Going sustainable – with green bonds

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UBS ETFs On Track Research

By: **Philippe Kybourg** and **Maria Partelova**, ETF & Index Fund Investment Analytics, UBS AM

The first green bond was issued back in 2007 by the European Investment Bank, with the World Bank following suit a year later. It took a number of years for this market to establish itself, but it is now a staple segment of the fixed income asset class. Hereafter, we will outline how these securities are structured and how the market has evolved in recent years. We will also discuss the importance of the underlying issuer behind green bonds and how it matters in the context of building a global green bond solution.

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What are green bonds?

First things first, what are green bonds? Green bonds are any type of bond instruments of which the proceeds are used to enable climate-related or environmental projects. While the issuer can use regular bonds' proceeds for any objective they like, proceeds from green bonds can only be used for sustainable objectives. Although green bonds are not bound by any regulation, their underpinning rules are described in the Green Bond Principles (GBP)[1] outlined by the International Capital Market Association (ICMA). These principles are articulated along four dimensions:

1) Use of Proceeds
2) Process for Project Evaluation and Selection
3) Management of Proceeds
4) Reporting

Green bonds are the best-known securities amongst the sustainable bonds' universe, but there are also other types of bonds that follow a similar "use of proceeds" structure. Green bonds support climate-focused projects such as renewable energy, clean transportation, or sustainable water management (Figure 1). Social bonds finances projects around reducing poverty, affordable housing, or access to health care while Sustainability bonds aim at a combination of these objectives. Moreover, transition bonds, the newest addition to the sustainable bonds' family, allocate proceeds to businesses transitioning towards decarbonization. There are alternative types of sustainable bonds that do not focus on the use of proceeds as the key pillar to define their ESG profile. For example, sustainability-linked bonds outline instead a certain key performance indicator related to green or social goals and apply a penalty if the target is not reached.

Figure 1: Examples of green bonds projects' categories

Category	Sub-Category
Alternative Energy	Wind, Solar, Geothermal, Biomass (subject to additional sustainability criteria), Waste Energy, Wave and Tidal, Small Hydro, Large Hydro (subject to additional sustainability criteria), Biogas, Biofuels (first and second generation)
Energy Efficiency	Demand-Side Management, Battery, Fuel Cells/Hydrogen Systems, Smart Grid, Other Energy Storage (including pumped hydro storage), Superconductors, Natural Gas Combined Heat & Power, LED Lighting, Compact Fluorescent Lighting, Insulation, Hybrid/Electric Vehicles, Clean Transportation Infrastructure, Industrial Automation, IT Optimization Service & Infrastructure
Sustainable Water	Water Infrastructure & Distribution (with impact on water quality and access), Rainwater Harvesting, Smart Metering Devices, Drought-resistant Seeds, Desalinization, Wastewater Treatment, Water Recycling Equipment & Services, Watershed Conservation Efforts

Source: The Climate Bonds Initiative (CBI).

[1] https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/

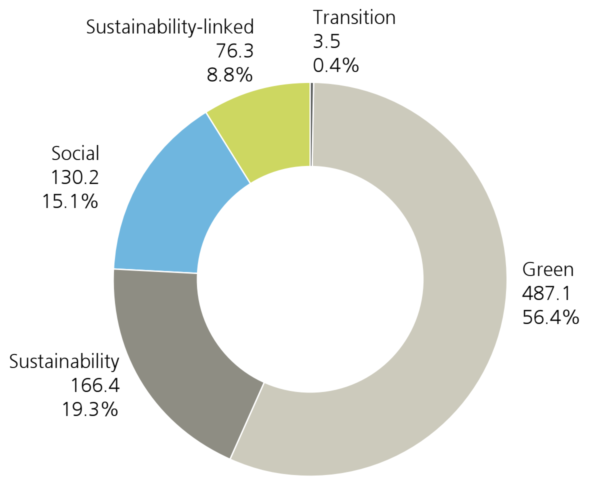
Green bonds market

Green bonds account for the largest part of issued volume in the sustainable bonds market, followed by sustainability bonds, social bonds, sustainability-linked bonds and transition bonds (Figure 2).

