

Confidence  
must be earned

**Amundi**  
ASSET MANAGEMENT



**IFC**

**International  
Finance Corporation**  
WORLD BANK GROUP

*Creating Markets, Creating Opportunities*

Riding the Green Wave

# Emerging Market Green Bonds Report 2021

June 2022

This document is for the exclusive attention of professional investors,  
investment service providers, and other professionals in the financial industry.

Amundi Asset Management (Amundi) and International Finance Corporation (IFC) produced this report.  
All trademarks and logos belong to their respective owners.

#### Copyright; Disclaimers

© 2022 Amundi Asset Management and International Finance Corporation. All rights reserved.

Amundi and IFC agree that the copyright and all related intellectual property rights in the materials in this Report are jointly owned by them. Copying and/or transmitting portions or all of these materials without permission may be a violation of applicable law. Amundi and IFC each encourages dissemination of its materials and will ordinarily grant permission to reproduce portions of the materials promptly for non-commercial or educational uses without a fee, subject to such attributions and notices as may be required. Any other use of the materials shall require the joint agreement of Amundi and IFC.

Neither Amundi nor IFC guarantees the accuracy, reliability or completeness of the content included in the materials, or for the conclusions or judgments described herein, and accepts no responsibility or liability for any omissions or errors (including without limitation any typographical or technical errors) in the content whatsoever or for reliance thereon.

The contents of the materials herein are intended for general informational purposes only and are not intended to constitute legal or securities or investment advice. Amundi and IFC and its affiliates may have an investment in, provide other advice or services to, or otherwise have a financial interest in certain of the entities referred to in these materials.

The boundaries, colors, denominations and other information shown on any map in this document do not imply any judgment on the part of IFC or the World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

All queries on rights and licenses, including subsidiary rights, should be addressed to IFC's Corporate Relations Department at 2121 Pennsylvania Avenue, N.W., Washington, DC 20433, U.S.A.

IFC is an international organization established by Articles of Agreement among its member countries, and it is a member of the World Bank Group. All names, logos and trademarks are the property of IFC, and you may not use any of such materials for any purpose without the express written consent of IFC. Additionally, "International Finance Corporation" and "IFC" are registered trademarks of IFC and are protected under international law. Any queries on rights and licenses, including subsidiary rights, pertaining to IFC should be addressed to IFC Communications, 2121 Pennsylvania Avenue, N.W., Washington, DC, 20433.

All other queries should be directed to Amundi. Amundi Asset Management, French "Société par Actions Simplifiée" - SAS with share capital of €1,086,262,605 - Portfolio Management Company licensed by the AMF (French securities regulator) under no. GP 04000036 Registered office: 90 boulevard Pasteur - 75015 Paris - France - 437 574 452 RCS Paris. Website: [www.amundi.com](http://www.amundi.com).

Photo credit: iStock by Getty Images.

## KEY HIGHLIGHTS

### Highlights for 2021



**US\$95 billion**  
emerging market green bond issuances  
in 2021



**58%**  
increase in emerging market ex-China  
green bond issuances from 2020



**US\$323 billion**  
emerging market green bonds cumulative  
issuance through 2021



**US\$64 billion**  
emerging market social, sustainability, and  
sustainability-linked bond issuances in 2021



**US\$150 billion**  
projected annual emerging market  
green bond issuance by 2023



**50**  
emerging markets have issued  
green bonds since 2012



**7**  
emerging markets with debut  
green offerings in 2021



**77**  
basis points outperformance  
of emerging market green bonds

## TABLE OF CONTENTS

Foreword .....	5
Executive Summary .....	7
Section 1: Introduction .....	8
Section 2: Market Analysis and Outlook .....	10
• State of the Market 2021 .....	10
• Market Performance .....	19
• Market Outlook .....	23
Section 3: Focus on Financing Climate Adaptation .....	28
Section 4: Recent Global Initiatives and Implications for Emerging Market and Developing Economies .....	32
Section 5: Greening Debt Restructuring .....	37
Notes .....	41

## FOREWORD



**Yerlan Syzdykov**  
Global Head of Emerging  
Markets, Amundi



**Susan Lund**  
Vice President, Economics and  
Private Sector Development, IFC

*Amundi and IFC would like to thank all of the contributors and the internal and external reviewers for their valuable time, guidance, and support in producing this report. Special thanks to the principal authors and contributors:*

**At Amundi:**

*Jean-Jacques Barbéris, Timothée Jaulin, Eric Dussoubs, Sergei Strigo, Maxim Vydrine, Reema Desai, Erwan Crehalet, Sylvia Chen, Esther Law, Dany Da Fonseca, Joan Elbaz, Tobias Hessenberger, Sanchit Thukral.*

**At IFC:**

*Dimitri Demekas, Stephanie von Friedeburg, John Gandolfo, Egidio Germanetti, Elena Gex, Peter Gumbel, Samed Hysa, Rabih Kanaan, Haruko Koide, Jean Pierre Lacombe, Laure Lepastier, Shane Lowe, Susan Lund, Emmanuel Nyirinkindi, Denise Odaro, Vivek Pathak, Jessica Stallings*

Amundi, a leading European asset manager, and International Finance Corporation (IFC), a member of the World Bank Group, have partnered since 2018 to report on developments in the green bond market for emerging markets and developing economies (EMDEs), focusing on both the issuance of these financial instruments in EMDEs and on the market reception and outlook for them. As in previous years, this fourth edition of the “Emerging Market Green Bonds Report” provides an overview of green bond developments in EMDEs over the past year and discusses the implications of recent global policy initiatives. This year, the scope of the report has been widened to include more coverage of social, sustainability, and sustainability-linked bonds, in line with market trends. Sections on the prospects for climate adaptation finance and on “greening” debt restructuring provide insights into new ways to increase green and sustainable finance flows into EMDEs and strengthen the resilience of these economies.

While EMDEs are especially vulnerable to ongoing crises and were hard hit by the social and economic consequences of the COVID-19 pandemic, issuance of green and other sustainable bonds rebounded strongly in 2021. Existing inflation pressures and supply chain disruptions are exacerbated by the war in Ukraine. Considerable investment is necessary for EMDEs to meet development goals and transition to low-carbon economies and requires expedited efforts from all stakeholders.

Collaboration with financial institutions, the private sector, and governments is integral to IFC’s focus on mobilizing private capital for sustainable development and climate focused goals. IFC was an early issuer of green bonds and has issued over US\$10 billion green bonds across 178 bonds in 20 currencies<sup>1</sup>. IFC was an early issuer of green bonds and has issued over US\$10 billion green bonds across 178 bonds in 20 currencies. In addition, IFC provides technical assistance to issuers and investors in developed and emerging markets and promotes integrity in the green bond market through its role as chair of the executive committee of the Green, Social, and Sustainability-Linked Bond Principles. Through its unique partnership with IFC, Amundi remains committed to the development of the market for green and other sustainability bonds. IFC’s partnership on the Amundi Planet Emerging Green One fund is designed to stimulate both demand and supply for green bonds in emerging markets. In 2021, IFC and Amundi announced a second fund to strengthen the sustainability bond market and deploy resources in priority areas, including climate and gender.

