

Sustainable bonds to hit record \$1.35 trillion in 2022

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ABOUT

Moody's is committed to helping market participants advance strategic resilience, responsible capitalism, and the greening of the economy. Our offerings span across credit, ESG, sustainable finance, and climate risk solutions and help our customers identify risks and opportunities and provide meaningful performance measurements and insights.

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Sustainable Finance – Global

Sustainable bonds to hit record \$1.35 trillion in 2022

Summary

Green, social, sustainability and sustainability-linked (GSSS) bond volumes to hit \$1.35 trillion in 2022. The total will comprise approximately \$775 billion of green bonds, \$150 billion of social bonds, \$225 billion of sustainability bonds and \$200 billion of sustainability-linked bonds (SLBs). As a result, we expect issuance growth to moderate to 36% in 2022, from 64% last year. Our projections reflect expectations of gradually declining growth rates as the market matures, and potential headwinds from monetary policy tightening. Still, GSSS bonds will continue to rise as a share of global bond issuance, potentially reaching 15% of total in 2022.

Scrutiny of SLB targets and net zero commitments to accelerate as transition financing grows. Carbon transition risk is rising in importance for the most impacted sectors as changing economics, shifting policies and heightened investor attention accelerate transition plans for many companies. As issuers are increasingly embedding decarbonization targets in their SLBs, and relatively few companies are actually demonstrating net zero-aligned targets today, investors will increasingly scrutinize these transactions to combat potential greenwashing.

Social issues to remain top of mind despite fewer pandemic-related issuances. While pandemic-driven issuance of social bonds has begun to recede, investor appetite to generate positive social impact will support increasing innovation in labeled social financing, including diversification with respect to issuer and project types, as well as bond structures. In addition, market participants are increasingly focused on the linkages between environmental and social factors, suggesting that social issues will remain an important factor in sustainable financing.

Sustainable finance taxonomy development to accelerate, but potential fragmentation poses risks to market growth. The formulation of sustainable finance taxonomies will play an important role in the reorientation of capital to sustainable activities as investors and other market participants increasingly call for clearer definitions on what constitutes credible investments. However, potential fragmentation of taxonomies across different regions could pose a challenge for investors operating at a global level.

Emerging market sustainable debt volumes to shine following breakout 2021. Following five years of relative stagnation, EM GSSS bond issuance totaled \$136 billion last year, more than double the previous record \$51 billion issued in 2020. We believe EM sustainable bond markets will continue to surge given heightened ESG risk exposures and significant sustainable development needs in many EM economies.

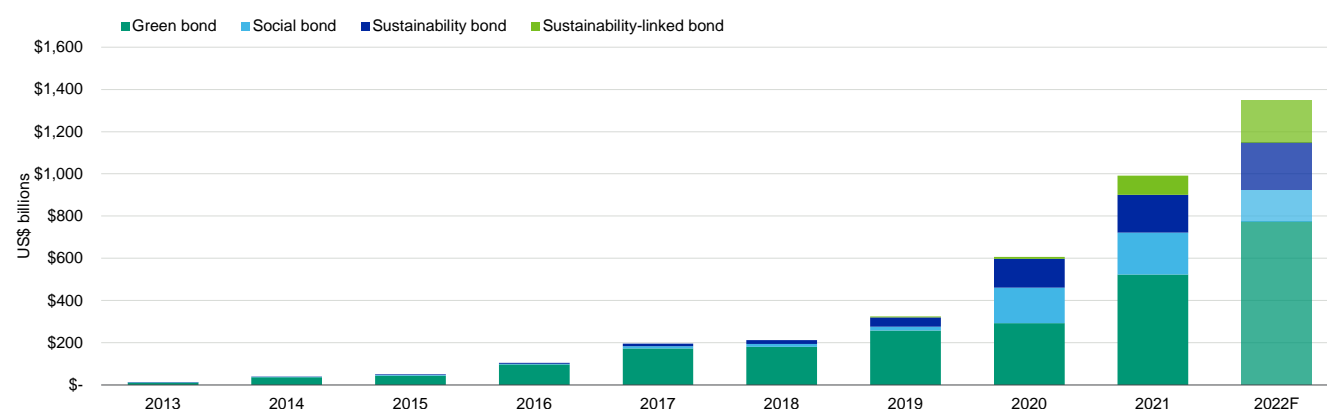
Climate adaptation financing to increase as physical climate hazards intensify. Increasing frequency and severity of extreme climate events is heightening the need for adaptation and resilience financing. While very little financing has gone to these projects to date – with just 3% of green bond proceeds allocated to adaptation projects in 2021 – we anticipate this funding will grow as elevated risks demand greater financing for these projects.

Green, social, sustainability and sustainability-linked bond volumes to hit \$1.35 trillion in 2022

We expect global issuance of green, social, sustainability and sustainability-linked (GSSS) bonds will hit a record \$1.35 trillion in 2022, a 36% increase over the estimated \$992 billion issued in 2021 (see Figure 1).¹ The total \$1.35 trillion will comprise approximately \$775 billion of green bonds, \$150 billion of social bonds, \$225 billion of sustainability bonds and \$200 billion of sustainability-linked bonds.²

Figure 1 Sustainable bond issuance to hit \$1.35 trillion globally in 2022 for another record year

Annual issuance of GSSS bonds, US\$ billions



2022F represents Moody's 2022 issuance forecast.

Sources: Moody's ESG Solutions and Environmental Finance Bond Database

Our projected 36% growth in combined issuance would represent a moderation from the 64% growth rate achieved in 2021, when GSSS bond issuance totaled \$992 billion. While we expect continued strong growth in use-of-proceeds green and sustainability bond issuance in 2022 at 48% and 25%, respectively, we anticipate use-of-proceeds social bond issuance will decline around 25% compared with last year as COVID-19 pandemic-related financings largely retreat. We anticipate sustainability-linked bond issuance will more than double in 2022 to \$200 billion after a breakout year in 2021, when issuance surged to \$90 billion from \$9 billion in 2020.

Our projections take into consideration expectations of gradually declining growth rates over time as the market grows and matures, particularly in more established markets, as well as potential headwinds for overall global debt issuance in 2022 in a potentially tightening monetary policy environment.³ In addition, as discussed in other sections of this report, the risk of global fragmentation in sustainable investment policies and practices, as well as growing scrutiny over the credentials of some sustainable debt instruments, may also weigh on the continuation of unfettered market growth.

Despite these risks, we still expect healthy double-digit expansion in volumes this year, as the number of issuers embedding sustainability strategies into their capital market plans remains on an upward trajectory. As a result, GSSS bonds are likely to continue surging as a share of global issuance volumes. GSSS bonds accounted for 11.3% of total global bond issuance in 2021, up from 6.7% in 2020 (see Figure 2). This increase in the share of global issuance came despite very high levels of overall debt issuance that rivaled the pandemic-fueled records observed in 2020. We anticipate this trend will continue this year and expect that GSSS bonds could account for around 15% of overall global issuance in 2022.