If we solely focus on the green bonds market, annually issued amount has been steadily rising since 2014 and it has surpassed the half trillion USD mark for the first time in 2021 with 582 USD bn issued, while it dropped to 487 USD bn in 2022 due to challenging market conditions not specific to that fixed income segment. From a regional lens, we see that Europe, Asia-Pacific and North America play leading roles in terms of amount issued (Figure 3).

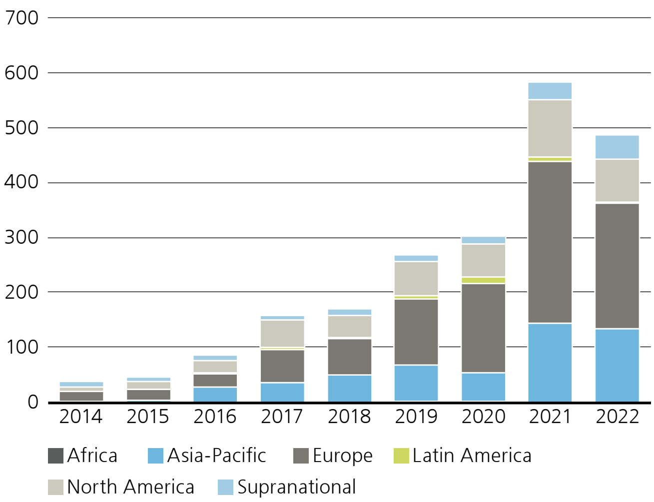
As seen on Figure 4, supply of green bonds were initially dominated by development banks and non-financial corporates, while corporates, sovereigns and government-backed entities played a more prominent role in the recent years. Corporates accounted for 54% of amount issued in 2022, whereas sovereigns and government-backed entities represented around 37%.

Figure 2: Issued volume by sustainable bond type in 2022 (in USD bn and percentage)



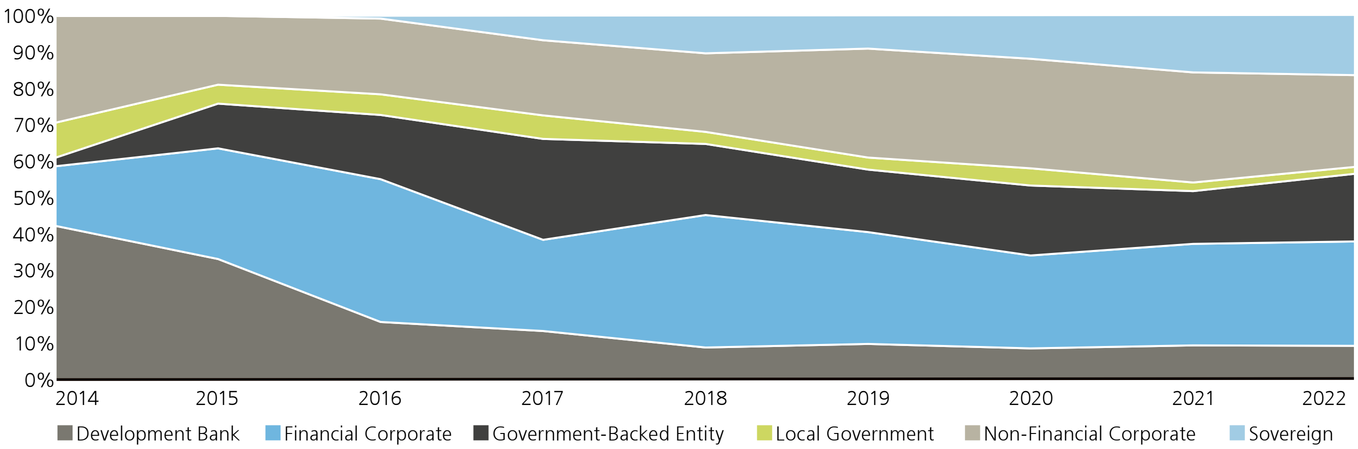
Source: The Climate Bonds Initiative (CBI).
Data as of 30th December 2022.

