

Green bonds market summary

H1 2019

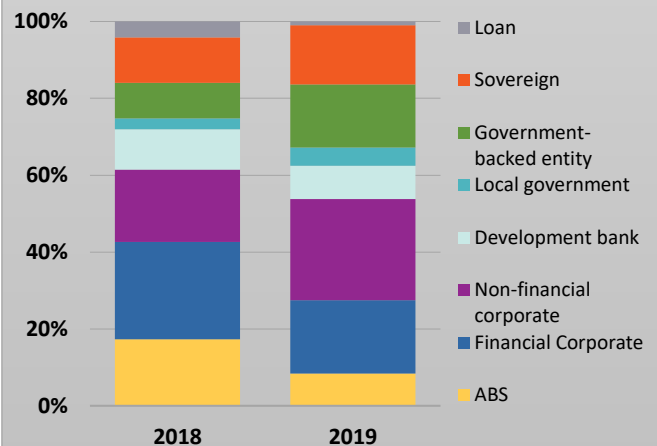
July 2019

The first half at a glance

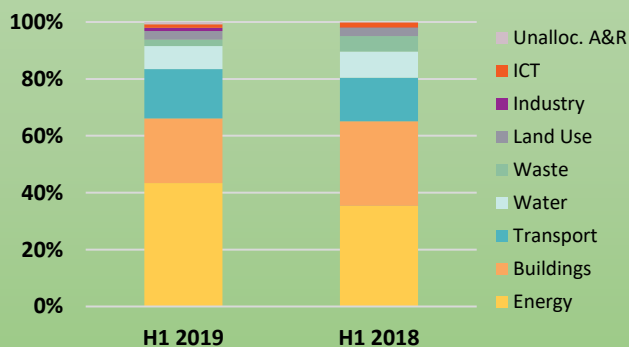
Key figures

- USD117.8bn of issuance* – USD100bn threshold reached in H1, the earliest ever
- 625 green bond issues* with 363 from the USA, 51 from Sweden and 32 from China
- 236 issuers* from 40** countries
- 98 market entrants from 32** countries bring the total number of green bond issuers to 747
- 57** green bond markets reached
- The Netherlands and Chile bring the number of sovereign green bond issuers to 12
- June issuance was strong with 137 deals in 21** countries and 17 new issuers

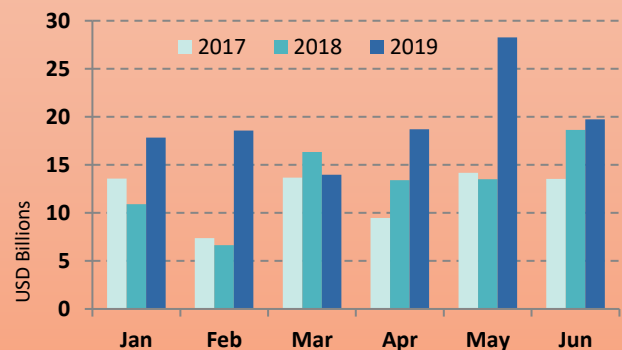
Year-on-year comparison of issuer types for H1 2018 and 2019



