SUSTAINABLE DEBT GLOBAL STATE OF THE MARKET 2020

Climate Bonds Initiative

Prepared by Climate Bonds Initiative.

Sponsored by DekaBank and State Street Global Advisors.

About this report

This is the 10th iteration of Climate Bonds' global State of the Market Report. Historically, the report has described the shape and size of the green bond market, but in October 2020, we published the inaugural Sustainable Debt Global State of the Market H1 2020 with an extended remit to include social and sustainability themed debt as well as the traditional green bond universe. This report describes the shape and size of the green, social and sustainability (GSS) themed debt market up to the end of 2020.

Cumulative size: Green, Sustainability, Social bonds December 2020

	Green	Sustainability*	Social*
Total size of market	USD1.1tn	USD316.8bn	USD315.6bn
Number of issuers	1428	178	601
Number of instruments	7716	885	1230
Number of countries	71	30	36
Number of currencies	42	33	25

*The Social and Sustainability bond database is being finalised and deal-level data may be subject to changes. Further, the Social and Sustainability Bond Database follows a different (less stringent) methodology than the Green Bond Database The aim of this paper is to provide an indication of the shape and size of the market, and the data profile should be regarded as provisional.

Contents

About the Climate Bonds Initiative

The Climate Bonds Initiative (Climate Bonds) is an international investor-focused not-for-profit organisation working to mobilise the USD100tn bond market for climate change solutions. It promotes investment in projects and assets needed for a rapid transition to a low carbon, climate resilient, and fair economy. The mission focus is to help drive down the cost of capital for large-scale climate and infrastructure projects and to support governments seeking increased capital markets investment to meet climate and greenhouse gas (GHG) emission reduction goals.

Climate Bonds conducts market analysis, policy research, and market development; advises governments and regulators; and administers a global green bond standard and certification scheme. Climate Bonds screens green finance instruments against its Climate Bonds Taxonomy to determine alignment and uses sector specific criteria for certification. Climate Bonds Certification is a labelling scheme. Rigorous scientific criteria ensure that it is consistent with the 2˚C global warming limit of the Paris Agreement. Certification requires initial and ongoing third-party verification to ensure the assets meet the metrics of Sector Criteria.

Methodology

Scope of analysis

We cover three sustainable debt themes based on the projects, activities, and expenditures financed: green, social, and sustainability. Pandemic bonds are included as a sub-set of the social theme.

The themes can be described as follows:

Green: dedicated environmental benefits (captured since 2012)

Social: dedicated social benefits (captured since 2020)

Sustainability: green and social benefits are combined into one instrument (captured since 2020).

This paper only analyses labelled debt. Our upcoming Climate-Aligned Bonds and Issuers report will explore the scope of unlabelled debt to finance climate aligned activities.

Methodology overview

This report is based on the Climate Bonds Green Bond Database, as well as the Social and Sustainability Bond Database. To qualify for inclusion, debt instruments must a) have a label and b) finance sustainable projects, activities, or expenditures.

Debt labels describe the types of projects, activities, or expenditures financed, and/or their benefits. 'Green', 'Social', and 'Sustainability' labels are the most common in each theme, but a broad range of labels is used (*see Appendix A*).

Green

All deals in the green theme have been screened to verify their integrity. Screening is based on a set of process rules stipulated in Climate Bonds Green Bond Database Methodology, including the following two overarching criteria:[1]

1. Deals must carry a variant of the green label

2. All net proceeds must verifiably (based on public disclosure) meet Climate Bonds' green definitions based on the Climate Bonds Taxonomy[2]

We review all green debt instruments to ensure their green credentials.

Social and sustainability

Market participants have not yet developed a "social taxonomy" or equivalent classification and screening system, though work on this is ongoing in the EU and elsewhere.[3] Climate Bonds does not screen social and sustainability bonds' use of proceeds against performance thresholds. The use of proceeds are, however, classified in accordance with the respective labels and categorised as follows:

Sustainability: label describes a combination of green and social projects, activities, or expenditures e.g., sustainable; SDG; SRI; ESG, etc.

Social: label is exclusively related to social projects e.g., pandemic, COVID-19, housing, gender, women, health, education, etc.

Thus, any instrument financing only green projects is included in the green theme irrespective of its label. On the other hand, a sustainability-labelled bond that only finances social projects, as well as one that finances a combination of green and social, is considered to fall under the sustainability theme. Because of this, our analysis of other themes provides an initial indication of capital market funding aimed at each theme based on the deal label (see *Appendix B*).

NB: Throughout this report 'Pandemic' refers to deals with a COVID-related label such as pandemic response, COVID-19 etc.

Not included in this report

Transition labels

Transition finance describes instruments financing activities that are not low- or zero-emission (i.e., not green), but have a short- or long-term role to play in decarbonising an activity or supporting an issuer in its transition to Paris Agreement alignment. The transition label enables inclusion of a more diverse set of sectors and activities.

At present, transition bonds predominantly originate from highly polluting, and hard-to-abate industries. They do not fall into the existing definitions of green but are a critical component of a transition to net zero. Example sectors include extractives such as mining; materials such as steel and cement; and industrials including aviation. Work around building standards for transition activities is underway; we cover this in more detail in the dedicated segment on *page 17*.

Performance-linked instruments

Performance or KPI-linked debt instruments are excluded from this analysis. These instruments raise general purpose finance and involve penalties (e.g., coupon step-ups) linked to not meeting pre-defined, time-bound sustainability performance improvements. The two main types of instrument are commonly referred to as Sustainability-Linked Bonds (SLBs) and Sustainability-Linked Loans (SLLs).

Climate Bonds does not presently examine or track data on SLBs or SLLs, preventing inclusion of these categories of debt in this analysis. However, coverage of performance-linked instruments is currently in development and the theme is discussed on *page 17*.

Report highlights

At the end of 2020, the sustainable debt market had reached USD1.7tn, and almost 10,000 instruments had been issued under GSS labels since 2006.

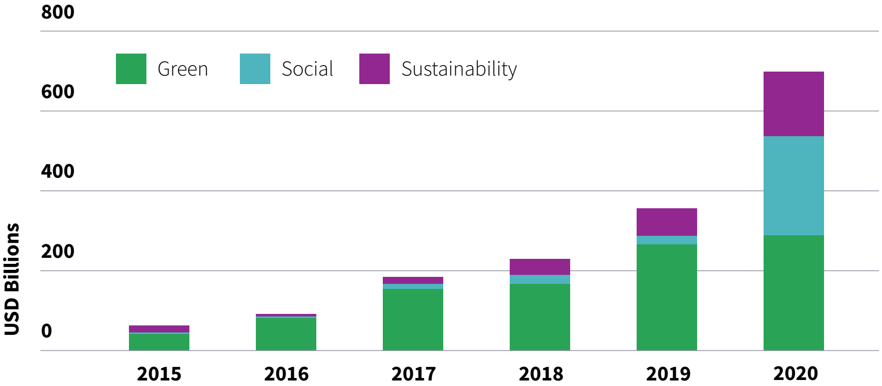
USD700bn worth of GSS instruments was issued in 2020, almost double the prior year which stood at USD358bn. While green remains the dominant theme, and was the largest source of outright capital, the social and sustainability themes grew dramatically and achieved higher volumes than all previous years combined. As a result, in 2020 total issuance was more evenly spread across the themes compared to prior periods.

Market Analysis

The sustainable debt market in 2020

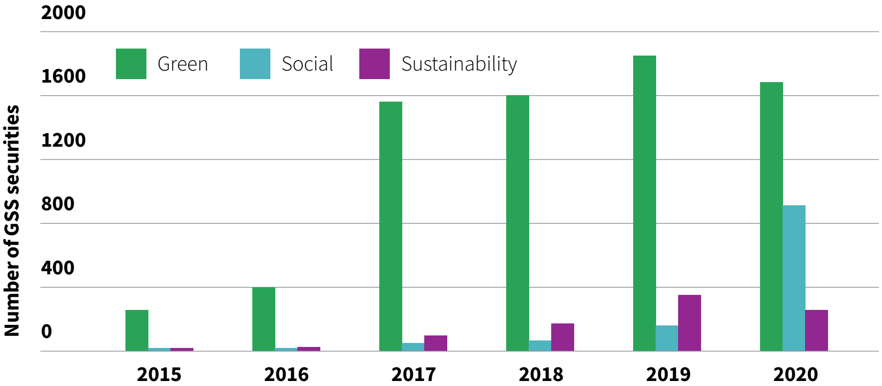
- The COVID-19 pandemic caught many off guard and impacted the issuance of all types of bonds towards the end of the first quarter. However, the bond market proved to be a flexible source of finance to help with both the immediate impacts as well as longer-term recovery plans. This led to the rapid growth of the sustainable and social debt markets and the massive increase in instruments being issued with a pandemic Use of Proceeds (UoP), which contributed to a ten-fold increase in the social volume compared to 2019.
- The first pandemic bond of 2020 was issued on 5 February, a RMB1bn (USD143m) deal from Zuhai Huafa Group from China. Pandemic-themed issuance peaked in February and continued to decline for the rest of the year, especially in China.
- There were large drops from all issuer types in March as COVID-19 took hold, but central banks were quick to react, and the market had stabilised by April.
- Sovereign issuers have the ultimate power to extend the breadth and depth of the GSS bond markets due to their scale and influence. Ten sovereign issuers entered the GSS bond market in 2020, bringing the total number to 22. This influenced the shape and size of GSS bond markets. A list of sovereign GSS bond issuers is on *page 15*.

Green, social, and sustainability bond issuance doubled in 2020



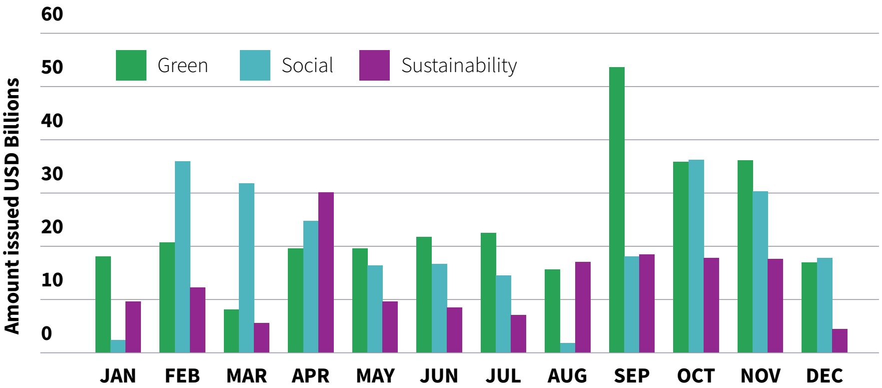
Source: Climate Bonds Initiative, 2021

Social bonds increased sharply in response to COVID-19



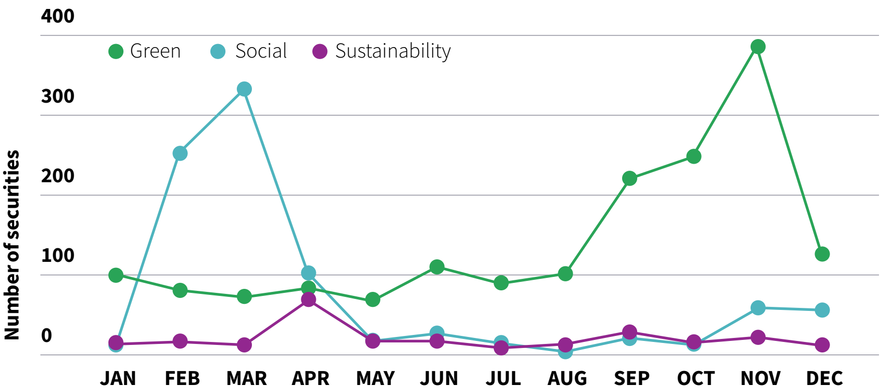
Source: Climate Bonds Initiative, 2021

Green bonds had a strong finish



Source: Climate Bonds Initiative, 2021

Social bonds dominated the earlier months of 2020



Source: Climate Bonds Initiative, 2021

Green bond market score card 2020

2020	Percent change from prior year
Size of market **USD290bn**	9%
Number of issuers **634**	14%
Number of instruments: **1696**	-9%
Average size of instrument **USD171m**	19%
Number of countries **55**	6%
Number of currencies **34**	0%

Sustainability bond market score card 2020

2020	Percent change from prior year
Size of market **USD160 bn**	131%
Number of issuers **83**	5%
Number of instruments: **253**	-26%
Average size of instrument **USD630m**	214%
Number of countries **23**	0%
Number of currencies **25**	-14%

Social bond market score card 2020

2020	Percent change from prior year
Size of market **USD249bn**	1017%
Number of issuers **543**	1107%
Number of instruments: **911**	488%
Average size of instrument **USD273m**	90%
Number of countries **29**	89%
Number of currencies **18**	64%

The **green** debt market recorded a slight increase compared to 2019, thanks to a strong third quarter. While the number of issuers increased, the number of instruments declined. The average size of the individual instruments issued under green is the smallest of the three themes, suggesting that the green debt market has broad appeal among a range of issuer types. Multiple small instruments issued by US Munis and Fannie Mae under the green theme is a key contributor to this.

The amount of debt issued under the **sustainability** theme multiplied by 2.3 times compared to 2019. More issuers entered the market, and the size of the individual instruments was, on average, three times larger than the prior year. Individual instruments increased in size and were larger (on average) than those issued under the green or social labels.

The **social** bond market exploded in 2020, recording a more than 10-fold increase (1017%) year-on-year, the sharpest annual growth in any theme since the inception of the GSS debt market. The number of issuers using social labels grew by a similarly astonishing number and encompassed a broader range of countries and currencies than ever before.

Spotlight sections

This paper includes forward looking spotlight analyses of the following three themes which will continue to influence the development of the GSS debt market in 2021 and beyond:

The development of transition instruments

No industry or entity can be left behind in the transition to a net-zero carbon economy and a more resilient and equal society. The development of instruments to accommodate a broader range of issuers and activities is essential in extending the thematic bond market and can help investors to build diversified portfolios. We explore the development of transition labels on *page 17*.

Pandemic recovery spending

Post-pandemic recovery spending linked to GSS expenditures encourages crowding in of such investment by introducing more projects into the real economy. We examine how four governments have implemented measures to ensure a sustainable recovery on *page 19*.

EU GSS market leadership

Europe is home to the world's largest GSS bond market, which has developed with the strong leadership of the European Union (EU). The EU has stated its ambition to be the first climate neutral bloc by 2050, and this objective is being pursued by connecting policy and budget, regulation, and the support of institutions including the ECB. The EU is the largest issuer of GSS bonds, having entered the thematic bond market in 2020. The presence of such a large-scale issuer of high credit quality is contributing to the creation of a transparent, liquid funding source for any entity wishing to support their sustainability goals through the debt markets (*page 21)*.

Green

Introduction

- In early December, the Climate Bonds Green Bond Database reached the USD1tn milestone. While other data sources had already called this benchmark, the Climate Bonds Database only includes bonds with 100% of net proceeds dedicated to green assets, projects, and/or expenditures aligned with the Climate Bonds Taxonomy.
- In a year characterised by uncertainty, green issuance rebounded in the second half of 2020 to reach a record-breaking USD290.1bn by the end of December, compared to the prior record of USD266.8bn set in 2019.
- 2020 started strong, but the COVID-19 pandemic quickly impacted issuance of all types of bonds in March. Government support packages took effect in Q2 and issuers cautiously returned to the market. Many public sector issuers turned their attention to social- and/or sustainability-themed bonds to contribute to the immediate relief of the economic shock driven by the pandemic and its ramifications. By September, confidence had returned and entities that had postponed green bonds earlier in the year were prepared, resulting in the most prolific third quarter recorded for green issuance. October and November remained active prior to the US election, and then issuance tailed off into year end.
- Egypt, Germany, Hungary, and Sweden issued debut sovereign green bonds, bringing the total number of such issuers to 16.
- An increase in the number of external reviews highlights how much emphasis investors are putting on the integrity of the green label. Most of the increase occurred in the Second Party Opinion (SPO) category. The number of Certified Climate Bonds (CCB) also increased and reached a cumulative total of USD150bn – or 15% of the market – in October 2020.

Regions

Four-fifths of the overall green volume originated from developed markets (DM) in 2020, compared to 73% in 2019.[4] Emerging markets (EM) accounted for 16% versus 22% the prior year, while the contribution of supranational entities (SNAT) was 4% against 5% in 2019. Chinese issuers shifted their focus to social bond issuance, hence impacting the overall EM number. Volumes in four regions, notably Europe, increased in 2020, while declining in the remaining two.

Europe was the largest source of green debt in 2020, responsible for USD156bn or 48% of the total. European issuance was led by government-backed entities and non-financial corporates, each contributing 25%. Government and policy support is creating more opportunities for private sector investment in Europe and a more diverse range of issuers are coming to the market beyond utilities, real estate companies, and banks. For example, in the woefully undersupplied automotive sector, Daimler AG (EUR1bn/USD1.1bn), Volvo (EUR500m/USD588m), and Volkswagen (EUR2bn/USD2.3bn) all issued debut green bonds in 2020.