Robust investor appetite and supportive policy environments will remain critical for green and sustainable finance to continue building on the momentum generated over the past few years. This report highlights the developments in these markets and suggests how to focus additional efforts, including in areas of climate adaptation and debt restructuring.

## ABBREVIATIONS AND ACRONYMS

<b>Amundi:</b> Amundi Asset Management	<b>ISSB:</b> International Sustainability Standards Board
<b>ASEAN:</b> Association of Southeast Asian Nations	<b>KPI:</b> key performance indicator
<b>CAF:</b> Cancun Adaptation Framework	<b>LAC:</b> Latin America and the Caribbean
<b>CBI:</b> Climate Bonds Initiative	<b>MENA:</b> Middle East and North Africa
<b>COP26:</b> 26th United Nations Climate Change Conference of the Parties	<b>NDC:</b> nationally determined contribution
<b>COVID-19:</b> Coronavirus disease 2019	<b>NAP:</b> national adaptation plan
<b>DM:</b> developed market	<b>PAI:</b> principal adverse impact
<b>EAP:</b> East Asia and the Pacific	<b>SA:</b> South Asia
<b>ECA:</b> Europe and Central Asia	<b>SBFN:</b> Sustainable Banking and Finance Network
<b>EM:</b> emerging market	<b>SBP:</b> Social Bond Principles
<b>EMBI:</b> Emerging Market Bond Index	<b>SFDR:</b> Sustainable Finance Disclosure Regulation
<b>EMDE:</b> emerging market and developing economy	<b>SLB:</b> sustainability-linked bond
<b>ESG:</b> environmental, social, and governance	<b>SSA:</b> Sub-Saharan Africa
<b>EU:</b> European Union	<b>SeyCCAT:</b> Seychelles Conservation and Climate Adaptation Trust
<b>GBS:</b> green bond standard	<b>SFC:</b> Superintendencia Financiera de Colombia
<b>GDP:</b> gross domestic product	<b>SFDR:</b> Sustainable Finance Disclosure Regulation
<b>GBP:</b> Green Bond Principles	<b>TCFD:</b> Task Force on Climate-Related Financial Disclosure
<b>GFANZ:</b> Glasgow Financial Alliance for Net Zero	<b>TES:</b> Colombian government bonds
<b>GSSS:</b> green, social, sustainability, and sustainability-linked	<b>TNC:</b> The Nature Conservancy
<b>IASB:</b> International Accounting Standards Board	<b>UAE:</b> United Arab Emirates
<b>ICMA:</b> International Capital Markets Association	<b>UN SDGs:</b> United Nations Sustainable Development Goals
<b>IDA:</b> International Development Association	<b>UNEP:</b> United Nations Environment Programme
<b>IFC:</b> International Finance Corporation	<b>WAEMU:</b> West African and Economic Monetary Union
<b>IMF:</b> International Monetary Fund	<b>WEO:</b> World Economic Outlook

## EXECUTIVE SUMMARY

Green and sustainable investment in emerging markets and developing economies (EMDEs) rebounded from pandemic-related challenges to reach record levels in 2021. This report provides an overview of developments in the market for green bonds issued in these economies and for the nascent markets for social, sustainability, and sustainability-linked bonds (with green, collectively abbreviated to GSSS bonds). The report also discusses the implications of recent global policy initiatives and provides an updated medium-term outlook for the market, at a time of heightened economic and political uncertainty.

- Green bond issuers in EMDE markets recorded their strongest year yet in 2021, with US\$95 billion in issuance. That was more than double the US\$41 billion in 2020 and well above the US\$53 billion in 2019. An additional US\$64 billion of social, sustainability, and sustainability-linked bonds brought the total EMDE GSSS bond issuance in 2021 to US\$159 billion, nearly triple the 2020 volume. Rising demand from domestic and foreign investors and expanded supply by both new and existing issuers propelled this growth.
- While rising interest rates affected total returns in the global green bond market, emerging market green bonds were relatively more resilient in 2021, outperforming the broader emerging market bond index by 77 basis points. Secondary market data indicate that the average “green premium” for emerging market issuers stands at about 3.4 basis points.
- China maintained its role as the largest green bond issuer among EMDEs, with issuance of US\$59 billion in 2021, or 63 percent of the total. Nonfinancial corporate issuers in China overtook financial institutions for the first time. The largest issuers among the 34 other issuing countries were India, Chile, the Czech Republic, Poland, and Brazil. Seven new entrants joined the green bond market: Bangladesh, Côte d’Ivoire, the Dominican Republic, Guatemala, Pakistan, Serbia, and the Slovak Republic.
- The outlook for green and other sustainability bond issuance in EMDEs is clouded by slowing global economic growth, high inflation, and rising interest rates, and by geopolitical uncertainties from the war in Ukraine. Country challenges in many EMDEs include macroeconomic and policy instability, underdeveloped capital markets, the quality and availability of information, and lack of technical knowledge. Nonetheless, the positive momentum in GSSS bond issuance is expected to continue. Annual issuance in green bonds could rise to US\$150 billion by 2023, with Chinese issuers potentially contributing more than half the total. This scenario, based on the trajectory previously seen in the more developed European green bond market, assumes some normalization following the strong bounce in 2021, with green bonds continuing to increase the market share of total bonds.
- Scaling up investments in climate adaptation projects, which address the consequences of climate change, is necessary to strengthen the resilience of economies, particularly EMDEs, which will be disproportionately affected by climate change. The green bond market has significant potential to direct more finance to adaptation projects, especially if current reporting and disclosure frameworks are strengthened.
- Global policy initiatives, including those announced at the 26th United Nations Climate Change Conference of the Parties, provide a strong backdrop for the expansion of green finance flows in EMDEs. Revised nationally determined contributions of many EMDEs, which signal a country’s ambition to reduce national greenhouse gas emissions, should generate new investment opportunities, particularly for clean energy infrastructure. Alignment of reporting policies and disclosure standards with European and other international initiatives can increase the attractiveness of EMDE sustainable finance markets to investors and increase foreign capital inflows.
- Other avenues beyond the issuance of new debt include the “greening” of debt restructuring, enabling countries whose debt is unsustainable to direct capital toward green and sustainable investment. With increasing pressure on funding needs of EMDEs at a time of accelerating investor demand for environmental, social, and governance (ESG) products, there is a growing case to link debt restructuring with sustainable objectives, such as the recent restructuring of Belize’s debt, which includes the implementation of coastal and marine conservation measures.

## SECTION 1. INTRODUCTION

Significant investment is required to build resilient economies capable of addressing the current climate and environmental challenges. This need is particularly crucial in emerging market and developing economies (EMDEs), which are relatively more vulnerable to the impacts of climate change<sup>2</sup>. More broadly, large-scale investment estimated to be as high as US\$4.5 trillion per year in EMDEs is required to achieve the United Nations Sustainable Development Goals (UN SDGs)<sup>3</sup>. Securing that scale of investment could be particularly challenging in the context of the growth shock caused by the pandemic<sup>4</sup>, ongoing constraints to economic recovery in EMDEs, and the uncertainty generated by the war in Ukraine.