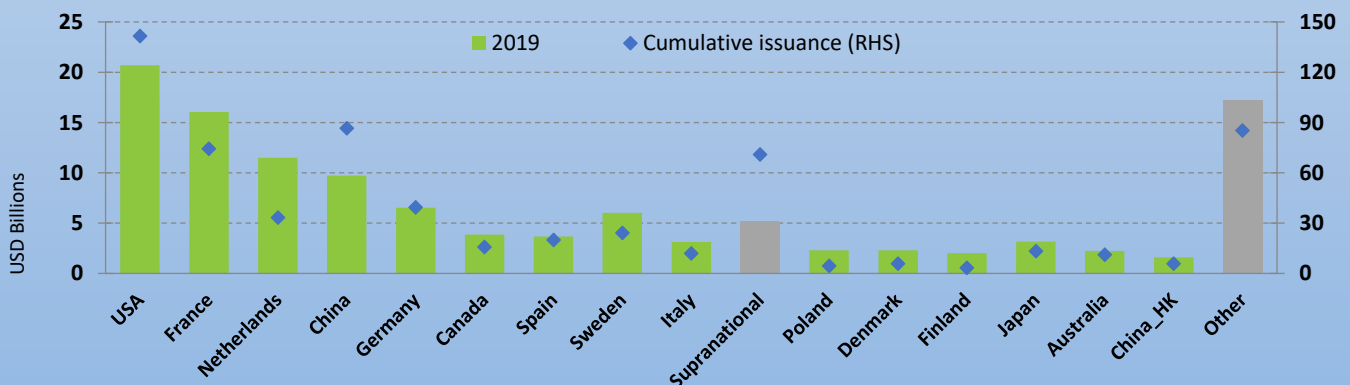
H1 use of proceeds: 2018 and 2019



H1 monthly volumes: 2017 - 2019



H1 2019 green bond issuance: Top 15 countries



* All charts and analysis are based on preliminary figures for H1 2019 issuance volume and number of deals, pending the inclusion of 17 deals still under assessment for inclusion in the CBI green bond database. ** Hong Kong is counted as a separate country as it is classified as a developed country according to MSCI's [Market Classification](#), whereas China is classified as an emerging market.

H1 2019 green bond issuance highlights

Green bonds **included** in CBI's database for the first half of 2019 are up 48% year-on-year, reaching USD117.8bn. For included bonds, at least 95% of proceeds must be dedicated to green assets or projects aligned with the [Climate Bonds Taxonomy](#).

The share of **excluded** bonds has decreased by 6% compared to H1 2018 figures. Accounting for excluded bonds in H1 2019 total issuance takes figures to 33% up on 2018. **Sustainability** bonds are the largest excluded category, totalling USD12.3bn. This represents 41% of excluded bonds, down 4% compared to H1 2018 (USD12.8bn). As noted in our [2018 Green Bonds State of the Market report](#), we expect to see continued growth in sustainability/SDG and social bond issuance.

Certified Climate Bonds accounted for 19% of H1 volumes, up from 14% in H1 2018. Deals came from 13 countries: Australia, Brazil, Chile, Germany, the Netherlands, New Zealand, Nigeria, Norway, the Philippines, Poland, South Africa, Thailand and the USA. May 2019 saw a new record for monthly certification volume (USD11.4bn) when the year's largest Certified deal – the EUR6bn (USD6.7bn) Dutch sovereign green bond – was issued.

Non-financial corporates dominated in H1 2019 with 26% of issuance – up from 19% last year. Notably, large deals were contributed by **Engie** (EUR1.5bn/USD1.7bn), **LG Chem** (USD1.6bn) and **MidAmerican Energy** (USD1.5bn). Together they accounted for 15% of the segment's volume.

Financial corporates came in second with a share of 19%, down from 25% in H1 2018. Top three issuers ICBC (China), Bank of Jiangsu (China) and Citigroup (USA) contributed nearly a fifth (18%) of the segment's volume.

ABS deals declined by 13% from H1 2018 landing at 4% in H1 2019. **Fannie Mae** (USA) remains the largest issuer in this category in H1 2019 with USD6.8bn. Despite the drop there have been some interesting developments, including **Freddie Mac's** debut USD435m MBS, which closed at the end of June 2019. Since its Multifamily Green Advantage programme began in 2016, it has purchased USD44.7bn of green loans. Securitising this volume would bring it close to Fannie Mae's USD58.5bn cumulative issuance to date.

[Japan Housing Finance Agency](#) also entered the green bond market in Q1. It debuted with a green bond, but it has a significant MBS issuance program secured on residential mortgages under the Flat 35S energy efficiency scheme.

An interesting new ABS format is the **SHREC** transaction structured by the **Connecticut Green Bank**. The deal, which is the first ABS issue from the state, is secured on fixed-price solar home renewable energy credits ("SHRECs") sold by homeowners to two energy utilities.

We explore the features of ABS issuance further on p. 4.

H1 2019 saw a **surge in sukuk issuance** thanks to **Republic of Indonesia's** second sovereign green sukuk and debut deals from Malaysian **Pasukhas Group** and the UAE's **Majid Al Futtaim Properties**. The new deals account for more than half (56%) of cumulative sukuk issuance volume. The UAE deal is the first green sukuk from the Middle East.

The three sukuk also contributed to **emerging market (EM)** issuance, which represented 19% of H1 2019 volume. The contribution of EM issuers has remained constant since H1 2017, keeping apace with global growth.

