations regarding disclosures for all benchmarks (excluding interest rate and currency benchmarks).

	EU CTB	EU PAB
Definition:	Climate transition benchmark is one which has been constructed such that the portfolio is on a 'decarbonisation trajectory'.	More ambitious than the EU CTB, an PAB is one in which the GHG emissions are already aligned with the Paris Climate Agreement target.
Underlying objective:	Accompanying transition to a low-carbon economy.	Tool to allow investors with more ambitious green strategies to improve exposure to investments in climate mitigation activities.
End-user:	Institutional investors (e.g. pension funds) who wish to hedge against climate change and transition risks.	More urgent investor class who are more eager to further accelerate progress to a Paris-Aligned scenario of +1.5°C.

- The TEG considers this to be beneficial for the following reasons:
  1. Improving comparability of benchmarks sustainability criteria – allowing investors to consider this in their investment/benchmarking procedures.
  2. Transparency improvements help wider market participation.
  3. Capital shift to more sustainable investments.
  4. Less 'punishment' for ESG benchmarks regarding disclosures.
  5. Detailed disclosures by benchmarks will help market participants in their own disclosure requirements.
- Further areas of work are earmarked in the final report, including: i) leveraging more the finalised EU taxonomy to improve alignment with sustainable definitions; ii) integration with MiFID II sustainability considerations to improve clients ability to select investments; and iii) alignment with 'regulation on sustainability-related disclosures in the financial services sector'.

Benchmarking rules: disclosures for credit benchmarks

Fixed income (corporate) benchmark disclosure requirements

Source: TEG, BBVA Credit Research

ESG themes	Disclosures	Rationale for inclusion	Supporting standards and specifications
Overall ESG	- Average ESG rating of bond issuers (relative to securities covered by ESG research) - Overall ESG ratings of top ten index constituents by weighting in index - Total weighting of index constituents not meeting the principles of the UN Global Compact (conduct-related controversy screen)	- Provide investors with further information about portfolio exposure to risks and opportunities not yet fully reflected in the market valuation. -Controversy screening based on UN Global Compact is commonly applied in ESG ratings industry.	- ESG rating methodology used - UN Global Compact Principles
Environmental	- Average Environmental rating of index (E component of ESG rating) (relative to securities covered by ESG research) - High emitting sector exposure (% of total weighting) - Carbon intensity - Portfolio exposure to green economy as measured by % of green revenues - % of green bonds in portfolio	- Sector exposures provides visibility on climate-related transition and technology risks and opportunities captured by the benchmark portfolio. -Total GHG emissions associated with the index portfolio are commonly used by investors for their own reporting purposes.	- List of high emitting sectors - GHG accounting standard used (GHG Protocol or ISO) - GHG data source and % of reported versus estimated emissions - EU Taxonomy (to determine portfolio exposure to green economy) - Green bond standard used (eg ICMA or EU Green Bond Standard)
Social	- Average Social rating of index (S component of ESG rating) (relative to securities covered by ESG research) - Total weighting of index constituents in controversial weapon and tobacco sectors	- Negative screening for controversial weapons is commonly applied by investors.	- Definition of controversial weapons used
Governance	- Governance rating of index (G component of ESG rating) (relative to securities covered by ESG research)	- Governance considerations in fixed income are applied in a different way than in equities.	

Guidelines on non-financial reporting: non-binding recommendations to assist non-financial corporates

- Released alongside the other reports (although published by the EU Commission and not the TEG), the 'Guidelines on reporting climate-related information' is designed to supplement the already released Non-Financial Reporting Directive (2014) and the Non-Binding Guidelines on Non-Financial Reporting (2017).
- The guidelines are non-binding (read: voluntary) and are designed to assist companies in reporting in accordance with the Non-Financial Reporting Directive (NFRD) which requires the publication of policies in relation to: environmental protection, social responsibility and treatment of employees, respect for human rights, anti-corruption and bribery and diversity on company boards.

Recommendation areas and examples

Source: EU Commission, BBVA Credit Research

Area	Examples of recommendations
Business model	- Describe impact of climate-related risks and opportunities on the company's model and strategy and financial planning. - Ways in which the company's business model can impact the climate, both positively and negatively.
Policies & due diligence process	- Describe any company policies related to climate, including any climate change mitigation or adaption policy. - Describe any climate-related targets the company has set as part of its policies, especially any GHG emissions targets, and how the company's targets relate to national and international targets and to the Paris Agreement in particular.
Outcomes	- Describe the outcomes of the company's policy on climate change, including the performance of the company against the indicators used and targets set to manage climate related risks and opportunities. - Describe the development of GHG emissions against the targets set and the related risks over time.
Principal risks & their management	- Describe the company's processes for identifying and assessing climate-related risks over the short, medium, and long term and disclose how the company defines short, medium and long term. - Describe the principal climate-related risks the company has identified over the short, medium, and long term throughout the value chain, and any ssumptions that have been made when identifying these risks.

Scoping in on emissions: a word on GHG emissions reporting

- Under the 'Principal Risks and their Management' section, the suggested KPIs to measure Greenhouse Gas (GHG) emissions are broken down into four indicators: 1) direct GHG emissions (Scope 1), 2) indirect GHG emissions from the generation of acquired and consumed electricity, steam, heat, or cooling (Scope 2) 3) all other indirect GHG emissions that occur in the value chain of the reporting company (Scope 3), 4) GHG absolute emissions target.
- Traditionally Scope 1 & 2 emissions data has been significantly easier to measure and quantify than Scope 3 emissions because it encapsulates emissions from the entire supply chain (both up-and down-stream activities).
- Scope 3 emissions are also likely to be significantly larger than Scope 1 and 2 emissions, hence, the EU Commission suggest that companies should focus on their Scope 3 GHG emissions, including their counterparty Scope 3 emissions.

Emissions reporting scopes

Source: EU Commission, BBVA Credit Research

Scope	Description	Rationale
Scope 1	Direct GHG emissions from sources owned or controlled by the company	This KPI ensures companies are accurately measuring their carbon footprints from direct emissions.
Scope 2	Indirect GHG emissions from the generation of acquired and consumed electricity, steam, heat, or cooling (collectively referred to as "electricity")	This KPI ensure companies are measuring emissions from purchased or acquired electricity, steam, heat, and cooling.
Scope 3	All indirect GHG emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions	For most companies, the majority of emissions occur indirectly from value-chain activities. This KPI helps to gauge the thoroughness of companies' accounting processes and to understand how companies are analysing their emissions footprints.

Implications for issuers (i)

Key difference between Green Bond Principles (GBP) and EU GBS

Source: TEG, ICMA and BBVA Credit Research

Requirements of:	EU GBS	GBP	Comment
Eligible projects / activities	Eligible projects are to align with the EU Taxonomy.	Eligible projects are aligned with non-specific categories (i.e. renewable energy).	Significantly greater level of detail in the Taxonomy vs. the GBP. Issuers have, for the majority of currently available eligible activities , clear detail of metrics and thresholds that spell out in clear terms what is eligible vs. what is not.
Green bond framework (GBF)	The GBF must include the following: Environmental objectives of the EU Green Bond, how an issuer's strategy aligns and rationale for issuing the bond	Issuers should clearly communicate to investors: -Environmental sustainability objectives	No significant difference, only the addition of 'rational for issuing the bond'.
	Process for determining alignment with EU Taxonomy inc. qualitative/quantitative Technical Screening Criteria (if available)	- The process by which the issuer determines how the projects fit within the eligible Green Projects categories	The inclusion of Technical Screening Criteria in the explaining of the eligibility of the Green Projects will add greater detail to the currently used GBPs.
	Description of green projects to be financed.	- No mention of projects need to be listed in the framework, however, GBPs require that "the annual report should include a list of the projects to which Green Bond proceeds have been allocated"	Have to now include description of projects in the framework of the bond issuance, not just in the impact reports or annual reports.
	Details of the link between the investment in green projects and green bond.	- The net proceeds of the Green Bond should be tracked by the issuer in an appropriate manner	No significant difference.
	Methodology and assumptions of impact metrics as defined by the EU Taxonomy (e.g. X gCO2e/kWh).	- Key underlying methodology and/or assumptions used in the quantitative determination	Issuers will be required to ahere to a standardised set of metrics as defined by the EU Taxonomy.
	Description of reporting.	- ICMA has developed voluntary guidelines aiming at a harmonised framework for impact reporting, but the communication to investors of how this reporting will occur is not necessary.	Issuers will be required to detail how the impact reporting will take place, with what frequency, in what format, etc.

Implications for issuers (ii)

Key difference between Green Bond Principles (GBP) and EU GBS

Source: TEG, ICMA and BBVA Credit Research

Requirements of:		EU GBS	GBP	Comment
Reporting	Detail	**Allocation report:** - Statement of alignment with GBS - Breakdown of allocated amounts to Green projects *at least on a sector level* - Regional distribution of Green Projects **Impact reporting:** - Description of Green Project - Environment Objective of Green Projects - Breakdown of Green Projects by nature of what is being financed (assets, capital, capex, etc.) - Impact metrics, and methodology & assumptions used to calculate impact.	"The annual report should include a list of the projects to which Green Bond proceeds have been allocated, as well as a brief description of the projects and the amounts allocated, and their expected impact"	More granularity / guidance on exactly what is to be reported here. Inclusion of location and metrics/methodology the key differentiator.
	Frequency	Both impact and allocation reports to be made at least annually until full allocation.	Issuers should make, and keep, readily available up to date information on the use of proceeds to be renewed annually until full allocation, and on a timely basis in case of material developments.	Very little difference.
Verification		Verification by a formally accredited external reviewer is mandatory.	"It is recommended that in connection with the issuance of a Green Bond or a programme, issuers appoint (an) external review provider(s) to confirm the alignment of their bond or bond programme with the four core components of the GBP"	Verification is now mandatory and external reviewers (e.g. Sustainalytics, Vigeo etc.) are required to go through an accreditation process. This could potentially cause an increase in the price of second-party opinions.