In recent years, sustainable finance has gained considerable momentum and set records. Widespread investor appetite and the increasing focus of bond issuers on environmental and sustainability commitments have been driving this growth. In the global fixed-income market, issuance of green, social, sustainability, and sustainability-linked (GSSS) bonds (as defined in Box 1.1) reached US\$1.1 trillion in 2021, almost double the US\$596 billion in 2020. The growth in the fixed income market has been accompanied by a proliferation of new environmental, social, and governance (ESG) funds and products in equity markets: assets under management in ESG-focused exchange-traded funds totaled US\$425 billion in 2021, 85 percent of which was in equity funds<sup>5</sup>. Although this strong momentum of sustainable finance is encouraging, considerable scale is needed.

In EMDEs, both public and private capital are necessary to meet sustainable investment needs. Fiscal measures related to COVID-19 relief and recovery were initially viewed as an opportunity to focus on green and sustainable investments. However, the green aspect of the recovery in EMDEs has been limited. In many cases, there is simply not enough fiscal space, and much of the available fiscal support has focused on short-term relief efforts. As a result, only about 8.5 percent of the limited recovery spending by EMDEs has so far been allocated to finance green activities or projects<sup>6</sup>.

The 26th United Nations Climate Change Conference of the Parties (COP26) provided focus for accelerating policy efforts. In particular, the revised nationally determined contributions (NDCs) of many EMDEs set clear medium- and long-term targets to reduce greenhouse gas emissions and adapt to the impacts of climate change. Despite some criticism that the plethora of new pledges, commitments, targets, and initiatives made at COP26 are not sufficiently ambitious, policy packages and sustainable finance strategies to reinforce these commitments that EMDEs put in place would provide a strong impetus and generate new investment opportunities for the transition to a low-carbon economy.

Developed markets made new pledges to increase public climate finance to EMDEs by 50 percent on average, despite the well-publicized failure to meet the previous pledge to provide US\$100 billion on an annual basis. The role of private sector finance also featured prominently. Among other initiatives, the Glasgow Financial Alliance for Net Zero, whose membership numbers 450 financial firms across 45 countries, committed US\$130 trillion to finance the global transition to net zero. This commitment provides a strong backdrop for the expansion of private green finance flows in EMDEs.

This fourth edition of the “Emerging Market Green Bonds Report” provides an overview of EMDE green bond developments in 2021 and discusses the implications of recent global policy initiatives. It provides an updated medium-term outlook for the market, recognizing the substantial uncertainties due to the ongoing war in Ukraine and its myriad geopolitical, macroeconomic, and market implications.

For the duration of the war, conflict-related disruptions and the imposition of sanctions will have a major impact on global energy supplies, commodity prices, and food security. Energy importers will face pressure from widening trade deficits and headwinds for economic growth, especially in countries where there is limited fiscal space. Higher energy and food prices are also adding to inflation dynamics, putting pressure on central banks in advanced economies and EMDEs to tighten monetary policy. Shortages of grains and fertilizers could lead to significant supply disruptions, threatening food security, particularly in Africa, the Middle East, and Central Asia.

In Europe, the United States, and other countries imposing sanctions on the Russian Federation, energy security will be a major challenge for policy makers and will underscore the complexities of a successful transition to net-zero emissions of greenhouse gases. In the near term, difficult choices will have to be made in order to secure sufficient energy supplies from a mix of sources. These decisions may well include delays in the phasing out of some coal and nuclear power stations. Spending priorities related to the war may put an additional strain on available public financing to support sustainability needs.

In both developed countries and EMDEs, investments in clean energy and technology and the supporting infrastructure that are crucial for meeting the net-zero targets would help them become more energy independent. In addition to renewables, investments in energy efficiency and electric transport will over time help reduce the dependence on fossil fuels. Efforts to ramp up sustainable agriculture that lowers the need for fossil-fuel-based fertilizers could help address both energy and food security concerns. Green bonds placed by private and public sector issuers can raise finance for such efforts. On the social front, social bonds could support projects related to the humanitarian impact of the war.

Channeling sufficient capital to meet the needs for sustainable finance in EMDEs will require building on established foundations, as well as innovating in how and where capital is directed. The COP26 discussions and upcoming international conferences signal an increasing emphasis on biodiversity, deforestation, land use, and agricultural issues, as well as climate adaptation. The growth of social, sustainability, and sustainability-linked bond (SLB) issuance points toward an expanding set of issuers and investors. In particular, as discussed in Box 2.1, the SLB format encourages those issuers seeking to make progress on transition commitments. As these markets mature, they will be subject to enhanced scrutiny, requiring efforts to strengthen frameworks and taxonomies that ensure disclosure and transparency. Other avenues beyond the issuance of new debt include the greening of debt restructuring, enabling countries whose debt is unsustainable to direct capital toward green and sustainable investment. Innovative efforts from public and private stakeholders remain vital to mobilize investment flows sufficient to meet the demands of resilient and sustainable economies.

### Box 1.1: Labeled Bonds: Definitions and Guidelines

**Green bonds:** Green bonds are fixed-income instruments with proceeds earmarked exclusively for new and existing projects that have environmental benefits. The Green Bond Principles (GBP) developed under the auspices of the International Capital Markets Association (ICMA) have four components: use of proceeds, process for project evaluation and selection, management of proceeds, and reporting. These principles were updated in June 2021 to identify key recommendations regarding green bond frameworks and external reviews. A number of countries and jurisdictions have developed their own set of guidelines for green bond issuance, many of which align with the GBP. Blue bonds are green bonds focused on the financing of water-related sustainable projects.

**Social bonds:** The use of proceeds from social bonds is directed toward projects that aim to achieve positive social outcomes especially, but not exclusively, for a target population. ICMA’s Social Bond Principles (SBP) have four components analogous to the GBP: use of proceeds, process for project evaluation and selection, management of proceeds, and reporting. The 2017 SBP were updated in June 2020 to reflect changes in the market in light of COVID-19, notably by expanding social project categories and target populations, and again in June 2021 to identify key recommendations regarding social bond frameworks and external reviews.

**Sustainability bonds:** Sustainability bonds are debt instruments whose proceeds finance or refinance a combination of green and social projects. The Sustainability Bond Guidelines established by ICMA are aligned with the core components of both GBP and SBP.

**Sustainability-linked bonds:** Sustainability-linked bonds (SLBs) are performance-based bonds that are not

earmarked for specific projects. Rather, the financial or structural characteristics of these bonds (for example, coupon rate) are adjusted depending on achieving predefined sustainability objectives. The objectives are measured through key performance indicators and assessed against sustainability performance targets. In June 2020, ICMA published the Sustainability-Linked Bond Principles, providing guidelines on structuring features, disclosure, and reporting.

**Climate transition bonds:** Climate transition bonds are new products that aim to finance the transition to a low-carbon economy. ICMA has not published separate guidelines for transition-labeled bonds. The “Climate Transition Finance Handbook” published by ICMA in December 2020 recommends disclosures for issuers marking either use-of-proceeds or sustainability-linked instruments with a climate transition label. Four key elements of the recommended disclosures are the issuer’s climate transition strategy and governance; business model environmental materiality; climate transition strategy that is science based, including targets and pathways; and implementation transparency.