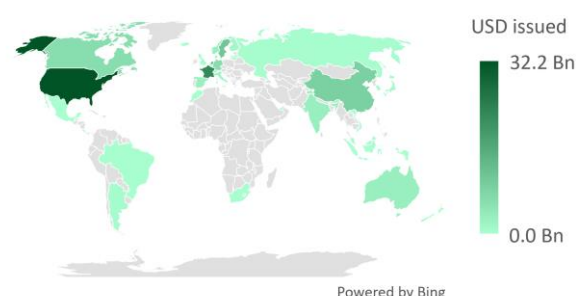
If supranational issuance is included, EM market share rises to 23% (H1 2018: 27%). The majority of EM green bond issuance in the first half of 2019 came from China (44%), followed by Poland (10%), South Korea and Indonesia (9% each) and Chile (7%).

Public sector green bond boom

H1 2019 **sovereign** issuance represents 15% of total volume (H1 2018: 12%). The Netherlands' sovereign Certified Climate Bond will primarily finance climate adaptation, including an extensive flood protection system. **Chile** issued Latin America's first green sovereign in June (USD1.4bn).

To shed more light on the ongoing sovereign green bond issuance boom, we explore the topic of sovereign green bond pricing in a spotlight section below.

Strong issuance from local government and government-backed entities (2012 - H1 2019)



Green bonds from **local government** and **government-backed entities** totalled USD24.8bn in H1, more than doubling from the USD9.6bn recorded in H1 2018. This represents 23% of issuance (2018: 12%). This year's deals came from 64 issuers in 16 countries, with new entrants accounting for 15% of volume. Most of that came from **France**, while, at 13% of H1 issuance, **US** Municipal activity was on par with **Sweden**.

German **KfW**, which recently expanded its use of proceeds categories to include low-carbon buildings, came in at the top of the segment with USD4.1bn. For more on Germany's public sector issuance potential, see our new [Germany Green Finance State of the Market 2019](#) update report.

Spotlight: Sovereign green bonds pricing

USD18.4bn of sovereign green bonds were issued in H1 2019. Sovereign bonds can fund climate-resilient infrastructure and bring much needed liquidity to the green bond market.

The sovereign green bond universe

Twelve governments have now issued 23 green bonds, totalling USD47.5bn. Almost 40% of that amount (USD18.4bn) was printed in the first half of 2019. The Netherlands, Hong Kong, and Chile issued debut green bonds, Poland, Indonesia and Nigeria returned to the market, and the French green bond was tapped twice.

Thirteen sovereign green bonds from eight issuers have qualified for our pricing analysis. CBI's green bond pricing work concentrates on the large, most liquid green bonds from the CBI green bond database. The parameters for inclusion are as follows:

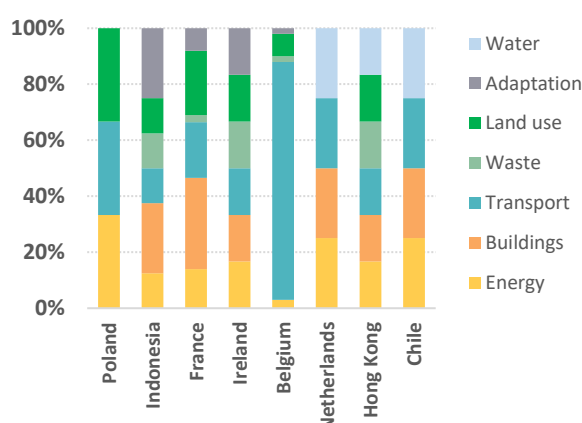
- Currency: EUR or USD
- Size >=USD500mm
- Investment grade rated
- Minimum term to maturity: three years at issue
- Amortising, perpetual, floating, and other non-vanilla structures (such as ABS) are excluded

The pricing analysis compares green bonds to vanilla equivalents, which must meet the above parameters, except that the use of proceeds should not be green. Comparable bonds must be issued in the same quarter as the green bond. We select comparable bonds that most closely match the green bond. This exercise is designed to demonstrate what investors could have otherwise bought in the same quarter, according to available opportunities.

Use of proceeds (UoP)

Transport is the most common allocation for sovereign green bonds included in this research, but funding has been raised for a variety of sectors, as well as for adaptation and resilience measures.