Figure 3: Development of green bonds' amount issued by region (USD bn)



Source: The Climate Bonds Initiative (CBI).

Figure 4: Green bonds' amount issued – breakdown by issuer type (USD bn)

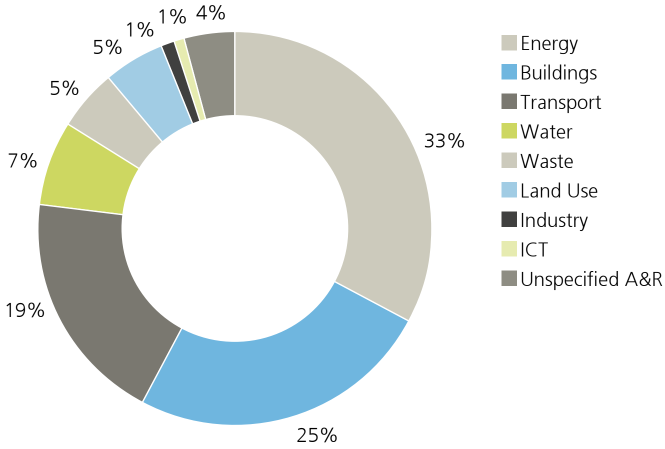


Source: The Climate Bonds Initiative (CBI).

What are the proceeds used for?

As mentioned earlier, one of the requirements of green bonds are linked to the type of projects that should be financed by the bonds' proceeds. Thanks to another key pillar of the Green Bonds Principles, reporting, we can analyze which type of projects are financed by green bonds. If we focus on the proceeds raised in 2022, we can see in Figure 5 that most of the proceeds are used for Energy projects, with buildings and transportation following suit. Collectively, they still contribute 77% of the total green debt volume, but in recent years smaller categories are gaining share.

Figure 5: Green bonds' amount issued in 2022 – breakdown by use of proceeds category (USD bn)



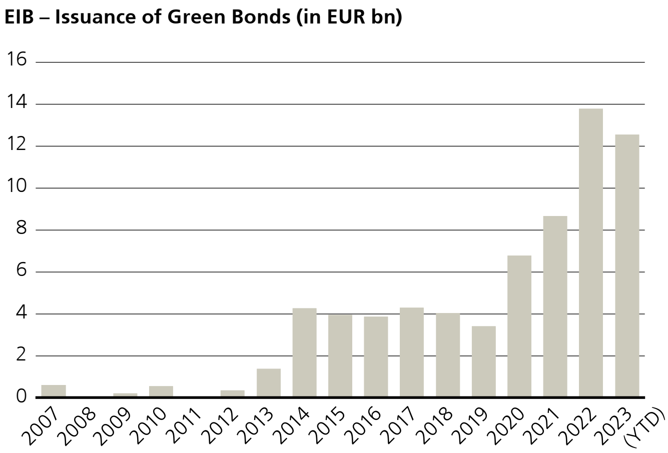
Source: The Climate Bonds Initiative (CBI).

A practical use case: the European Investment Bank

Let us now look at a practical use case by looking into the European Investment Bank (EIB) which was the first institution to issue a green bond in 2007, their so-called Climate Awareness Bond (CAB). The primary objective behind their CAB program is to fund projects that support climate change mitigation. To support this objective, the activities that were originally eligible under the program were around renewable energy and energy efficiency. The eligible activities were expanded in 2020 to also incorporate research, development and deployment of innovative low-carbon technologies, electric rail infrastructure, rolling stock, and electric buses. Finally, further taxonomy-eligible low-carbon activities in transport, manufacturing, waste, and energy sectors were included in 2022 to align their framework to the evolving EU legislative landscape.

Since the inception of its CAB program, the EIB has issued more than 68 EUR billion of green bonds, with yearly issuance breaching the 10bn mark in 2022 (Figure 6).