In focus: European Gas/Power

- Over 25% of GHG emissions are caused by electricity generation activities. They have thus been one of the most scrutinised set of requirements.
- The EU Taxonomy sets a general < 100gCO_2e/kWh threshold for most activities under the electricity generation category, with a reduction every five years such that the threshold is 0gCO_2e/kWh by 2050.
- Regarding the production of electricity using gas combustion, the Taxonomy requires a full lifecycle assessment of 'fugitive' emissions on an ongoing basis – including actual physical measurements (i.e. leakages of methane). Electricity generation from gaseous fuels is eligible, provided the declining emissions thresholds are met.
- The Taxonomy also outlines other related activities (transmission and distribution of energy, storage of energy etc.) with their own set of eligible criteria.
- The TEG acknowledge that the Taxonomy, particularly this specific sector of activities, is subject to rapid changes as the energy industry changes over time, and thus the criteria are likely to be subject to adjustments in the future, including: i) threshold adjustments; ii) new activities/technologies; and iii) development and inclusion of more metrics.
- Regarding nuclear energy, given the lack of current, large-scale, economically-viable methods to dispose of waste matter from the nuclear energy generation process in an envinromentally-friendly and sustainable fashion, the activity fails the Do No Significant Harm (DNSH) assessment, and thus has not been included as an activity in the EU Taxonomy.

Implications for issuers:

- Under the GBS, external verification of green bonds pre- and post-issuance is mandatory. Of the green bonds issued in the European energy sector in 2018, all had external verification carried out. Thus we see a minimal impact from this particular requirement.
- Likely to be supportive of green bond issuers, given that the standards of European issuers' reporting is very high – the impact of the green bond standards is likely to be minimal in this regard.
- Given that many of the large energy companies in Europe are already in a process of transitioning into renewables, we should expect to see greater issuance by these names as the projects to be funded become eligible under the EU Taxonomy.
- Oil power generation is currently not included in the Taxonomy, and unabated natural gas power generation is unlikely to meet the required thresholds of the Taxonomy, although carbon capture and sequestration may quality – albeit according to stringent requirements.

Implications for: investors

- Financial market participants that offer ‘environmentally sustainable ‘financial products are considered as one of the two potential mandatory users of the EU Taxonomy.
- This would suggest that investment firms, insurance companies, retirement funds, venture capital funds, etc. would have to adhere to the EU Taxonomy should they offer products marketed as ‘environmentally sustainable’ and may well be required to disclose what share of the various investment products align with the EU Taxonomy.
- The Taxonomy outlines how this might be implemented for investments in companies using a five-step approach: i) identify activities conducted by the company or issuer; ii) for each potential activity, assess whether or not they reach the screening criteria; iii) verify that DNSH criteria have been met by the issuer; iv) due diligence to avoid any violation to social minimum safeguards; and v) calculate alignment of the investments with the EU Taxonomy and prepare disclosures at investment product level.
- In identifying eligible activities, there may be some implementation various data solutions or usage of specialist ESG consultancy, which may increase near- medium-term costs. However, as these systems become more integrated, the longer-term costs are likely to decline.
- However, the reporting standards set out by the green bond standard should improve visibility on green bond issuers which will assist this process for investors.
- There should be an increase in confidence on the part of investors - given the reduced risk of greenwashing and increased accountability on issuers – regarding the legitimacy of their potential green investments.

04

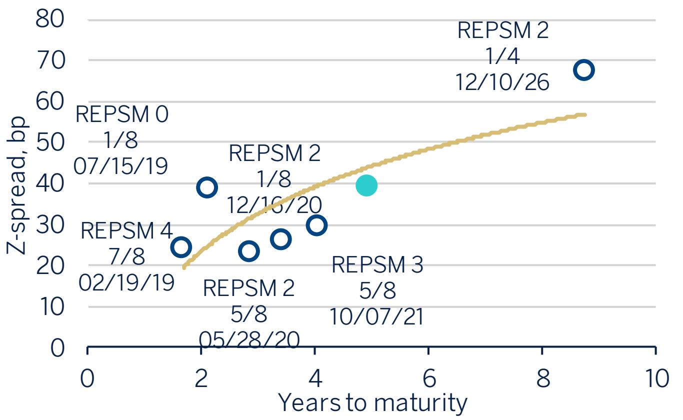
Key topics and developments in ESG bond market

ESG versus traditional bonds: finding greenium

- In our report "An assessment of the ESG bond market" (September 2018) https://bit.ly/2MFXTzc , we examined whether the phenomenon known as a 'greenium' was present amongst European financials, corporate and SSA primary and secondary markets.
- The presence of a greenium would suggest that bonds labelled as green, social or sustainable would trade at tighter levels than those of conventional (read: 'brown') bonds.
- We find limited evidence of this effect being present although we would highlight the importance of acknowledging the 'halo-effect' of an issuer's entire curve. Theoretically, these are the reputational improvements that are manifested as a result of developing an ESG framework and issuing ESG-labelled instruments and that result in more favourable pricing.
- Examining Repsol (REP SM Baa1 Stable/BBB Positive/BBB Positive), we do find some, albeit limited, evidence of a greenium. Since issue the green bond (REPSM 0.5% 05/23/22) has traded at a slightly tighter Z-spread than Repsol's other euro-denominated debt.
- Enel (ENEL IM, Baa2 Stable/BBB+ Stable/ BBB+ Stable), however, shows very little evidence of a greenium. Spreads for the ENELIM 1% 09/16/24 and ENELIM 1.125% 09/16/26 green bonds are generally in line with their conventional bonds.

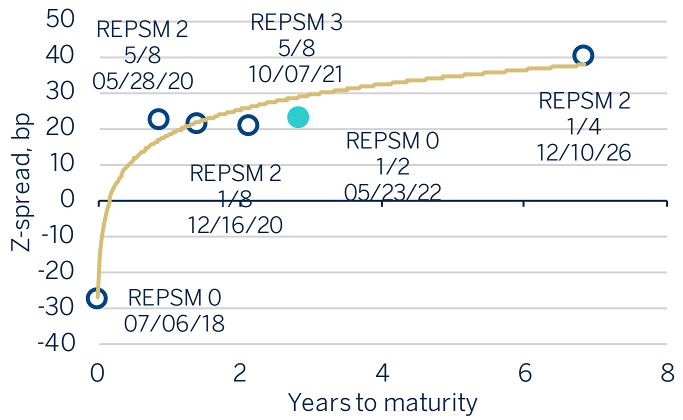
Repsol, ESG bond at issue (Z-spread, bp)

Source: Bloomberg, BBVA Credit Research



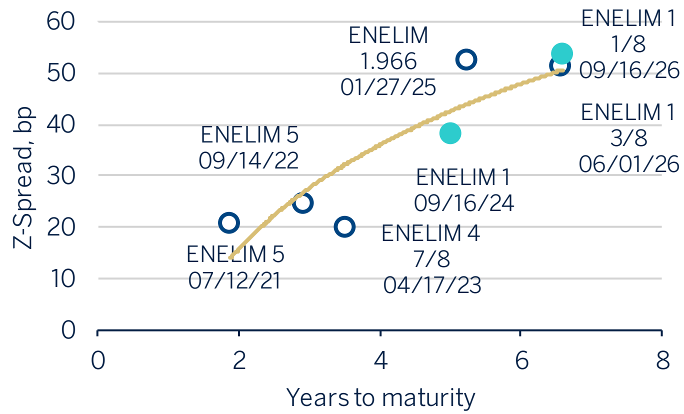
Repsol, current (Z-spread, bp)

Source: Bloomberg, BBVA Credit Research



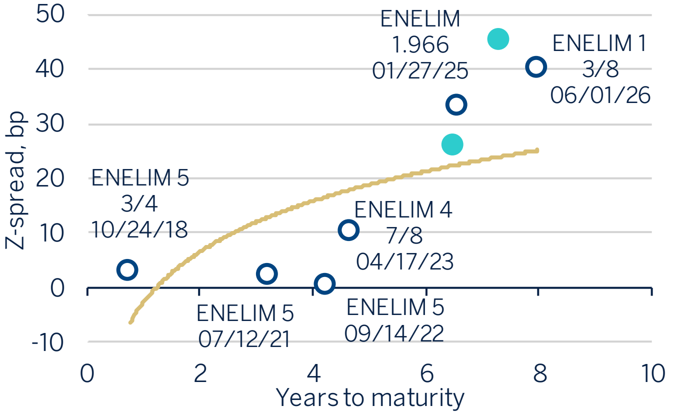
Enel, ESG bond at issue (Z-spread, bp)

Source: Bloomberg, BBVA Credit Research



Enel, current (Z-spread, bp)

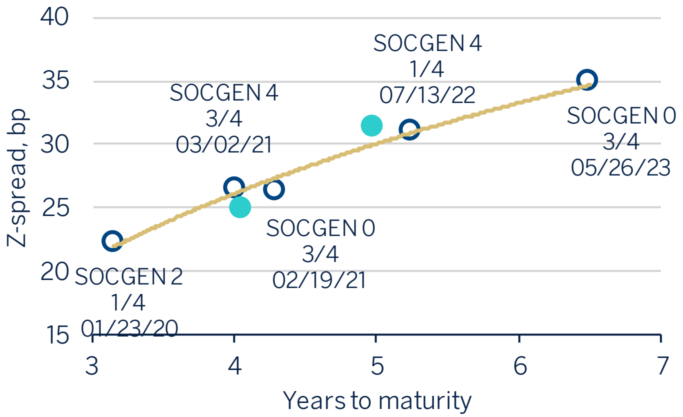
Source: Bloomberg, BBVA Credit Research



ESG versus traditional bonds: finding greenium (cont.)