**Other labels:** Some issuers have also used other marketing labels for sustainable debt funding, such as blue, adaptation, or SDG bonds. In essence, most of these bonds remain use-of-proceeds bonds aligned with ICMA principles, but their branding has been adapted to single out a specific feature. Some bonds labeled “sustainable development bonds” depart from ICMA principles though, as they are not “use-of-proceeds” bonds but rather are general-purpose bonds from issuers who wish to flag that their mission is inherently sustainable. The proliferation of labels requires vigilance from investors on the actual project eligibility, allocation, and impact reporting commitments attached to labeled bonds.

## SECTION 2: MARKET ANALYSIS AND OUTLOOK

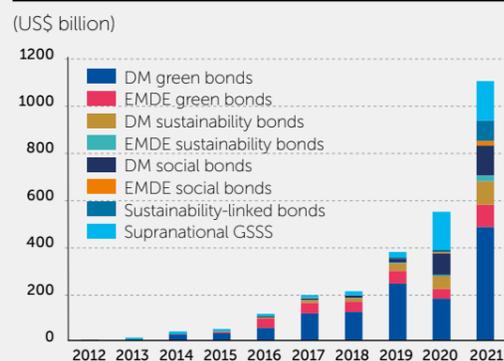
The first part of this section analyzes the record issuance by EMDEs of GSSS bonds in 2021, amounting to US\$159 billion, or 5.2 percent of total issuance. China continues to lead among EMDEs as the largest green bond issuer and accounts for the increasing share of nonfinancial corporate issuance in EMDEs. The growth in EMDE social, sustainability, and sustainability-linked bonds in 2021 was largely driven by issuance in Latin America and the Caribbean, which contributed 66 percent of the total. The second part of this section focuses on the performance of the EMDE green bond market. While the rise in interest rates that started in 2021 affected the total return of global green bonds, the emerging market component was relatively more resilient. Secondary market data indicate that the average green premium (or “greenium”) observed for EMDE issuers was steady at about 3.4 basis points. The third part of this section updates the outlook for EMDE green bond issuance. Despite the high geopolitical and economic uncertainties, notably the projected further rise in interest rates, green bond issuance in EMDEs is projected to climb toward US\$150 billion annual issuance by 2023, with Chinese issuers contributing more than half the total.

### STATE OF THE MARKET 2021

In 2021, despite ongoing uncertainty related to the pandemic and dislocations in many economies, the global market for GSSS bonds exceeded most forecasts, setting new records for issuance. Green bond issuance of over US\$600 billion more than doubled the previous record of US\$280 billion set in 2020, while social, sustainability, and sustainability-linked bonds added another US\$460 billion to total US\$1.1 trillion for the GSSS market (figure 2.1).

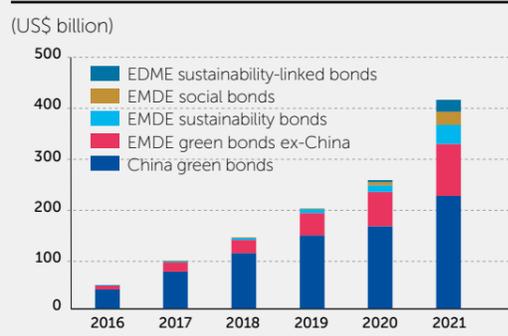
Two key factors drove this trend: first, rising investor demand for GSSS bonds; and second, increasing supply by both existing and new issuers. The latter, in turn, is explained partly by efforts to meet demand and partly by new official net-zero commitments and sustainability targets. One such new issuer was the European Union, which placed a record €12 billion green bond that was 11 times oversubscribed.

**Figure 2.1: Global GSSS Bond Issuance**



Note: DM = developed market; EMDE = emerging market and developing economy; GSSS = green, social, sustainability, and sustainability-linked.  
Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

**Figure 2.2: EMDE GSSS Cumulative Bond Market Issuance**



Note: EMDE = emerging market and developing economy; GSSS = green, social, sustainability- and sustainability-linked.  
Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

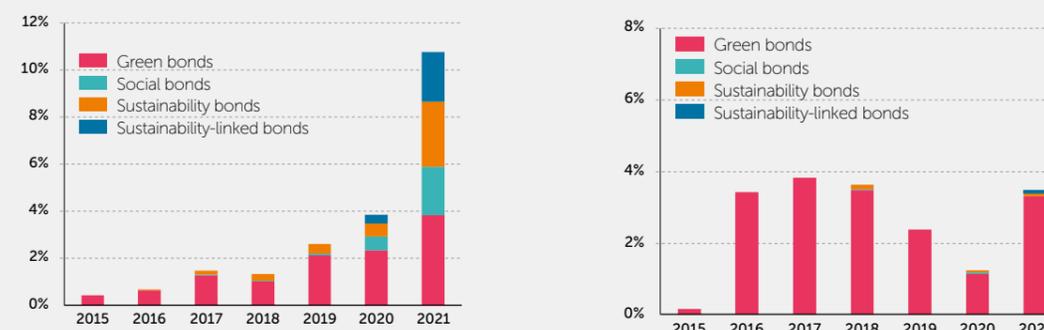
The EMDE green bond market had its strongest year yet with US\$95 billion issuance in 2021. (For the purposes of this report, EMDE green bonds are defined as green bonds issued by public and private sector entities in their country of risk<sup>7</sup>). That was more than double the US\$41 billion issuance in the 2020 downturn and far surpassed the previous record of US\$53 billion set in 2019. Another US\$64 billion in social, sustainability, and sustainability-linked bond issuance brought the total EMDE GSSS bond issuance to \$159 billion in 2021, up from US\$56 billion in 2020. The cumulative EMDE GSSS bond issuance since 2012 rose to US\$410 billion (figure 2.2). For investors, EMDEs have continued to offer attractive yields, while growing awareness of the GSSS bond formats, as well as technical know-how, have enabled more issuers to enter the market. GSSS bonds are increasingly becoming mainstream in some EMDEs: as a share of overall EMDE debt issued in 2021, GSSS bonds equaled 5.2 percent. For bonds issued outside China, the share was even higher at 10.8 percent (figure 2.3).

China continues to lead among EMDEs as the largest green bond issuer, accounting for 63 percent of EMDE issuance in 2021. After relatively low volume in 2020 due to pandemic-related lockdowns and project delays, as well as a government push to issue pandemic-specific bonds, China’s issuance rebounded in 2021 and set a new record at US\$59 billion. That compared with China’s green bond issuance of just US\$19 billion in 2020 and US\$34 billion in 2019. Meanwhile, EMDEs excluding China saw even more rapid growth, as green bond issuance rose by 58 percent in 2021 to US\$35.2 billion.

Among the 34 issuing countries outside China, the largest issuers were India, Chile, the Czech Republic, Poland, and Brazil (figure 2.4). New entrants to the green bond market were Bangladesh, Côte d’Ivoire, the Dominican Republic, Guatemala, Pakistan, Serbia, and the Slovak Republic. Oil-exporting countries have increased their share of EMDE green bond issuance to 6 percent of the total, double the share in 2012-19, as they look to diversify their sources of energy. Since 2012, 50 EMDEs have issued green bonds, registering a cumulative issuance of US\$323 billion (figure 2.5). Over one-quarter of this issuance took place in 2021, as more EMDE issuers have been able to tap into the strong demand for green bonds to obtain capital from both domestic and international investors.