Figure 6: European Investment Bank – yearly green bonds issuance (in EUR bn)



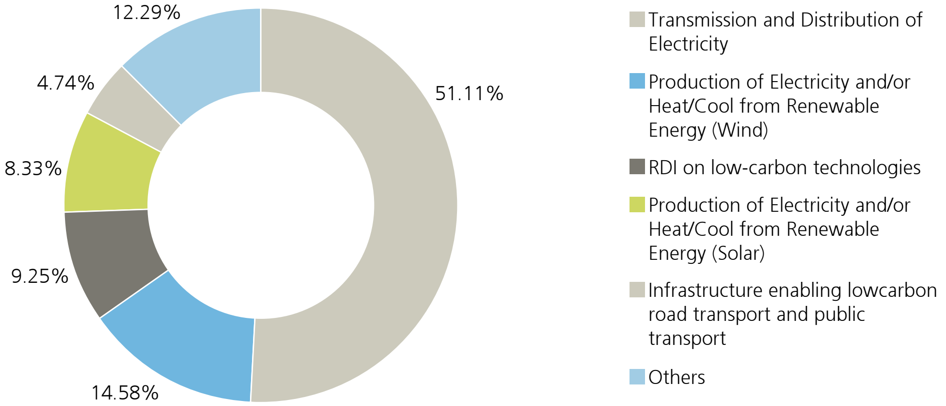
Source: European Investment Bank, 16 May 2023.

If we look how raised proceeds were allocated, we can see in Figure 7 that for the first half of 2022, about half of the projects were linked to the transmission and distribution of electricity, with the production of renewable energy being also well represented. While this is only a small portion of the proceeds raised by the EIB, it highlights the dominant share of proceeds allocated to energy and confirms what we have seen in Figure 5 for the green bond market.

While energy projects remain the most financed sector, the share of buildings and transportation projects financed by the EIB green bonds have increased substantially over the years. In 2014, only around 1% of the use of proceeds was allocated to green buildings, while this figure jumped to about 24% by 2019.

Figure 7: Green bonds project allocation (H1 2022)

Use of proceeds – Project allocation H1 2022



Source: European Investment Bank, CAB project allocations 2022 H1 report.

Does the issuer matter?

The short answer is yes. Despite its green label, green bonds will mostly share the characteristics of "non-green" traditional bonds. If we take a green bond and a conventional bond from the same issuer, the credit and default risks of both securities will be the same. Their yield should, at least in theory, be similar as well. However, in practice it seems that investors are willing to pay a premium to invest in a bond with a sustainable impact. This "greenium", which can be measured as the difference in yield between green bonds and ordinary bonds of the same maturity, has been studied extensively with varying results. The "Green Bond Pricing in the Primary Market" reporting series from the Climate Bonds Initiative, seems to indicate that green bonds are sometimes indeed priced with a greenium.

Another aspect to consider for investors is the ESG profile of the underlying issuer. While a green bond can ensure that the proceeds are used to finance climate-related projects, it does not shield investors from headline risks or from the issuers' involvement in certain controversial business activities. Moreover, an issuer with a poor track record on ESG risk considerations might not be as credible and effective in its green bond issuance program as an issuer with a more robust ESG profile.

A global and diversified approach to invest in green bonds

Now that we understand this growing market better, how can we design a solution to invest in it? As a starting point we could use the Bloomberg MSCI Global Green Bond index which has been launched in 2014 and which can serve as proxy for the green bond market issued by investment grade issuers. A key design feature of this benchmark is that MSCI ESG Research independently evaluates the bonds to determine if they are adhering to ICMA's Green Bond Principles, providing a more credible set of eligible bonds.

If we compare the Bloomberg MSCI Global Green Bond index to the Bloomberg Global Aggregate index from which it is derived, (Figure 8), we can see how the universe of green bonds differs from the broader fixed income universe. Regionally, we can see a substantial overweight in Europe and Supranationals, whereas the US and Asia Pacific are underweighted. These regional biases are also visible when looking at the breakdown by currency of denomination, most notably with EUR being overweighted and USD underweighted. From a sector perspective, the green bond universe has a larger weight in Corporates relative to the Global Aggregate universe, as Corporates have been playing a leading role issuing green bonds in recent years. Finally, we can see that the green bond universe has a longer duration, which could be explained by the longer-term nature of certain projects financed through green bonds.