¹ Historical sustainable bond volumes cited throughout this report come from the [Environmental Finance Bond Database](#), downloaded as of 20 January 2022. Figures are subject to revision and typically rise modestly over time as data are updated.

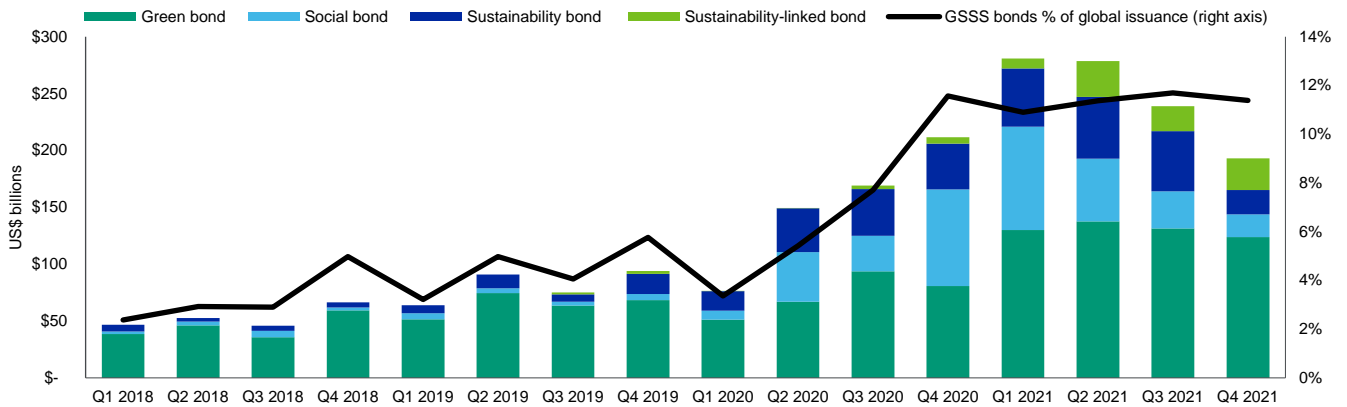
² These figures exclude volumes of other sustainable debt instruments, such as green loans and sustainability-linked loans. For more information about the various types of sustainable debt instruments cited throughout this report, please see the Appendix.

³ See, for example, [Macroeconomics – US: Interest Rates To Rise Faster As Omicron's Impact On Economy Likely To Be Temporary](#), Moody's Investors Service, January 2022.

As Figure 2 shows, GSSS bond volumes in the fourth quarter of 2021 totaled a five-quarter low of \$193 billion, with quarterly volumes modestly declining throughout the year in line with the trend seen in overall global debt issuance. Although the low borrowing costs that helped support these volumes will likely reverse as interest rates potentially rise throughout the year, the focus on sustainable development and achieving net zero commitments will remain strong drivers of sustainable financing throughout 2022.

Figure 2 Sustainable bonds represent a growing share of global debt issuance

Quarterly issuance of GSSS bonds, US\$ billions

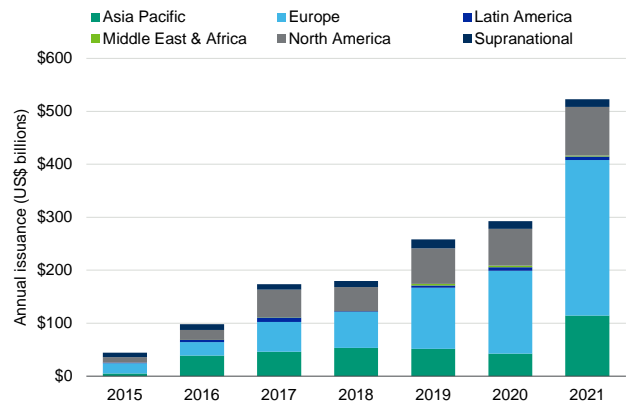


Sources: Moody's ESG Solutions, Environmental Finance Bond Database and Dealogic

Green bonds to hit \$775 billion in 2022 and account for over half of GSSS bond volumes

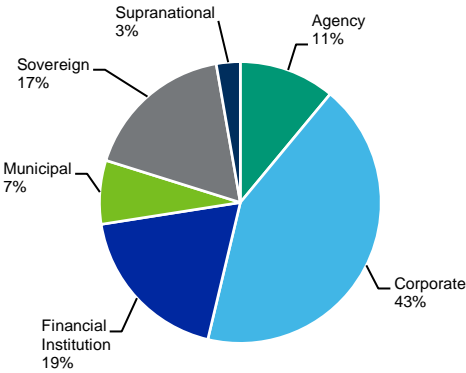
Green bonds will continue to account for the largest share of the sustainable bond market in 2022 (at around 57% of total issuance), with the significant growth of GSSS bond volumes in recent years primarily driven by global green bond volumes. Full-year 2021 issuance of green bonds totaled \$523 billion, which represented a 78% increase over the \$293 billion issued in 2020 (see Figure 3). We believe the steady growth in global issuance will continue into 2022 as an increasing number of issuers seek to finance climate mitigation and adaptation efforts and advance their net zero commitments, while more sovereign issuers expand their green bond programs. As such, we anticipate that green bonds issuance will be around \$775 billion globally in 2022, which would represent a strong, yet moderating, 48% growth over 2021 issuance.

Figure 3 Green bond issuance surged in 2021 as European issuers continue to lead the way



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

Figure 4 Share of 2021 global green bond issuance by issuer type



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

European issuers continued to dominate green bond issuance in 2021, with \$294 billion accounting for 56% of the global total (see Figure 3). European green bonds have represented a growing share of the global total, climbing each year since 2017, when the region accounted for 32% of global issuance. This is driven, in large part, by the region's continued focus on transitioning to a green economy with many of the market's largest issuers being European sovereigns, such as the [United Kingdom](#), [France](#), [Italy](#) and the [European Union](#) (EU). We anticipate this trend will continue as sovereign green bond programs, such as the EU's €250 billion NextGenerationEU green bond program, remain a significant driver of market growth.⁴

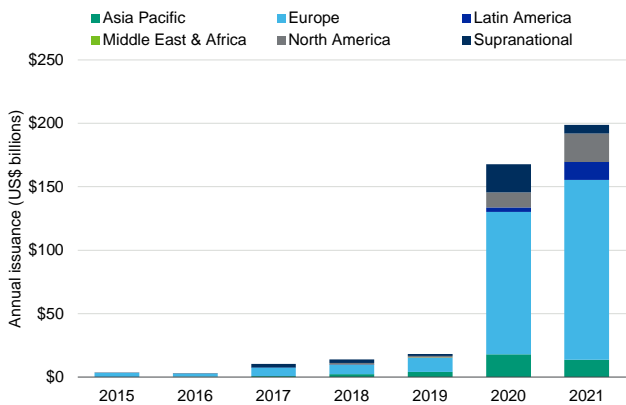
Asia-Pacific and North American issuers followed Europe with 22% and 18% of global issuance, respectively, in 2021. Latin America, the Middle East and Africa have been fairly small contributors to green bond volumes to date, with a combined \$8.4 billion in 2021 accounting for just 2% of the global market. Supranationals contributed 3% of global green bond issuance in 2021, a reduction from their 5% share in 2020.