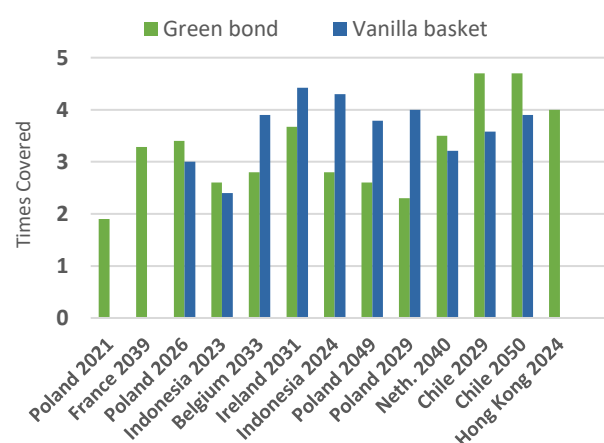
Sovereign green bonds allocations



Bookbuilding

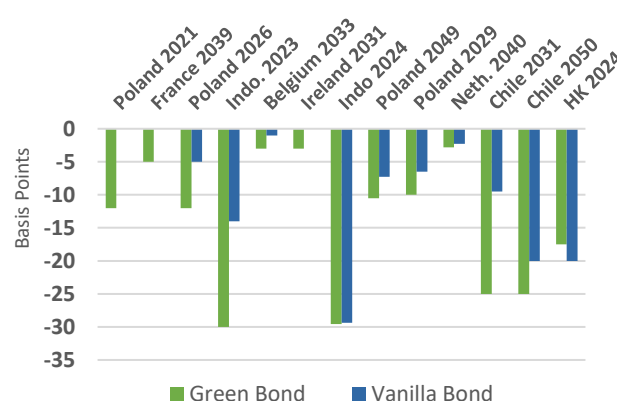
For ten sovereign green bonds for which we have comparable data, five attracted larger book cover than vanilla equivalents during the primary pricing process.

5 of 13 sovereigns GB attracted higher book cover than vanilla equivalents



All the sovereign green bonds in our sample except one achieved larger spread compression during the book-building process than comparable baskets of bonds.

10 of 11 sovereigns GB achieved larger spread compression than equivalents



The greenium

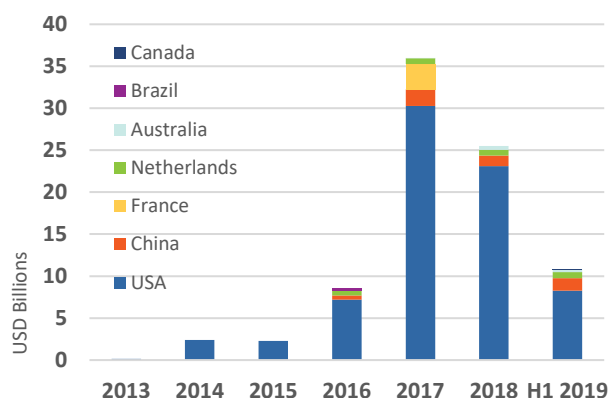
Occasionally, a bond may be issued with a higher price, and lower yield compared to existing debt and will price inside its existing yield curve. This is known as *greenium*.

The France, Netherlands, and Chile 2050 sovereign green bonds have exhibited a greenium.

Six sovereign green bonds have priced on their curves, while three have exhibited a normal new issue premium. There are not enough comparable bonds to build a yield curve for Hong Kong.

Spotlight: Asset-Backed Securities

Global green ABS issuance by country



As of June 2019, asset-backed securities (ABS) form 13% (USD85.3bn, 2,747 bonds) of total green bond issuance (USD635.5bn, 4,756 bonds). Starting from two deals in 2013, green ABS issuance has gone up significantly (2018: 1,113). At 331, the number of transactions in H1 2019 is 41% lower than H1 2018 (557), but in value terms the drop is less: 23% (H1 2019: USD10.6bn, H1 2018: USD13.7bn).

More positively, the market keeps evolving. So far in 2019, there are 10 new issuers and 11 existing issuers have done new deals, including Fannie Mae (310 green MBS).

Australia's repeat issuers **FlexiGroup** (solar ABS) and **Pepper Group** (green RMBS), along with **Canadian Solar** from Canada have contributed to continued expansion of the international market. Chinese ABS issuance has also kept growing with 7 deals recorded in H1 2019 and volume doubling from US\$653m in H1 2018 to USD1.35bn in H1 2019.

US entities driving the market

Fannie Mae, a government agency, pioneered of agency Green MBS. It is the largest green bond issuer issuer, and accounts for 66% of total ABS issuance as of end H1 2019. In H1 2019, we note that average deal size has increased to USD21.9m from USD17.8m in H1 2018.

Freddie Mac's USD435m debut, closed in June 2019, is secured on loans under its Multifamily Green Advantage programme. Since its inception in 2016, Freddie Mac has purchased USD44.7bn of green loans under this programme, which points to future issuance potential.