**Figure 2.3: EMDE GSSS Bond Market Relative to Overall EMDE Bond Market (%)**

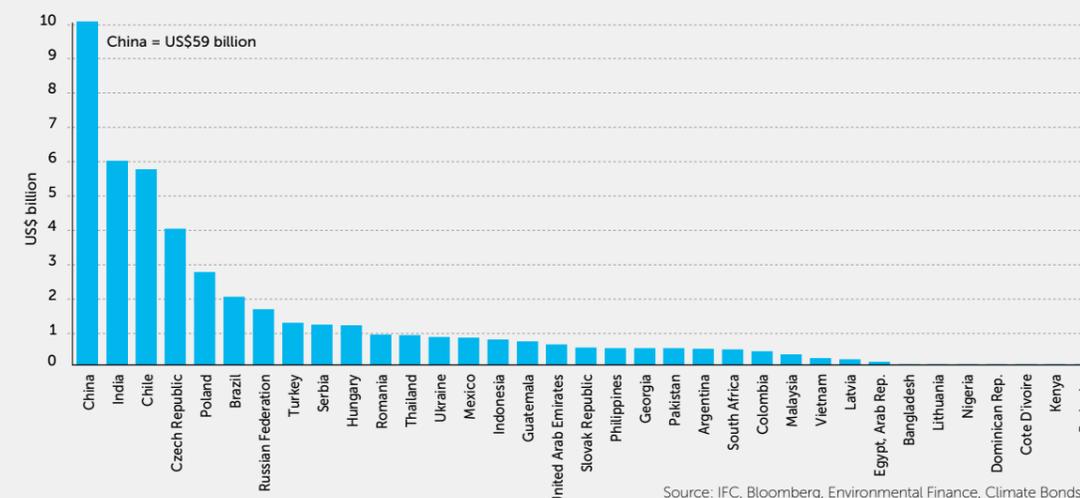
A. EMDE excl. China GSSS Bonds as Percent of Overall Debt Issuance    B. China GSSS Bonds as Percent of Overall Debt Issuance



Note: GSSS = green, social, sustainability, and sustainability-linked.  
Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

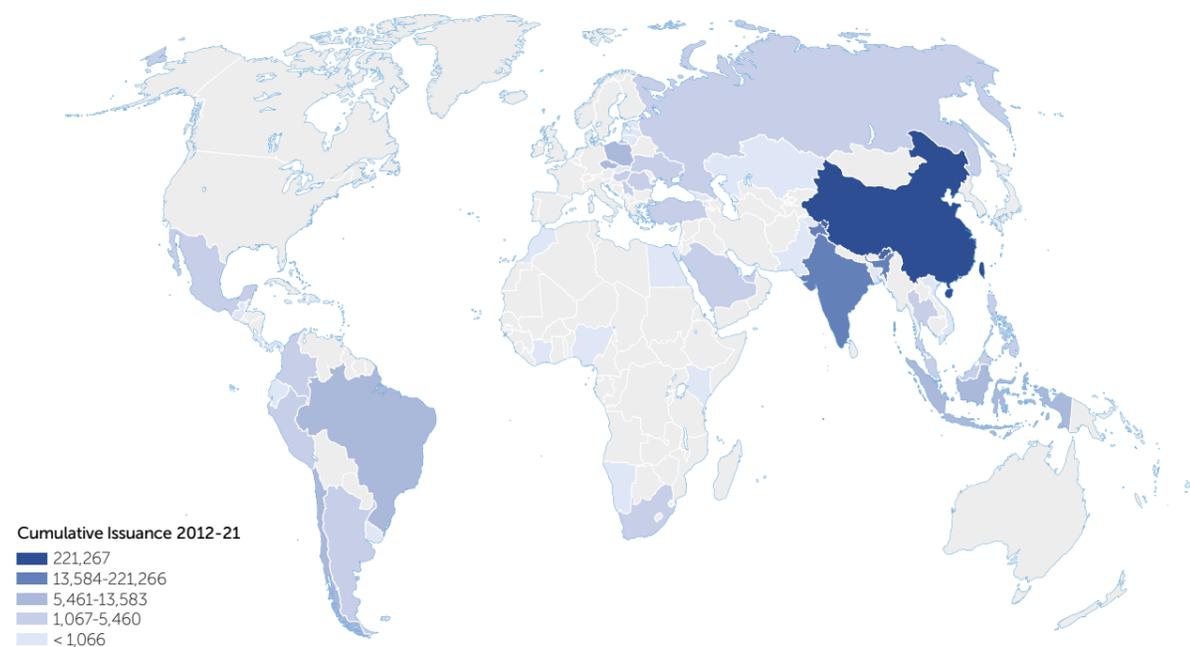
EMDE social, sustainability and sustainability-linked bond issuance also grew rapidly, despite their relatively recent emergence (see box 2.1). The 2021 social bond issuance more than doubled that of 2020, with Chile’s US\$16 billion in social bonds accounting for 85 percent of the total. The sustainability bond format has been particularly fruitful in Latin America and the Caribbean, which accounts for 41 percent of the US\$25 billion in sustainability bonds and 75 percent of the US\$19 billion sustainability-linked bonds issued in 2021. Sustainability bonds were issued by 10 sovereigns in 2021 (Benin, Chile, Indonesia, Latvia, Malaysia, Mexico, Peru, Slovenia, Thailand, and Uzbekistan), setting benchmarks for corporate issuance to follow.

**Figure 2.4: Emerging Market Green Bond Issuance, 2021**



Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

Figure 2.5: Emerging Market Green Bond Issuance Cumulative Issuance, 2012-21 (US\$ million)



Source: IBRD 46591. June 2022

Country	Volume (US\$ million)	Country	Volume (US\$ million)
China	221,267	Georgia	750
India	17,750	Guatemala	700
Chile	13,584	Slovak Republic	520
Brazil	10,207	Costa Rica	504
Poland	7,374	Pakistan	500
Czech Republic	7,318	Uruguay	361
Indonesia	5,462	Morocco	356
Mexico	3,599	Panama	315
Hungary	3,354	Latvia	314
Philippines	2,946	Vietnam	227
South Africa	2,828	Nigeria	155
Thailand	2,778	Ecuador	150
United Arab Emirates	2,554	Slovenia	100
Russian Federation	2,552	Lebanon	60
Romania	1,926	Kenya	58
Malaysia	1,838	Estonia	56
Peru	1,686	Armenia	50
Turkey	1,440	Fiji	48
Saudi Arabia	1,300	Bangladesh	29
Ukraine	1,183	Dominican Republic	20
Serbia	1,174	Barbados	19
Argentina	1,165	Côte d'Ivoire	18
Colombia	1,067	Seychelles	15
Egypt, Arab Rep.	850	Namibia	5
Lithuania	822	Kazakhstan	0.5

Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

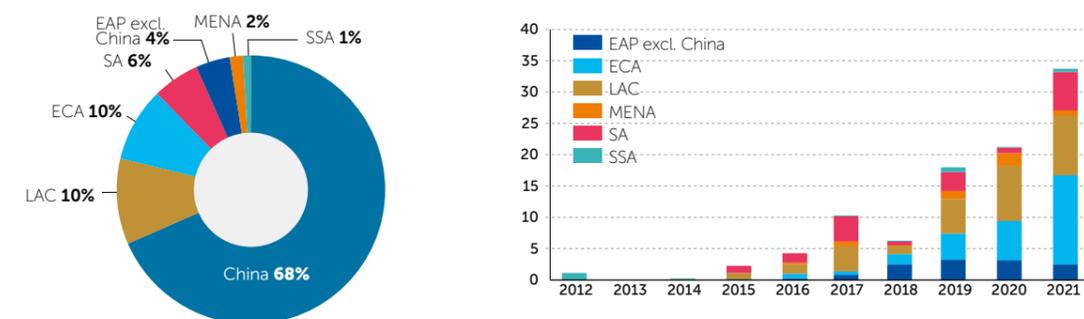
## A Regional View

East Asia and the Pacific, including China, remained the regional leader in EMDE green bond issuance, accounting for 66 percent of the green bonds issued in 2021 and 73 percent of the cumulative issuance (figure 2.6). Europe and Central Asia more than doubled the region's previous cumulative issuance in 2021. Latin America and the Caribbean contributed 66 percent of EMDE social, sustainability, and sustainability-linked bonds.

**East Asia and the Pacific:** China was the fourth-largest issuer of green bonds globally and by far the largest EMDE issuer with US\$59 billion in 2021 issuance. This record demonstrated a strong rebound following the 2020 pandemic-related drop in issuance. Nonfinancial corporates accounted for US\$29 billion of the total, triple the issuance in 2020 and 2019 and amounted to almost half of China's total green bond issuance in 2021. As a result, Chinese nonfinancial corporates surpassed financial institutions as the largest issuing sector. Indonesia, Malaysia, the Philippines, and Thailand showed steady issuance with a combined US\$2.4 billion in green bonds, while Vietnam saw its first issuance since 2016 (a US\$200 million bond issued by a property developer). The social, sustainability, and sustainability-linked bond market also appears to be growing rapidly in Association of Southeast Asian Nations (ASEAN) countries, which issued US\$7.9 billion in sustainability and sustainability-linked bonds, including US\$3.4 billion in sovereign sustainability issuance from Thailand, and another US\$280 million in social bonds.

**Europe and Central Asia:** Twelve countries in Europe and Central Asia issued nearly US\$15 billion in green bonds, more than double the US\$7 billion issued in 2020, reflecting growing breadth of issuers and new policy support in the region. The Czech Republic's US\$4 billion issuance, primarily allocated toward property development, was the largest. Following a year with no green bond issuance, energy companies and financial institutions in Poland issued US\$2.7 billion in green bonds and another US\$254 million in SLBs. Serbia's green sovereign Eurobond was the debut green bond in the country, and the Slovak Republic also saw debut green bond issuance from two Slovak banks. Green bonds in Georgia, Hungary, Latvia, Lithuania, Romania, the Russian Federation, Turkey, and Ukraine rounded out the region's increasing share of EMDE issuance. Policy support included Ukraine's publication of green bond guidelines and the Russian Federation's release of a green taxonomy.

Uzbekistan placed a sovereign sustainability bond in two tranches totaling US\$870 million, which allocated proceeds to several UN SDGs focused on education, water management, health, green transportation and energy, pollution control, and management of natural resources. Another US\$5.5 billion of sustainability bonds were issued in Latvia, Slovenia, and Turkey. The Russian Federation was the only country in the region to issue social bonds.



Region	Number of countries	Number of issuers	Volume (US\$ billion)
East Asia and the Pacific (EAP)	7	344	234.6
Europe and Central Asia (ECA)	16	64	28.9
Latin America and the Caribbean (LAC)	13	95	33.4
Middle East and North Africa (MENA)	5	10	5.1
South Asia (SA)	3	31	18.3
Sub-Saharan Africa (SSA)	6	18	3.1
<b>Total</b>	<b>50</b>	<b>562</b>	<b>323.4</b>

Note: EMDE = emerging market and developing economy. Regions are based on World Bank definitions.  
Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

**Latin America and the Caribbean:** Chile remained the leader in green bond issuance in Latin America and the Caribbean, with US\$5.7 billion in bonds issued and also added substantially to social and sustainability bond totals. Chile's sovereign bond program accounted for 76 percent of the country's overall GSSS issuance in 2021. Brazil was the second-largest issuer in Latin America and the Caribbean, with nearly US\$2 billion in green bonds, and showed strong growth in issuance of sustainability and sustainability-linked bonds. Colombia issued its debut sovereign green bond in local currency in September 2021 and quickly upped the offer amount following strong demand from both domestic and foreign investors (as detailed in Box 4.1). That reinforced the government's commitment to develop the green bond market after launching its green bond framework earlier in the year. Guatemala and the Dominican Republic each placed inaugural green bonds with renewable energy firms issuing US\$700 million and US\$20 million, respectively. Barbados saw a repeat issuance of US\$7 million, and Argentina issued nearly US\$900 million in green and sustainability bonds.

Some Latin American and Caribbean countries favored social and sustainability issuance over green bonds. Of the nearly US\$10 billion in GSSS bonds issued in Mexico, green bonds made up only a 9 percent share. Although no green bonds were issued in Peru, the country did place US\$4.7 billion in social, sustainability, and sustainability-linked bonds, including inaugural social and sustainability sovereigns. Costa Rica, which had previously issued green bonds, issued only sustainability-linked bonds in 2021. In Latin America and the Caribbean as a whole, social and sustainability-linked bonds accounted for 82 percent of the total GSSS offerings, with just 18 percent for green bonds.

**Middle East and North Africa:** Following a spike in the Middle East and North Africa's green bond issuance in 2020, largely driven by a US\$750 million sovereign green bond from the Arab Republic of Egypt, the region's issuance dropped in 2021 to US\$0.7 billion from US\$2.1 billion in 2020. United Arab Emirates-based First Abu Dhabi Bank issued six bonds over the course of the year amounting to US\$600 million. Egypt's CIB bank placed the country's first private sector green bond with proceeds equal to US\$100 million. Overall bond issuance in the region declined by close to 20 percent in 2021 compared with 2020, possibly a factor in the decline in green bond issuance. The region's cumulative green bond issuance since 2015 is US\$5.1 billion.

**South Asia:** India regained its place as the second-largest green bond issuer among EMDEs in 2021 with a record US\$5.9 billion, accounting for one-third of total issuance since the country began issuing green bonds in 2015. Most of the proceeds from these bonds were allocated to renewable energy, airport infrastructure, and a municipality. India also issued US\$725 million in social bonds, up from US\$500 million in 2020, and—for the first time—issued both sustainability bonds and SLBs, of US\$600 million and US\$1.2 billion, respectively. Elsewhere in South Asia, Pakistan and Bangladesh each entered the green bond market for the first time, with a much-anticipated US\$500 million bond from Pakistan's Water & Power Development Authority and two issuances from Bangladesh totaling US\$29 million.