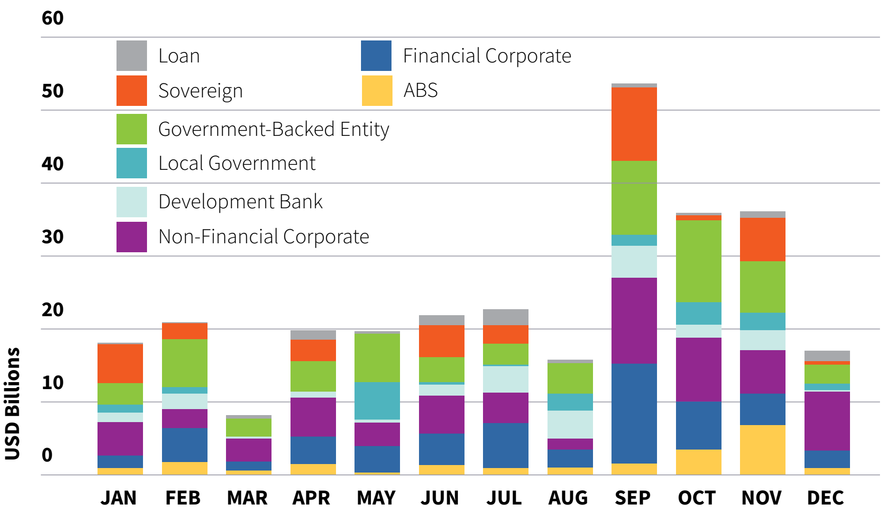
North America remained broadly static on the prior year with USD61.5bn of green bonds compared to USD60bn in 2019. Considering that 2020 was a record year for total (i.e., including vanilla) USD-denominated bond issuance – most of which originates from US issuers – this is surprising, but the focus was on securing flexible funds, and refinancing at prevailing lower rates. We expect the change in administration to result in a sharper increase in green debt originating from the US as President Biden has already indicated strong support for sustainable finance.

The Latin America & Caribbean (LAC) region exhibited close to 65% growth compared to the prior year, reaching USD7.9bn in 2020. More than half of the total originated from Chile, including four sovereign bonds worth a total of USD3.8bn (of which USD2.2bn were issued in EUR and the residual in USD).

Africa had its strongest year yet, with USD1.2bn in green debt originating from: two South African non-financial corporates (a loan from FirstRand Bank (USD225m), and a USD200m 10-year bond from Standard Bank of South Africa); a bilateral loan from Ghana worth USD41m (EUR35m); and Egypt's USD750m debut sovereign green bond in September.

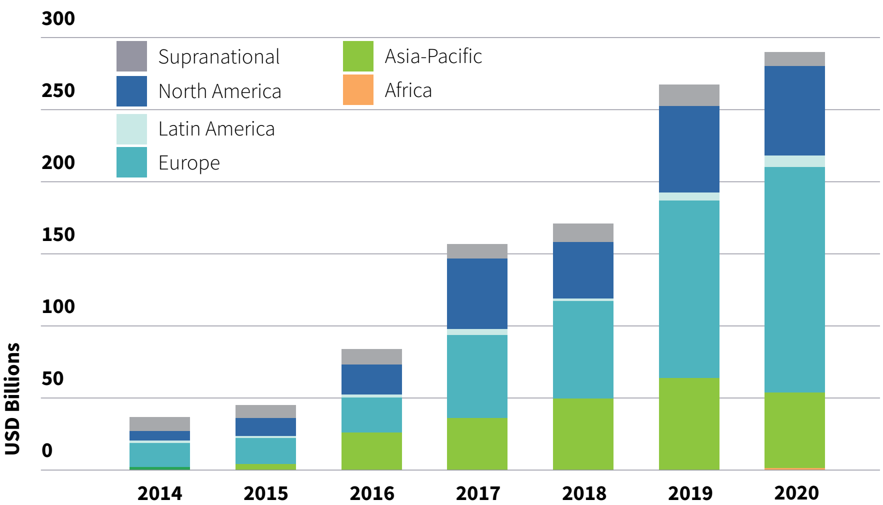
The drop in green bonds from Asia-Pacific (APAC) and SNAT issuers can largely be explained by COVID-19 and the subsequent increase in social and sustainability bond volume. Such bonds were issued to support healthcare, medical supplies and other immediate needs arising from the pandemic (*see page 14*).

Green bond issuance rebounded in the second half of 2020



Source: Climate Bonds Initiative, 2021

Europe was the dominant region for green debt in 2020

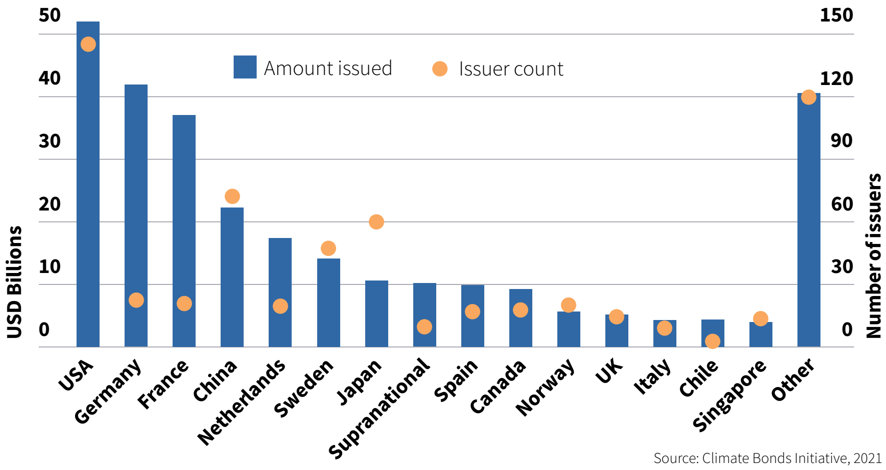


Source: Climate Bonds Initiative, 2021

Countries

- **The USA remained the largest source of green debt with a total of USD52.1bn (18%)** almost matching the 2019 figure of USD52.9bn. This is surprising given that total bond issuance originating from the USA increased from USD6.3tn in 2019 to USD12.3tn in 2020 but under the circumstances, the priority seems to have been to secure financing at prevailing low rates while maintaining flexibility with the use of proceeds rather than issuing labelled debt, perhaps for the first time.[5]
  - Half of the USA's green volume, and more than 70% of its green bonds, were issued between August and November. Although the Biden administration is expected to rebalance US policy priorities in favour of the climate agenda, a policy-led expansion could push up long-term rates in the US. Post-election, issuance (both vanilla and green) slowed into year-end.
  - The US market had the largest number of individual issuers with 144, but its private sector green bond market is still underdeveloped and continues to lack large, benchmark-sized green bonds with adequate transparency. The market is dominated by Municipal issuers classified as local governments, or government-backed entities. The mean size of the 747 green bonds originating from the US was just USD70m.
- **Two government bonds propelled Germany into second place**. The inaugural 10-year green Bund was priced in September, followed by a 5-year Bobl in early November with a combined size of EUR11.5bn (USD13.8bn).[6] Development Bank KfW sold 14 green bonds in 2020, with a total face value of USD9.6bn (issued in multiple currencies). Overall, the amount of green bonds originating from Germany more than doubled from USD18.7bn in 2019, to USD41.8bn in 2020.
- **France landed in third place with a total of USD37bn**. The green government bond (GrOAT) was tapped three times for a total of USD7.4bn in 2020. The GrOAT is the single largest green bond in the market, with a total amount outstanding of EUR27.4bn (USD31.1bn).[7] More pertinently, Société du Grand Paris (SGP) priced seven bonds worth EUR11bn (USD12.5bn) in 2020. SGP was set up in 2010 by the French Government to construct and deliver the 'Grand Paris Express' transport network – an expansion of the existing metro and commuter rail network in Île-de-France – and is funding the project entirely through the green bond market. By the end of 2020, the entity had 13 green bonds outstanding.
- **The green bond market in China clearly suffered from the ramifications of the COVID-19 pandemic**, with many issuers preferring to issue under social labels – especially those pertaining to the pandemic response – instead. Overall, bonds from Chinese entities reached just USD22.4bn, or 70% of the prior year total of USD31.4bn.
- The comparison between the amount issued and issuer count indicates that many markets are still largely domestic in nature. The USA, Sweden, China, and Japan, Norway, and the UK have a high number of issuers compared to the total amount of green bonds issued. France, Germany, the Netherlands, and Chile exhibit the opposite, indicating a smaller number of larger issuers. This format is more likely to attract the interest of the international investment community.

USA, Germany and France lead 2020 green bond issuance



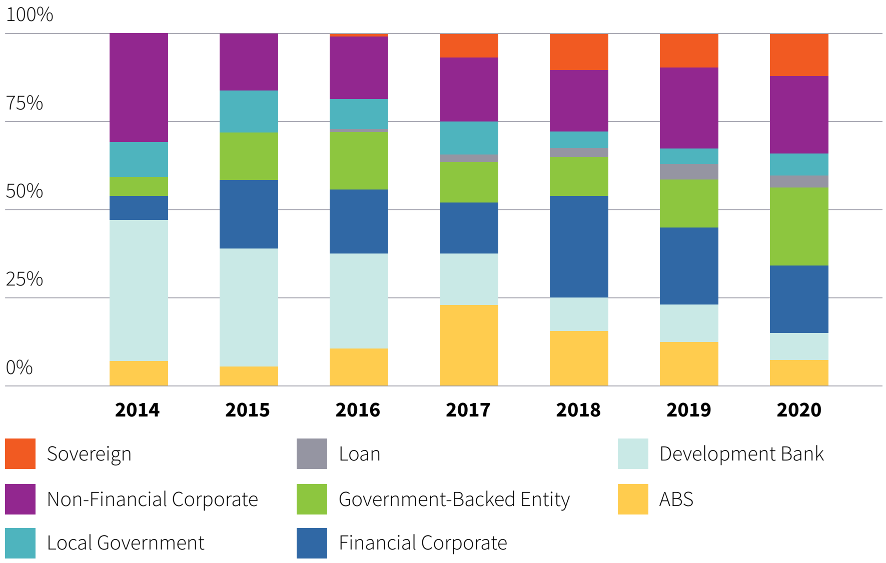
Source: Climate Bonds Initiative, 2021

Issuer types

Broadly speaking, 2020 was characterised by growth in public sector issuer types while private sector volumes either remained static or shrunk. As noted in our H1 2020 paper, public sector issuers are typically less vulnerable to market dynamics because they tend to have long-term investment plans in place. Development banks were the exception to this rule, as many turned their attention to issuing bonds under the social label to address the impacts of COVID-19. Average individual deal sizes contracted from USD344m in 2019 to USD277m in 2020, hence, total volume from this issuer category decreased marginally from USD58.7bn to USD55.7bn.

Government-backed entities experienced the most aggressive growth (78%) in 2020. The number of individual bonds more than doubled from 125 to 267. USD17bn of the total amount originated from France, split between 14 bonds from 21 issuers. Société du Grand Paris, referenced above, was responsible for 70% of the volume, with seven bonds worth EUR11bn (USD12.5bn). EDF, also French, was the second largest issuer with a single convertible bond to finance renewable energy worth EUR2.4bn (USD2.8bn). China was the second largest source, with 17 bonds worth USD7.7bn, and the USA took the third spot with 49 Muni bonds worth USD5.5bn.

Sovereigns and public sector entities lead growth in 2020



Source: Climate Bonds Initiative, 2021

The **local government** issuer type grew by 50% in 2020, from USD11.8bn to USD18.5bn. More than half of the total came from 72 US muni green bonds worth USD9.5bn. Among them, New York MTA priced four bonds Certified under the Low Carbon Transport Criteria of the Climate Bonds Standard, worth a total of USD3.9bn.

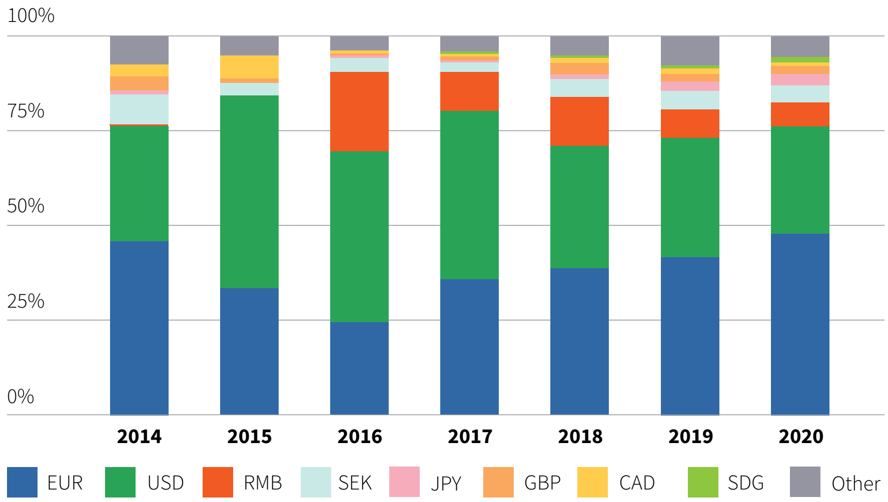
Nine **sovereign** issuers reopened or issued debut green bonds in 2020, contributing to 40% growth in this issuer type compared to 2019. The importance of sovereign green bonds rests on their size and profile, which catalyse green market creation and make the green bond market more accessible to other issuer types.[8] In 2020, Egypt, Germany, Hungary, and Sweden printed debut sovereign green bonds, while Chile, France, the Netherlands, Lithuania, and Indonesia extended their liabilities through re-openings or additional bonds. Multiple countries from different regions have stated their ambition to join the sovereign GSS bond market in 2021, thus we are optimistic about the continued growth of this issuer type, *see page 15*.

Among private sector issuer types, **non-financial corporates** remained the largest source of green bonds, albeit with a modest 6% growth (USD60.1 bn in 2019 to USD64bn in 2020). Around two thirds of the bonds in this category originated from Europe, with the rest coming from APAC, North America, and LAC.

Financial corporates experienced a slight contraction (from USD58.7bn to USD55.7bn), but this was mainly due to much lower issuance from Chinese banks, with European and US financial institutions exhibiting small increases of USD4bn and USD4.7bn respectively.

The **Asset-Backed Securities (ABS)** category fell by 37% year on year. Almost all (99%) of the deals originate from the USA, and this was partially impacted by a decline in the contribution of Fannie Mae, from USD22bn to UD13bn.

EUR then USD lead green bond currency volumes 2020



Source: Climate Bonds Initiative, 2021

Loans are almost always given to entities in the private sector, and this category decreased by 25% year-on-year to USD9.5bn. Interestingly, the number of countries from which green loans originated increased to 22 from 13, suggesting this instrument type is becoming more popular in more geographies.

We expect to see an increase in the number of bonds from the private sector as high-profile public-sector support for 'build back better' commitments crowds in private investment.

Currency

During 2020, 85% of the green bond volume was issued in one of the 'hard' currencies. This is an increase of 3% compared to 2019 and could be due to a flight to quality, which would give hard currency issuers relatively easier access to the capital markets. Green bonds were issued in 33 currencies, one fewer than 2019. The share of the top three currencies – EUR (48%), USD (28%) and CNY (6%) – increased to 82%, compared to an 80% share the previous year but still lower than the 84-90% achieved between 2015 and 2018. Both USD and CNY recorded a slight decline, whereas 6% more was issued in EUR.

While issuers from 28 countries priced EUR-denominated green bonds, as **the reserve currency of the world USD attracted the largest number of international issuers, reaching 36 countries (including 20 that were classified as EM)**. Among CNY-denominated green bonds, 28 out of the 30 issuers were domestic, plus one each from Hong Kong and South Korea.

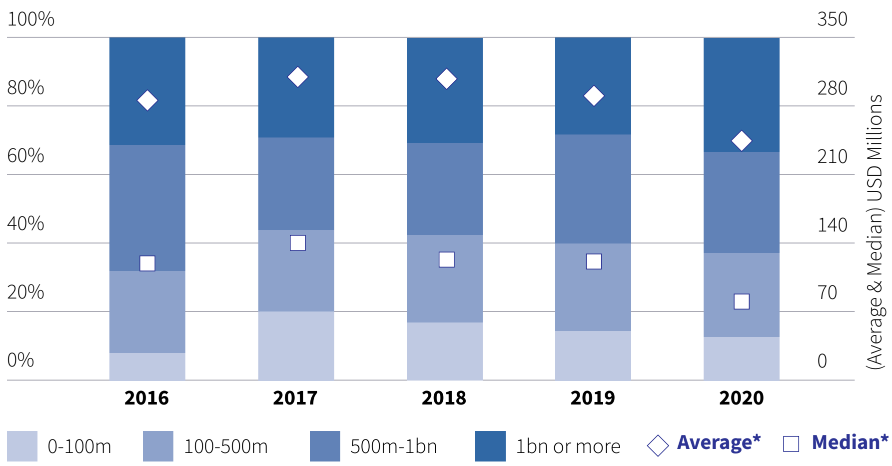
The top eight currencies maintained the 94% share of the market seen in 2019, with the only change in composition being SGD replacing AUD. SGD increased its presence by 46% to USD3.3bn, while AUD declined from USD5.4bn to USD3bn. The SGD market was exclusively domestic, with green bonds from two issuers, and green loans from a further nine.