Nonfinancial corporates held a leading share of green bond issuance in 2021, with issuance of \$223 billion representing 43% of the global total (see Figure 4). However, green bond issuance remains diverse, with meaningful participation from financial institutions (19%), sovereigns (17%), agencies (11%), municipal issuers (7%) and supranationals (3%). We expect continued diversity and growth across all segments as the green bond market continues to mature and become a viable option for issuers across all sectors.

Social bond volumes to decline 25% to \$150 billion as largest issuers wind down pandemic-related issuance

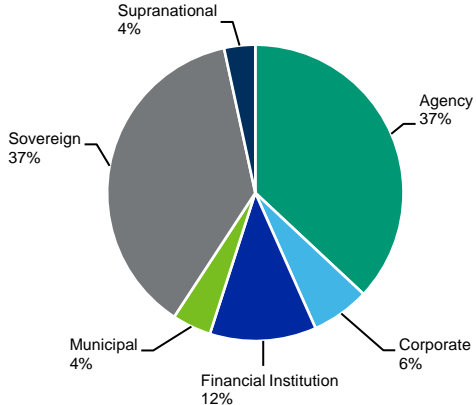
Driven in large part by the need to finance COVID-19 pandemic-related response efforts, social bonds surged to \$199 billion in 2021, up 19% from the \$168 billion issued in 2020 (see Figure 5). After totaling \$146 billion through the first half of the year, social bond volumes totaled just \$53 billion in the second half of 2021 as pandemic-related financings began to wind down. Social bonds were heavily concentrated among issuers responding to the pandemic, as highlighted by 57% of global volumes in 2021 coming from just three issuers – the EU and French public finance agencies Caisse d'Amortissement de la Dette Sociale (CADES) and UNEDIC. Given this market concentration and the decline of pandemic-driven social bonds, we believe social bond volumes will fall approximately 25% to \$150 billion in 2022, even as social issues remain top of mind for many investors and market participants.

Figure 5 Social bond volumes remained elevated in 2021 as pandemic-related financings continued



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

Figure 6 Share of 2021 global social bond issuance by issuer type



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

Given last year's issuer concentration, social bonds remain less diverse than the more mature green bond market. European issuers accounted for a leading 71% of issuance during the year, while agencies and sovereigns represented almost three quarters of the total from a sectoral perspective (see Figure 6). We expect social bonds to continue to be a fixture in the sustainable bond market as issuers increasingly focus on a wide array of social issues, including equitable access to healthcare and housing. In 2022 and beyond, social issues will remain an important consideration for issuers and investors alike, contributing to not only social bond issuance, but also the more explicit consideration of social factors in other sustainable debt instruments. For more information, see the section on social financing later in this report.

⁴ See [NextGenerationEU Green Bonds](#), European Commission.

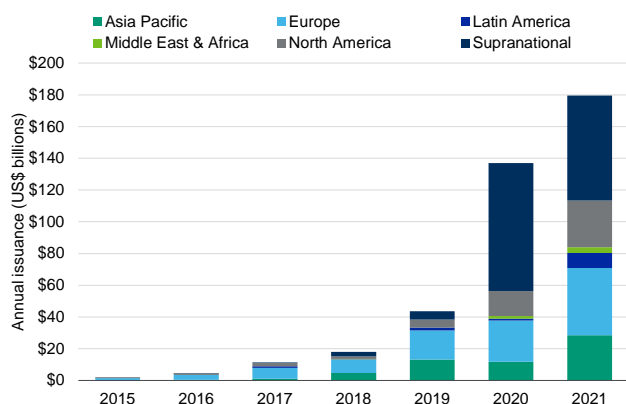
Sustainability bonds to climb to \$225 billion in 2022 with greater focus on the interplay of green and social use of proceeds

Sustainability bond volumes continued to grow in 2021, with issuance of \$179 billion, up 31% from the \$137 billion issued in 2020 (see Figure 7). A greater focus on broad corporate sustainability and stakeholder capitalism will continue to support growth in sustainability bonds over time, with increasing participation from financial and nonfinancial corporates seeking to highlight both the environmental and social aspects of their sustainability plans. These forces contribute to our forecast of 25% growth in sustainability bonds this year to \$225 billion, which assumes that growth rates will gradually come down over time as the market matures.

From a regional standpoint, supranationals and European issuers led sustainability bond issuance in 2021, accounting for a combined 60% of global issuance. Supranational issuance of \$66 billion, which accounted for 37% of global issuance, was led by the International Bank for Reconstruction and Development (IBRD, or World Bank) which issued over \$37 billion of sustainability bonds in 2022 alone. Nevertheless, the market was more diverse regionally than in 2020, when supranational issuers led with 59% of issuance. North American and Asia Pacific issuers each accounted for 16% of the global sustainability bond market in 2021 as the volumes in those regions grew by 88% and 143%, respectively. Latin American issuers followed with 5% of global issuance in 2021, with issuers from the Middle East and Africa accounting for the remaining 2%.

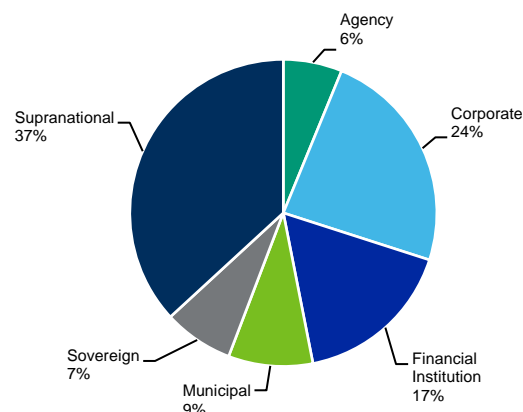
There was also greater diversity in sustainability bond issuance in terms of issuer type in 2021, when a broader array of issuers came to market. Nonfinancial and financial corporates followed supranationals with 24% and 17% market share, respectively, as both segments of the market experienced strong growth in 2021 (see Figure 8). Nonfinancial corporate issuance rose 147% to \$43 billion, while financial institution issuance rose 121% to \$30 billion. For example, [Merck & Co., Inc.](#) issued a \$1 billion offering in December to finance seven environmental and social project categories, including access to essential services, socioeconomic advancement and empowerment, renewable energy, green buildings and other categories. We expect an increasing array of issuers from across these segments to come to market over time as they seek to finance broader packages of eligible environmental and social projects.