Further, a Uniform Mortgage-Backed Security (UMBS) [initiative](#), launched in June 2019, has been taken up by Fannie and Freddie Mac under the direction of Federal Housing Finance Agency (FHFA). This is expected to improve [market liquidity and reduce risk for investors](#).

Solar and PACE ABS attract new issuers

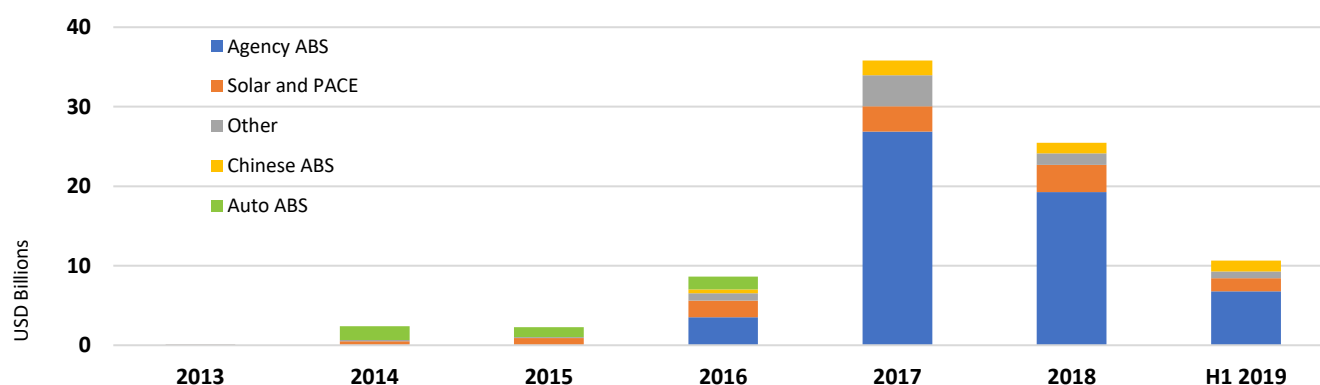
Solar and PACE ABS form the next largest share of ABS with 59 issuances (USD11.7bn) as of H1 2019. Both primarily fund the installation of residential rooftop solar, although solar ABS includes some commercial deals and PACE includes other home improvement measures and commercial PACE loans.

The pioneers in solar and PACE ABS are SolarCity (Tesla) (USD1.3bn) and Renovate America (USD3.1bn). Since their first transactions, solar and PACE issuance has gone up from USD54m in 2013 to USD3.4bn in 2018, in line with general green ABS trends.

However, issuance dropped from USD2.3bn in H1 2018 to USD1.6bn in H1 2019, or by 30%. California Municipal Finance Authority, Connecticut Green Bank's SHREC and Mill City Solar Loan are the new issuers for the year so far. Five existing issuers have come back with repeat issuance: PACE Funding Group, Solar Mosaic, Sunnova, Sunrun and Ygrene Energy Fund (GoodGreen).

Most structures are now fairly standardised. An interesting new ABS format is the [SHREC](#) transaction structured by the **Connecticut Green Bank**. The deal, which is the first ABS issue from the state, is secured on fixed-price solar home renewable energy credits ("SHRECs") sold by homeowners to two energy utilities.