Deal size

The USD23bn of additional issuance in 2020 exactly matched the increase in bonds falling into the USD500m-1bn bucket. This is unsurprising considering public sector issuer types, including sovereigns, exhibited the most growth and tend to issue deals of larger size. Benchmark-sized deals (USD500m+) help to attract more investors to the green bond market. Such deals are eligible for inclusion in broad market indices, and therefore attract non-specialised investors as well as those with dedicated mandates. The largest individual green deal of 2020 was the EUR6.5bn (USD7.6bn) German Bund, priced in September.

Overall, average and median deal sizes have continued to decline. Green ABS and loans are characterised by small deal sizes, and these have respectively increased in number from 127 and one in 2016, to 525 and 51 in 2020. However, while the number of ABS deals has more than quadrupled, the contribution to the total market size has dropped from 10% in 2016 to 7% in 2020, both due to a small total market in 2016 and a decreasing average (ABS) deal size.

Benchmark bonds dominate the green theme



Source: Climate Bonds Initiative, 2021

Tenor

More than 62% of the 2020 green bond volume had a maturity of up to 10 years, with almost 40% having a 5-10-year maturity, which was the largest individual bracket. Among the 5-10-year bonds, half of the amount originated from financial and non-financial corporates.

As expected, the longer-dated (10-year+) paper mostly originated from the public sector. Key issuers included government-backed entities, sovereigns, and utilities categorised as non-financial corporates.

Broadly speaking, the distribution remained similar year-on-year, the only notable change being the 5% decrease in the 0-5-year bracket and 3% increases in each of the 10-20- and 5-10-year intervals, both of which are explained by the inclusion of more sovereign bonds.

The bond with the longest tenor was a EUR50m (USD55m) 2120 maturity from French rail company SNCF.

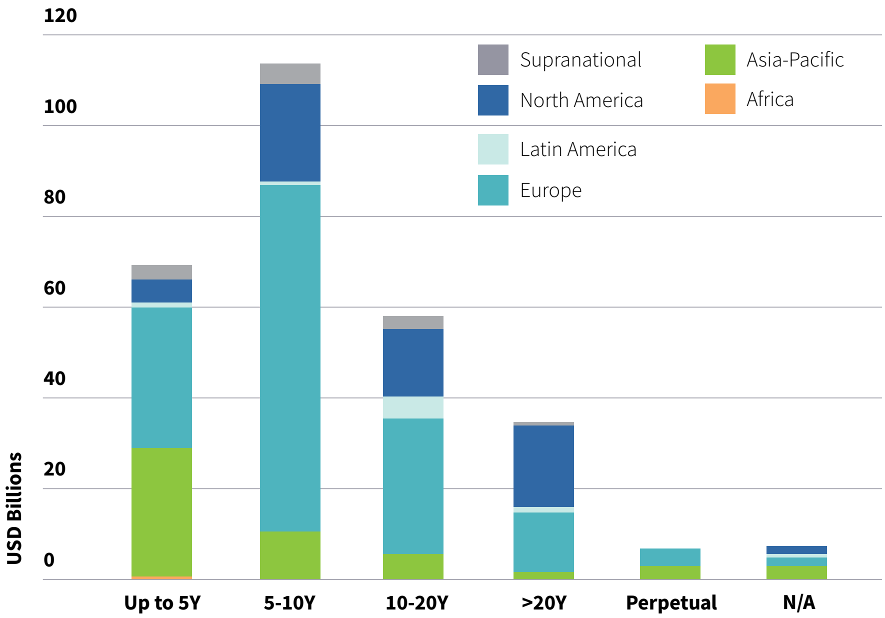
Use of Proceeds (UoP)

Together, **Energy**, **Buildings**, and **Transport** were respectively the three largest UoP categories, contributing 85% to the total in 2020. Energy and Transport, along with **Land Use**, were the only categories to expand in 2020.

Sovereigns and government-backed entities supported 26% year-on-year growth in **Transport**, with each contributing USD34bn. Eight of the nine sovereigns issuing or increasing their green bonds included an allocation to Transport in their use of proceeds (only Lithuania did not). As noted, large, long-term infrastructure projects – such as transport investments – are least likely to be impacted by the ramifications of a global pandemic, particularly in the short term and in a prevailing low-rate environment. Almost half of the Transport allocations of government-backed entities originated from France (USD14.8bn). China was the second largest source (USD3.8bn), with eleven separate metro projects raising cash in the green bond market.

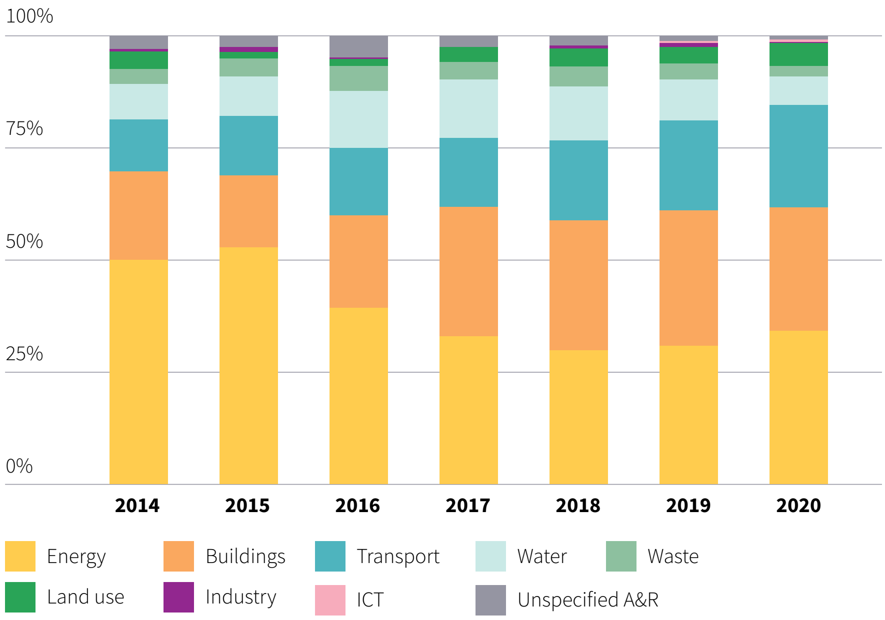
Investments directed towards **Renewable Energy** exhibited 19% growth compared to 2019. Almost half of that (46%) came from financial and non-financial corporates, including energy companies, and others such as Telecom provider Verizon that issued its second green bond in September, a USD1bn 10-year.

Most new green bonds have tenor of <10-years



Source: Climate Bonds Initiative, 2021

Energy, Buildings and Transport dominate UoP



Source: Climate Bonds Initiative, 2021

The **Buildings** category remained static at around USD76bn. Private sector confidence to begin new construction projects – as well as the uncertainty surrounding the occupancy rates of existing real estate – will naturally have been impacted by the COVID-19 pandemic. Further, bank lending will have tightened considerably for all types of private sector loans, and a large part of this category comes from financial corporates.

Land use experienced 59% growth in 2020, but it remains one of the smaller categories, contributing 5% overall. 51% of its total came from sovereigns, with six out of nine including Land use expenditures in their frameworks. Climate Bonds will be publishing an Agriculture and Land Use State of the Market report later in 2021, which will explore this underfunded yet net-zero crucial category of activities.

External reviews

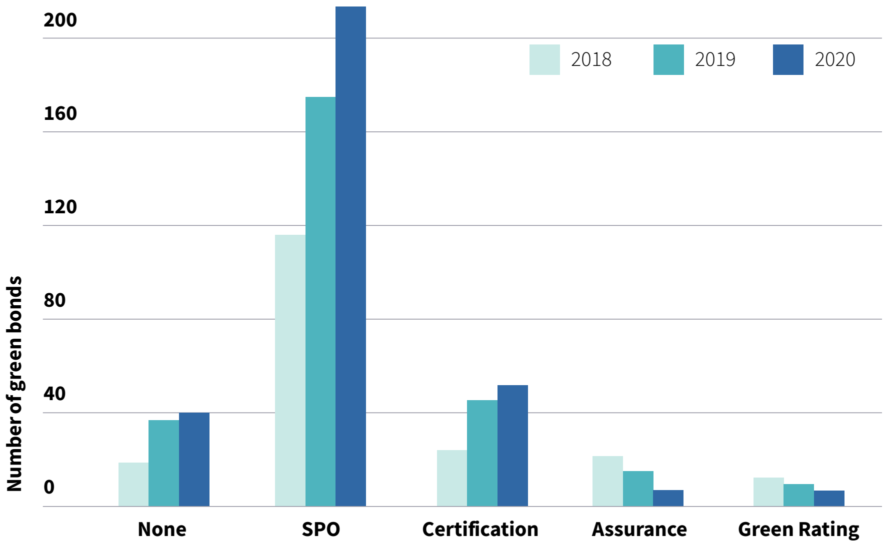
Green bonds with external reviews accounted for 89% of qualifying instruments in 2020, compared to 82% in 2019. Climate Bonds actively encourages greater market transparency through disclosure and celebrates this development. Investors are increasingly seeking independent proof of the legitimacy of green bonds – suggesting a greater awareness of the risks of greenwashing – while issuers are keen to avoid liabilities associated with 'getting it wrong'.

The volume of Certified Climate Bonds grew by 14% in 2020. The Certified amount reached USD150bn in October 2020, translating into 15% of the green bond market, a milestone for the integrity of the market. Large, high-profile issuers including sovereigns, The Netherlands, Thailand (green allocation), and Chile, and government-backed entities like Société du Grand Paris, China Construction Bank, and SNCF all printed Certified Climate Bonds in 2020.

Second Party Opinions (SPO) are the most popular type of external review, and volumes increased by 17% year-on-year. Interestingly, the number of bonds in that category declined by 2% over the period, which suggests that SPOs are being sought for larger individual bonds. Indeed, there was a 32% decline in the number of ABS issuers obtaining an SPO and, as noted above, this issuer type is composed of many small deals. The issuer types contributing the most to the growth in SPO volumes are government-backed entities (85% year-on-year); sovereigns (75%); and non-financial corporates (20%).

Some issuers sought external reviews from multiple sources; including a number of CCB issuers and issuers from Japan as commented on in our recent Japan State of the Market report.[9] Hence the sum of external review volumes is greater than the total amount of green bonds issued in 2020.

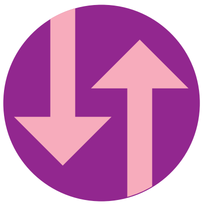
SPO and Certification continue growth in 2020



Source: Climate Bonds Initiative, 2021

Sustainability

Introduction



Sustainability bond issuance increased dramatically in 2020, having almost reached 2019 levels in the first half of the year.

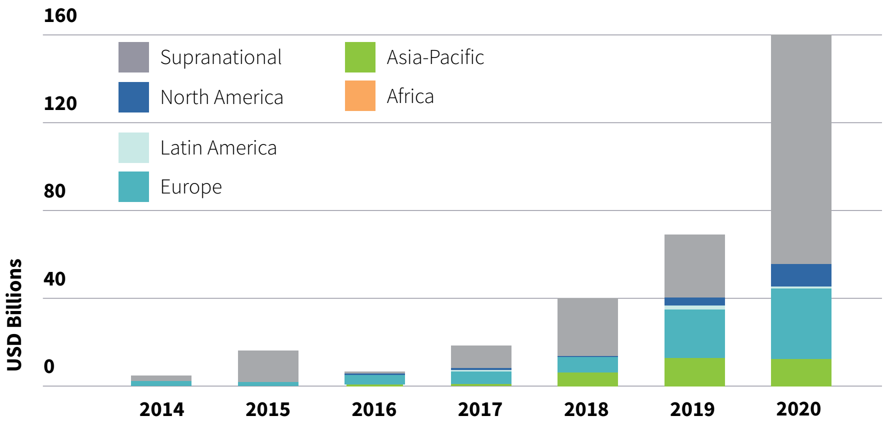
- Under the overall sustainability theme, multiple labels have emerged which finance green and/or social projects, assets, or expenditures (*see Appendix A*). Naturally, sustainability-related labels offer a greater degree of flexibility to issuers as such instruments can include a more diverse set of eligible investment categories. This allows entities to issue products with different labels under a single sustainability bond framework. For example, CaixaBank designed a Sustainable Development Goals Framework with the intention to issue bonds under all three thematic labels: green, social, and/or sustainability.[10]
- The development of the sustainability theme was marked by the publication of the Sustainability Bond Guidelines (SBG) by ICMA in June 2018. The SBG extend good practice recommendations around transparency and market integrity, combining the green project categories of the Green Bond Principles (GBP) and the social categories of the Social Bond Principles (SBP).
- The sustainability space is evolving rapidly, which is reflected not just in the diverse set of themes but also the trend towards performance-linked instruments. Responding to these developments, ICMA published Sustainability-Linked Bond Principles (SLBP) in 2020 aiming to provide a market framework with recommended structuring features, disclosure, and reporting. Such instruments remain outside the remit of this report, but their development is discussed on *page 17*.

Regions

In 2020, sustainability bond issuance increased by 131% compared to 2019. Overall, SNAT accounted for 63% of the volume, DM for 32%, and EM for 5%. This translates into growth for both SNAT and DM compared to 2019, while EM volume dropped by 9% compared to the previous year.

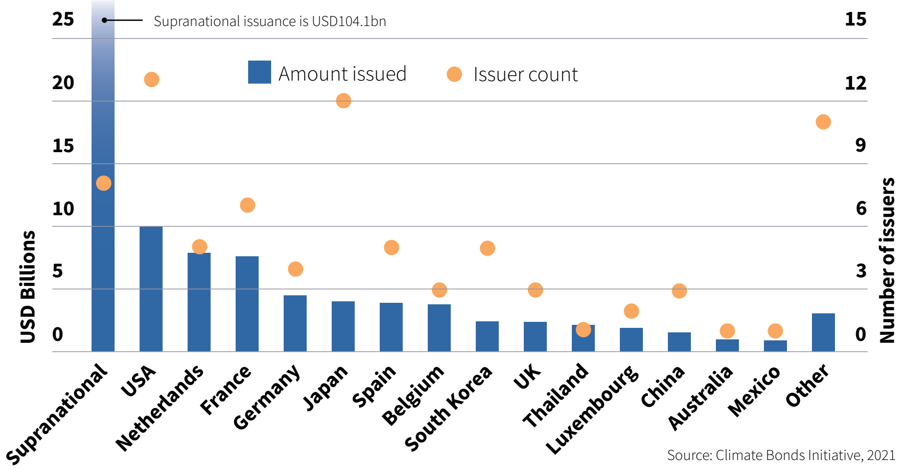
Most of the 260% growth from SNAT issuers originated from development banks, especially multilateral (MDBs). The main driver was the World Bank, but other players such as the Asian Infrastructure Investment Bank (AIIB) debuted sustainability bonds in 2020, issuing a total of USD7bn from five deals. With its pledge to end all coal-related financing and partnering with asset manager Amundi to create a dedicated Climate Change Investment Framework (CIIF), AIIB has developed a clear plan to transition

Supranationals lead on sustainability bond volumes 2020



Source: Climate Bonds Initiative, 2021

Sustainability bond market domiciles in 2020



Source: Climate Bonds Initiative, 2021

away from fossil fuel-related financing.[11] The Framework aims at facilitating the assessment of an issuer's level of alignment with climate change mitigation, adaptation, and low-carbon transition objectives.

Europe enjoyed solid growth of 43% (USD31.6bn versus USD22.2bn in 2019), making up 20% of total 2020 issuance and ranking second after SNAT. Almost half of the volume came from local governments domiciled in Belgium, France, Germany, and Spain.

North America was among the regions showing the most impressive development. Issuance grew by 164% year-on-year from USD3.9bn to USD10.4bn mainly due to several benchmark-sized deals from non-financial corporates issued in the second half of the year (*see 'Countries' below*).

Issuance from Asia-Pacific remained unchanged for the year, amounting to USD12.8bn and making up 8% of overall issuance in 2020.

LAC was the only region without record yearly issuance. Its USD888m volume only made up 1% of total 2020 figures and came from a single deal; however, this was a sovereign SDG-labelled bond from Mexico, therefore marking a crucial step in developing the GSS bond market at both country and regional level.