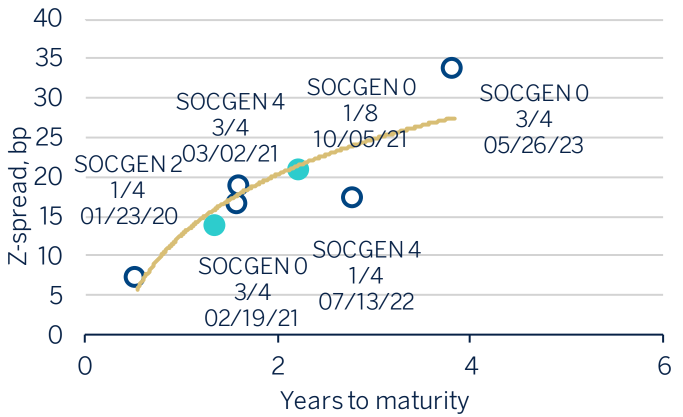
Société Générale, ESG bond at issue (Z-spread, bp)

Source: Bloomberg, BBVA Credit Research



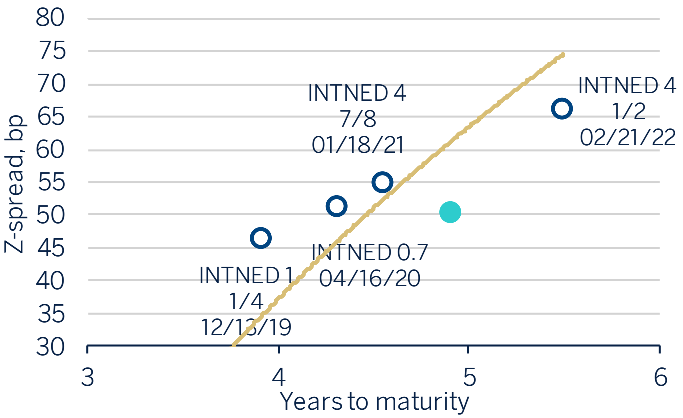
Société Générale, current (Z-spread, bp)

Source: Bloomberg, BBVA Credit Research



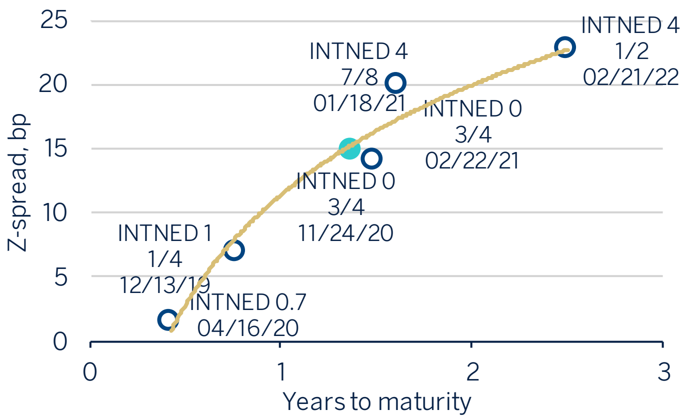
ING, ESG bond at issue (Z-spread, bp)

Source: Bloomberg, BBVA Credit Research



ING, current (Z-spread, bp)

Source: Bloomberg, BBVA Credit Research

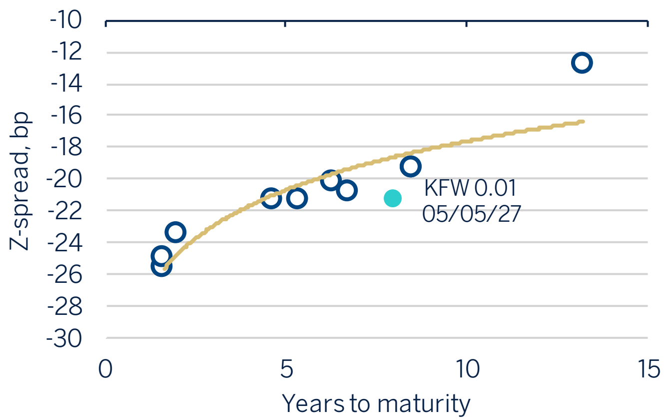


- Amongst two financial issuers of green bonds, Société Générale (GLE FP, A1 Stable/A Positive/ A Stable) and ING (ING NA, Baa1 Stable/A- Stable/A+ Stable), we find, once again, limited evidence of a greenium component in their senior preferred debt.
- Société Générale shows no evidence of a greenium component either in the primary or secondary markets.
- ING's INTNED 0.75% 11/24/20 showed some evidence at issue, with Z-spreads that were lower than their conventional senior preferred instruments.
- We have observed an increase in issuance volumes of green-labelled hybrid instruments by European corporates. The most recent of which was by Engie (ENGI FP, A2 Stable/A- Stable/A Stable), which issued a ENGIFP 3.25% Perp. Neither of these instruments reflect a significant greenium component.

ESG versus traditional bonds – KFW, a glimmer of hope for greenium?

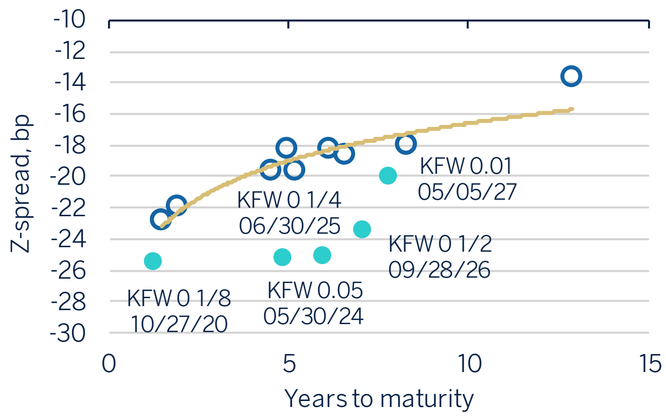
KFW, ESG bond at issue (Z-spread, bp)

Source: Bloomberg, BBVA Credit Research



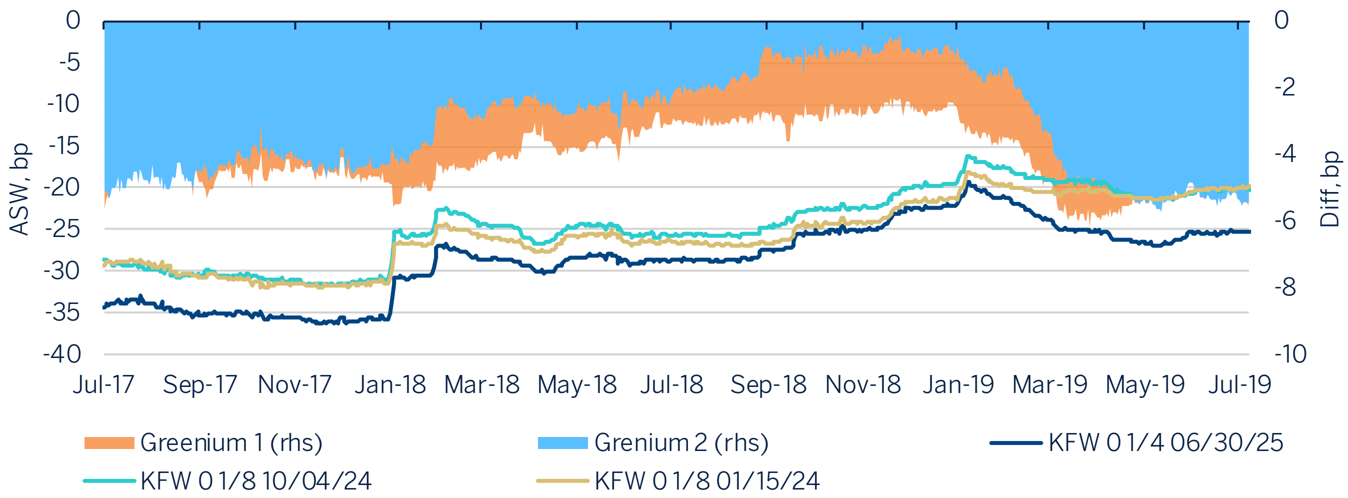
KFW, current (Z-spread, bp)

Source: Bloomberg, BBVA Credit Research



KFW, Greenium performance (Z-spread, bp)

Source: Bloomberg, BBVA Credit Research



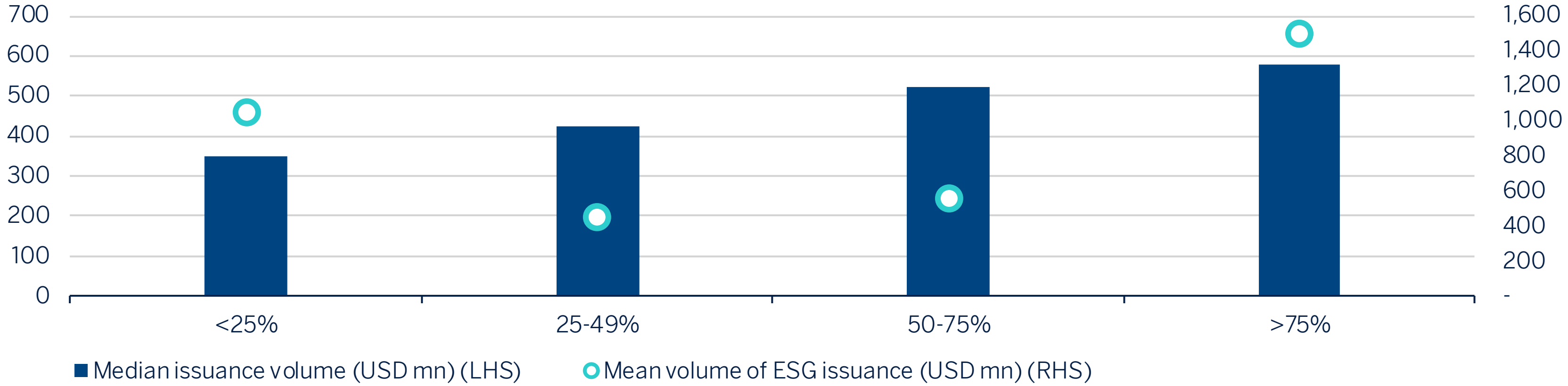
- Kreditanstalt Fuer Wiederaufbau (KFW) is a significant issuer of green bonds, with the second-largest outstanding volume of green bonds (c. EUR20.9bn as of 30 June 2019).
- The Euro-denominated green bonds (shown in the charts to the left) show some signs of greenium, having been priced through the curve at issuance (for the most recent issue in May 2019), but also showing some similar tightness compared to non-green bonds in the secondary market.
- It is important to consider a number of factors when observing this phenomenon, however. The clearest is the discrepancy between the size of the green bonds vs. the average size of the issuers' non-green bonds.
- On average, the non-green bonds shown here are c.EUR5bn-EUR6bn in size, however, the green bonds range from EUR1bn-EUR3bn.
- Hence, we are unable to provide a quantitative contribution of the green component of KFW's bonds (if at all).