Figure 8: Bond universes characteristics

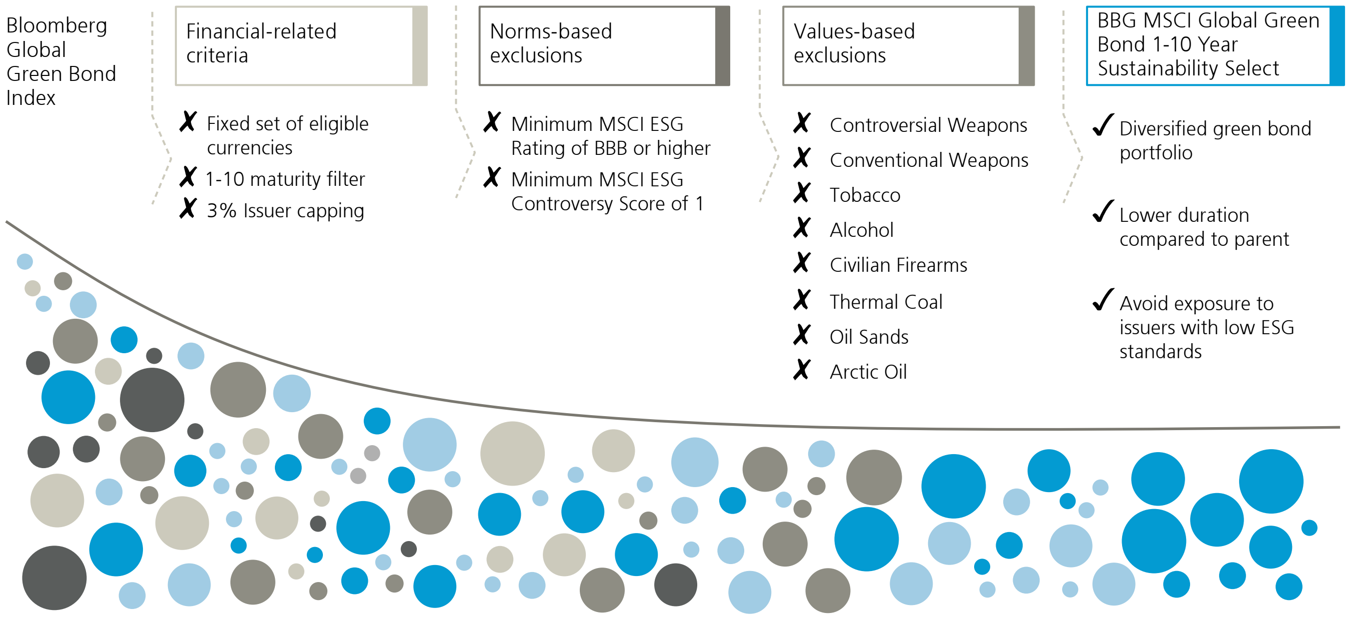
	Bloomberg MSCI Global Green Bond	Bloomberg Global Aggregate
North America	11.48%	43.79%
South & Central America	0.81%	0.49%
Western Europe	63.40%	25.21%
Asia Pacific	10.11%	26.52%
Eastern Europe	1.16%	0.98%
Central Asia	0.25%	0.09%
Africa/Middle East	1.49%	0.69%
Supranationals	11.30%	2.23%
Treasury	19.17%	52.80%
Government-related	41.08%	14.97%
Corporate	35.10%	18.14%
Securitized	4.65%	14.09%

	Bloomberg MSCI Global Green Bond	Bloomberg Global Aggregate
EUR	67.21%	21.73%
USD	19.29%	44.86%
GBP	4.97%	3.97%
CAD	3.16%	2.74%
AUD	1.39%	1.42%
JPY	0.10%	11.61%
Others	3.88%	13.67%
YTM	3.89	3.52
Mod Duration	6.97	6.73
Average Rating	AA3/A1	A1/A2

Source: Bloomberg, UBS Asset Management. Data as of 28 April 2023.