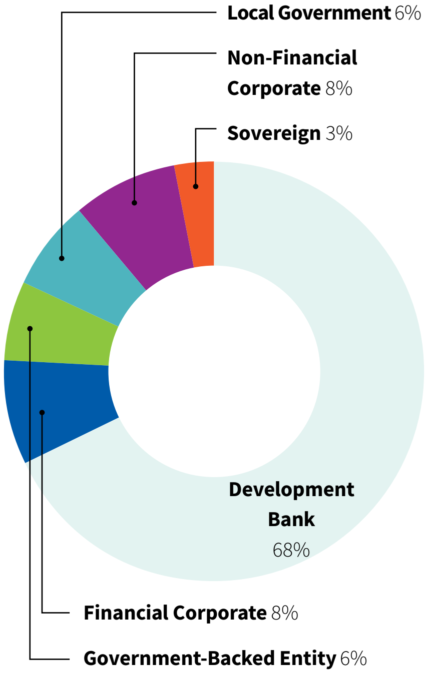
Countries

After SNAT issuers, which constituted the largest share of 2020 issuance, the USA placed second in the country ranking with USD9.9bn. Pfizer issued a USD1.3bn sustainability bond but the largest volume came from debut issuer Alphabet. Its USD5.8bn three tranche deal contributed 55% of the USA's volume and will finance projects that fall under the nine eligible categories ranging from energy efficiency and circular economy & design to affordable housing and a commitment to racial equity and support for small businesses.[12]

The Netherlands and France took the third and fourth spots, with similar volumes (USD7.8bn and USD7.5bn respectively). Germany had four deals (USD4.5bn), of which three were benchmark-sized. One of them was market newcomer adidas AG, issuing its maiden sustainability bond, with a seven-year maturity, in October. The deal funds sustainable materials and processes, such as purchases of recycled and sustainably sourced materials, the latter of which is also intended to positively impact underrepresented communities.

In total there were deals from 23 countries in 2020. The 'Other' category includes bonds originating from the Philippines, Turkey, and Iceland, all of which are less frequent visitors to the labelled bond space. Newcomers to the sustainability country list were Iceland (one bond from Islandbanki HF), and Luxembourg (inaugural sovereign bond, and a second bond from Micro Small & Medium Enterprise Bonds).

Development banks generate 68% of sustainability bond issuance



Source: Climate Bonds Initiative, 2021

Issuer types

As previously mentioned, most sustainability bonds came from MDBs. Development banks thus comprised 68% of overall issuance, or USD108bn. In recent years, the World Bank (through its financing arm IBRD) has consistently been the biggest player and issued a total of USD81bn in 2020. The volume of 'World Bank Sustainable Development Bonds' tripled compared to 2019. The five themes of its lending activities are climate change; gender; jobs; public-private partnerships; and fragility, conflict and violence, which sit under several different sustainable development projects and programmes in the IBRD's member countries. In addition to being large issuers in the sustainable finance space, development banks also provide technical assistance to other issuers, and this is part of the World Bank's efforts to promote and finance sustainable development. This is particularly pertinent in EM where, for example, the World Bank supports sovereign issuers throughout the process of issuing GSS bonds.

The Republic of Korea issued the first sovereign sustainability bond in 2019. Three more countries followed suit in 2020: Thailand (THB85bn/USD2.7bn), Luxembourg (EUR1.5bn/USD1.8bn) and Mexico (EUR750m/USD900m), contributing 3% of the total. In addition to financing and refinancing GSS expenditures, such bonds do not serve solely the purpose of raising funds. The Climate Bonds Sovereign Green, Social and Sustainability Bond Survey found that such instruments have amongst other things the ability to catalyse or enhance local markets, therefore amplifying their impact beyond the use of proceeds. One example is the Belgian region of Flanders, which issued a sustainability bond having been encouraged by Belgium's green Sovereign (*see page 15*).

The lion's share of local government sustainability bond issuance came from four countries in 2020:

- **Spain**: Autonomous Community of Madrid (EUR1.6bn/USD1.7bn); Basque Government (EUR1.1bn/USD1.3bn); Comunidad Foral de Navarra (EUR75m/USD81m); Xunta de Galicia (EUR500m/USD587m)
- **Belgium**: Flemish Community (EUR1.25bn/USD1.4bn); Region Wallonne (EUR1.5bn/USD1.7bn)
- **Germany**: State of North Rhine-Westphalia Germany (EUR2.4bn/USD2.8bn)
- **France**: Region of Ile de France (EUR800m/USD899m); Ville de Paris (EUR300m/USD355m)

In the private sector, issuers are increasingly recognising the value of the sustainability label. Issuance volume from financial corporates has been steadily growing since the inception of the market. Having jumped from USD2.6bn in 2018 to USD11.2bn in 2019, it increased another 14% to USD12.8bn in 2020.

The largest deal came from the French bank Société Générale with a EUR1bn (USD1.1bn) 10-year bond. Similarly, the non-financial corporate group is growing and constantly adding new issuers. This ranges from so-called pure plays, which derive most of their revenues from green business activities (such as rail company Deutsche Bahn), to sectors which are less frequently seen in the space, such as luxury fashion house Burberry Group.

Burberry Group was the first luxury fashion company to issue a sustainability-labelled bond in September. The use of proceeds included costs of responsibly sourced cotton or products containing cotton as a main material, expenditures related to the procurement of sustainable and recycled packaging materials, and green buildings.

Currency

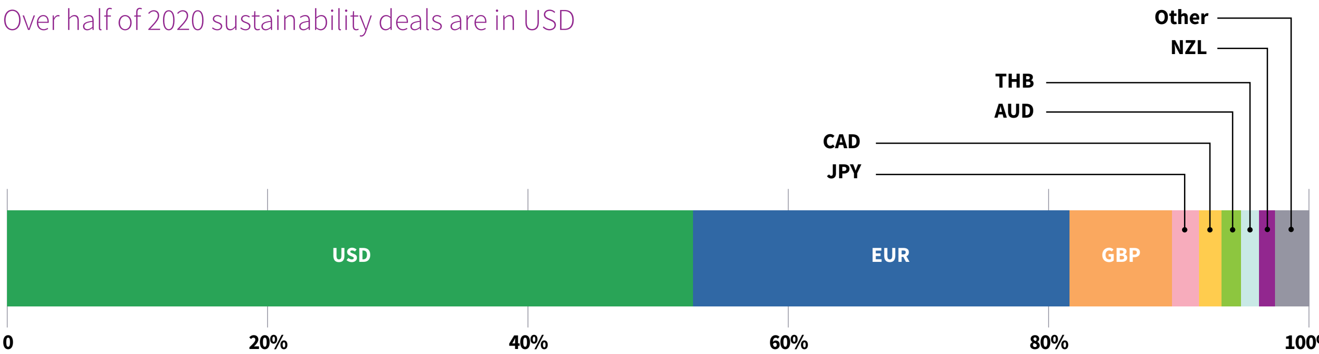
96% of the issuance volume was denominated in hard currency. The share of other currencies remains small and includes a wide range, such as THB and SEK, which were the leading soft currencies.

Most sustainability bonds in 2020 were issued in USD. IBRD issued a total of USD84bn in a variety of currencies, most prominently USD49bn worth of USD-denominated debt. It was active in multiple other currencies, ranging from UYU (Uruguayan Peso, USD373m) and EUR (USD14bn), with the latter ranking second in the overall currency list.

Besides European countries, issuers from other domiciles also raised funds in EUR, such as Mexico with its sovereign for an equivalent of USD820m (EUR700m).

Sustainability bonds have been issued in 33 different currencies so far and the market is getting more diverse every year. In 2020 the first sustainability themed bond in Armenian dram (AMD) was issued by Micro Small & Medium Enterprises Bonds, a financial corporate domiciled in Luxembourg which raised the equivalent of USD10.7m.

Over half of 2020 sustainability deals are in USD



Source: Climate Bonds Initiative, 2021

Deal size

In total, 85 deals worth USD144bn – making up 90% of overall 2020 issuance – were benchmark-sized (USD500m or above). Fifty-five of those were larger than USD1bn and represented a total of USD125bn. This included the sovereign bonds from Thailand and Luxembourg priced in the second half of the year. However, most of this bracket originated from SNAT, which made up 74% of the >USD1bn bucket. Only a small fraction of the deals with such size came from EM – in total a volume of USD6bn –making up 73% of the overall EM issuance volume.

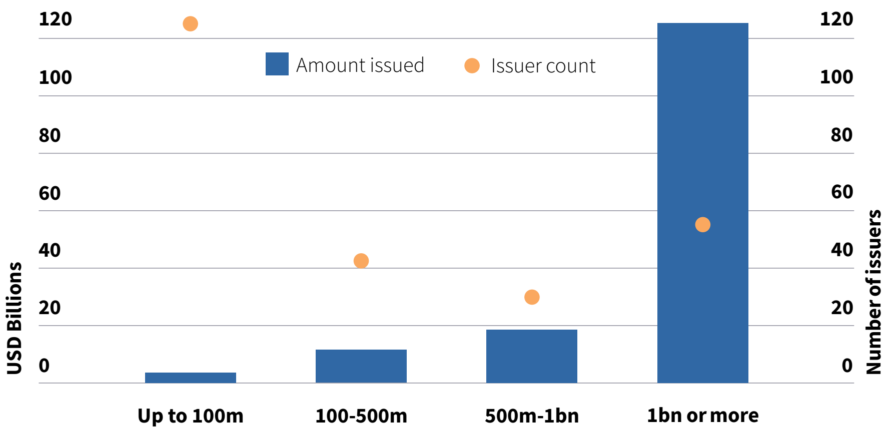
The bucket encompassing the smallest bonds (up to USD100m) comprised the largest number of bonds (125) but just 2% of the issuance volume. A large part of this consists of deals by US Municipalities.

Tenor

Over 80% of the bonds issued in 2020 had an original maturity of up to 10 years. The 0-5-year bracket was the largest, with 43% of the issuance volume.

The longest dated bond came from the World Bank, with a 50-year maturity. Overall, 18% of the volume had a maturity of over 10 years. Among the 18 bonds with a tenor of more than 20 years, just two were from the private sector: a 2050 USD2.5bn tranche from Alphabet, and a 2060 USD290m bond from Tokyu Fudosan Holdings Corp.

2020 sees growth in >USD1bn-sized sustainability bonds



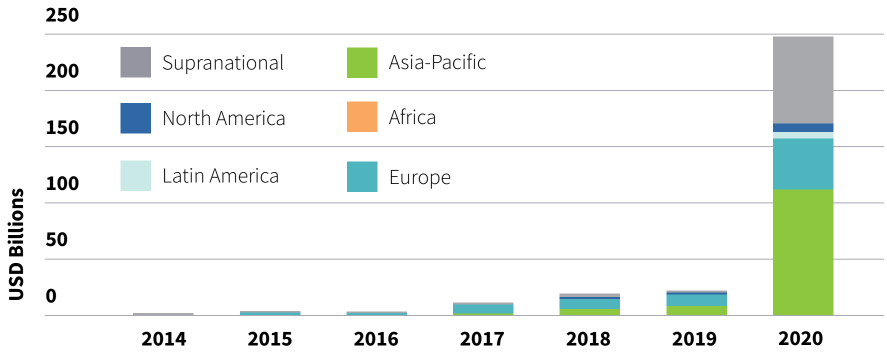
Source: Climate Bonds Initiative, 2021

Social

Introduction

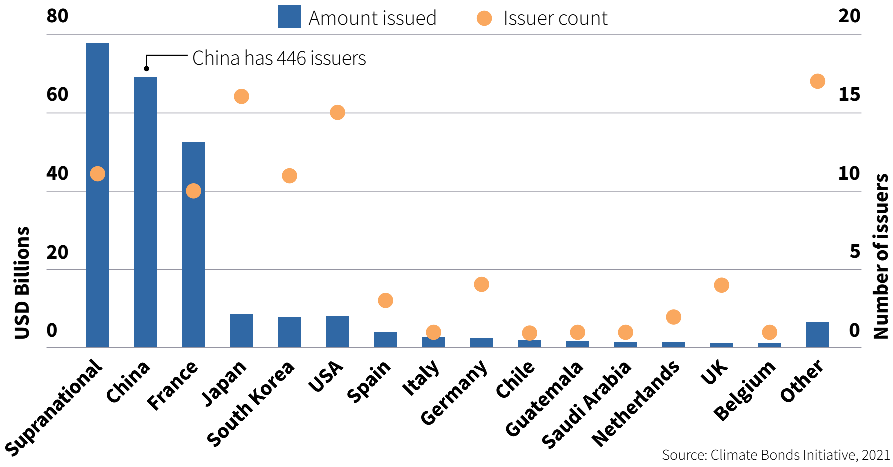
- The social theme constitutes 18% of total GSS volumes.
- After the inception of the social bond market in 2006, this theme experienced immense expansion in 2020, reaching USD249bn in issuance. This represents a ten-fold increase on the prior year and three quarters of the entire volume falling under the social theme.
- The dramatic growth can be largely attributed to the effects of the COVID-19 pandemic and the increasing desire of bond issuers to address health and other social concerns in a more strategic way.
- Pandemic bonds contributed substantially to the growth and accounted for 34% of 2020 social bond issuance. Climate Bonds' definition of a pandemic bond is a UoP instrument financing COVID-19 response measures under a label specifically related to this.

Pandemic bonds from China helped Asia-Pac achieve solid growth



Source: Climate Bonds Initiative, 2021

China was responsible for >80% of individual social bonds



Source: Climate Bonds Initiative, 2021

Regions

Issuance skyrocketed in nearly all regions in 2020. Overall, with the pandemic label as a sub-label of social bonds, all regions saw an increase in issuance apart from Africa. Asia-Pacific's spike can be mainly traced back to pandemic bonds from China, which comprised 77% of the region's issuance.

The opposite was true for Europe, where only 13% of the region's volume came from pandemic-labelled bonds. Similarly, for SNAT the pandemic label only contributed 8% of issuance, demonstrating that the driver for this market continues to be Asia, specifically China with USD68bn of issuance. SNAT took second place behind Asia in the region ranking, with 31% which is mainly rooted – like the sustainability universe – in development bank issuance, as well as the EU SURE bonds which are classified as social bonds. LAC and North America followed with 2% and 3% of total issuance volume, respectively.

Countries

As discussed above, SNAT and China made the largest contributions to the 2020 issuance volume. France ranked third, with USD52.5bn coming from only ten issuers, two of which contributed USD46.2bn: Unédic Asseo (EUR21bn/USD23.8bn), with six deals of which one was a pandemic bond, and Caisse d'Amortissement de la Dette Sociale (EUR20bn/USD22.4bn), with five.

Japan was the fourth largest source of social bonds with a total of USD8.8bn. Issuance was more diverse, coming from 16 issuers, but the deals were relatively smaller. Just five were benchmark-sized, and of these four (two each) came from the Development Bank of Japan and Mitsubishi UFJ Financial Group. The bonds of the latter financed multiple categories within the healthcare segment as well as other social categories.

The 'Other' category included the following countries as newcomers, each with one deal:

Bermuda: MetroCat Re (USD100m)

Finland: Kuntarahoitus Oyj (EUR600m/USD709m)

Macao: Wynn Macau (USD1bn)

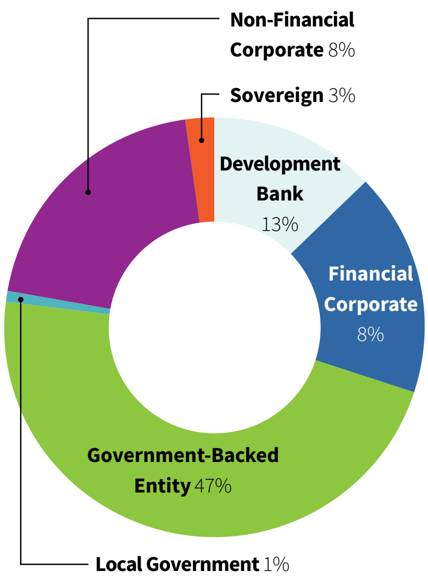
Slovenia: SID Bank (EUR350m/USD397m)

Russia: Russian Railways (RUB25bn/USD342m)

Issuer types

Non-financial corporates saw the most impressive increase, from USD2.4bn to USD50.5bn, which **translates into almost 2000% (20x) growth.** This is important as it shows that the private sector is also increasingly valuing labelled instruments and channelling funds towards social projects with a direct commitment. In total, non-financials made up 20% of the 2020 issuance volume and mainly consisted of Chinese issuers bringing pandemic bonds to the market. The largest deal, however, came from Wynn Macau Ltd (USD1bn).

Government-backed entities supported market growth



Source: Climate Bonds Initiative, 2021

Financial corporates more than quadrupled their volume, with Citigroup and Bank of America issuing the largest deals (respectively USD2.5bn and USD2bn). The former funded affordable housing, targeting low- and moderate-income populations, including

Sovereign GSS bonds

At the end of 2020, USD97.7bn worth of Sovereign GSS bond had been issued from 22 sources. Green remains the dominant theme, but sovereign bonds were issued under the social theme for the first time in 2020 and following in the footsteps of the Republic of Korea's debut in 2019, three more sovereigns introduced sustainability bonds.