**Sub-Saharan Africa:** South Africa continued to lead Sub-Saharan Africa in green bond issuance, with US\$466 million in 2021, more than double the US\$200 million issuance in 2020. The country also expanded into the social and sustainability-linked bond markets for the first time, with US\$537 million in issuance. A number of other Sub-Saharan African countries were also repeat issuers or came to the market for the first time. Acorn Holdings in Kenya delivered the final tranche of its green bond first issued in 2019 with proceeds going toward student housing that meets green building standards, and North South Power in Nigeria repeated its 2019 green bond issuance. Namibia's Bank Windhoek, which had previously issued a green bond, issued the country's first sustainability bond.

Countries in the West African and Economic Monetary Union (WAEMU), which had developed a sustainability framework, issued inaugural green and sustainability bonds. These included a green bond issued by a commercial property developer in Côte d'Ivoire and two sustainability bonds. Benin issued Africa's first sovereign sustainability bond in July 2021, placing a US\$588 million issuance on the international markets, the proceeds of which are intended to support the UN SDGs. Togo-based Ecobank placed a US\$350 million sustainability bond in June 2021 to finance clean infrastructure and to generate employment.

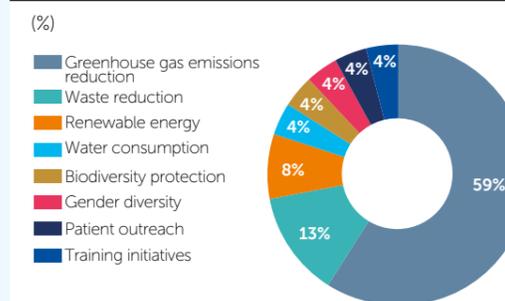
## Box 2.1: Sustainability-Linked Bonds in Emerging Market and Developing Economies

Emerging market and developing economies (EMDEs) are faced with the challenge of combining economic development with climate and environmental considerations. Sustainability-linked bonds (SLBs) are innovative instruments that along with green and sustainability labeled bonds could help meet this challenge.

SLBs are different from use-of-proceeds green and other sustainability labeled bonds in that the funds are not earmarked for particular projects or types of expenditure—the issuer can use them for any purpose. Instead, the key feature of SLBs is that the payout to investors who purchase the bond depends on the issuer meeting agreed-on forward-looking key performance indicators (KPIs): the coupon payment is either increased if the KPIs are not met in the designated timelines or is reduced if the KPIs are met.

Almost 90 percent of SLBs<sup>a</sup> issued thus far contain environmental rather than social KPIs, which are tied to targets such as greenhouse gas reduction, waste reduction, and renewable energy. Examples of social KPIs include gender diversity targets, patient outreach, and training initiatives (figure B2.1.1).

**Figure B2.1.1: Key Performance Indicators for Sustainability-Linked Bonds, 2020–21**



Note: This data is based on bonds issued in 2020 and first half of 2021. Source: S&P Global Rating, IFC.

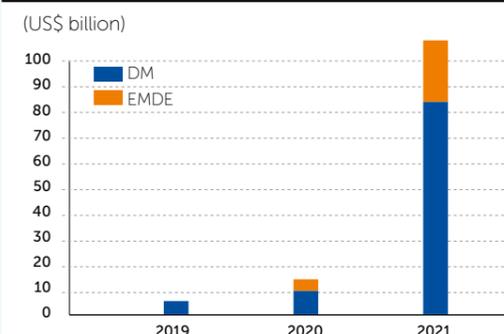
## Issuance Patterns

Global issuance of SLBs grew strongly from US\$11 billion in 2020 to US\$87 billion in 2021 (figure B2.1.2). EMDEs represented 22 percent of total issuance with US\$19.3 billion of issuance in 2021. Nonfinancial corporates accounted for 90 percent of total issuance. On a regional basis, Latin America led, with Brazilian and Mexican corporate issuance representing 75 percent of the total 2021 EMDE issuance (figure B2.1.3). East Asia and the Pacific issued US\$2.7 billion of SLBs in 2021, representing 14 percent of total EMDE issuance, with China (US\$1.7

billion) the largest issuer. SLB issuance in China remained modest relative to that of green bonds (US\$56.7 billion in 2021). India was the sole issuer in South Asia (US\$1.2 billion), with 6 percent of total EMDE issuance.

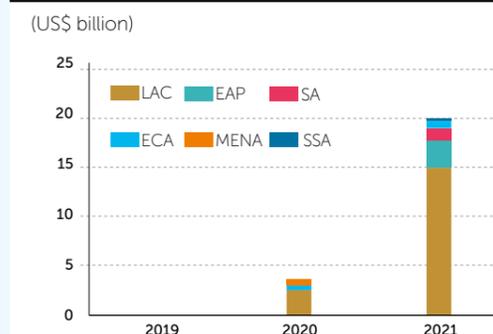
For some issuers, their green assets may already be tied to green bonds, and the SLB format offers an avenue to issue new bonds that are focused on sustainability targets. Of the 20 issuers in Latin America in 2021, for example, 7 had previously issued green bonds.

**Figure B2.1.2: Global Issuance of Sustainability-Linked Bonds**



Note: DM = developed market; EMDE = emerging market and developing economy. Source: IFC, Environmental Finance.

**Figure B2.1.3: Issuance of Sustainability-linked Bonds, by Emerging Market Region**



Note: EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SA = South Asia; SSA = Sub-Saharan Africa. Regions are based on World Bank definitions. Source: IFC, Bloomberg, Environmental Finance.

One notable transaction was the Brazilian pulp and paper company Klabin's issuance of US\$500 million of 10-year senior unsecured notes, which attracted US\$4 billion of orders—a sign of strong investor demand. The deal was priced at 3.2 percent, the firm's lowest ever for a US\$ issuance and 55 basis points tighter than the initial 3.75 percent guidance. KPIs for the deal include a 12.5 basis points step-up fee if the water consumption KPI is not met, an 8.25 basis points step-up on the water reuse and recycling KPI, and a 6.25 basis points penalty if reintroduction of the water species KPI is not met.

### Benefits for Issuers, Investors, and Sovereigns

SLBs require accountability for issuers in achieving environmental, sustainability, or social objectives, given the financial penalties. Given the flexibility on the use of proceeds, SLBs can be attractive to a broader range of issuers, providing greater choice of sectors for investors. This feature of SLBs contrasts with green or sustainability bonds, which tend to be focused on industries with significant environmental projects to finance, such as energy and construction. The more diversified issuance streams could make it easier to finance green transition needs.

Sovereign SLBs could also help governments meet their medium- and long-term climate and environmental commitments by demonstrating their commitment to the KPI goals. In March 2022, the Chilean government became the first sovereign to issue an SLB. Chile priced a US\$2 billion 20-year deal at 4.346 percent. Chile's SLB framework comprises two KPIs, which measure absolute greenhouse gas emissions and the share of electricity generation from renewable energy. According to the step-up structure, investors will be paid a premium of 12.5 basis points if one target is not met and 25 basis points if both targets are not satisfied. This issuance was a milestone for the sovereign SLB market, as it could open the door for other sovereigns such as Uruguay to issue their own sovereign SLBs.

At the same time, SLBs face challenges, particularly related to their KPI framework.