After agency green MBS, Solar and PACE ABS form the largest part of ABS issuance



Green bond trading venue league tables

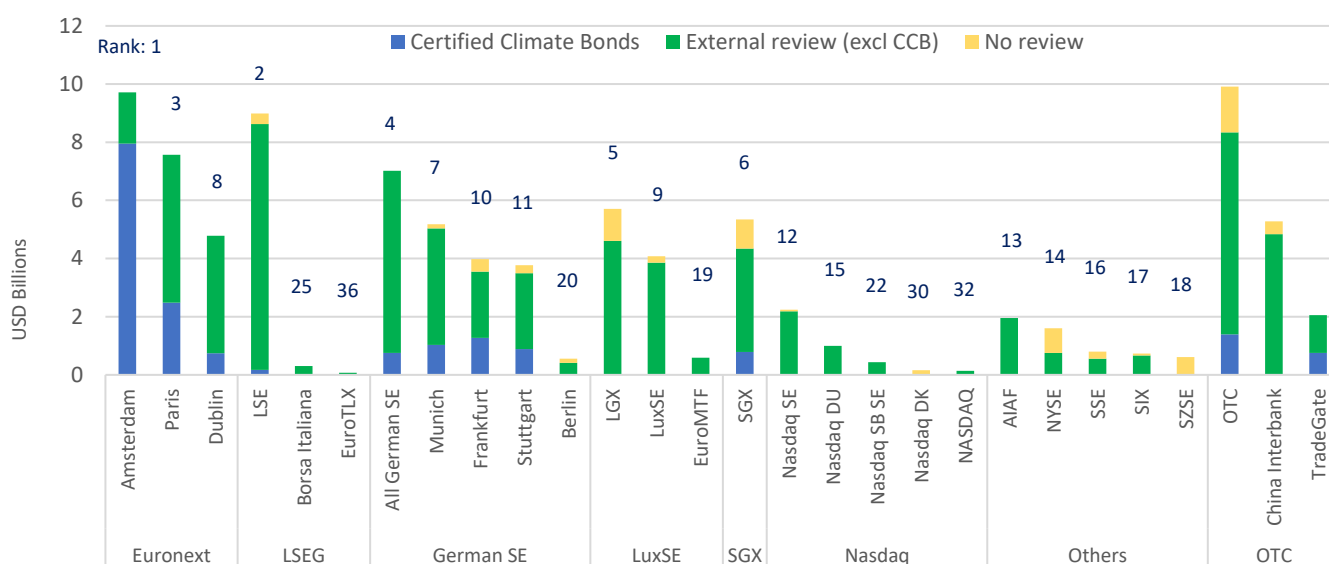
In H1 2019, USD97.5bn worth of green bonds was listed on a variety of venues, representing just under three-quarters (73%) of total green bonds issuance for the period. Green bonds issued on the over-the-counter (OTC) markets, including China Interbank market and Trade Gate, account for 13%. The remaining 14% is not listed or information is not available.

The league table below groups venues by stock exchange group, if applicable. However, each trading venue is ranked individually as represented by the numbers on top of the bars.

For the first time since we started tracking venues in 2018, Euronext Amsterdam was the most popular green bond listing venue with USD9.7bn worth of deals in H1 2019, including the EUR6bn (USD6.6bn) Dutch sovereign Certified Climate Bond, and a deal each from ABN AMRO (EUR750m/USD848m) and debut issuer Vesteda (EUR500m/USD560m), a property fund manager.

The second most popular venue was LSE (London Stock Exchange), followed by Euronext Paris. On a cumulative basis, German stock exchanges remain the most popular, followed by LuxSE Group, Euronext and LSEG.

Euronext Amsterdam at the top of H1 2019 green bond listing venues



Listing venue league table: Methodology

The primary data sources are Refinitiv EIKON, Bloomberg and Wind Financial. They are further supplemented by information collected from stock exchanges with a dedicated green bond segment, such as Luxembourg Green Exchange, London Stock Exchange, Borsa Italiana, Shanghai Stock Exchange and Taipei Exchange.

- There is no differentiation between primary and secondary listing venues.
- When a green bond is listed on multiple venues, the issued amount is allocated in equal share to each venue. At most four listing venues are recorded for calculation purposes.
- If a bond is traded on, say, LGX and displayed on LuxSE at the same time, only LGX is recorded as it's trading venue to avoid double counting.
- We have not allocated bonds listed on All German SE, EURONEXT and Nasdaq Nordic to the constituent stock exchanges.
- A bond is treated as "Not listed" when the bond is not listed or relevant information is not available from the sources identified in this methodology.
- Bond volumes allocated to each listing venue are categorised into Certified Climate Bonds, bonds with external reviews (other than Certified Climate Bonds) and bonds with no external reviews. Commentary:
 - Bonds issued before the Green Bond Principles were first published in 2014 generally do not have external reviews. Many early issues have matured.
 - Some external reviews may not be available until an assurance audit is completed. For instance, KPMG provides an annual independent review of EIB's Climate Awareness Bonds. The 2017 assurance report was published in November 2018. All LGX deals without a review relate to the most recent EIB Climate Awareness Bonds, for which an assurance report has not been published yet.