In January 2021, Climate Bonds published the results of the Sovereign GSS Bond Survey, which found that Sovereign GSS bonds had the potential to change markets from seven angles.[13]

1. Catalysing or enhancing local markets For most countries, a motivation for and an outcome of issuing a sovereign GSS bond was to support the growth of a local green bond market. Sovereign issuers serve as role models for other types of issuers. They can provide investors with safe, liquid investment opportunities which frees up capital for other lower rated and less liquid securities.

2. Contributing to larger strategic initiatives In most cases a wider strategic initiative to achieve NDC targets, address SDGs, and mitigate climate change and social inequalities triggered the decision to issue. These plans included policies designed to address emission reduction goals as well as net zero ambitions.

3. Amplifying transparency The process of issuing a sovereign GSS bond typically involved a budget tagging exercise and commitments to report on the allocation of proceeds and their impact. These audits greatly increase transparency for ministries and in parliament and extend to external stakeholders such as investors.

4. Diversifying and increasing the investor participation In most cases, a sovereign GSS bond broadened and diversified the investor base, a key motivation for issuing. Sovereign GSS bonds also encourage investors to initiate dedicated GSS investment strategies.

5. Offering pricing benefits A broader investor base can facilitate tighter pricing. If this persists, we expect domestic Debt Management Offices (DMO) to encourage governments to identify and develop a pipeline of suitable GSS expenditures.

6. Facilitating cross border collaboration and enhance visibility Many respondents collaborated with DMO counterparts both pre and post issuance, in knowledge forums and bilateral conversations. Even the use of proceeds bore an element of international collaboration through funds being used to finance projects beyond the borders of the issuing country.

7. Delivering benefits that outweigh challenges Issuing a sovereign GSS bond is a large commitment and can present challenges. For example, some issuers were not permitted to open additional accounts to manage proceeds from GSS bonds. The results of the survey suggest that there are tested solutions for these difficulties and that most sovereign GSS issuers successfully overcame hurdles. Challenges and initial costs were usually compensated for by the benefits obtained including increased visibility and reputational benefits. There are multiple channels of support from various organisations such as development banks, structuring advisors, second party opinion (SPO) providers, and NGO's such as Climate Bonds that help to navigate the process from creating the specific framework through to post issuance reporting.

Sovereign GSS

Theme	Market	Country	USD bn as of 31/12/2020
Green	DM	France	30.7
Green	DM	Germany	13.6
Green	DM	Netherlands	10.0
Green	DM	Belgium	8.2
Green	DM	Ireland	5.7
Green	DM	Sweden	2.3
Green	DM	Hong Kong	1.0
Green	EM	Chile	6.2
Green	EM	Poland	4.3
Green	EM	Indonesia	3.1
Green	EM	Hungary	1.9
Green	EM	Egypt	0.8
Green	EM	Lithuania	0.1
Green	EM	Nigeria	0.1
Green	EM	Fiji	0.05
Green	EM	Seychelles	0.02
Sustainability	DM	Luxembourg	1.8
Sustainability	EM	Thailand	2.1
Sustainability	EM	Mexico	0.9
Sustainability	EM	South Korea	0.5
Social	EM	Chile	2.1
Social	EM	Guatemala	1.7
Social	EM	Ecuador	0.7

persons with disabilities, senior citizens, those experiencing homelessness, and veterans. BoA allocated funds to the health care industry, specifically not-for-profit hospitals, skilled nursing facilities, and manufacturers of health care equipment and supplies.

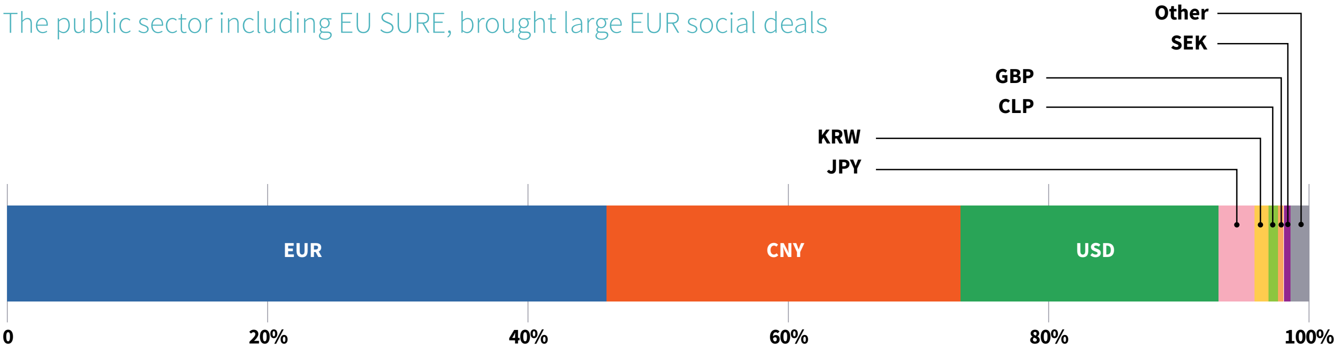
Despite making up a small portion of the volume, it is worth mentioning that the first sovereign social bonds came to the market in 2020. Notably, all of them are from Latin America. Ecuador and Guatemala issued two and three deals respectively in the first half of the year, and Chile two deals in the second half.

Ecuador pioneered the sovereign social bond, with a USD400m debut in January 2020. The proceeds of the bond were earmarked to provide mortgages to low- and middle-income individuals at preferential rates giving homes to up to 24,000 families. The deal was supported by a USD300m guarantee from the Inter-American Development Bank (IDB), enhancing the appeal for international investors, and reducing the borrowing costs for Ecuador.

Chile brought a two-tranche deal split between 8- and 13-year tenors with a cumulative volume of CLP1.6tn (USD2bn), raising funds for projects that support households, education, essential health services as well as programmes to prevent and/or alleviate the effects derived from COVID-19 amongst others. Sovereign issuance plays a crucial role in developing local markets as they can serve as benchmarks and a blueprint for other organisations (*see box above*).

Government-backed entities made up 47% of the total issuance volume with USD118bn, of which USD52bn came from the EU SURE bonds (*see page 24*). Development banks made up 13% of the share and local governments 1%.

The public sector including EU SURE, brought large EUR social deals



Source: Climate Bonds Initiative, 2021

Currency

70% of the social universe was issued in hard currencies and 30% in soft currencies. EUR was top with 46%, its issuance originating from Europe, Asia-Pacific and SNAT. The EUR was followed by CNY, which was composed solely of 631 pandemic bonds from China. The USD was third with USD48.9bn across five different regions, including SNAT.

Up next were JPY (2.8%), KRW, (1.1%), CLP (0.8%), GBP (0.5%), and SEK (0.4%). For the first time, social bonds were issued in CHF, MOP (Macanese pataca), NOK, and RUB with one deal in each currency. Amongst those, the largest was the first ever social bond from Russia, issued by Russian Railways (RUB25bn/USD342m) to finance transportation accessibility, healthcare, education, and disaster relief.

Deal size

Similar to the sustainability bond space, 86 deals were benchmark-sized (USD500m+). Among these, 49 were at least USD1bn and made up a total volume of USD151bn.

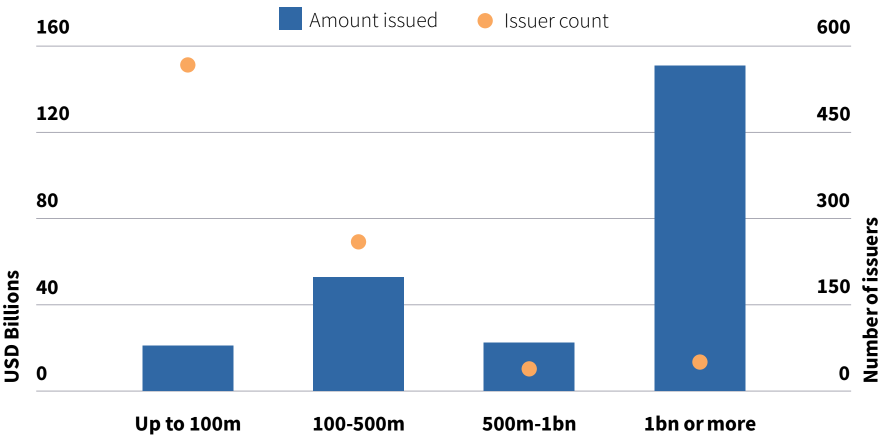
The number of deals rises dramatically towards the lower size brackets, with the 100-500m range comprising 260 deals (USD53bn) and 565 with a size of up to USD100m (USD21bn). The latter was mainly driven by Chinese pandemic bonds summing USD18bn, and similar in the USD100-500m bracket, with 189 deals and issuance of USD38bn. The largest bonds (by far) were issued by the EU, its five deals reaching EUR39.5bn (USD51.7bn) and financing eligible assets under the 'EU SURE Social Bond Framework', such as short time work schemes or similar measures designed by Member States to protect affected employees, including self-employed people *(see page 24)*.

Tenor

Social bonds tend to be short dated. Tenors of up to five years comprised just over half (53%) of the cumulative volume in 2020 translating into USD132bn overall. Yet again this was due to pandemic bonds originating from China (USD66bn). As mentioned in the H1 2020 publication, this is likely due to a need to disburse funding more quickly than for large infrastructure projects and assets that make up a large part of the green bond funding sphere.

Volumes decrease toward longer-dated bonds and so the 5-10-year bracket makes up 24%, and tenors beyond 20-years only 6%. In the second half of the year Urban Renaissance Agency and University of Tokyo National University Corp issued long-dated social paper, both from Japan and maturing in 2060, and raising JPY30bn (USD288m) with two deals and JPY20bn (USD190m) with one deal respectively.

Social bond growth came from a handful of large deals



Source: Climate Bonds Initiative, 2021

Spotlight: The development of transition instruments

Transition finance: a more inclusive shift to green?

The speed at which the sustainable finance landscape is currently evolving warrants repeated emphasis. An important dimension of this evolution is the discussion and debate around so-called *transition* finance. Although the green bond market continues to grow fast and offers a natural solution for issuers that can already identify suitable assets, projects, and activities eligible for labelling per current green definitions, the universe remains small.[14] In response to concerns that the scope of "traditional" green issuers and sectors is too narrow, the distinct concept of transition bonds and wider transition finance aims to facilitate the inclusion into this arena of entities typically engaged in emissions-intensive activities which are looking to drastically reduce their carbon emissions through changing business models or the use of new technologies.

Large emitters are generally familiar with and regularly utilise bonds to meet their funding needs, but the adoption of thematically labelled bonds – green or otherwise – remains limited. Transition bonds offer a pathway to making the sustainable finance space more inclusive, with the double dividend of adding much-demanded diversity around industry sectors and risk profiles to suit a broader spectrum of investor mandates and contributing to market liquidity.[15] The point around inclusivity is a key facet of the conversation: in the end, if the collective goal of a Paris-aligned net-zero global economy is to be met, all sectors must be engaged in the effort. Prominent examples of the tricky-yet-necessary industries include extractives like mining; materials such as steel and cement; and industrials, including land and water-based transportation (automotive and shipping).

The credible transition journey

By the end of 2020, 11 bonds had been issued with the transition label, including early examples from the likes of EBRD and energy company SNAM, as well as a recent deal from the Bank of China.[16] This segment is poised for rapid growth over the coming years as stakeholder and regulatory pressure mounts for companies and governments at various levels to transition away from assets and activities at risk of becoming stranded.

The market response has been mixed and there is debate around the transition bonds issued thus far. The primary concerns are around the relevance, reliability, and availability of transition pathways – and thus the appropriate uses of transition bond proceeds – for specific sectors. Being able to demonstrate requisite ambition in terms of pathways and the choice of the most advanced and suitable technologies (not necessarily synonymous with most commercially viable) will be key for issuers seeking to establish credibility for their transition strategies and related finance.

To address concerns requires ambition – this is a focal point addressed in recent thinking and publications that aim to provide guidelines and standards for this nascent segment. Climate Bonds' *Financing Credible Transitions* (FCT) Whitepaper took on this momentous challenge in September 2020.[17]

The approach laid out in the paper is flexible as it allows for transition of whole entities as well as individual activities.

For activities, it distinguishes between a range of activities that will need to transition, starting from those that are already near-zero and can benefit from marginal improvements. Other activities, including steel and cement production, are likely to be needed for essential green infrastructure beyond 2050 and have a clear pathway to zero that investment can facilitate. Interim activities cover those that can later be phased out and replaced with other alternatives.

The final category includes activities considered essential to modern economies, such as aviation, but do not yet have a clear, viable net-zero pathway, and that further work must be done to define this. The approach recognises that certain activities are at high risk of becoming stranded and must be phased out with urgency. Fossil fuel power generation is the pertinent example here, and though there will be some measures that could contribute to short-term reduction in emissions (e.g., improving the energy efficiency of a power generator on an oil-producing facility), **the five transition principles are vital to ensure that the transition bond market does not contribute to locking in these activities.**

A complementary publication from ICMA – **the Climate Transition Finance Handbook** – was published in December 2020, laying out proposed process guidelines for this segment, not dissimilar from those of the more established green, social and sustainability bond markets. Although the consensus-building process has begun, investors will need to place the transition finance segments under continual scrutiny to ensure no "transition-washing" occurs.

5 principles for an ambitious transition

1. In line with 1.5 degree trajectory. All goals and pathways need to align with zero carbon by 2050 and nearly halving emissions by 2030.

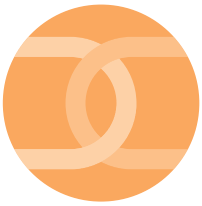
2. Established by science. All goals and pathways must be led by scientific experts and be harmonised across countries.

3. Offsets don't count. Credible transition goals and pathways don't count offsets, but should count upstream Scope 3 emissions.

4. Technological viability trumps economic competitiveness. Pathways must include an assessment of current and expected technologies. Where a viable technology exists, even if relatively expensive, it should be used to determine the decarbonisation pathway for that economic activity.

5. Action not pledges. A credible transition is backed by operating metrics rather than a commitment/pledge to follow a transition pathway at some point in the future. In other words, this is NOT a transition to a transition.

Entities and the performance-linked model



A further recent development in sustainable finance is pushing the borders beyond the established use-of-proceeds model: the emergence of performance- or KPI-linked debt instruments, also known as Sustainability-Linked Bonds (SLBs) and Sustainability-Linked Loans (SLLs). As opposed to financing a specified pool of assets and projects, there is typically no constraint on the use of proceeds – i.e., finance raised is for general corporate purposes.[18]

SLBs and SLLs are 'target based' or 'performance based' where the coupon/interest depends on the borrower's performance against predetermined sustainability-related KPIs. Therefore, instead of financing specific assets, they aim to incentivize the issuer/borrower to achieve wider Sustainability Performance Targets (SPTs) at the issuer level.

A prolific example of this type of instrument is the General Purpose SDG Linked Bond issued by Italian energy utility Enel, a seasoned green (use of proceeds) bond issuer, in September 2019. To avoid a step-up of the bond's coupon by 25 basis points, the company committed to increasing its installed renewable energy generation capacity to 55% of its total capacity by the end of 2021.

There are some concerns related to SLBs, in particular that the KPIs set are entity-specific and difficult to benchmark against peers or against, for example, wider global goals such as the Paris Agreement. For SLLs, an additional concern is that there is currently very limited transparency in the market so although, on paper, the market has seen impressive growth, it is difficult to assess the impact and ambition of each loan. These concerns are not insurmountable and with some clear guidance the market could be a valuable addition to the sustainable finance landscape, especially in enabling entity-level transitions.

SLB/Ls can be a critical tool in financing entity-level transition pathways. The concept of transition finance is, importantly, applicable to whole entities as well as individual activities. While the use-of-proceeds green bond model has primarily been used to finance individual activities, SLBs and SLLs could be used to incentivise an entity to pursue an entity-level transition pathway in line with the Paris Agreement.

To fulfil this potential, it needs to be clear what constitutes a sufficient level of ambition for the KPIs to which the cost of funding is (at least partially) tied.

ICMA's Sustainability-Linked Bond Guidelines, the LMA's Sustainability-Linked Loan Principles and the above-referenced Climate Bonds FCT Whitepaper have made some headway in unpacking possible routes to good practice, with iterations and additional work expected over the coming years to help create robust definitions and cement market conventions for this nascent but promising segment.

The transition principles referenced above could have particular relevance for SLLs and SLBs to demonstrate impact, in particular:

- **Established by science** – all goals and pathways, climate or otherwise, must be led by scientific experts and are not entity - or country-specific. They should also be simple to evaluate rather than using black-box scoring metrics.
- **In line with a 1.5°C global trajectory**– climate-related goals and pathways need to align with zero carbon by 2050 and nearly halving emissions by 2030. As above, it needs to be easy to evaluate entity progress in line with these goals.
- **Action not pledges** – a credible transition is backed by operating metrics that a pathway is being followed rather than a commitment/pledge to follow a transition pathway at some point in the future. KPIs specified in the SLBs and SLLs are a perfect opportunity to demonstrate these operating metrics publicly.