Figure 7 Sustainability bond issuance hit record issuance peak yet again in 2021



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

Figure 8 Share of 2021 global sustainability bond issuance by issuer type



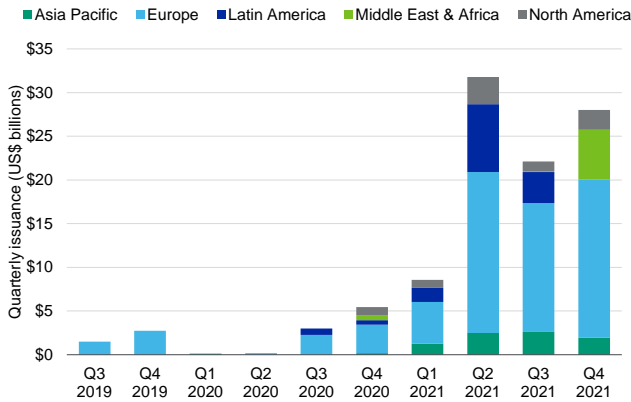
Sources: Moody's ESG Solutions and Environmental Finance Bond Database

Sustainability-linked bond volumes to double in 2022, but market challenges on credibility to temper growth

Beyond the continued growth of the use-of-proceeds sustainable bond markets, we expect issuer attention on sustainability-linked bonds (SLBs) will also rise. As investors have increasingly focused on issuers' overall environmental, social and governance (ESG) credentials and how their bond financings align with their sustainability objectives, issuers have begun to turn to sustainability-linked instruments to appeal to investors while maintaining the flexibility of general corporate purposes borrowing. This focus has contributed to the rapid rise of SLBs, which grew to \$90 billion globally in 2021 from a mere \$9 billion in 2020 (see Figure 9). Volumes were particularly strong after the first quarter of the year, averaging \$27 billion per quarter over the second, third and fourth quarters of 2021. Notable examples include approximately \$12 billion of SLBs from [Enel S.p.A.](#) throughout 2021, and €3 billion of SLBs issued across three tranches by [ASTM S.p.A.](#) in November.

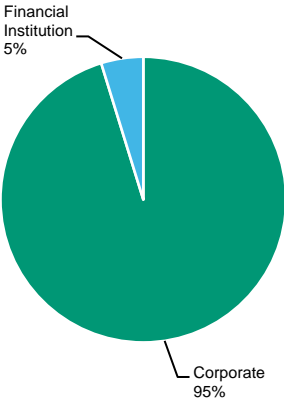
SLBs have been primarily favored by nonfinancial corporates to date, with this segment accounting for 95% of global issuance in 2021 (see Figure 10). Similar to other types of sustainable debt, European issuers have been the main drivers of the market, accounting for 62% of volumes last year. While the market is largely concentrated among European corporates today, we expect other types of issuers – such as sovereigns⁵ – may explore SLBs in 2022 and beyond.

Figure 9 Sustainability-linked bond issuance surged in 2021 as European issuers led market



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

Figure 10 Share of 2021 global sustainability-linked bond issuance by issuer type



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

The advent of SLBs has also opened the sustainable debt markets to a broader array of issuers, including those with limited eligible green and social projects for a benchmark use of proceeds bond, as well as those in sectors in earlier stages of transition such as steel, cement, aviation and shipping. Issuers in these transition sectors are increasingly focused on achieving net zero strategies and responding to the economic and financial pressures of carbon transition risk. However, investor scrutiny on the credibility of targets and the robustness of key performance indicators (KPIs) and sustainability performance targets (SPTs) embedded in SLBs has ramped up in parallel – as discussed in more detail in the next section of this report. This scrutiny may provide a headwind for the SLB market in 2022, representing a downside risk to our baseline expectations.

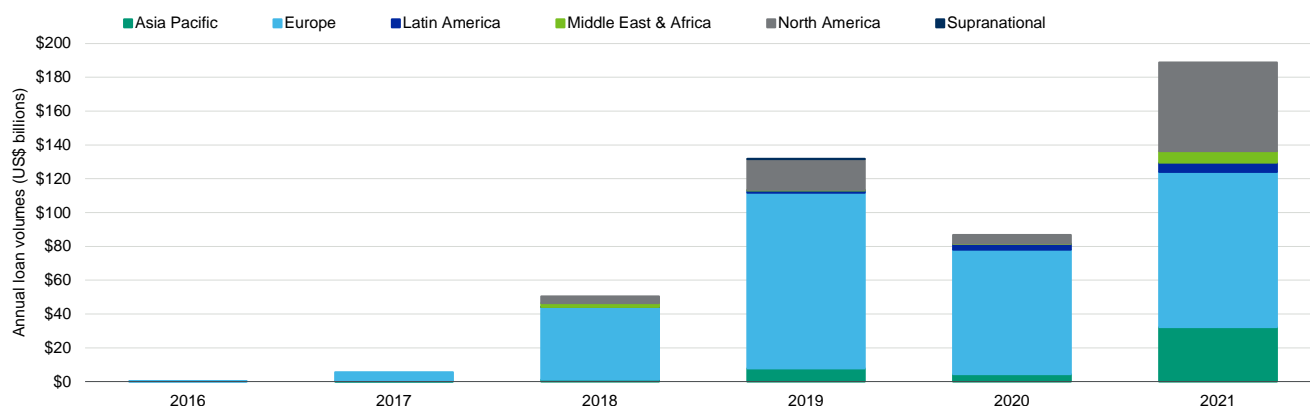
The loan market has seen a similar shift towards sustainability-linked structures, with sustainability-linked loan (SLL) volumes totaling \$189 billion in 2021, up 118% from 2020 (see Figure 11).⁶ While these volumes likely overstate the actual amount of debt outstanding – given that these volumes also reflect the full potential value of a revolving credit facility for some instruments – the significant rise in market attention is clear. Corporates across the globe are increasingly replacing old loan facilities with new ones linked to sustainability targets that can typically trigger an increase or decrease in interest rates based on to what extent these targets are achieved. The linking of loan pricing to sustainability goals will continue as lenders aim to incentivize improvements in sustainability performance and borrowers seek to highlight their sustainability goals while lowering their borrowing costs.

⁵ See [Striking the Right Note: Key Performance Indicators for Sovereign Sustainability-Linked Bonds](#), World Bank, January 2022.

⁶ Sustainability-linked loan volumes are excluded from our forecasts for sustainable (GSSS) bond issuance.

Figure 11 Sustainability-linked loan volumes hit record \$189 billion in 2021

Annual volumes of sustainability-linked loans, US\$ billions



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

Scrutiny of SLB targets and net zero commitments to accelerate as transition financing grows

Carbon transition risk is rising in importance, with changing economics, shifting policies and heightened investor attention leading to calls for detailed and credible corporate transition plans for the most impacted sectors. For example, the Intergovernmental Panel on Climate Change's (IPCC) sixth assessment report released last August called for a "rapid and far-reaching" transition to net zero emissions in land, energy, industry, buildings, transport and cities by 2050.⁷

This urgent need for rapid transition is driving heightened focus from the financial sector, as evidenced by the launch of the United Nations Glasgow Financial Alliance for Net Zero (GFANZ) – a group of investors, banks and insurers controlling \$130 trillion in assets that have pledged that their investments will hit net zero emissions targets by 2050.⁸ With heightened investor and regulatory pressure, as well as expectations for rising carbon prices,⁹ issuers are beginning to accelerate their transition plans and increasingly target net zero strategies. As of the end of 2021, for example, country net zero targets between 2050 and 2070 cover nearly 90% of global emissions, including the four largest emitters – China, the US, EU and India.¹⁰

With the growing number of net zero commitments by governments, companies and financial institutions comes a growing need for transparency on what these commitments mean in practice and what interim steps will be taken to achieve net zero. [Research based on Moody's ESG Solutions Temperature Alignment Dataset](#), covering roughly 4,400 large companies, finds that 42% of assessed companies have set emissions targets in some form, but only 17% refer to "net zero." Globally, only 3% of assessed companies are aligned with a future of net zero by 2050 based on their emissions reduction targets. Moreover, the average temperature rise across the assessment universe is 2.9°C, well above the global ambition to keep warming below 1.5°C. This demonstrates the need for increased corporate ambition alongside continued efforts to unpack the implications of existing corporate commitments.