Green bond underwriter league tables

HSBC leads in green bond underwriting

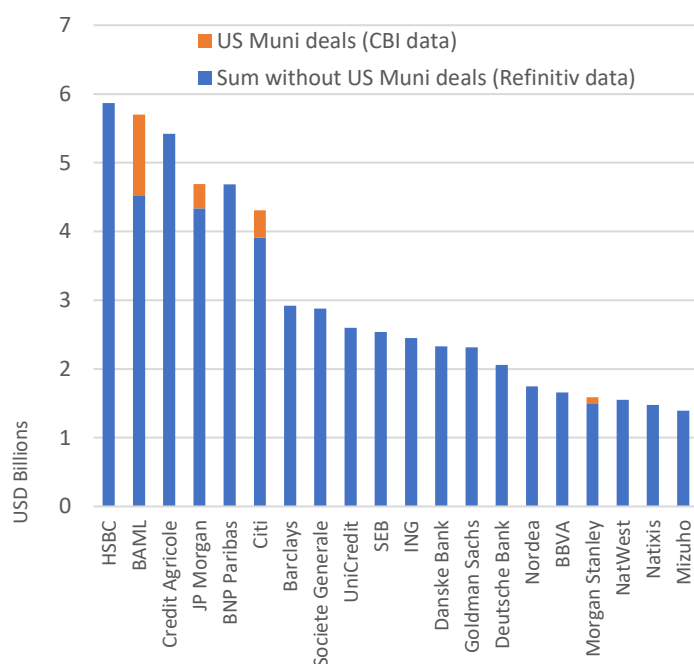
HSBC was the top green bond underwriter globally and in emerging markets in H1 2019. Its largest deals include the USD1.48bn sovereign Certified Climate Bond issued by the Republic of Chile and the EUR1bn Certified Climate Bond from Société du Grand Paris.

BAML ranked second globally, with 20% (USD1.17bn) of its underwritten amount contributed by green US Municipals.

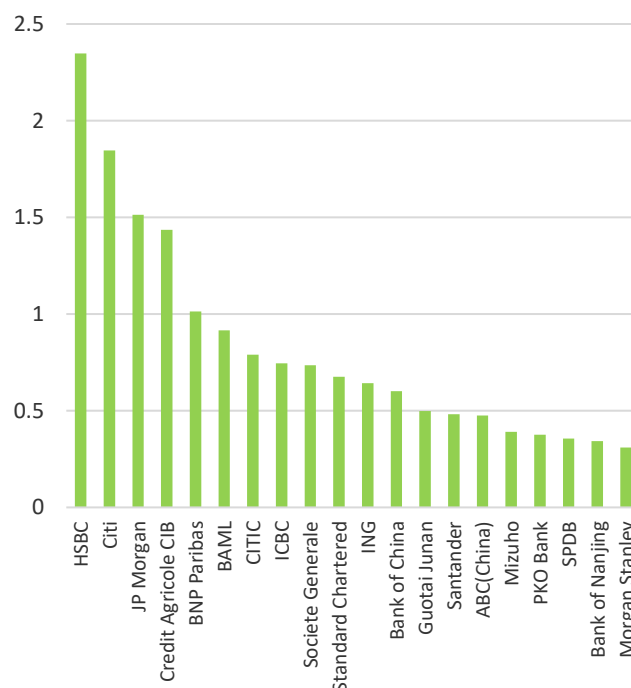
In emerging markets, HSBC retained the 1st place that it achieved in Q1 with a wide coverage of underwritten deals from Indian, Brazilian, Chilean and Philippine issuers.

Citi and JP Morgan placed second and third, respectively. Apart from international banks, seven Chinese banks and securities firms made their way into the Top 20 EM league table. Bank of China and Guotai Junan are new joiners.

H1 2019: HSBC at No.1 of global green bond underwriter league table



H1 2019: HSBC was the largest green bond underwriter in emerging markets



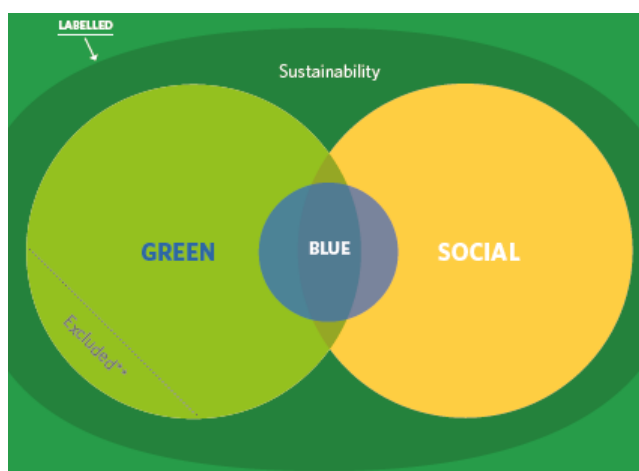
Source: Refinitiv

Underwriter league tables: Methodology

Since Q3 2016, the underwriters league tables are collated using data from Refinitiv except for US municipal bonds which are calculated by the Climate Bonds Initiative. As such, ranking volumes differ from Refinitiv tables. Volumes may differ from other league tables as they include ABS deals and US Muni bonds and only include bonds which have 95% or more of proceeds going to assets or projects, aligned to the [Climate Bonds Taxonomy](#).