Mapping ESG scoring to credit market dynamics: issuance

- In recent months, we have seen an increase in the number of providers and rating agencies announcing the implementation of individual ESG scoring methodologies. In this regard and for the purposes of this report, we have used the methodology developed by RobecoSAM. This is one of the most established ESG scoring methodologies, and the one currently used by the Dow Jones Sustainability Indexes.
- We examined how the issuance of green, social and sustainable bonds varies across issuers with different Total Sustainability scores within each sector/industry.
- We found that on average, the companies with the highest Total Sustainability scores (the top 25% in each sector) issue more than the lower ranks, particularly the second and third quartiles. However, the lowest quartile (those in the bottom 25% of each sector) contains a number of Chinese issuers, as well as Apple Inc., which has issued a total of USD13bn of ESG bonds to date. This skews the overall result somewhat, as the lowest quartile has a total of USD31bn and a mean of USD1bn - the second-highest amount among the quartiles.
- The vast majority of companies in the RobecoSAM CSA universe have yet to issue green, social or sustainable bonds. However, we suggest that those with high rankings within their industry will be more likely to tap the market in the near future as it becomes more advanced. Such companies include KPN (KPN NA, Baa3 Stable/BBB- Positive/BBB Stable), Red Eléctrica (REE SM, A- Stable/A Stable), and Enagás (ENG SM, Baa1 Stable/ A- Negative/A- Stable).

ESG bond issuance by quartile (USD mn)

Source: Bloomberg, BBVA Credit Research

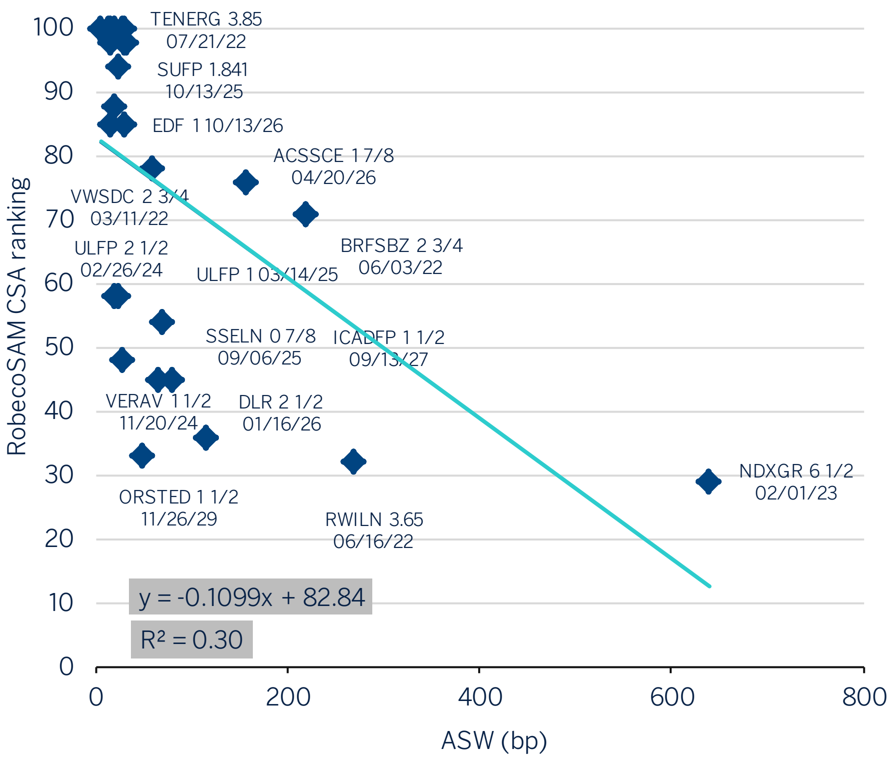


Mapping ESG scoring to credit market dynamics: spread performance

- We also examined to what extent RobecoSAM's ESG rankings could potentially predict the market performance of green, social and sustainable bonds. We found that while there is a relationship between an ESG bond's spread and the issuer's RobecoSAM CSA ranking, it is still very weak.
- We suggest that this result is, in part, due to the distortionary effects of central bank policy on credit markets in recent years which has meant that credit instruments' 'true' performance has been somewhat obscured.

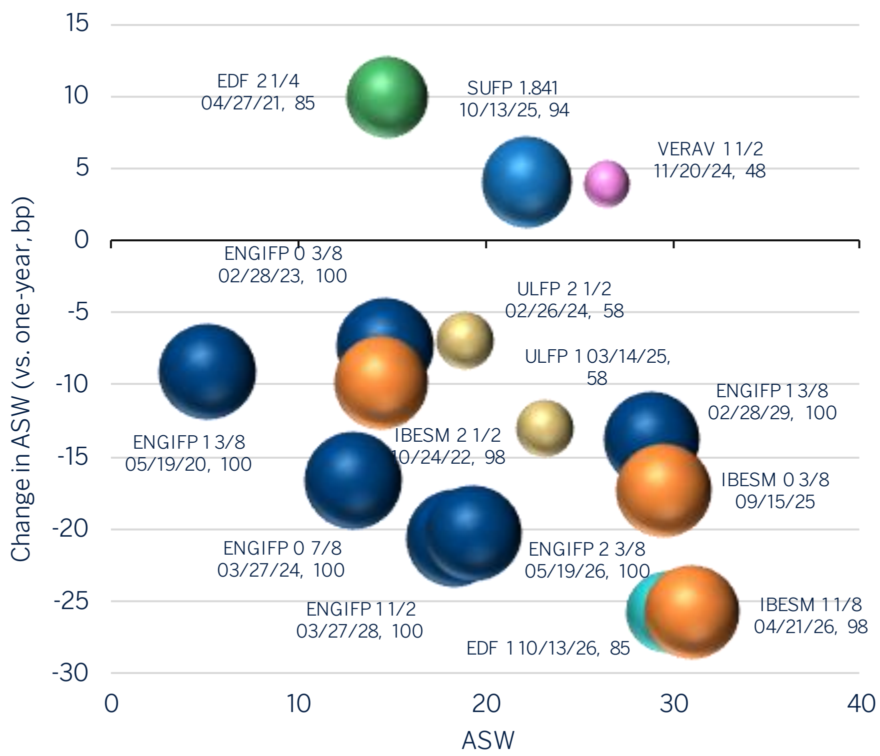
ESG bond performance vs. RobecoSAM ranking

Note: RobecoSAM ranking within a companies industry (0: Lowest – 100: Highest). Source: RobecoSAM, Bloomberg, BBVA Credit Research



ESG bond performance vs. RobecoSAM ranking

Note: Bubble size denotes RobecoSAM ranking within a company's industry (0: Lowest – 100: Highest). Source: RobecoSAM, Bloomberg, BBVA Credit Research

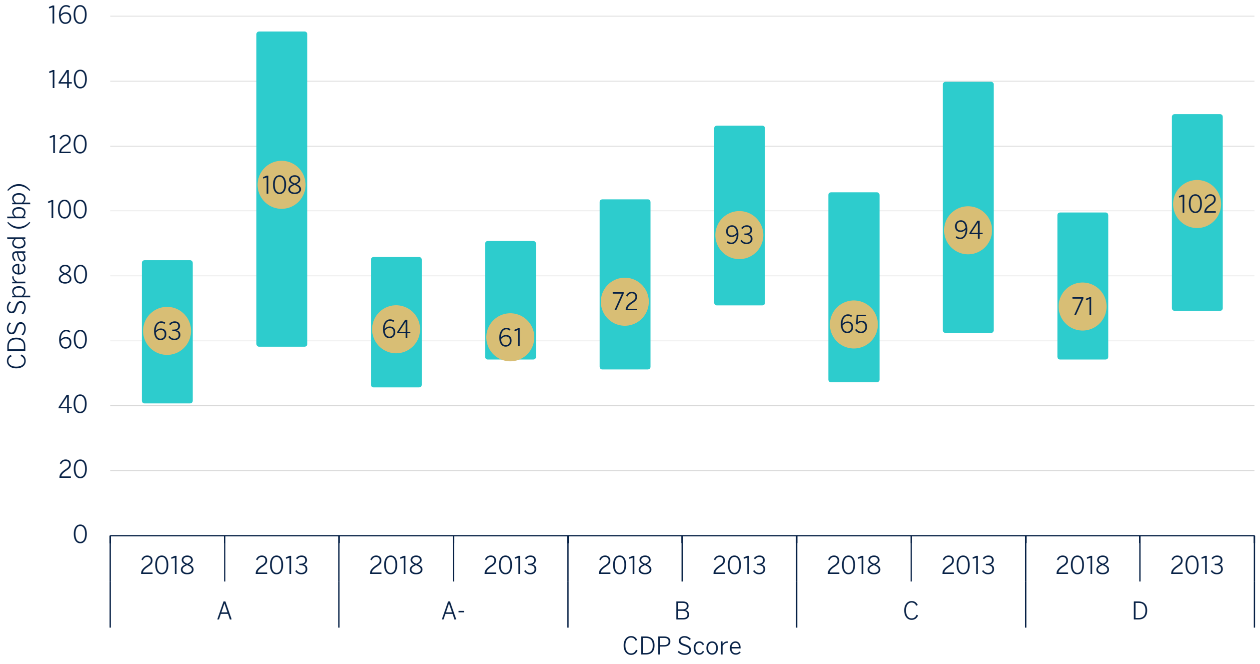


CDP scores and CDS spreads: do higher scores result in lower spreads?

- Furthering our analysis, we examined whether companies with high CDP scores have lower CDS spreads (i.e. lower credit risk).
- We compared the 2018 dataset with that of 2013, a period when spread levels were not as compressed as in recent years, to see if there had been an influence from general market dynamics.
- We are unable to conclude that higher CDP scores result in lower CDS spreads, although we found that in isolated cases, there are some interesting observations such as the increase in distribution of spreads from A- to B to C for 2013 levels, with higher median values as we continue down the rating scale.