In response to this heightened focus on carbon transition risks and increasing net zero commitments, many issuers across a wide array of sectors are increasingly turning to sustainability-linked bonds to finance their transition plans. For example, [NRG Energy](#) has issued SLBs with the targets linked to reduction in its carbon emissions, consistent with its long-term carbon emission reduction targets that were certified by the Science Based Targets initiative (SBTi) to be aligned with a 2°C scenario. Although still relatively early days for the SLB market, there has already been a diverse group of issuers from a wide array of sectors coming to market, as observed in Figure 12. Most of these issuers are opting to include carbon emission reduction targets as the KPIs for their SLB transactions.

⁷ See [IPCC's use of latest generation models will help better assess real-world impact of climate change](#), Moody's ESG Solutions, September 2021.

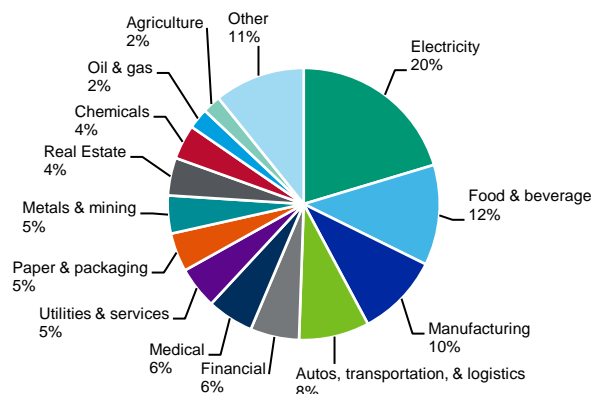
⁸ See [Global finance industry says it has \\$130 trillion to invest in efforts to tackle climate change](#), New York Times, November 2021.

⁹ See [EU carbon prices expected to surpass €130 before year end](#), Environmental Finance, January 2022.

¹⁰ For more information, see [Net Zero Tracker](#).

Figure 12 Wide variety of issuers participating in the early days of the SLB market

% share of total global sustainability-linked bond volumes by sector, 2021



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

Given this issuer focus on decarbonization targets within their sustainable bond transactions, coupled with the fact that relatively few companies are demonstrating net zero-aligned targets today, investors are increasingly scrutinizing SLBs to combat the potential for greenwashing. Although the SLB market is still in its infancy, the rapid growth and development witnessed in recent months have raised concerns about a perceived lack of ambition of sustainability performance targets – particularly within sectors that face enduring ESG challenges, such as those with carbon-intensive operations.

As we have previously remarked, issuers will need to clearly articulate the robustness of SPTs embedded within SLBs and SLLs to instill confidence amongst creditors and lenders.¹¹ This will become increasingly important as the market reaches critical mass that allows for inter- and intra-sector comparisons. Interim goals, historical performance, science-based criteria, transparency on scope and coverage and limited reliance on offsets are all factors that can strengthen the credibility of targets.

In particular, issuers will need to ensure that their KPIs are relevant and cover the lion's share of their footprint with respect to selected KPIs. For companies using KPIs focused on carbon emissions, for example, excluding scope 3 emissions from the scope of their targets – when scope 3 emissions are a significant share of a company's overall carbon footprint – could result in the targets lacking the necessary coverage to credibly decarbonize the company's operations. To account for this challenge, we enhanced our Second Party Opinion approach in September to explicitly quantify the scope of selected KPIs in addressing an entity's core sustainability and business strategy and addressing relevant sector ESG challenges.¹²

Social issues to remain top of mind despite fewer pandemic-related issuances

While pandemic-driven issuance of social bonds has begun to recede, investor appetite to generate positive social impact will support increasing innovation in labeled social financing, including diversification of issuers, project types, and bond structures. Investors will also respond to evolving regulatory developments, such as the implementation of the Sustainable Finance Disclosure Regulation (SFDR)¹³ and the prospective creation of social taxonomies, such as in the EU,¹⁴ which will necessitate better identification and measurement of social risk exposures and impacts. Issuers are also aiming to mitigate operational and reputational risks from structural social exposures, a key feature of the market that will persist in a post-pandemic world and support continued social bond issuance.

Social bond proceeds can be used for a wide variety of purposes, making the market a potentially significant force for effecting positive social change. Under the International Capital Market Association's (ICMA) Social Bond Principles (SBP), eligible social projects address or mitigate specific social issues and/or seek to achieve positive social outcomes for a number of target populations, such as those living below the poverty line, undereducated or underserved persons, women and/or sexual and gender

¹¹ See [Credible targets and structures key to long-term growth of sustainability-linked bonds](#), Moody's ESG Solutions, May 2021.

¹² See [A materiality lens is key to assessing the credentials of sustainability-linked debt instruments](#), Moody's ESG Solutions, October 2021.

¹³ See [Regulation on sustainability-related disclosure in the financial services sector](#), European Commission.

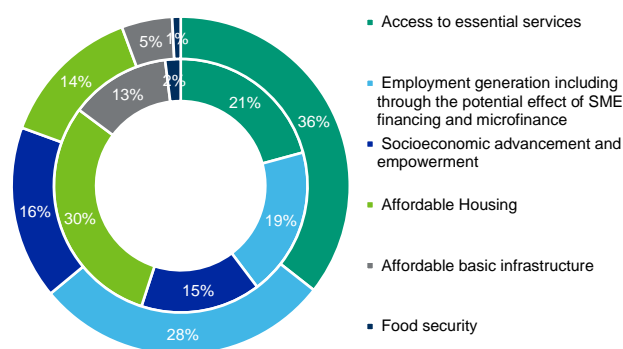
¹⁴ See [Draft Report by Subgroup 4: Social Taxonomy](#), Platform on Sustainable Finance, European Commission, July 2021.

minorities and other vulnerable groups.¹⁵ Eligible social bond project categories include affordable basic infrastructure, access to essential services, affordable housing, employment generation, food security and sustainable food systems, and socioeconomic advancement and empowerment. The SBP have been updated over time to include a broader array of eligible project categories and target populations, and ICMA provided specific guidance on social bonds for COVID-19 pandemic relief.¹⁶

Relief efforts during the pandemic and post-pandemic spending plans had led to an increase in social bonds focused on addressing high unemployment and unequal access to healthcare, predominantly from public sector issuers and development agencies. Such transactions include the EU's €100 billion SURE social bond program launched in October 2020 to protect employment.¹⁷ In fact, 81% of social bond proceeds during 2020-21 went to one of three categories – access to essential services, employment generation and socioeconomic advancement and empowerment – compared with just 55% during 2014-19 (see Figure 13).