- Primary issuance only. Excludes tax exempt US Municipal bonds.
- Underwritten transactions only.
- The global table includes transactions that mature at least 360 days after settlement.
- Transactions that mature or are callable/puttable less than 360 days after settlement are excluded.
- Self-funded straight debt transactions are excluded (excluding mortgage and asset securitizations) unless two or more managers/ underwriters unrelated to the issuer are present.
- Deals must be received within 5 business days of pricing.
- Transactions with an issue size of less than USD1m (equivalent) are included; sole led MTN take downs with a minimum size of USD50m for core currencies are included, USD10m for non-core.
- For a transaction to be green league table eligible, deals must have 100% of proceeds formally earmarked for green projects.
- Issuances where there is a mixed use of proceeds designated across different projects, are not eligible: e.g. ESG bonds that combine social and green projects.
- Securitisation deals and private placement will be included provided they meet the standard criteria.

The wider labelled bond universe



**Labelled green bonds not aligned with the Climate Bonds Taxonomy (e.g. green bonds financing so-called “clean coal”)

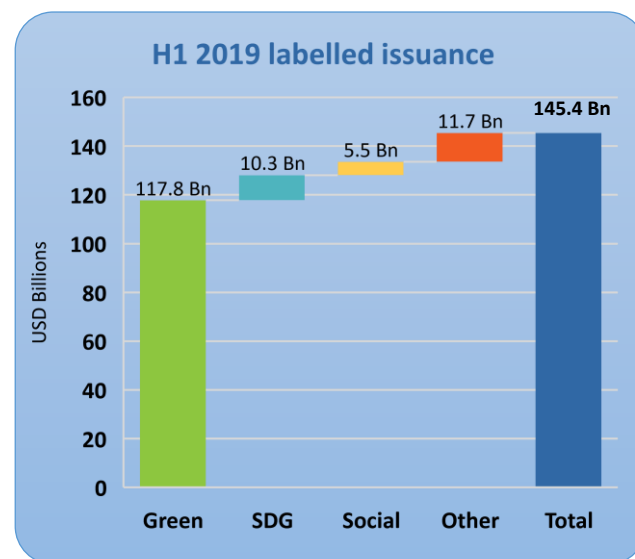
The labelled bond market has expanded beyond green bonds. Sustainability and social bonds have been around for several years, but they really came into their own in 2018, with SDG bonds also emerging as issuers and investors started adopting policies and strategies linked to the UN's [17 Sustainable Development Goals](#).



Climate Bonds support the Sustainable Development Goals (SDGs) overall and see [many links](#) between green bond finance and specific SDGs, [in particular](#) SDGs 6, 7, 9, 11, 13, 14 and 15.

Notwithstanding this, CBI remains focused on green bonds, which are specifically linked to climate-change-mitigation, adaptation and resilience.

Consequently, the proportion of proceeds allocated to social projects which are not also green needs to be no more than 5% for inclusion in the CBI green bond database.



Sustainability and social bonds in H1 2019

The top 3 sustainability and social bond markets for H1 2019 matched those of H1 2018: Germany (USD2.8bn), South Korea (USD1.6bn) and France (USD1.1bn). New additions to active markets in this segment included Belgium, the UK, Switzerland, Indonesia and New Zealand.

Financial and non-financial corporates together comprised half of volumes with a quarter each. Local governments accounted for another quarter (24%). The rest was split between government-backed entities, development banks and green loans.

The largest issuers in the sustainability segment were German development bank **Land NRW** (USD2.6bn, repeat issuer), American café chain **Starbucks** (USD1bn, repeat issuer) and Belgian local government **Flemish Community** (USD845m, debut issuer).

Social bond issuers included French public development bank **SFIL** (USD1.1bn, debut issuer), Italian government-backed financial institution **Cassa Depositi e Prestiti** (USD852m, repeat issuer) and UK social housing funding aggregator **MORhomes** (USD326m, debut issuer).

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