25^{th} – 75^{th} percentile distribution of CDS spreads vs. CDP score (CDS, bp)

Note: Bars represent 25^{th} to 75th percentile of CDS spreads for companies with relevant CDP score, the yellow circle represents median CDS spread. Source: CDP, Bloomberg, BBVA Credit Research



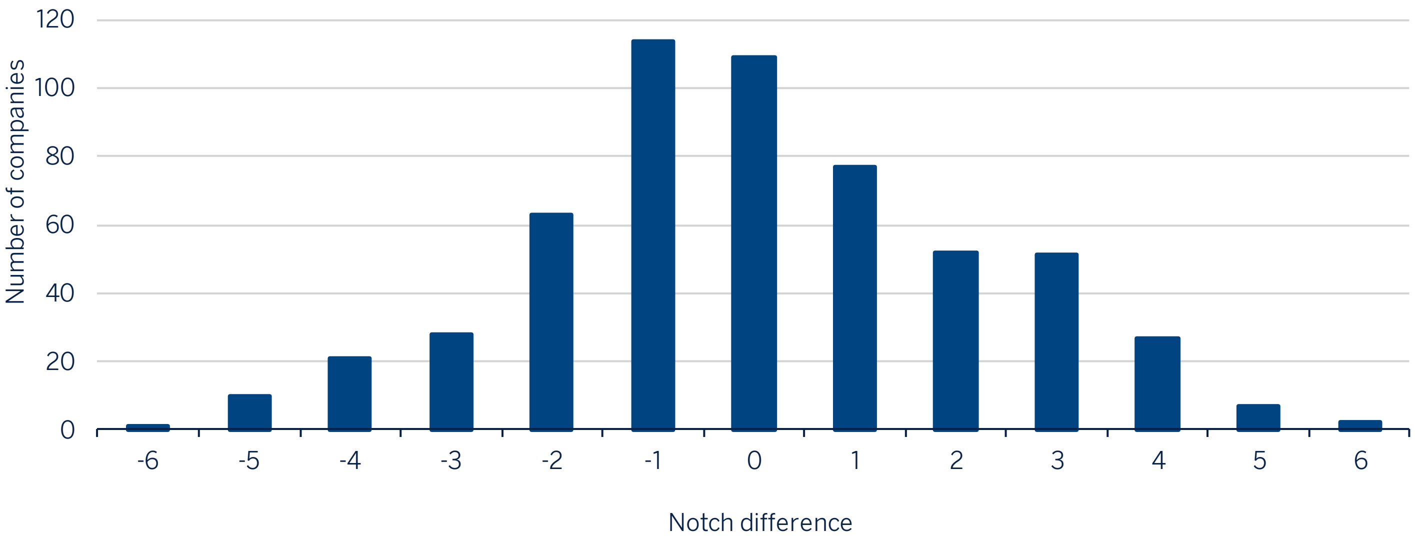
- On the whole, 2018 data provides inconclusive outcomes.
- Median values range from 72bp to 63bp, whilst distributions remain somewhat similar with no material trend.
- We are unable, therefore, to consider that companies with high ESG scores from CDP may also have lower CDS scores.

ESG data still gives investors mixed signals

- Comparing the rankings of the RobecoSAM and those from non-profit data provider CDP, we can see how despite the progress that has been made in recent years to improve the granularity and depth of ESG-related data reporting, there are still some significant discrepancies with regards to consistency.
- Having converted the rankings of RobecoSAM European Corporates into eight ‘ratings’, we compared these ratings to the overall score computed by CDP. We found that c.50% of the scores of RobecoSAM fell outside of ±1 notch of the CDP rating, with c.4% lying equal to or above ± 5 notches.
- Whilst this means that the remaining 50% lay within ±1 notch of the RobecoSAM scores, we are still not convinced of the comparability across ESG data providers, given the differences in methodologies.

RobecoSAM ranking vs. CDP scores (number of companies)

Source: CDP, RobecoSAM and BBVA Credit Research



Additionality: what's all the fuss about?

- There is an argument that the financing that is provided as a result of issuing a green bond would have been made regardless of it being labelled and structured as 'green' or 'sustainable', that is, that there is no **additional** benefit to issuing a green-labelled bond than a traditional one.
- In our view this is a short-sighted perspective.

Additionality from green bond issuance

Increase transparency of issuers

The resulting improvements in the issuer's transparency (i.e. required reporting standards under the EU GBS may provide investors with intricate details of corporate strategy that has typically been reserved for equity investors) are crucially important as firms become more accountable and investors more involved in 'greening' corporate strategy

Increasing market participation

As a result of a successful green bond issuance, competitors within the same industry may well be encouraged to do the same, especially if there are clear economic benefits to doing so.

Green bond issuance also furthers discussion amongst market participants and results in further market evolution

Alignment to sustainability goals

There is also an effect of increasing the incentives of the issuer to further align themselves with sustainable practices. The green bond should not be seen in isolation as a signal to the market of an issuer's commitment to the sustainable investment, but as part of a wider corporate effort to embrace sustainability at an organisational and strategic level.

Transition bonds: SNAM redefining sustainable bonds (i)

- A significant point of contention in the sustainable bond market is the use of 'transition bonds'.
- Simply put, these are bonds that are designed to help those companies that are considered most 'brown' to transition towards becoming 'more green'.
- These bonds may not qualify as EU Green Bonds under the recently released EU Green Bond Standards requirements or the Climate Bond Initiative Standards, but the proceeds may go some way to improving the sustainability and environmental profile of the issuer.

SNAM's climate action bond: funding business as usual?

'Climate Action Bond' SRGIM 1.25% 08/28/25

Carbon & Emission Reduction Projects

Infrastructure, equipment, technology, systems and processes that demonstrate a reduction in energy use/losses and reduction in emissions in industrial facilities.

Renewable Energy Projects

Development of new bio-methane plants and upgrading of existing biogas plants, in Italy and abroad.

Energy Efficiency Projects

Energy efficiency projects for Snam's corporate facilities or supply chain.

Green development Projects

Development and maintenance of conservation areas, natural capital preservation and the development and maintenance of green areas/buildings.

External Reviewer Comment

"The above categories fall within the defined categories of climate action as defined in Italy's National Adaption Plan and are also aligned with the transition to a low carbon economy."

DNV·GL

- SNAM issued a '**Climate Action Bond**' in February 2019.
- Despite its alignment with the 'Green Bond Principles' it is not labelled as a '**Green Bond'**.
- The bond proceeds are going to be used to carry out **energy efficiency works on its current core activities** as well as developing new bio-methane plants.
- This bond, in our view, is by definition a green bond and is supportive of **SNAM's transition from brown to green.**
- However, this bond may not satisfy the **exclusionary screening of some ESG investors due to the natural gas component.**

Transition bonds: controversially green (ii)

Repsol: issuing green but definitely only in transition

REPSOL

Repsol's Green Bond REPSM 0 ½ 05/23/22

Energy efficiency projects

- Upgrade of equipment: Heat
- Upgrade of equipment: dynamic equipment
- Improvements in operating criteria
- Energy integration
- Network optimisation

Low emissions technologies

Eligible technologies related to:

- Methane emissions mitigation
- Reduction of flaring/venting
- Alternative power generation

Low emissions technologies

On Repsol:

"Repsol is the leading performer out of 14 European companies in Vigeo Eiris' "Energy" sector and achieves advanced performance for its Social pillars, while the Environmental and Governance domains are robust"

On the GBF:

"The net proceeds of the Green Bond will be used to finance and refinance Eligible Projects aimed to avoid GHG emissions and contribute to climate change mitigation, in line with two United Nations Sustainable Development Goals. Objectives and expected benefits associated with the Eligible Projects are visible, precise, relevant and measurable"

vigeo eiris

- In contrast to SNAMs 'Climate Action' bond, Repsol issued a **green-labelled bond** in May 2017 (REPSM 0 ½ 05/23/22).
- This is despite the fact that the issuer is an **energy company** that carries out oil and gas exploration and energy generation, one of the most **highly GHG emitting sectors.**
- This was a significant point of contention amongst ESG investors and other market participants. Should non dark-green issuers, such as Repsol, be able to **issue green-labelled bonds,** even if they align with the current market standards and practices?
- Our view is that the transition to a low-carbon economy will require not only green companies becoming greener, but **brown companies becoming less brown**.
- If issuing green bonds **that align with the Taxonomy and Standards** allows brown firms to finance that transition, **it is up to investors to decide to what extent they consider the bonds green**, given the issuer's profile.
- This is one reason why the development of the EU Taxonomy and Green Bond Standard are so crucial: **they aim to give clarity to investors on this matter**.

Transition bonds: a new asset class (iii)

- Some corners of the ESG bond universe have been calling for transition bonds to become an entirely new class of ESG bonds, separating those bonds whose issuers and use of proceeds are 'pure' green from those whose issuers are in transition or whose use of proceeds might be considered transition activities.
- The danger here is that a new classification creates a needless fragmentation of a market which is still in its adolescence and where standards and regulation are being developed at a rapid pace. In our view, creating a sub-class of ESG bond beneath/alongside green, social and sustainable bonds, could result in further confusion and less clarity for only a marginal increase in issuance/investor demand.
- We have an additional concern that certain transition activities could not necessarily be transitory at all. A prime example is switching from coal to gas power plants. Whilst there is a significant reduction in the emissions from gas compared to coal, there are risks that this will result in the company being locked-in to gas for the foreseeable future.
- It is important to remember that a number of transition activities have also been included in the EU Taxonomy so far.