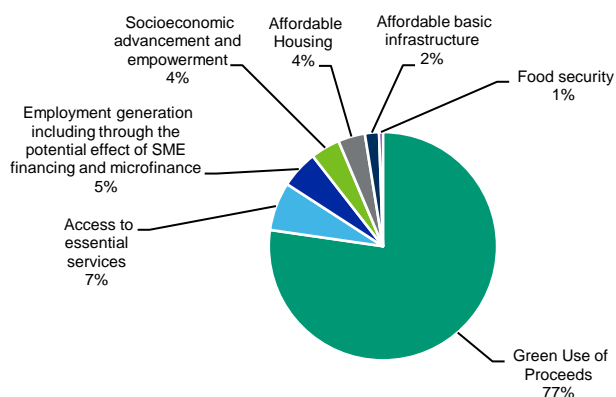
While the focus on responding to the pandemic has led to some concentration in the deployment of social bond programs during the past couple years, the focus on social financing is having a broader impact on the deployment of proceeds in the GSSS bond market. During 2014-21, for example, nearly a quarter of all GSSS bond proceeds were allocated to social-focused categories, including access to essential services, employment generation, socioeconomic advancement and empowerment, affordable housing, food security and affordable basic infrastructure (see Figure 14). We anticipate a wider array of social categories will be financed by sustainable bonds citing both social and green projects over time, especially as the types of projects financed with social outcomes diversify in the future.

Figure 13 Social bond use of proceeds by eligible category, 2014-19 (inner ring) and 2020-21 (outer ring)



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

Figure 14 GSSS bond issuance by use of proceeds category, 2014-21



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

We see opportunities for proceeds innovation and diversification in the areas of social justice, equality and inclusion, which continue to rise up the agenda for investors, businesses and governments. We anticipate in 2022 that there will be a growing number of social bonds with proceeds focused on empowerment of marginalized groups and communities, as societal focus on the importance of these issues grows. In September 2021, for example, Japan International Cooperation Agency became one of the first public development banks to issue gender-focused social bonds.¹⁸ And in October 2021, Citigroup issued a \$1 billion Citi Social Finance Bond with proceeds earmarked for the expansion of access to financial services, affordable housing, healthcare and education in support of its \$1 trillion sustainable finance commitment by 2030.¹⁹ We anticipate such transactions will continue in the future as governments and corporations seek to address racial, gender, economic and other inequalities via projects financed through labeled bonds.

We also anticipate continued diversification in labels and structures this year. While we do not expect the strong growth observed in the labeled social bond market last year to continue into 2022, other sustainable debt instruments such as use-of-proceeds sustainability bonds and sustainability-linked bonds will continue to grow this year and increasingly incorporate the heightened

¹⁵ See [Social Bond Principles \(SBP\)](#), International Capital Market Association.

¹⁶ See section 6 of [Guidance Handbook](#), International Capital Market Association, June 2021.

¹⁷ See [European Commission to issue EU SURE bonds of up to €100 billion as social bonds](#), European Commission, October 2020.

¹⁸ See [ICA Launches JPY 20 Billion Gender Bonds \(Non-Guaranteed Domestic Bonds\) in Two Tranches](#), JICA, September 2021.

¹⁹ See [Citi Announces \\$1 Billion Social Finance Bond Offering to Advance Social Initiatives Globally](#), Citigroup Inc., October 2021.

market focus on social issues. Social issues are also often explicitly referenced in issuers' green bond frameworks. For some issuers with broader funding needs or a shortage of social projects to issue a benchmark-size social bond, other labels or structures may give issuers an alternative path to market. We expect this trend will continue into 2022 as there is growing recognition of the complex interplay between social and environmental objectives that will be critical in realizing the pathway to a net-zero global economy. This will require significant attention – and financing – to deliver a just transition for the most affected workers and communities.²⁰

Sustainable finance taxonomy development to accelerate, but potential fragmentation poses risks to market growth

The development of sustainable finance taxonomies and standards will continue to progress in 2022 and play an increasingly important role in defining what constitutes a sustainable investment. Taxonomies include official sector taxonomies – such as the EU's sustainable finance taxonomy and China's green bond catalogues – as well market-based taxonomies – such as the Climate Bond Initiative's taxonomy and the International Organization for Standardization's (ISO) forthcoming green taxonomy. They have been instrumental in helping to define with more granularity whether investments can be considered green or sustainable.²¹ While the sustainable debt markets have to date managed to grow to new heights annually on the back of largely market-driven best practices, investors and other market participants are increasingly calling for clearer definitions on what constitutes credible investments as the reach and impact of the sustainable debt markets continue to grow.

To this end, the formulation of sustainable finance taxonomies will play an increasingly important role in the reorientation of capital to sustainable activities. The EU taxonomy, for example, will form the basis for the labeling of green investment funds, the classification of companies' economic activities as sustainable and the certification of green bonds issued under a proposed EU Green Bond Standard.

The evolving nature of taxonomies poses one challenge for investors, as does the potential fragmentation of taxonomies across different regions. As an increasing number of governments – such as Canada, Singapore and the UK – forge ahead with creating their own taxonomies, the potential for different definitions of what constitutes green or sustainable investments by region will emerge.

Furthermore, the details embedded in taxonomies – such as eligibility thresholds and criteria, social safeguards and exclusion principles (for instance, “Do No Significant Harm” provisions) – will have significant implications for how the influence of taxonomies evolve. This is of particular significance for the financing of transition activities, where global consensus is often lacking, as evidenced by the market response to the EU's recent efforts to broaden its taxonomy to include certain nuclear and gas activities as sustainable.²² This could pose a significant challenge for investors that are aiming to build portfolios with a consistent and comparable approach globally. Many regions are still at the exploratory or very early stages of their taxonomy development, adding an additional complication for investors and other market participants aiming to explicitly link their strategies to these taxonomies.

Some efforts to harmonize global taxonomy work have begun to emerge. For example, the International Platform on Sustainable Finance (IPSF)'s Common Ground Taxonomy project seeks to identify commonalities and differences among the taxonomies developed by the EU and China.²³ While the Common Ground Taxonomy is not a legal document and does not aim to represent a single global standard, it is an important first step in considering comparability and interoperability of global existing taxonomies. Although it remains relatively limited in scope at this juncture, continued evolution and expansion of the work to other regions could play a meaningful part in the work to scale green and sustainable finance activities globally.