As with transition finance, this will require the development of appropriate sector- and/or entity-level pathways to decarbonisation and other sustainability ambitions, such as zero waste or switching to only recycled inputs into production processes.

To allow the market to scale up as quickly as possible and facilitate organisational learning and change, the Climate Bonds Taxonomy (and the derivative Database Methodology) has, to date, focused on the instrument, not the issuer, meeting the relevant green definitions. If done well, SLBs, SLLs and transition bonds can help broaden this focus from instruments to whole entities while avoiding controversies and risks to investors.[19]

Spotlight: Green recovery finance

The need to 'Build Back Better'

The COVID-19 outbreak had and still has a visible impact on most economies. The disruption has driven companies and governments into crisis mode. While tackling the pandemic and its economic impact, calls to 'build back better' and forge paths for a 'green recovery' combined with future growth remain high on the global agenda. Governments and regulators must ensure that there is a green and sustainable slant to policy and budgetary response measures to bring economies back on track. Many countries have put climate and sustainability at the core of economic planning and government policy, and multiple countries have committed to being carbon neutral by 2050 – or earlier. The emerging signs of government action are welcome after almost a year of crisis and concrete measures to support a green recovery from the pandemic are starting to materialise. However, looking at the green ratio of the recovery spending it is obvious that many countries' share of green spending remains below 30%.[20] Further, it is crucial that such measures are not offset by supporting or bailing out 'brown' industries without green conditions attached.

Nevertheless, there are several examples of governments building green elements into their recovery. This has emerged as the way forward for multiple countries and an increasing number of commitments and actions can be observed. Such plans can have different green elements, for example greening policy by incorporating subsidies for green activities and removing subsidies for brown activities.

There are also multiple ways to raise funds and to distribute them with the simultaneous aim of supporting an economic recovery and contributing to sustainable development. Examples of funding sources include issuing sovereign green, social or sustainability (GSS) bonds that help with such initiatives and ensure that capital streams flow into expenditures that 'build back better'.

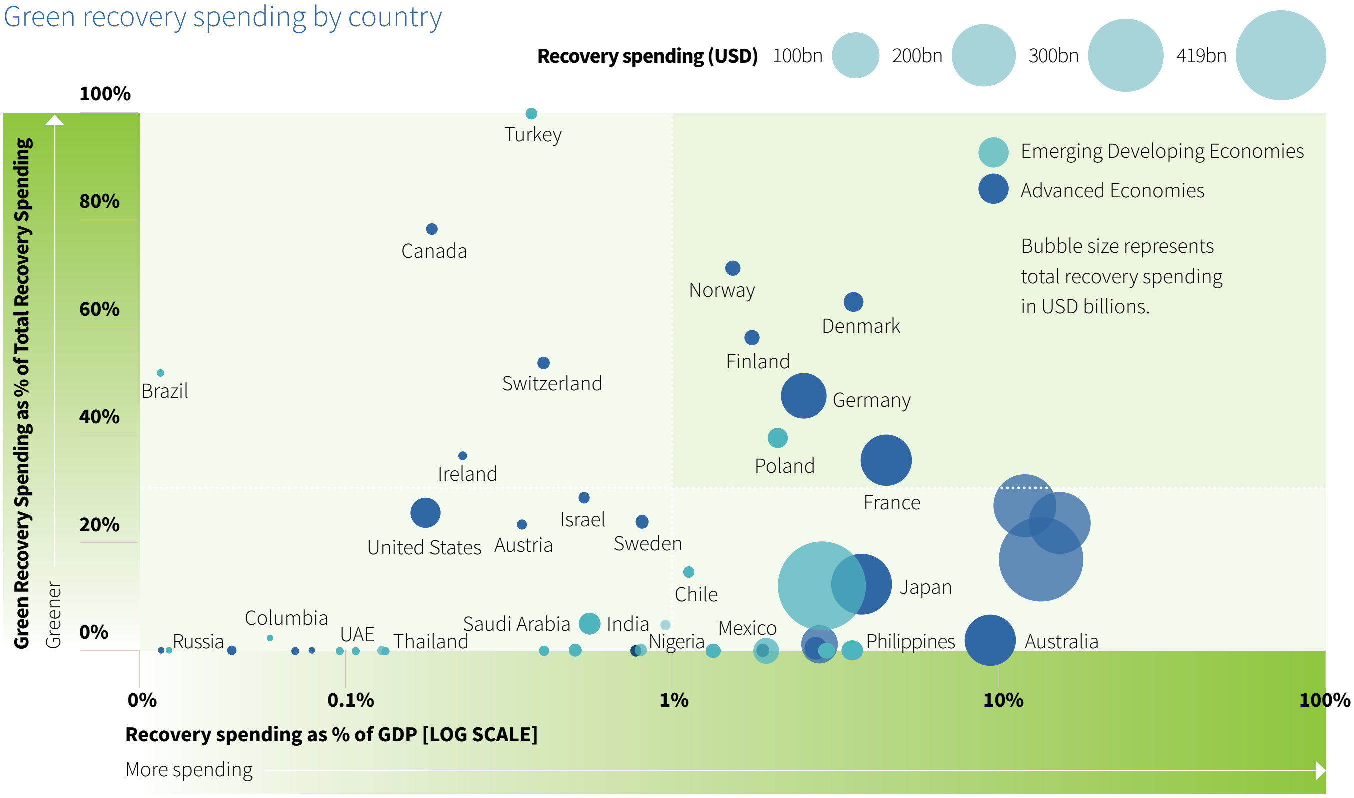
Thailand's Sustainability bond

In September 2020, Thailand, issued a sovereign sustainability bond – the green part being Certified against the Climate Bonds Standard. The proceeds have both green and social components, financing green infrastructure through the Mass Rapid Transit Orange Line (East) Project, as well as social impact projects to assist with the COVID-19 recovery. These include access to essential healthcare as well as supporting small- and medium-sized enterprise loans. For the latter, the target population are employees or freelancers affected because of the spread of infectious diseases such as COVID-19, as well as farmers registered with the Ministry of Agriculture and Cooperatives. The inaugural original amount of this deal was THB30bn (USD945m) followed by a green tap of THB20bn (USD705m).[21] The bond is part of a 15-year benchmark bond programme to be issued over the next two fiscal years in sectors related to green and sustainable infrastructure.

Nigeria's Economic Sustainability Plan

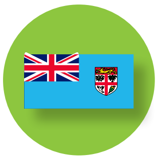
As the largest oil and gas producer in Africa, Nigeria has taken a different approach to resourcing funding needs. With a stated objective to decrease reliance on fossil fuels, the pandemic accelerated the decision to stop fossil fuel subsidies by removing the price cap that was in place for gasoline and moving instead to a market-based pricing regime. This measure is expected to save the government at least USD2bn per year.[22] Other measures such as a commitment to install solar home systems serving about 25m people (covering up to five million households) currently not connected to Nigeria's national grid, are part of the Nigeria Economic Sustainability Plan released in March 2020. Nigeria is facing severe impacts from the COVID-19 pandemic as well as multiple climate change risks, and this stimulus package addresses both issues in a strategic manner. The plan unlocks NGN34tn (USD5.9bn) in funds and includes investments in clean energy, agriculture, and infrastructure.[23]

Green recovery spending by country



Source: Smith School of Enterprise and the Environment

Fiji's stimulus checklist and Reserve Bank support



In Fiji, as in multiple other countries, the central bank – here the Reserve Bank of Fiji - has introduced initiatives to assist exporters, large-scale commercial agricultural farming, and renewable energy businesses to obtain credit at concessional rates under the 'Import Substitution and Export Finance Facility'. The Import Substitution arm of the mechanism promotes and allows competitiveness in domestic commercial agricultural production and agricultural produce as well as to renewable and energy efficiency businesses. Qualifying entities include new and existing businesses involved in the production of import substitutes such as fruit and vegetables, industries or businesses that promote renewable energy sources, and initiatives that have a direct reduction on imports of non-renewable fuels, such as public transportation. The concessional rates are available through approved lenders which are licensed commercial banks and credit institutions, as well as the Fiji Development Bank[24]

Sweden's budget statement

Sweden embedded its commitments to 'A powerful and green economic restart' and 'Investment in sustainable growth and climate transition' into its 2021 budget statement. These objectives will be reached by measures such as credit guarantees for large-scale industrial investments that contribute to achieving environmental and climate goals, reduce emissions and enable Sweden to remain a leader in innovative industries. Further investments in energy efficiency measures in the buildings space as well as charging infrastructure for electric heavy goods vehicles are planned.

Sweden also foresees a tax reduction on green technology as well as extended resources for climate and environmental research.[25] Further, the Government has imposed strict climate and environmental requirements on Scandinavian Airlines tied to its recapitalisation. Because of these, the company is now sharpening its climate targets and aims to decrease its carbon dioxide emissions by 25% by 2025, five years earlier than previously planned.[26]

The Government's goal is for Sweden to be the world's first fossil-free welfare nation, also reflected in its inaugural September 2020 sovereign green bond which finances a broad range of green expenditures.

Spotlight: EU GSS market leadership

The EU is a global leader in the fight against climate change with the ambition to be the first climate neutral economic union by 2050. Further, the EU is committed to the UN 2030 agenda for sustainable development with the stated intention to embed the Sustainable Development Goals (SDGs) into all policies and encourage all member states to do the same.[27]

The climate agenda is more prominent in Europe – and especially the EU – than any other region. The EU has been a pioneer in implementing policies, regulations, and targets to support the transition to a carbon neutral, climate-resilient economy. These include efforts to develop the Green, Social and Sustainability (GSS) bond market as an efficient funding vehicle for the public and private sector to accommodate the required borrowing for the transition.

European leadership in the form of institutional and policy support is contributing to the growth of the GSS bond market from **four** angles[28]:

1. Climate and economic policy –The first climate action initiatives under the European Green Deal (EGD) include

- **European Climate Law** – to enshrine the 2050 climate neutrality objective into EU law. *Expected June 2021.*
- **European Climate Pact** - to engage citizens and all parts of society in climate action. *Underway.*
- **2030 Climate Target Plan** – to further reduce net GHG emissions by at least 55% by 2030. *By June 2021, the European Commission (EC) aims to have reviewed and revised all relevant policy instruments required to achieve the stated emission reduction target.*
- **New EU Strategy on Climate Adaptation** to make Europe a climate-resilient society by 2050, fully adapted to the unavoidable impacts of climate change. *Adopted February 2021.*

In other words, a climate-resilient, sustainable growth plan is the new paradigm for the EU. Portions of the EU budget have been earmarked to contribute to the EU's climate goals. Some of this will be funded directly through the GSS bond market. Further budget will be leveraged to encourage crowding in of private investment, a large portion of which will also be funded through the GSS bond market.

Snapshot of green, sustainable and social debt issued by EU 27 domiciled entities

	Total GSS	Green	Sustainability	Social
Amount issued (bn)	598.7	429.6	69.6	99.5
Amount outstanding (bn)	589.9	422.4	69.5	98
Bonds issued	1458	1252	104	102
Bonds outstanding	1347	1148	100	99
Number of countries	20	20	9	12
Currencies	25	22	6	6
Number of issuers	405	329	53	45

Figures do not include SNAT bonds

2. Adaptation and resilience, including pandemic recovery – EU spending on the COVID-19 recovery has been explicitly linked to expenditure on green and social objectives. This will be funded through the GSS bond market.

3. Regulation and standardisation – standardisation of frameworks, taxonomies, data and disclosure will have multiple impacts. For example, the EU Taxonomy can be used as a reference tool for allocating budget to climate friendly activities as well as increasing the accessibility and transparency of the GSS bond market for both issuers and investors.

4. The European Central Bank (ECB) – the ECB has supported the growth of the GSS bond market by including such bonds in its quantitative easing buying programme, and its operational expenditure is linked to sustainability. The ECB Banking Supervision department has also requested that banks conduct a climate risk self-assessment and draw up climate action plans for assessment in 2021. Bank-level climate stress testing will commence in 2022.

The current shape and size of the EU GSS bond market

Percentage of green, social and sustainability debt

Entities from the 27 EU Member States have a total of USD21tn of bonds outstanding.[29] As of the end of 2020, USD590bn of that amount had been issued under GSS themes.[30] Green remains the dominant theme, and reflecting the growth globally, the social theme expanded rapidly in 2020. Nevertheless, at under 3% of outstanding debt, there is huge potential for the GSS space to grow.

Overview of countries

Entities from 20 out of 27 member states have issued GSS bonds, with France, Germany, and the Netherlands filling the top three spots.[31]

Issuer Types

Overall, 60% of the GSS debt from the EU 27 member states originates from the public sector. The top three issuer types are government backed entities, non-financial corporates, and financial corporates. The non-financial corporates are dominated by utilities, the most prolific of which are repeat green bond issuers Engie (USD14.3bn), Iberdrola (USD13.2bn), and Energias de Portugal (USD5bn).

Ten member states have issued sovereign GSS bonds, showing leadership in assisting GSS market creation. [32] In addition, Italy issued its debut green bond in March 2021, and Denmark and Spain have indicated a commitment to issue sovereign GSS bonds.

EUR Benchmark bonds

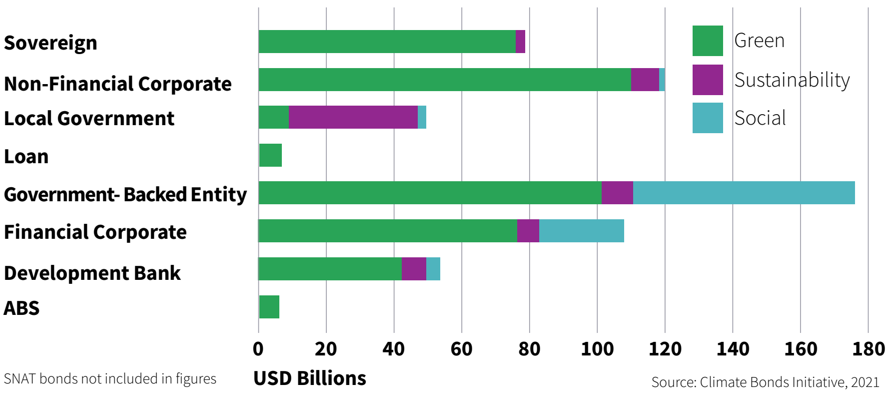
EUR denominated bonds (including SNAT) contribute USD694.5bn (40%) to the GSS debt market. Of that volume, USD635bn (91%) comprises benchmark-sized bonds, the most of any currency. Broadly speaking, larger bonds attract capital flows because they can offer improved liquidity in the secondary market and qualify for inclusion in broad market benchmark indices.

Green, social and sustainability debt has been issued from entities in 20 out of 27 EU member states

Country	Green	Sustainability	Social	Total GSS	Sovereign
France	124.3	13.8	58.9	197.0	Green
Germany	93.3	20.9	4.6	118.8	Green
Netherlands	54.4	13.5	17.4	85.4	Green
Spain	35.7	10.2	9.8	55.6	Intended
Sweden	43.0	0.3	1.0	44.2	Green
Italy	18.8	2.4	4.6	25.8	Issued 2021*
Belgium	10.5	6.2	1.2	17.8	Green
Denmark	11.3			11.3	Intended
Finland	6.8		0.7	7.5	
Ireland	7.6			7.6	Green
Portugal	5.5		0.6	6.1	Intended
Austria	4.3	0.5	0.4	5.2	
Poland	4.6			4.6	Green
Luxembourg	4.6	1.8		6.4	Sustainability
Hungary	2.2			2.2	Green
Greece	1.5			1.5	
Slovenia	0.1		0.4	0.5	
Lithuania	0.8			0.8	Green
Latvia	0.1			0.1	
Estonia	0.1			0.1	
Totals	**429.6**	**69.6**	**99.5**	**598.7**	

*Italy issued its first green bond in March 2021, not included in figures.