Examples of transition activities included in EU Taxonomy

Source: TEG and BBVA Credit Research

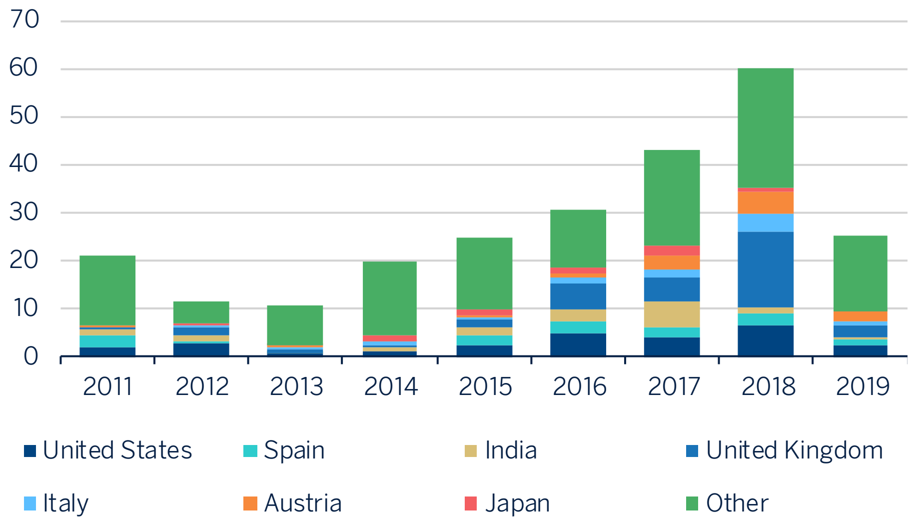
	Manufacture of cement	Production of electricity from gas combustion	Passenger cars and commercial vehicles
Principle	Minimising process emissions through energy efficiency improvements and switch to alternative fuels can contribute to the mitigation objective.	i) Support transition to a net-zero emissions economy; ii) avoidance of lock-in to technologies which do not support transition; and iii) ensure economic activities support best practice standards.	Demonstrates substantial GHG emissions reductions.
Metric/Threshold	Emissions associated to cement manufacturing are to be less than 0.498tCO_2e/t.	Facilities operating with LCE lower than 100 gCO2e/kWh declining to 0g CO2e/kWh in 2050 are eligible. Threshold to be reduced every five years.	i) Zero tailpipe emissions (automatically eligible); ii) vehicles with tailpipe emission intensity of max 50g CO2/km are eligible until 2025; and iii) from 2026 onwards, only vehicles with 0g CO2/km are eligible.

Green loans: following the lead

- As the green bond market has grown over recent years, the green loan market has also begun to blossom.
- With the release of the Green Loan Principles in December 2018 by the Loan Market Association (with support from ICMA), green loans now have a similar set of basic standards to those of Green Bonds, setting out eligible use of proceeds, project evaluation, management of proceeds and reporting standards.
- Despite this, standardisation and verification of green loans is not as commonplace as in the green bond market.
- Regulators have been considering the implementation of green supporting factors to incentivise banks to increase lending to sustainable activities. A supporting factor may take the form of more favourable capital treatment of eligible green lending, making it cheaper for banks to lend to these activities.
- Should this come into force (no material discussions have yet taken place), we would expect issuance of green-labelled loans to increase considerably.

Green loan issuance (USD bn)

Source: Bloomberg and BBVA Credit Research



Four types of green loan:

- **Bilateral green loan:** Bilateral loan, with a corporate guarantee, formalised between the company and the bank.
- **Syndicated green loan:** Green syndicated loan, whereby a group of banks finance an operation with one of them acting as an 'agent' in charge of managing relevant documentation with the certification agency.
- **Revolving green credit facility:** Objective is not to finance specific green projects but is still based on ESG criteria. Parts of the RCF can be 'greened' with an interest rate that depends on the drawn project and/or the issuer's sustainability rating.
- **Green project finance:** Fundamentally based on long-term cash flows generated by a project or portfolio of projects. Type of project references green criteria. This is the predominant loan type which Bloomberg determines as 'green'.

ESG-linked loans: paving the way for green-contingent bonds?

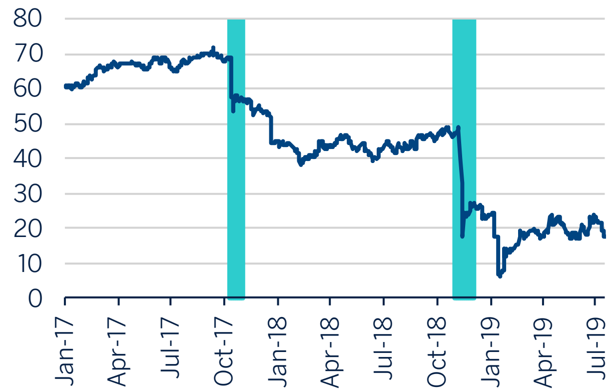
- April 201 7 saw the first ESG-linked corporate loan, to Dutch health corporate Phillips from ING (EUR1bn). This was particularly innovative given that the rate paid on the loan is variable depending on the sustainability rating provided by Sustainalytics.
- German engineering firm Durr issued the first Schuldschein instrument which has its coupon linked to a sustainability rating, based on emissions of greenhouse gases and other sustainability metrics.
- This has fuelled discussions as to the viability of ESG performance-linked bonds (i.e. bonds whose coupon is linked to issuers ESG performance).
- Bonds coupons could theoretically not just be linked to environmental performance, but also to social metrics. They could be linked to specific metrics (i.e. CO2 emissions reduction) or to an ESG score moderated by an external third party (such as Sustainalytics, Vigeo Eiris etc.).
- This would take the focus towards, for example, the emissions reductions efforts of the issuing companies, rather than the reductions achieved by specific projects funding by use of proceeds green bonds.
- There are a number of potential drawbacks from both the issuer and investor side however.
  - Firstly, the ability to successfully measure emissions reductions is currently still a point of contention. Scope 3 emissions data is very hard to capture accurately across the entire supply chain for large companies, and is heavy reliant on external parties.
  - Some investors are unable to invest in 'contingent ' bonds (i.e. those bonds whose coupon is contingent on a pre-specified trigger), and thus may well be excluded from participating in these deals (like those who are unable to buy 'conditional pass through' covered bonds), despite potentially being 'dark-green 'investors.

PG&E: a cautionary tale

- US utility company PG&E (Pacific Gas and Electric Company) filed for bankruptcy in January 2019 as a result of an estimated USD30bn of liabilities arising from wildfires in 2017 and 2018, the start of which had been linked to the company's equipment.
- This was the first recorded bankruptcy that has been linked to climate change factors.
- The implications of this case cannot be understated.
- Should temperatures continue to rise, and extreme climate events continue to increase in frequency as a result of climate change, the risks to companies will inevitably increase.
- This makes the reliance on transparency regarding ESG risks for investors paramount – providing them with an adequate degree of detail to gauge exposure to climate-risks.
- The growth of the green bond market, and the associated standards, taxonomies and frameworks that have come about as a result of said growth, are enabling investors and firms to manage their exposure to climate risk, either through reducing the chance of extreme events (e.g. mitigation of climate change through reduction GHG emissions) or through adapting business practices/strategies to dampen the effects of climate change on the business itself.

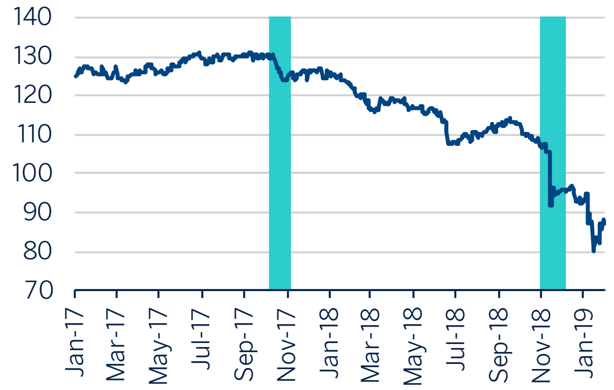
PG&E share price (USD)

(Note: Shaded areas depict 2017 and 2018 California wildfires)
Source: Bloomberg and BBVA Credit Research



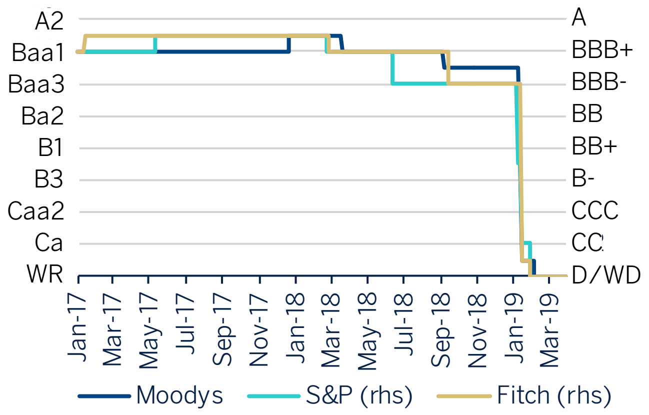
PCG 6.05% 03/01/34 (Price, USD)

(Note: Shaded areas depict 2017 and 2018 California wildfires)
Source: Bloomberg and BBVA Credit Research



Credit ratings

Source: Moody's, S&P, Fitch and BBVA Credit Research

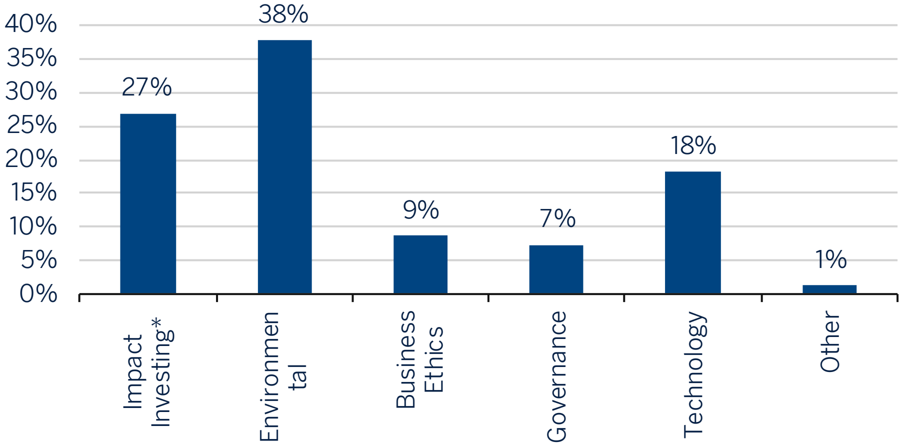


Millennial generation to drive socially responsible investment (i)

- A study released by First State Investments, in conjunction with Kepler Cheuvreux, in November 2018 detailed the extent to which the millennial generation is actively engaged with socially responsible investing.
- The study focussed on individuals born in 1980-2000 (of which 79% of respondents were classified), with most being from the UK and Europe (53% from the UK and 19% from Europe ex-UK). Significantly, however, most respondents had incomes less than the equivalent of GBP35,000, with less than GBP500 worth of disposable income saved annually. Thus, the extent to which this sample can be indicative of the deployment of actual capital is questionable.
- Respondents were most sympathetic to purely environmentally themed investments (38%), whilst 27% would look for 'impact investing' themes, combining financial returns with the ability to have a positive impact on society or the environment.
- 81% of the sample were either 'Interested' or 'Very Interested' in the concept of investing in socially responsible or sustainable investments. Only 2% of respondents were actively engaged in such investments already, whilst 3% were not interested.