Overall, it remains too early to tell exactly what impact taxonomy development across multiple jurisdictions will have on the current trajectory of sustainable bond issuance. While clearer definition of which activities are compatible with a sustainable future will likely ease the burden of investors in identifying compliant investment options, the uncertain nature of taxonomy usability may limit their uptake. Furthermore, inconsistencies between taxonomies or investor challenges to certain taxonomy provisions

²⁰ See [Rising focus on just transition will raise risks for most exposed companies](#), Moody's ESG Solutions, December 2021.

²¹ For more information on the various sustainable finance taxonomies, see, for example, International Capital Market Association, [Overview and Recommendations for Sustainable Finance Taxonomies](#), May 2021, and Natixis, [The New Geography of Taxonomies](#), November 2021.

²² See [EU Taxonomy inclusion of natural gas and nuclear activities](#), Moody's ESG Solutions, January 2022.

²³ See [International Platform on Sustainable Finance](#), European Commission.

may also provide material challenges. The linking of sustainable bond standards to such taxonomies, such as is the aim in the EU, for example, could therefore prove difficult for issuers aiming to issue bonds under such standards.

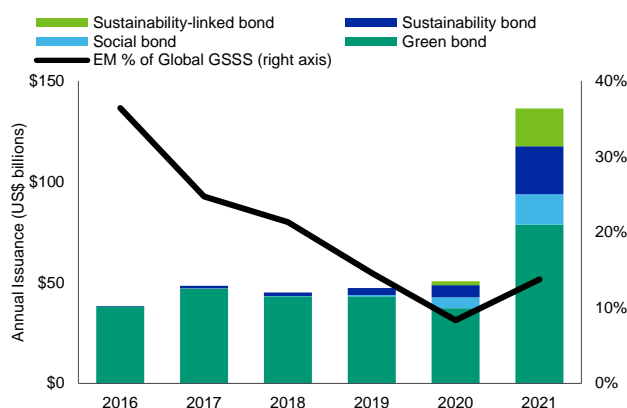
Emerging market sustainable debt volumes to shine following breakout 2021

Following five years of relative stagnation, sustainable bond volumes from emerging market (EM) issuers surged during 2021. EM GSSS bond issuance (excluding supranational issuance) totaled \$136 billion for the full year, more than double the previous record \$51 billion issued in 2020 (see Figure 15). Green bond issuance by EM issuers totaled \$79 billion, while social bonds and sustainability bonds rose to \$15 billion and \$24 billion, respectively. SLBs emerged as an instrument of choice for many EM issuers, climbing to \$19 billion in 2021 from just under \$2 billion in 2020. EM volumes accounted for 14% of global GSSS bonds, a noticeable increase following four straight years of declining share of overall GSSS bond issuance, but still a relatively small portion of the global market.

Increased volumes from established countries, such as China, and more untapped markets across the globe drove EM issuance in 2021 (see Figure 16). Chinese GSSS bond issuance – historically the primary driver of EM issuance – rose markedly to \$63 billion in 2021 from just \$19 billion the previous year. Full-year volumes easily eclipsed the previous record \$39 billion of Chinese GSSS bond issuance in 2018. Chinese issuance represented 46% of total EM volumes in 2021, an increase from 2020 but still well below the country's share of EM issuance during 2016-19. This reflects a steady diversification into other emerging markets. Latin American GSSS bond issuance, for example, jumped to \$43 billion in 2021 from just \$13 billion in 2020.

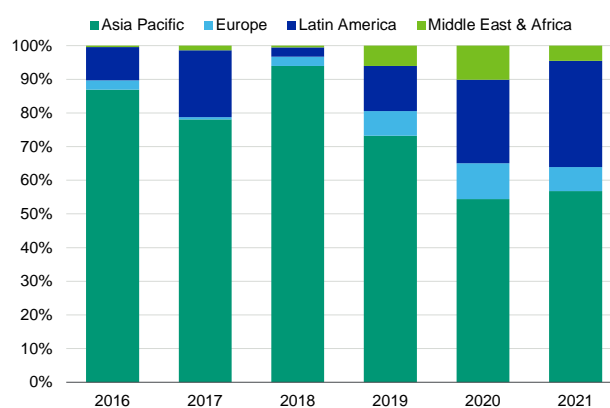
Among EM sustainable bonds, we expect green bonds will remain the largest contributor to issuance over the next few years, similar to the broader sustainable bond market. However, other sustainable bond types have begun to flourish in emerging markets over the past two years, and we anticipate this trend will continue as EM issuers increasingly contemplate the financing of a broader array of environmental and social projects. The breakout in sustainability-linked bond issuance observed in 2021 will also likely continue given the challenges that some EM issuers face in having sufficient eligible environmental or social projects to support benchmark use-of-proceeds sustainable bonds. EM SLB issuers will likely face the same scrutiny as their developed market peers with respect to the robustness of targets they select for their KPIs and SPTs.

Figure 15 Emerging market sustainable bond issuance surged in 2021 following years of stagnation



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

Figure 16 Regional share of emerging market GSSS bond issuance, 2016-21



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

COP26 has provided renewed momentum towards achieving the Paris Agreement commitment of mobilizing \$100 billion in annual climate financing from developed to developing economies. Latest data suggest that this level of financing has so far failed to materialize, with developed countries provided around \$80 billion to developing countries in 2019.²⁴ However, according to the UK COP26 presidency, developed countries will make significant progress towards the \$100 billion goal in 2022, and will meet the target in 2023.²⁵ Financing for developing economies is of paramount importance. They tend to be more highly exposed to the

²⁴ See [Climate Finance Provided and Mobilised by Developed Countries: Aggregate Trends Updated with 2019 Data](#), OECD, September 2021.

²⁵ See [UK COP26 Presidency publishes Climate Finance Delivery Plan led by German State Secretary Flasbarth and Canada's Minister Wilkinson ahead of COP26](#), UK Government, October 2021.

physical effects of climate risk.²⁶ Furthermore, their ability to secure market financing can be constrained by shallow local markets, greater perceived country and regulatory risk and – in more recent times – weaker credit profiles due to the economic and financial fallout from the coronavirus crisis.²⁷

Even if the \$100 billion annual milestone is achieved, this would only represent a tiny fraction of investment needed to meet low-carbon infrastructure needs in developing economies. According to the IEA, 70% of the \$4 trillion in investment required to reach net zero must flow into emerging markets and developing economies.²⁸ EM sustainable debt markets can help bridge this funding gap, although investing in capacity building, creating robust investable pipelines, and de-risking projects via blended finance mechanisms will be critical enablers.²⁹ Against this backdrop, a continuation of last year's robust expansion in EM sustainable bond issuance in 2022 and beyond looks assured.

Climate adaptation financing to increase as physical climate hazards intensify

The past seven years were the seven warmest on record,³⁰ with devastating impacts globally ranging from record-setting wildfires and heat waves to deadly floods and hurricanes. In the near term we will continue to experience extreme climate-driven events due to carbon already in the atmosphere. Resulting physical climate risk hazards such as heat stress, water stress, floods, sea level rise, hurricanes/typhoons and wildfires are not only devastating to economies, but also communities. These risks point to an urgent need for investment in climate adaptation and resilience.