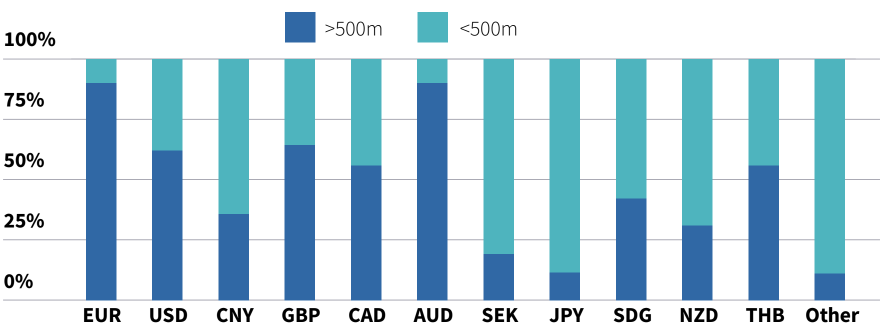
GSS issuance from the EU 27 is led by the public sector



SNAT bonds not included in figures

Source: Climate Bonds Initiative, 2021

Most EUR GSS debt is bonds >USD500m



Source: Climate Bonds Initiative, 2021

Alignment of climate and economic policy

On 19th December 2019, Ursula von der Leyen, President of the EC, presented the EGD and announced the ambition for Europe to become the first climate-neutral continent in the world by 2050. The European Climate Law which will manifest this commitment, is expected to become legally binding by June 2021. The EGD aims to achieve economic growth through the development of green technology, and increasing sustainable industry and transport, while cutting GHG emissions and preserving the environment.

In her September 2020 State of the Union address, President von der Leyen announced an increase in the Nationally Determined Contribution (NDC) targets from 40% up to at least 55% (of net reduction in GHG emissions below 1990 levels) by 2030.

Under the Climate Target Plan, the Commission is in the process of preparing legislative proposals on how this target can be achieved. A review of policy instruments that will contribute to this is expected to be completed in June 2021.

Overall EU spending for 2020-2027 is expected to be EUR2.4tn (USD2.9tn). This comprises:

1. The EU budget, regulated through the Multiannual Financial Framework (MFF), of EUR1.1tn.

2. EUR750bn for Next Generation EU (NGEU), a programme to combat the medium-term impacts of COVID-19 (see page 23).[33]

3. Emergency measures to deal with the immediate impacts of the COVID-19 pandemic worth an additional EUR540bn, of which around EUR90bn will be sought from the debt markets in the form of EU SURE social bonds.

At least 30% (EUR540bn) of the first two sources is to be spent on climate action channelled through the EGD – this represents the highest share of the largest EU budget to date.

The action plan of the EGD and related policies will be financed through the European Green Deal Investment Plan (EGDIP), which will require at least EUR1tn in sustainable investments until 2030. This will be financed through the EU budget (MFF) and leveraging additional public and private financing.

Some of the funds will be reserved for those territories facing the greatest challenges in meeting the transition, through the Just Transition Mechanism (JTM). The JTM will mobilise at least EUR100bn over the period 2021-2027, which should reach close to EUR150bn over the ten years to 2030. Financial support for the JTM will come from:

1. Just Transition Fund (JTF) of EUR40bn, generating at least EUR89-107bn of financing. This will mainly be distributed through grants.

2. InvestEU Just Transition Scheme – mobilising EUR30bn in investments. This should crowd in private investment and lead to increased opportunities for growth in the GSS bond market as firms are encouraged to invest in green assets.

3. EIB Public Sector Loan Facility – EUR10bn in loans backed by EUR1.5bn of the EU budget, mobilizing up to EUR30bn of investments. This will leverage public finance through the capital markets.[34]

Crucially, the EU Taxonomy will be used to determine eligible green expenditures in the EU budget. This will ensure all funds are directed towards environmentally sustainable investments.

Impact on the GSS bond market

Spending linked to commitments on climate and social projects through the MFF, Next Generation EU (NGEU) and the COVID-19 emergency plan ensure that EU policy is backed by solid financial planning. Such public investment will substantially contribute to the development of a greener 'real economy', which will provide additional green assets and motivate entities to implement transition strategies. The Climate Bonds Green Bond Treasurer Survey published in 2020 described the results of interviews with 86 treasurers who had issued at least one green bond. The shortage of green assets in the real economy was highlighted by multiple respondents as a potential barrier to GSS bond market growth.[35] Crowding in should multiply the growth of the GSS bond market – for example, the EU's commitment to increased spending on charging infrastructure could lead more automobile manufacturers to issue GSS bonds to fund the transition away from ICE (internal combustion engine) powered vehicles.

COVID-19 recovery in the EU – turning crisis into opportunity

Immediate response to COVID-19

The COVID-19 pandemic had severe social and economic impacts on Europe, as in all other regions. In early April 2020, EU finance ministers agreed a EUR540bn package of measures to help member states, companies, and workers cope with the immediate impacts of the COVID-19 pandemic. This will be disbursed on multiple levels as follows:

For Eurozone countries only

At state level – via the European Stability Mechanism (ESM). ESM is the lender of last resort for EU countries experiencing severe financial distress. The ESM's **Pandemic Crisis Support Instrument** is a credit line for member states, with the potential to disburse up to EUR240bn. The credit line will be available until 2022 to support domestic financing of direct and indirect healthcare, cure, and prevention related costs due to the COVID-19 crisis.[36]

For all EU Member States

At company level – via the European Investment Bank (EIB). The EIB is offering a EUR25bn **guarantee fund** to mobilise up to EUR200bn for EU Member States. The guarantee fund is designed to primarily support final private sector beneficiaries in EU Member States that are high-risk but viable in the long-term and, in the absence of the COVID-19 pandemic, would meet a lender's requirements for commercial financing.

At individual level – via the **Support to mitigate Unemployment Risks in an Emergency** (EU SURE) programme, in the form of loans. Funding under the EUR100bn SURE programme is available to EU Member States requiring substantial financial assistance to combat the domestic impacts of COVID-19, such as sudden increases in unemployment.

EU SURE bonds have already been issued under the social bond theme to support the SURE initiative. The proceeds are being redistributed as loans backed by the EU budget and guarantees from member states according to their share in the EU's GNI. All member states will have access to the resources, but SURE have the greatest impact on workers in the worst affected areas.[37] The EU is classified as a supranational issuer and is rated AAA by Moody's and Fitch, and AA by Standard and Poor's. Nevertheless, this gives the EU a higher credit quality than all except five of the Member States, hence EU bonds can achieve a lower cost of capital than most members.[38]

The EU SURE Programme

On 20th October, the EU sold the first SURE bonds under the social theme, worth EUR17bn, the largest such thematic transaction. The deal comprised a EUR10bn 10-year, and a EUR7bn 20-year, under a framework aligned with the ICMA Social Bond Principles (SBP). The Eligible Social Expenditures also contributed to some of the United Nations' Sustainable Development Goals (SDGs).[39] In particular, SDGs number 3 (Good Health and Well-Being) and number 8 (Decent Work and Economic Growth) are purposefully targeted by the SURE instrument.

The SURE bonds received enthusiastic support from the market with order books reaching EUR233bn, which covered the final total deal size by more than 13 times, leaving huge unmet demand on the table. For context, among 18 EUR denominated bonds issued in 2020 with a social, sustainability, or pandemic theme and an initial deal size of at least EUR1bn, the second largest book cover was the EIB 2028 sustainability bond issued in April 2020, which was 7.3 times oversubscribed.

From an investor perspective, the EU SURE position as the largest issuer in the GSS market makes it hard to ignore since it will be included in both thematic and broad-market EUR indices. Further, the individual bonds represent large, liquid instruments, with close to the highest credit rating, and the 2040 maturity had a tenor long enough to offer a positive yield. **This was a diversification play for every single investor in the world**, resulting in the exaggerated levels of interest. Bonds can provide a haven investment in turbulent times and investors can be particularly cautious in the run-up to major political events – this deal came to the market a fortnight prior to the US election. Eligibility for the ECBs Asset Purchase Programme (APP) and Pandemic Emergency Purchase Programme (PEPP) added another dimension to the demand for the bonds.

Secondary to this was the social label. The social theme enables investors to commit to a responsible investment strategy with a clear and transparent use of proceeds, which will be tracked and reported on throughout the life of the bond (as per the ICMA SBP). This meets the needs of dedicated GSS investors.

Further, SURE bonds were priced in November 2020 with similarly intense pricing dynamics (see table) and by the end of 2020 the total liability had reached EUR39.5bn (USD51.7bn).

Coupon	Maturity	Pricing date	Size EUR Bn	Book size	Book cover	Price guide	Landing spread	Spread compression
0.1%	04/10/2040	20/10/2020	7	88	12.6	17	14	-3
0%	10/04/2030	20/10/2020	10	145	14.5	6	3	-3
0%	04/11/2025	10/11/2020	8	105	13.1	-7	-9	-2
0.3%	04/11/2050	10/11/2020	6	70	11.7	24	21	-3
0%	04/05/2035	24/11/2020	8.5	114	13.4	-2	-5	-3

A recovery plan to kickstart the EU economy

In July 2020, the European Council agreed on the terms of the longer-term European Recovery Plan, known as Next Generation EU (NGEU). NGEU has the stated ambition to steer Post-COVID-19 Europe towards a greener, more digital, more resilient future.[40]

NGEU could reach EUR750bn (USD830bn), the majority of which (EUR672.5bn) will be disbursed through the Resilience Recovery Facility (RRF). The RRF offers financial support to public investments and reforms and will be made available to qualifying member states through grants and low-interest loans.[41]

To qualify for funding under the RFF, each country must submit national plans for investments and reforms with clear milestones and targets including at least 20% for the digital transition plus a minimum of 37% towards green initiatives. **These should include targeted measures to reduce dependence on fossil fuels, enhance energy efficiency, and invest in preserving and restoring natural capital, and should be aligned with the EU Taxonomy**. Furthermore, all recovery loans and grants to member states will have 'do no significant harm' environmental safeguards attached.

The EU will borrow 30% of the total required amount (EUR225bn) through green bonds, which are expected to emerge in Q2 2021. Considering that total green bond issuance reached USD1tn in November 2020, this will be a huge boost to the green bond market. The EU will immediately become the single largest source of green bonds, and the scale will impact not just the size but also the shape and profile of the green bond market. The liabilities will be supported by the EU budget, and underlying that, the commitments of individual Member States.

Impact on the GSS bond market

By the end of 2020, the EU was already the largest seller of GSS bonds, with USD51.7bn of social bonds and another EUR50.8bn expected in 2021.[42] With such a large issuance programme, the EU is demonstrating confidence in the bond market as an efficient source of funding for the transition and this endorsement will lead to further GSS market creation. The availability of large, liquid instruments – such as sovereign GSS bonds from EU member states and EU supranational GSS bonds – will encourage more investors to consider dedicated mandates. This support will give issuers from all asset classes an incentive to bring GSS themed bonds to the market with the knowledge that they have that extra pricing lever. Further, the size of the EU GSS bonds will ensure that they are included in all broad market bond indices and all types of bond investors will have to consider them; the EU is therefore contributing to the mainstreaming of the GSS bond market.

A complementary asset for GSS bond investors

While EU bonds issued under SURE, and those anticipated through NGEU, are and will be safe, large, liquid investments, they will not replace the need for individual member states to come to the market with sovereign GSS bonds. A diversified fixed income portfolio must include bonds from both sovereign and supranational issuers, thus the two are complementary and investors pursuing dedicated green bond mandates should welcome the opportunity to diversify their asset class risk. The Climate Bonds European Green Bond Investor Survey published in 2019 asked respondents in which asset classes and sectors they wanted to buy more green bonds.[43] Sovereigns, and non-financial corporates were highlighted.

EU Action Plan on Sustainable Finance – standardisation of data and disclosure

The growth of the green bond market has been characterised by concerns surrounding a lack of standardisation, and the credibility of various sustainability claims. To establish integrity in the market, the EC established a High-Level Expert Group on sustainable finance (HLEG) in 2016. The HLEG was invited to advise the EC on how to:

- channel public and private capital towards sustainable investments;
- identify how financial institutions and supervisors could protect the stability of the financial system from risks related to the environment; and
- deploy these policies on a pan-European scale[44]

The recommendations of the HLEG formed the basis of the **Action Plan on Sustainable Finance** adopted by the EC in March 2018. The Plan outlined an ambitious legislative agenda with a comprehensive strategy to connect finance with sustainability. It included 10 key actions divided into three categories:

- Reorienting capital flows towards a more sustainable economy
- Mainstreaming sustainability into risk management
- Fostering transparency and long-termism in the financial markets

The EC subsequently convened a Technical Expert Group on sustainable finance (TEG) to develop four elements of the action plan:

1. an **EU Taxonomy** to determine whether an economic activity is environmentally sustainable and meets minimum social safeguards;

2. an **EU Green Bond Standard**;

3. methodologies for **EU climate benchmarks** and disclosures for benchmarks; and

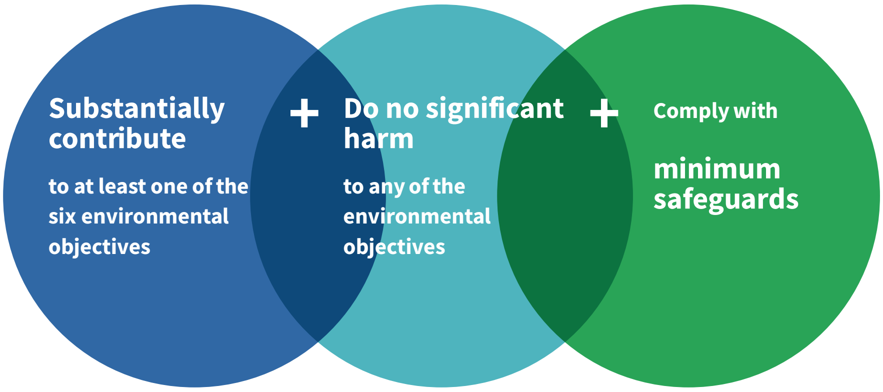
4. guidance to improve corporate disclosure of climate-related information.

The EU Taxonomy

The EU Taxonomy is a classification system that categorises economic activities consistent with the low carbon transition, adaptation, and other environmental objectives. This will have multiple applications, from determining which expenditures qualify for environmentally sustainable funding from the EU budget to assessing climate risks in investment portfolios.

The EU Taxonomy can provide the basis for strategic direction towards a target of net zero. EU taxonomy alignment forms the lynchpin of the proposed EU Green Bond Standard (GBS), benchmarks, Standard Financial Disclosure Regulation (SFDR) and a set of revised corporate disclosures on Taxonomy-aligned activities as part of the Non-Financial Reporting Directive (NFRD).

Core components of the EU Taxonomy



Under the EU Taxonomy Regulation, activities are defined as environmentally sustainable if they:

1. make a **substantial contribution** to one of six environmental objectives: climate change mitigation; climate change adaptation; water & marine resources; circular economy; pollution prevention and control; and biodiversity and ecosystems;

2. do no significant harm (DNSH) to any of the six environmental objectives;

3. meet minimum safeguards; and

4. adhere to technical screening criteria.

At the time of publication, delegated acts outlining technical screening criteria for climate change mitigation and climate change adaptation had been developed and were expected to be finalised and applied by Q2 2021. The other four objectives are work in progress.

The EU Green Bond Standard

The EU Green Bond Standard (GBS) is a proposed voluntary standard for issuers wishing to align with best practice in the market. It is designed to be relevant and practicable to EU-based users as well as those in other territories and is based around four components:

1. Proceeds should be aligned with the EU Taxonomy.

2. Publication of a green bond framework, including the four pillars of the ICMA GBP[45].

3. Mandatory reporting on use of proceeds and impacts.

4. Mandatory verification of the green bond framework and final allocation report by external reviewers. Reviews should be formally accredited and supervised as per the GBS requirements for external reviewers.

At the time of writing, the EU GBS was still in draft, expected to be finalized by June 2021. Some green bond issuers had already started to incorporate the components into their frameworks using best efforts, including frameworks from Tritax (Great Britain) and SwissCom (Switzerland), issued through a Netherlands SPV to enable qualification for the ECB CAPP), and Cicero's second party opinion of UPM's (Finland) framework.

The Low Carbon Benchmarks Regulation

The Low Carbon Benchmarks Regulation (LCBR) is intended to provide investors with a tool for comparative analysis of low-carbon benchmark methodologies by obliging benchmark providers to make disclosures regarding the methodology used to measure and reconcile ESG and low-carbon factors in the composition of benchmarks.[46]

At present, benchmarks labelled as 'low carbon' do not have to meet common standards, leaving potential for a lack of uniformity, transparency, reliability and ultimately, comparability. LCBR introduces two categories of benchmark, an EU Climate Transition Benchmark (EU CTB) and an EU Paris-Aligned Benchmark (EU PAB), both of which have defining characteristics.

Secondly, the LCBR requires that for each benchmark offered, benchmark providers should indicate whether the benchmark incorporates ESG objectives, and whether any of the benchmarks in the provider's suite of products have an ESG focus. The only exceptions are for benchmarks pertaining to currency or interest rates, and the disclosure requirements apply to all providers either in the EU or providing services to those in the EU.

Most of the obligations under LCBR were effective from 20 April 2020, with others applicable from 31 December 2022.

The Sustainable Finance Disclosure Regulation (SFDR)

The Sustainable Finance Disclosure Regulation (SFDR) was adopted in November 2019. SFDR includes three main deliverables:

1. Any Financial Market Participant (FMP) with more than 500 employees must publish and maintain a due diligence statement on the policies around considering any principal adverse impacts (PAI) of its investment decisions on sustainability factors. This must be tailored to the nature and scale of activities and the types of financial products provided. Entities must follow the comply or explain rule, and if the PAI of investment decisions on sustainability are not considered, the reasons for this must be published on the company website, together with detail on whether and when this might change.