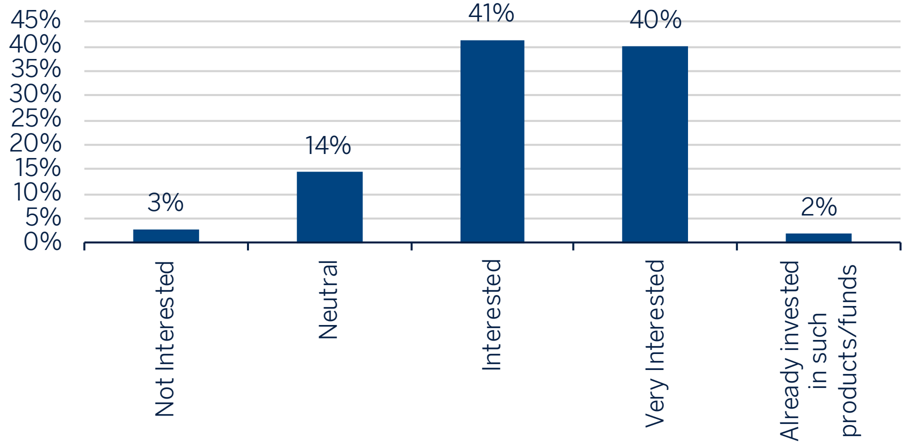
Q: What broad issues or themes are you most sympathetic to?

Notes: * i.e. looking for positive social or environmental impact alongside financial return
Source: First State Investments



Q: How interested would you be in investing in "socially responsible" or "sustainable investment" products?

Source: First State Investments

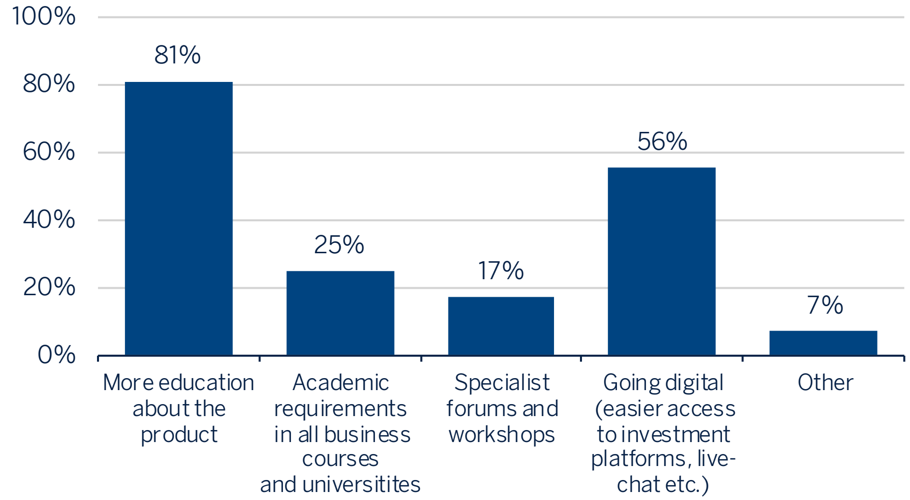


Millennial generation to drive socially responsible investment (ii)

- Interestingly, the most significant incentive to not invest in a sustainable fund is if said funds provide lower financial returns than their non-socially responsible peers. Thus, whilst respondents are interested in investing in socially responsible funds, they are also driven by the requirement for a financial return and may not be willing to forgo potential RoI in return for social responsibility.
- Furthering education regarding ESG investments is seen as the most crucial priority to increase the uptake of socially responsible investing with 81% of respondents feeling that more information and clarity is required regarding the asset class.
- Whilst we acknowledge the flaws of this report (specifically regarding the sample selection), those millennial investors that are already active in capital markets have already had an impact on the development of the asset class, and their influence is growing, as awareness and opportunities continue to develop.

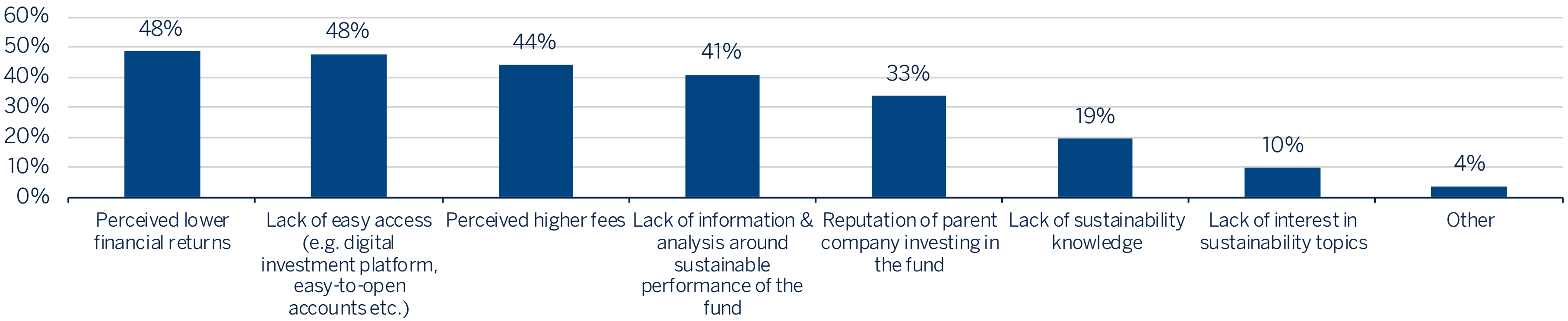
Q: What do you see are the main levers for broader uptake of SRI investment?

Source: First State Investments



Q: What would prevent you from investing in a sustainable fund?

Source: First State Investments



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Appendix

European benchmark deals 2019 YtD (>EUR250mn)

Non-financial corporates

Source: Dealogic, Bloomberg, BBVA Credit Research

ISIN	Security	Issuer	Country of risk	Currency	Issued (EUR mn)	Instrument type	Pricing date	Maturity	Green/ Social/Sus.
XS1858912915	TRNIM 1 07/23/23	TERNA	Italy	Euro	250	Sr Unsecured	10-Jan-19	23-Jul-23	Green
XS1937665955	ENELIM 1 1/2 07/21/25	ENEL Finance International NV	Italy	Euro	1,000	Sr Unsecured	14-Jan-19	21-Jul-25	Green
FR0013398229	ENGIFP 3 1/4 PERP	ENGIE SA	France	Euro	1,000	Jr Subordinated	17-Jan-19	01-Jan-00	Green
PTEDPKOM0034	EDPPL 4.496 04/30/79	Energias de Portugal SA - EDP	Portugal	Euro	1,000	Jr Subordinated	23-Jan-19	30-Apr-79	Green
XS1946004451	TELEFO 1.069 02/05/24	Telefonica Emisiones SAU	Spain	Euro	1,000	Sr Unsecured	28-Jan-19	05-Feb-24	Green
XS1890845875	IBESM 3 1/4 PERP	Iberdrola International BV	Spain	Euro	800	Jr Subordinated	05-Feb-19	01-Jan-00	Green
XS1953912117	STERV 0 08/20/21	Stora Enso Oyj	Finland	Swedish Krona	286	Sr Unsecured	18-Feb-19	20-Aug-21	Sustainability
XS1957442541	SRGIM 1 1/4 08/28/25	SNAM SpA	Italy	Euro	500	Sr Unsecured	21-Feb-19	28-Aug-25	Green
XS1980270810	TRNIM 1 04/10/26	TERNA	Italy	Euro	500	Sr Unsecured	03-Apr-19	10-Apr-26	Green
XS1981060624	ERGIM 1 7/8 04/11/25	ERG SpA	Italy	Euro	500	Sr Unsecured	04-Apr-19	11-Apr-25	Green
XS1979274708	OTTOGR 2 5/8 04/10/26	Otto (GmbH & Co KG)	Germany	Euro	250	Sr Unsecured	04-Apr-19	10-Apr-26	Sustainability
XS1984257029	KEL 2 3/4 04/18/41	Yorkshire Water Finance Ltd	United Kingdom	British Pound Sterling	406	Secured	11-Apr-19	18-Apr-41	Sustainability
ES0200002048	ADIFAL 0.95 04/30/27	Adif Alta Velocidad	Spain	Euro	600	Sr Unsecured	11-Apr-19	30-Apr-27	Green
FR0013415692	FRLBP 1 3/8 04/24/29	La Banque Postale SA	France	Euro	750	Sr Non Preferred	15-Apr-19	24-Apr-29	Green
XS1910137949	COOPWH 5 1/8 05/17/24	Co-operative Group Ltd	United Kingdom	British Pound Sterling	351	Sr Unsecured	08-May-19	17-May-24	Sustainability
XS1997070781	ORSTED 2 1/8 05/17/27	Orsted A/S	Denmark	British Pound Sterling	410	Sr Unsecured	09-May-19	17-May-27	Green
XS1997070864	ORSTED 2 1/2 05/16/33	Orsted A/S	Denmark	British Pound Sterling	349	Sr Unsecured	09-May-19	16-May-33	Green
XS1997071086	ORSTED 0 3/8 05/16/34	Orsted A/S	Denmark	British Pound Sterling	291	Sr Unsecured	09-May-19	16-May-34	Green
US05351WAB90	AGR 3.8 06/01/29	Avangrid Inc	Spain	US Dollar	668	Sr Unsecured	14-May-19	01-Jun-29	Green
XS2001175657	PHIANA 0 1/2 05/22/26	Koninklijke Philips NV	Netherlands	Euro	750	Sr Unsecured	15-May-19	22-May-26	Green
XS1843437036	RURAIL 2.2 05/23/27	Russian Railways	Russian Federation	Euro	500	Sr Unsecured	17-May-19	23-May-27	Green
XS2002491780	TENN 0 7/8 06/03/30	TenneT Holding BV	Netherlands	Euro	500	Sr Unsecured	20-May-19	03-Jun-30	Green
XS2002491863	TENN 1 1/2 06/03/39	TenneT Holding BV	Netherlands	Euro	750	Sr Unsecured	20-May-19	03-Jun-39	Green
XS2002017361	VOD 0.9 11/24/26	Vodafone Group plc	United Kingdom	Euro	750	Sr Unsecured	21-May-19	24-Nov-26	Green
XS2009861480	ESBIRE 1 1/8 06/11/30	ESB Finance dac	Ireland	Euro	500	Sr Unsecured	04-Jun-19	11-Jun-30	Green
XS2009891479	VATFAL 0 1/2 06/24/26	Vattenfall AB	Sweden	Euro	500	Sr Unsecured	13-Jun-19	24-Jun-26	Green
FR0013428489	ENGIFP 0 3/8 06/21/27	ENGIE SA	France	Euro	750	Sr Unsecured	14-Jun-19	21-Jun-27	Green
FR0013428513	ENGIFP 1 3/8 06/21/39	ENGIE SA	France	Euro	750	Sr Unsecured	14-Jun-19	21-Jun-39	Green
XS2002496409	BYWGR 3 1/8 06/26/24	BayWa AG	Germany	Euro	500	Sr Unsecured	17-Jun-19	26-Jun-24	Green
XS2014382845	ALLRNV 0 7/8 06/24/32	Alliander NV	Netherlands	Euro	300	Sr Unsecured	17-Jun-19	24-Jun-32	Green
XS2018636600	ADNA 0 1/4 06/26/25	Koninklijke Ahold Delhaize NV	Netherlands	Euro	600	Sr Unsecured	19-Jun-19	26-Jun-25	Sustainability
XS2020608548	HERIM 0 7/8 07/05/27	Hera SpA	Italy	Euro	500	Sr Unsecured	26-Jun-19	05-Jul-27	Green
					18,561				