Knowing the characteristics of the Global Green Bond index, we could add financial related as well as ESG criteria to build a more diversified green bond portfolio (see Figure 9). For this, we can apply as a first step an issuer capping to reduce idiosyncratic risks and a 1-10 years maturity filter to reduce duration risk. We also reduce the set of eligible currencies to only incorporate major currencies such as USD, EUR or GBP. In a second step, to screen out issuers with a poor ESG profile or involved in ESG controversies, we apply minimum thresholds on MSCI ESG Research's ESG ratings and ESG Controversies scores. In a third and last step, we exclude a set of business activities to prevent any exposure to certain controversial activities.

Figure 9: Indexes characteristics

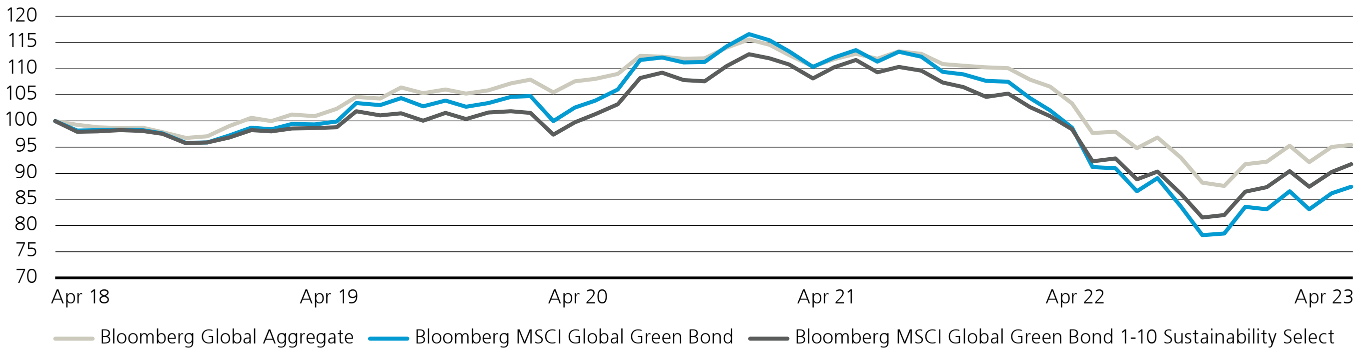


Source: Bloomberg, MSCI, UBS Asset Management. **For illustration purposes only.**

In Figure 10, we can see how this portfolio compares against the broader global green bond and global aggregate universes. As expected, the duration of the portfolio is lower compared to the global green bond index, but also relative to the broader universe. Interestingly, we have a slightly higher yield relative to the global aggregate index, but this can be explained by the relative overweight to Corporates as well as a slightly lower credit rating. As the starting universe of our benchmark is investment grade, the credit quality of our portfolio remains high, as this credit quality reduction is not substantial. From a performance perspective, we can see that our approach has performed better than the Global Green Bond portfolio over the last five years. This was thanks to its lower duration which led to a better performance in 2022 when yields went upwards. Compared to the global aggregate, both green bond portfolios have underperformed, which was mainly explained by the relative overweight to EUR denominated bonds.

Figure 10: Indexes characteristics

Long run performance comparison



	Bloomberg Global Aggregate	Bloomberg MSCI Global Green Bond	Bloomberg MSCI Global Green Bond 1-10 Sustainability Select
Returns p.a.	–0.93%	–2.65%	–1.71%
Volatility p.a.	6.79%	9.36%	8.03%
Tracking error	–	3.23%	2.80%
Option-Adj Duration	6.73	6.97	4.65
Yield To Maturity	3.52	3.89	3.90
Credit Rating[1]	AA2/AA3	AA3/A1	A1/A2

Source: Bloomberg, MSCI, UBS Asset Management. Data from 30 April 2018 to 28 April 2023.
Includes backtested data. Past performance is not a reliable indicator of future results.

Your trusted partner for sustainable investments

Green bonds play a vital role in the climate financing ecosystem. As it evolved from a niche to a more established bond segment, it can now play an impactful role in your asset allocation. At UBS ETFs, we have developed an innovative and differentiated solution to invest in this growing market. Get in touch if you would like to know more!

[1] Middle rating of Moodys/S&P/Fitch)

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