2. In pre-contractual documents, investors should classify financial products into one of three categories:

Light Green: Financial products that promote environmental or social characteristics (Article 8 – Light Green)

Dark Green: Financial products with sustainable investment as their objective (Article 9 – Dark Green), and

Grey: Other Products which do not use 'ESG' or 'sustainability' in their names and are not promoted as being sustainable (Article 6 – grey).

3. If an FMP classifies its products under a green shading as stated above, it will also need to make a product-level disclosure per the Regulatory Technical Standards (RTS) in regular reporting. The current draft RTS includes a mandatory reporting template for PAI and a set of indicators for both climate and environment-related adverse impacts as well as adverse impacts in the field of social and employee matters, human rights, anti-corruption and anti-bribery. RTS can thus be considered a kind of reverse ESG disclosure, useful in bringing rigour to the current ESG space, which relies predominantly on positive disclosures.

The first two had to be in place by the end of March 2021 while the third must be applied from January 1st, 2022.

Impact on the GSS bond market

The EU Action Plan on Sustainable Finance and the resulting standardisation will have multiple impacts on the GSS bond market, primarily by making genuine GSS instruments easier to identify and therefore preference. Standardisation of disclosures and the constituent data will inspire the confidence of both issuers and investors, thus growing the market to support more climate-friendly and socially impactful liabilities.

The SFDR (together with the Non-Financial Reporting Directive) will, when harmonised, provide a full picture of Taxonomy-compliant and explicitly non-compliant activities and financial products. This will provide asset owners and investors at all levels with a new dimension of much-needed standardised transparency to make more sustainable investment and asset allocation decisions.

This reinforces the EU's commitment to the transition towards a low-carbon economy, the continuing growth of sustainable finance and the positioning of Europe's financial sector as a leading global destination for investment in green technologies.

In contrast to the green universe, there are currently no common standards in place for sustainability and social bonds. The EU commission is currently developing a social taxonomy.

The ECB – recognising climate risk

Financial and price stability are the core components of any central bank's mandate. Climate change has historically not been regarded as central bank business, the concern being a potential loss of market neutrality if preferencing a small universe of climate-related investments. However, climate risks introduce increasingly pertinent risks to the financial system, and the ECB, like all central banks, needs to consider how minimising those risks can be incorporated into strategic direction and operations.

The ECB is currently undergoing a monetary policy strategy review which is expected to conclude in the second half of 2021. Issues including but not limited to historically low interest rates, limits to lowering rates, employment, social inclusion, climate change, and financial stability are already relevant to the mandate.

In early 2021, it was announced that the ECB will set up a Climate Change Centre with the aim of incorporating climate change considerations into its work. There will be five work streams: 1. financial stability and prudential policy; 2. macroeconomic analysis and monetary policy; 3. financial market operations; 4.EU policy and financial regulation, and 5. corporate sustainability.[47]

Quantitative easing

After the global financial crisis, interest rates in most developed economies including Europe, reached historical lows and could no longer be manipulated to stimulate economic activity. Hence, in mid-2014 the ECB initiated its Asset Purchase Programme (APP) as part of a package of non-standard monetary policy measures that also included targeted longer-term refinancing operations. As of December 2020, net purchases were slated to continue at around EUR20bn per month. No date limit was put on this, except to say it would be extended until shortly before the ECB starts raising interest rates. Reinvestment was also extended until post the point where the ECB starts raising rates.

The ECB added the pandemic emergency purchase programme (PEPP) in March 2020 in response to risks to monetary policy and economic outlook caused by the COVID-19 outbreak. The PEPP extends to all the asset categories included in the APP plus Greek Government securities. By the the end of 2020 the initial investment of EUR750bn had been increased to EUR1.9tn, and the time frame extended until at least the end of March 2022 with reinvestment of proceeds extended until at least the end of 2023.

On 20th September 2020, the ECB broadened the eligible investment categories of the APP and PEPP (and central bank collateral) to include bonds with coupons linked to sustainability performance targets. The decision became applicable from 1st January 2021.

At the end of December 2020, the total holdings were divided into four categories plus the PEPP. The holdings amounted to investments of almost EUR3.7tn, which was several multiples of the entire green bond market, and almost ten times the size of the eligible universe of bonds issued by Eurozone-based entities. The split of the holdings is shown in the below table:

ECB holdings at the end of 2020

Programme	Asset Backed Securities Purchase Programme (ASPP)	Covered Bond Purchase Programme (CBPP3)	Corporate Sector Purchase Programme (CSPP)	Public Sector Purchase Programme (PSPP)	Total Asset Purchase Programme (APP)	Pandemic Emergency Purchase Programme (PEPP)
EUR bn (as of December 2020)	29.4	287.6	250.4	2,341.6	2,908.9	757.2

The ECB has stated that green bond purchases under the CSPP and the PEPP constitute around 20% of the eligible universe contributing to what the ECB describes as a well-diversified portfolio. The eligible universe is investment grade rated bonds issued from one of the 27 member states, denominated in EUR, and not a bank. Bonds can be bought in either the primary or secondary market. As of December 2020, the holdings of the CSPP and PEPP included 100 green bonds from 50 issuers from a total of 1582 bonds from 338 issuers. The size of each holding is not disclosed.[48 49]

Prudential risk - Banking supervision

To ensure the resilience of the banking sector, ECB Banking Supervision is the division responsible for making sure banks effectively manage their exposures to and disclosures of risks. It has identified climate risks among those expected to strongly increase over the next five years.[50]

In November 2020, the ECB published a final guide on climate-related and environmental risk for banks.

The ECB will follow up with banks on two levels:

1. 2021: request that banks conduct a climate risk self-assessment in light of the supervisory expectations outlined in the guide, and to draw up climate action plans.

2. 2022: conduct a full supervisory review of banks' practices and take concrete follow-up measures where needed.

Bank-level climate stress testing will commence in 2022. However, for market neutrality reasons the ECB has not embedded climate action into its mandate, which means that climate considerations are not part of its decision-making process at present.

The ECB continues to develop its supervisory practice in close coordination with the EC and the European Banking Authority (EBA). The EBA is exploring how ESG risks can be incorporated into the prudential framework but this is not presently being done. The ECB is a contributor to the work of the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) and the Basel Committee on Banking Supervision.[51] The NGFS has published a set of climate scenarios to provide a common reference for regulators to assess climate risk, and the ECB will likely begin to require greater disclosure of climate risks.

Managing ECB resources sustainably

Independently from its supervisory tasks, the ECB manages other resources to help fund its operating expenses, and these appear to have integrated sustainability objectives.

1. For its own portfolio, the ECB has a sustainable and responsible investment (SRI) strategy. Around 3.5% of its EUR20.8bn portfolio is invested in green bonds, which the ECB has stated it intends to increase.

2. ECB investment in the EUR denominated Bank for International Settlements (BIS) fund was announced in January 2021. The BIS green bond fund invests in renewable energy production, energy efficiency and other environmentally friendly projects.

3. The ECB staff pension is managed externally and pursues broad sustainable portfolio management principles.[52]

Impact on the GSS bond market

Since 2016, the ECB has constituted a large-scale (likely the largest) buyer of all types of assets in the EUR bond market. At the end of 2020, the programme holdings were around EUR3.7tn. While it is not known in advance which issues the ECB will get involved in, the presence of a large-scale buyer has added a demand pressure that has resonated throughout the whole market. While there may be room for the ECB to increase its support for GSS bonds through both the primary and secondary markets this does not seem feasible given current pricing dynamics. Such action would certainly squeeze pricing further, giving rise to potential distortions which the ECB has stated it wants to avoid. It should also be noted that the ECB does not exclude companies active in fossil fuels or other polluting industries and has not yet announced an intention to do so.

Every sector has a role to play in the transition. To align with the net zero ambition of the EU, the ECB could consider an independent view to assess transition planning, for example using the Transition Pathway Initiative (TPI), or ACT Initiative. In this way, it could preference investment in the entities with the clearest and strongest decarbonization plans, while still reflecting the shape and size of the EUR bond market.

While the ECB may begin to require disclosure of climate risks, there has been no indication that it will apply climate adjustments to bank capital requirements, collateral pricing, or asset purchases for now.

Summary – EU-led development of GSS bond markets

The global financial system must transition to accommodate the greening of the real economy. A large, liquid GSS debt market with many buyers and sellers will facilitate that and can also catalyse larger systemic impacts.

The largest and most developed GSS market is in Europe, and the EU is taking an active role in growing the market. The EU and its institutions are both large-scale buyers and sellers of GSS debt, helping to attract private capital to contribute to a greener economy. The EU has stated its objective to be the first net zero bloc by 2050 and has cemented this commitment by linking budget to green policy objectives. This explicit link is important because the private sector can follow that capital and create development opportunities.

The **EU Sustainable Finance Action Plan** has the potential to impact the transparency of the GSS bond market in an unprecedented way when all its components are implemented. Respondents to the Climate Bonds Green Bond Treasurer Survey noted that a lack of clarity of green definitions, together with a lack of suitable assets, could hinder market development.[53]

The Action Plan will help to address both concerns. The **EU Taxonomy** and a possible **EU Green Bond Standard** will provide clarity and harmonization around green definitions and transition, helping issuers to select appropriate projects or expenditures for funding via green bonds. Further, it can support potential policy measures that would directly increase real economy investments in green assets and operations. EU investment in infrastructure – such as that planned under the **EGD** – will attract crowding in, and an active, liquid, GSS bond market can support this development.

Finally, while price stability is the priority of the ECB, there is broad acknowledgement that climate risks pose threats to financial stability. There is also general agreement that the ECB could implement mandatory disclosure of related risks, thus enabling more accurate pricing of climate change risk.

Through its actions the EU is demonstrating that introducing definitions early and in concomitance with other policy measures, can develop the GSS market to support the transition to a low carbon and fair economy.

Outlook

2020 proved the most prolific year ever for GSS bonds with record issuance amounts in all three themes. The growth in the market demonstrates the role that finance can play in the transition to a low carbon economy, and more equal society. The impact of COVID-19 caused economic and social disruption. However, the bond market proved to be a flexible source of finance to help with both the immediate impacts, and the longer-term recovery plans.

We expect 2021 to enable a sustained resurgence in GSS markets, driven by increasing policy support such as that witnessed in Europe, and other nations who have committed to reaching net zero by 2050, including China, and the US. The USD1.7tn of GSS debt described in this paper remains a small fraction of the global USD100tn bond market. While GSS is in the minority now, it is growing rapidly, and fast appealing to a mainstream audience at both institutional and retail levels. Social and sustainability themes will continue to grow, as economic measures become more focussed on rebuilding a fair and more equal society.

We expect GSS issuance to proliferate, setting the pace towards the vital global milestone of USD1tn in annual green investment, dominated by seven themes into 2021/22:

1. The return of green multilateralism as a White House committed to action has re-joined the Paris Accord, adding momentum to COP and is pushing climate higher on the agenda at G7, G7+, G20, OECD and a host of other international bodies. Further, the recent announcement that the G20 Sustainable Finance Study Group (SFSG) will be re-established after a 2-year hiatus will add to this momentum . Importantly, it will be co-chaired by The Chinese central bank and the US Treasury.

2. A new climate triple-axis between China, EU and US has the potential to develop as the world's largest economic blocs seek to align on the fundamental mid-century goal of zero-carbon. The gradual harmonisation of taxonomies, described below, will support the cross-border investment critical to the achievement of zero carbon targets.

3. The development and harmonisation of green taxonomies is a priority for 2021. The International Platform on Sustainable Finance (IPSF) is leading on this and has initiated a working group on taxonomies that will work toward a "Common Ground Taxonomy" highlighting the commonalities between existing taxonomies. The aim of the Common Ground Taxonomy is to enhance transparency about what is commonly green in IPSF member jurisdictions and to scale up cross-border green investments. Work is initially focused on existing taxonomies (EU and China) but is intended to be used as a starting point for other jurisdictions developing their own taxonomies. Other nations are exploring the possibility of developing their own taxonomies in the coming year, including South Africa, Colombia, India, Vietnam, and others. At the same time, the importance of harmonisation to aid cross border capital flows is now clear. The recent removal of 'clean coal' from the draft People's Bank of China Green Bonds Endorsed Projects Catalogue is one example of the alignment of green definitions in the world's largest green market.[54]

4. Build back better and the rise of the Sovereign GSS Bond Club as governments, policymakers, and development banks back new sovereign issuance in developed and emerging economies to accelerate private sector issuance and support market development. Sovereign and sub-sovereign issuance will be driven by the post-COVID recovery plans as well as targets for carbon neutrality. Over 110 countries that have committed to becoming carbon neutral by mid-century, including Japan and South Korea, the EU and China. Governments must act on these commitments by implementing large-scale green infrastructure plans as part of the post-covid recovery to build back better. GSS bonds will be critical to financing these plans.

5. Transition, Transition, Transition of carbon intensive industrial sectors like cement and steel is key to achieving a transition to net zero by 2050. The year ahead will need to see articulation and improved definition of transition pathways for industrial sectors to align with the goals of the Paris Agreement. This will enable institutional investors, policy makers and the market to increasingly focus on preferencing and directing capital flows to support entities and activities that are following credible transition pathways and away from those that are not.

6. Better understanding of climate risk stimulates demand: There is increasing understanding and recognition that GSS investments are shielded from certain risks including but by no means limited to the risk that policies will be implemented to preference green and penalise brown. This is reflected, to an extent, in the pricing dynamics seen in the liquid portion of the green bond market.[55] As these risks are better understood and investors look to mitigate them, demand for GSS product will continue to grow and continue to outstrip supply.

7. Sustainability is increasingly embedded in investment and financial market infrastructure as the influences of the EU Sustainable Action Plan/ Taxonomy and central bank and financial regulator actions filter through multiple jurisdictions. This is already underway through the taxonomy work as well as through climate stress testing that is being undertaken by leading central banks and shared across the world through the Network for Greening the Financial System (NGFS). Forecasting by groups like the Inevitable Policy Response (IPR)[56] will increasingly influence risk analysis and portfolio construction as large investors respond and rebalance to the coming acceleration of climate policy and targets.

Appendices

Appendix A

The following table shows examples of labels in each theme.

Green	Sustainability	Social
Blue	ESG	Affordable Housing
Climate	Green Innovation	Education, Youth and Employment
Climate Awareness	Positive Impact	Gender Equality
Climate Resilience	SDG	Healthcare
Environmental	Sustainability	SDG Housing
Green	Sustainability Awareness	Social
Renewable Energy	Sustainable Development	Social Housing
Solar	Sustainable Housing	Social Inclusion
Sustainability Awareness		Socially Responsible Investment
Water		Sustainable Development
Wind		University
		Wellbeing
		Women
		Women’s Livelihood
		Pandemic
		COVID-19 Social
		COVID-19 Response
		COVID-19 Social Inclusion
		Fight COVID-19
		Vaccine

Appendix B

Methodology notes and caveats

1. Due to the methodological difference between Green and other themes, it is important to note that our analysis of other themes is merely an indicator of the financing aimed at each, based on the deal’s label.

For instance, some deals labelled as ‘SDG’, and therefore included under the Sustainability theme, may only actually finance social projects. Importantly, there will also, for example, be various deals under the Social and Sustainability themes that finance, in whole or in part, pandemic-related investments. We are working on the more granular UoP analysis for other themes and will share the results in due course.

2. Some of the analysis is shown in terms of ‘number of issuers’ rather ‘amount issued’ – this reflects the number of issuers in each individual theme. The total number of issuers is slightly lower than the total adding across themes, since some issuers have printed deals that cover more than one theme. For example, the infographic shows 90 issuers in the Sustainability theme, 106 in Social, and 447 in Pandemic; adding these gives a total of 643, but it is actually 627.

3. Our Green Bond Database includes many loans and ABS (securitised) deals. We have historically treated these as issuer types, and the same applies to this report. However, under our new methodology, these are considered different instrument – not issuer – types. It remains uncommon to see loans or ABS deals with a sustainability, social, or pandemic label (a reminder that performance-linked loans are not included).

4. In addition to the exclusion of performance-linked instruments and transition labels, we excluded several deals because we could not find publicly available labels. This included some by repeat issuers, most of which had issued clearly labelled deals – where possible, we suggest improving the availability and clarity of information related to each deal, including labels.

Climate Bonds Database updates

Climate Bonds has been expanding data coverage to other labelled debt instruments, particularly sustainability and social bonds, and a separate database covering these will be launched later in 2021. The extended databases will complement other enhancements to our data collation and analysis including the collection of more granular information on the Use of Proceeds and impacts of green bonds, more robust and detailed analysis of climate-aligned issuers, and a more detailed assessment of SDG alignment.

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