Intensifying physical climate hazards risks will lead to significant challenges to actors across the financial, corporate and public sectors. Investors and lenders are primarily exposed to climate risk through the entities in their portfolios. Companies, meanwhile, will primarily face risk driven by the location of their operations and whether or not manufacturing plants, storage facilities, data centers and other assets are exposed to damage and disruption from climate hazards. Governments will face risks driven by the location of their population as well as the sectors that contribute to their economies. For example, based on Moody's ESG Solutions Sovereign Climate Risk dataset, approximately \$41 trillion of the world's GDP and over 2.4 billion people are projected to be highly exposed to heat stress by 2030-2040.³¹

While decarbonizing the global economy will inevitably remain a primary focus for these entities given the urgent climate mitigation imperative, there is also a growing need to prepare economies and communities for increasing climate extremes. Indeed, the first part of the IPCC sixth assessment report underscores the reality that the physical effects of climate change are largely locked in over the next few decades, with the effects likely to be more severe and far-reaching than previously assumed.³² Two reports that the IPCC is scheduled to publish in 2022 – one about the economic effects of climate change and the other about best practices to mitigate these risks – are likely to reinforce the focus on physical climate risk.³³ Actors across the financial, corporate and governmental sector will therefore increasingly need to grapple with funding projects for adaptation and resilience purposes, with the sustainable debt markets a potential avenue for this financing.

To date, sustainable bond proceeds allocated to adaptation and resilience projects have been limited. In 2021, for example, only 3% of green bond proceeds were allocated to climate change adaptation projects, with most proceeds going to climate mitigation categories such as renewable energy, green buildings, clean transportation and energy efficiency (see Figure 17). Elevated risk exposure brings the need to invest in resilience, which presents financing opportunities, suggesting that this issuance share will grow over time as the green bond market matures and diversifies. We expect this trend will particularly be led by sovereigns and other public finance entities with a broader social mandate and at the forefront of combating the effects of climate change.

²⁶ See [Measuring What Matters: A New Approach to Assessing Sovereign Climate Risk](#), Four Twenty Seven, December 2020. Four Twenty Seven is now part of Moody's ESG Solutions.

²⁷ See [Global Emerging Markets Chartbook](#), Moody's Investors Service, May 2021.

²⁸ See [World Energy Outlook 2021 shows a new energy economy is emerging – but not yet quickly enough to reach net zero by 2050](#), International Energy Agency, October 2021.

²⁹ While there is no universally agreed definition of "blended finance", it refers to transactions using capital with a development mandate alongside commercial finance (that is "blended") to improve the risk-return profile of sustainable development related investments.

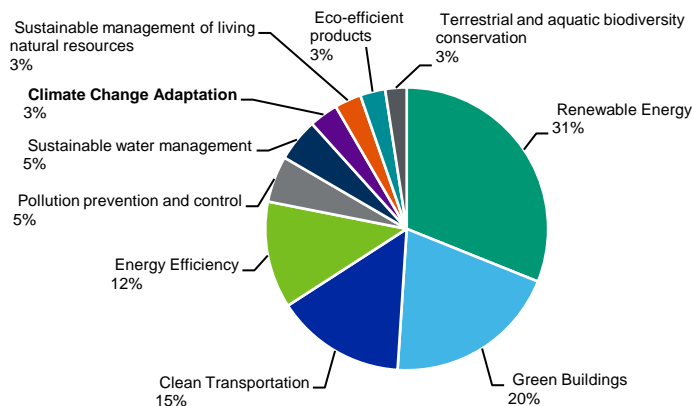
³⁰ See [Global Temperature Report for 2021](#), Berkeley Earth, January 2022.

³¹ Moody's ESG Solutions' Sovereign Climate Risk dataset provides a detailed view of 200 countries' exposure to physical climate risk by projecting the future exposure of the population, economy and agriculture to a range of physical climate hazards. For more information please see [Moody's ESG Solutions: Climate Solutions: Sovereign and Sub-Sovereign Data](#).

³² See [AR6 Climate Change 2021: The Physical Science Basis](#), Intergovernmental Panel on Climate Change, August 2021.

³³ See [IPCC circulates final draft of Working Group II report to governments for comment](#), Intergovernmental Panel on Climate Change, October 2021.

Figure 17 2021 green bond issuance share by use of proceeds category, % total



Sources: Moody's ESG Solutions and Environmental Finance Bond Database

The lack of predictable long-term cashflows generated from adaptation projects is one of the reasons growth and development in this area has been stymied. One group addressing this challenge is the Coalition for Climate Resilient Investment, a private sector initiative committed to building climate resilience by promoting an efficient integration of physical climate risks into investment decision-making.³⁴ The coalition will develop tools to help sovereigns and municipalities prioritize resilience investments within infrastructure portfolios, create a framework to integrate physical climate risk considerations into asset design and cash flow modeling, and create innovative capital market instruments combining insurance and credit risk to reward projects that integrate climate resilience into their design. We anticipate such innovative approaches to financing adaptation and resilience will flourish as the need to finance such activities continues to grow.

³⁴ In October 2021, Moody's joined 95 other members in the CCRI, including lenders, institutional investors, insurance, engineering & construction, governments, NGOs and others.

Appendix

Sustainable debt instruments defined

Throughout this report, we refer to a variety of sustainable debt instruments. These include: use-of-proceeds green bonds, social bonds and sustainability bonds, whose proceeds are typically earmarked to finance specific eligible environmental and/or social projects; and sustainability-linked instruments, whose proceeds can typically be used for general corporate purposes but whose interest rates are tied to the achievement of various sustainability targets. These instruments include:

- » **Green bonds:** Bonds where the proceeds will be exclusively applied to finance or refinance new and/or existing eligible green projects, such as renewable energy, energy efficiency, clean transportation, sustainable water management and green buildings. Typically issued in accordance with the [Green Bond Principles](#).
- » **Social bonds:** Bonds where the proceeds will be exclusively applied to finance or refinance new and/or existing eligible social projects, such as affordable basic infrastructure, access to essential services, affordable housing and food security. Typically issued in accordance with the [Social Bond Principles](#).
- » **Sustainability bonds:** Bonds where the proceeds will be exclusively applied to finance or refinance a combination of new and/or existing eligible green and social projects. Typically issued in accordance with the [Sustainability Bond Guidelines](#).
- » **Sustainability-linked bonds:** Bonds that incentivize the issuer's achievement of material, quantitative, predetermined, ambitious, regularly monitored and externally verified sustainability objectives through Key Performance Indicators and Sustainability Performance Targets. Typically issued in accordance with the [Sustainability-Linked Bond Principles](#).
- » **Sustainability-linked loans:** Loan instruments and/or contingent facilities that incentivize the borrower's achievement of predetermined sustainability performance objectives. Typically issued in accordance with the [Sustainability-Linked Loan Principles](#).

Note on our sources

Our primary source for sustainable debt data throughout this report is the [Environmental Finance Bond Database](#), with such data referenced in this report downloaded as of 20 January 2022 for bonds and 18 January 2022 for loans.

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