European benchmark deals 2019 YtD (>EUR250mn)

Financials

Source: Dealogic, Bloomberg, BBVA Credit Research

ISIN	Security	Issuer	Country of risk	Currency	Issued (EUR mn)	Instrument type	Pricing date	Maturity	Green/ Social/Sus.
JP525021EK19	BPCEGP 1.258 01/25/24	BPCE	France	Japanese Yen	403	Sr Non Preferred	18-Jan-19	25-Jan-24	Social
XS1943443769	SBAB 0 3/4 03/28/24	Swedish Covered Bond Corp	Sweden	Swedish Krona	581	Secured	28-Jan-19	28-Mar-24	Green
FR0013403433	CAFFIL 0 1/2 02/19/27	CAFFIL	France	Euro	1,000	Secured	12-Feb-19	19-Feb-27	Social
XS1952158472	MORHMS 3.4 02/19/38	Morhomes plc	United Kingdom	British Pound Sterling	285	Secured	13-Feb-19	19-Feb-40	Social
XS1956022716	OPBANK 0 3/8 02/26/24	OP Corporate Bank	Finland	Euro	500	Sr Unsecured	19-Feb-19	26-Feb-24	Green
FR0013405537	BNP 1 1/8 08/28/24	BNP Paribas SA	France	Euro	750	Sr Non Preferred	21-Feb-19	28-Aug-24	Green
XS1960260021	LPTY 1 3/8 03/07/24	LeasePlan Corp NV	Netherlands	Euro	500	Sr Preferred	28-Feb-19	07-Mar-24	Green
XS1963849440	DANBNK 1 5/8 03/15/24	Danske Bank	Denmark	Euro	500	Sr Non Preferred	12-Mar-19	15-Mar-24	Green
XS1979446843	UBIIM 1 1/2 04/10/24	UBI Banca	Italy	Euro	500	Sr Preferred	03-Apr-19	10-Apr-24	Green
XS1982037696	ABNANV 0 1/2 04/15/26	ABN AMRO Bank	Netherlands	Euro	750	Sr Preferred	08-Apr-19	15-Apr-26	Green
FR0013415692	FRLBP 1 3/8 04/24/29	La Banque Postale SA	France	Euro	750	Sr Non Preferred	15-Apr-19	24-Apr-29	Green
DE000LB2CHW4	LBBW 0 3/8 05/24/24	LBBW	Germany	Euro	750	Sr Non Preferred	15-May-19	24-May-24	Green
XS2001183164	VESTNL 1 1/2 05/24/27	Vesteda Finance BV	Netherlands	Euro	500	Sr Unsecured	16-May-19	24-May-29	Green
XS2003499386	NDASS 0 3/8 05/28/26	Nordea Bank Oyj	Finland	Euro	750	Sr Preferred	21-May-19	28-May-26	Green
DE000LB2CJ96	LBBW 2 3/8 05/31/22	LBBW	Germany	US Dollar	672	Secured	21-May-19	31-May-22	Green
DK0009523110	NYKRE 0 10/01/22	Nykredit Realkredit A/S	Denmark	Swedish Krona	383	Secured	27-May-19	01-Oct-22	Green
XS2013745703	BBVASM 1 06/21/26	BBVA	Spain	Euro	1,000	Sr Non Preferred	12-Jun-19	21-Jun-26	Green
XS2021467753	STANLN 0.9 07/02/27	Standard Chartered plc	United Kingdom	Euro	500	Sr Unsecured	25-Jun-19	02-Jul-27	Sustainability
					11,074				

European benchmark deals 2019 YtD (>EUR250mn)

SSAs

Source: Dealogic, Bloomberg, BBVA Credit Research

ISIN	Security	Issuer	Country of risk	Currency	Issued (EUR mn)	Instrument type	Pricing date	Maturity	Green/ Social/Sus.
XS1933817824	EBRD 0 01/10/24	EBRD	United Kingdom	Euro	600	Sr Unsecured	03-Jan-19	10-Jan-24	Green
XS1938381628	RESFER 0 7/8 01/22/29	SNCF Reseau	France	Euro	500	Sr Unsecured	14-Jan-19	22-Jan-29	Green
DE000NWB0AG1	NRWBK 0 5/8 02/02/29	NRW.Bank	Germany	Euro	500	Sr Unsecured	28-Jan-19	02-Feb-29	Green
XS1947578321	NEDWBK 0 5/8 02/06/29	Nederlandse Waterschapsbank	Netherlands	Euro	1,000	Sr Unsecured	30-Jan-19	06-Feb-29	Social
ES0000101909	MADRID 1.571 04/30/29	Autonomous Community of Madrid	Spain	Euro	1,250	Sr Unsecured	05-Feb-19	30-Apr-29	Sustainability
XS1953035844	NEDFIN 2 3/4 02/20/24	Nederlandse Financierings-Maatschap	Netherlands	US Dollar	442	Sr Unsecured	12-Feb-19	20-Feb-24	Green
XS1958534528	POLAND 1 03/07/29	Poland	Poland	Euro	1,500	Unsecured	28-Feb-19	07-Mar-29	Green
XS1960361720	POLAND 2 03/08/49	Poland	Poland	Euro	500	Unsecured	28-Feb-19	08-Mar-49	Green
DE000NRW0LM8	NRW 1.1 03/13/34	North Rhine Westphalia	Germany	Euro	2,250	Sr Unsecured	06-Mar-19	13-Mar-34	Sustainability
FR0013409612	SOGRPR 1 1/8 05/25/34	Societe du Grand Paris	France	Euro	2,000	Sr Unsecured	12-Mar-19	25-May-34	Green
IT0005366460	CDEP 2 1/8 03/21/26	Cassa Depositi e Prestiti SpA	Italy	Euro	750	Sr Unsecured	18-Mar-19	21-Mar-26	Social
XS1968465572	KOMINS 0 3/8 03/27/24	Kommuninvest i Sverige AB	Sweden	Swedish Krona	335	Sr Unsecured	20-Mar-19	27-Mar-24	Green
XS1648462023	RESFER 2 1/4 12/20/47	SNCF Reseau	France	Euro	250	Sr Unsecured	28-Mar-19	20-Dec-47	Green
XS1979491559	ICO 0.2 01/31/24	ICO	Spain	Euro	500	Sr Unsecured	02-Apr-19	31-Jan-24	Green
XS1979512578	COE 0 04/10/26	Council of Europe	France	Euro	500	Sr Unsecured	03-Apr-19	10-Apr-26	Social
BE0001790444	FLEMSH 1 1/2 04/11/44	Flemish Community	Belgium	Euro	750	Sr Unsecured	04-Apr-19	11-Apr-44	Sustainability
ES0000106635	BASQUE 1 1/8 04/30/29	Autonomous Community of the Basque	Spain	Euro	600	Sr Unsecured	09-Apr-19	30-Apr-29	Sustainability
BE6313645127	WALLOO 0 1/4 05/03/26	Region Wallonne	Belgium	Euro	500	Sr Unsecured	25-Apr-19	03-May-26	Sustainability
BE6313647149	WALLOO 1 1/4 05/03/34	Region Wallonne	Belgium	Euro	500	Sr Unsecured	25-Apr-19	03-May-34	Sustainability
XS1999841445	KFW 0.01 05/05/27	KfW	Germany	Euro	3,000	Sr Unsecured	15-May-19	05-May-27	Green
XS2002516446	NEDWBK 0 1/8 05/28/27	Nederlandse Waterschapsbank	Netherlands	Euro	1,000	Sr Unsecured	20-May-19	28-May-27	Social
FR0013422383	SOGRPR 1.7 05/25/50	Societe du Grand Paris	France	Euro	1,000	Sr Unsecured	23-May-19	25-May-50	Green
XS2007223709	KFW 0 1/8 06/03/22	KfW	Germany	Swedish Krona	654	Sr Unsecured	29-May-19	03-Jun-22	Green
FR0013426426	CDCEPS 0 06/19/24	Caisse des Depots et Consignations - C	France	Euro	500	Sr Unsecured	12-Jun-19	19-Jun-24	Sustainability
FR0013426731	RATPFP 0.35 06/20/29	Regie Autonome des Transports Parisie	France	Euro	500	Sr Unsecured	13-Jun-19	20-Jun-29	Green
XS1968465572	KOMINS 0 3/8 03/27/24	Kommuninvest i Sverige AB	Sweden	Swedish Krona	467	Sr Unsecured	14-Jun-19	27-Mar-24	Green
XS2022425024	RESFER 0 3/4 05/25/36	SNCF Reseau	France	Euro	1,500	Sr Unsecured	27-Jun-19	25-May-36	Green
					23,848				

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