- The issuer is likely to be held to a high standard in terms of the overall corporate strategy and how environmental, social, and governance (ESG) criteria are incorporated into the strategy. This could include the principle of “do no significant harm” meaning that activities of the issuer do not significantly harm any of its environmental or social objectives.
- Given that the proceeds could be used for general expenditures, the clarity, robustness, ambition, and verifiability of KPIs are crucial.
- Relatedly, both the availability and the timely disclosure of relevant data are critical in order to allow investors to assess the issuer's progress in achieving the KPIs.
- The penalty in terms of stepped-up coupon payments for failure to achieve the KPIs is often too modest relative to the issuer's overall cost of debt, thus limiting the effectiveness of this mechanism to achieve sustainability objectives.
- In some cases, KPIs may be already effectively achieved (for example, through the selection of backdated indicators), and the additional environmental and social benefits are limited.

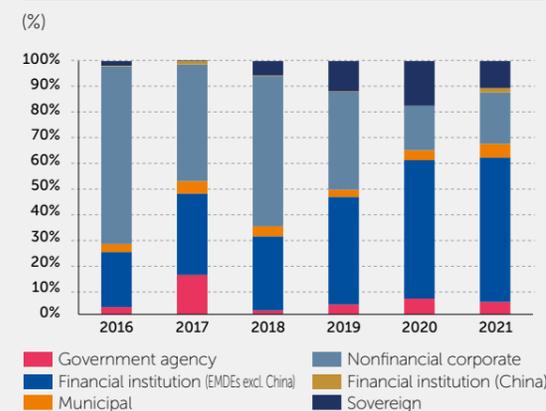
The International Capital Markets Association (ICMA) has offered guidance in the selection, reporting, and verification of KPIs in the “Voluntary Process Guidelines for Issuing Sustainability-Linked Bonds.” Corporates and sovereigns could facilitate further growth in the SLB market by continuing to develop their issuance frameworks and engaging with investors. Such growth would help meet targets set for the transition to low-carbon economies.

a. S&P Global Market Intelligence June 2021 “Sustainability-linked bonds in ‘rapid growth’ as more firms tap ESG debt market”

## Trends in Emerging Market Green Bond Issuance

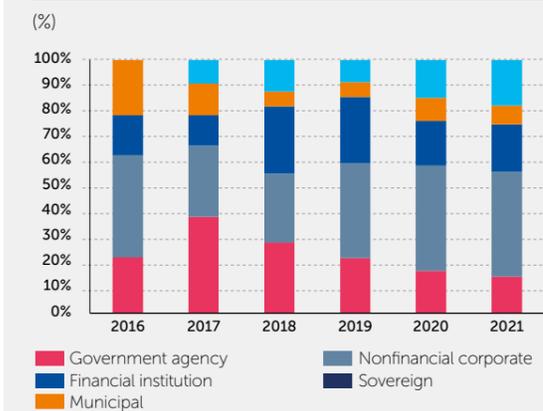
**Issuing Sectors:** As in developed markets, nonfinancial corporates in EMDEs have increased their share of green bond issuance and accounted for almost 60 percent of the issuance in 2021 (figures 2.7, 2.8). Much of the growth in issuance by nonfinancial corporates occurred in China, probably reflecting a broader policy push toward green issuance and the expanded “Green Bond Endorsed Project Catalogue” issued in June 2020 by the People's Bank of China. Over half of nonfinancial corporate green bond issuance in EMDEs was in the power and utilities sector, while issuance in the construction and real estate sector and the transportation sector steadily increased (figure 2.9). Outside China, financial institutions set a record: their 2021 issuance volume of US\$5.1 billion was greater than that of the previous three years combined. Sovereign green bonds were issued by **Chile; Hong Kong SAR, China; Colombia; Hungary; Indonesia; and Serbia**, totaling US\$10.2 billion. Green bond issuance by nonfinancial corporates outside China also grew, to US\$24 billion in 2021 from US\$7 billion in 2020.

Figure 2.7: EMDE Green Bond Issuance by Sector



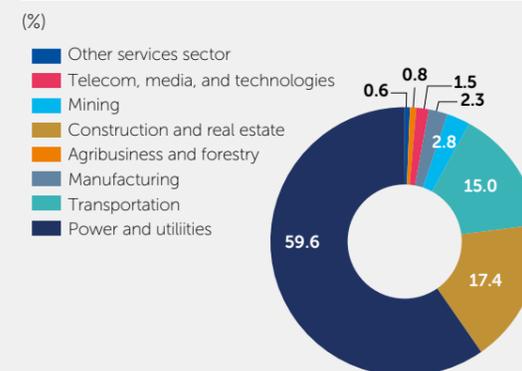
Note: EMDE = emerging market and developing economy. Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

Figure 2.8: Developed Market Green Bond, by Sector



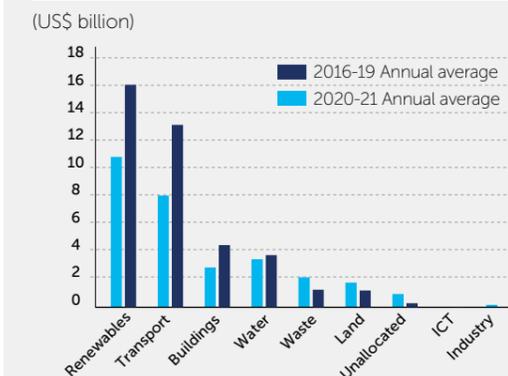
Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

Figure 2.9: EMDE Green Bond Nonfinancial Corporates, 2021



Note: EMDE = emerging market and developing economy. Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

Figure 2.10: EMDE Green Bond Issuance by Use of Proceeds

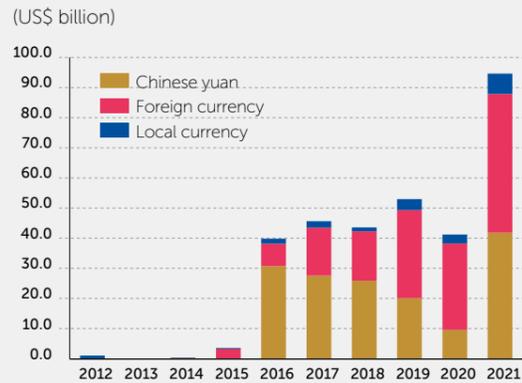


Note: EMDE = emerging market and developing economy; ICT = information and communications technology. Source: IFC, Climate Bonds Initiative.

**Use of Proceeds:** The use of proceeds from green bonds is typically designated for specific projects that would contribute to environmental objectives. Often, the proceeds from one bond may be designated for multiple objectives. Cumulatively, the largest share of the use of proceeds has been designated for renewable energy, accounting for 45 percent in 2021 (figure 2.10). One explanation for this is that issuance sizes for such projects tend to be larger than for others<sup>8</sup>. In addition, there is relative clarity as to measuring and reporting on investments in the sector. Low-carbon transport projects have become increasingly prevalent since 2020. Other categories for use-of-proceeds green bonds include green buildings, water, land use, waste, adaptation and resilience measures, and information and communications technology. Increasing investment in these economic sectors is essential to fully transition to low-carbon economies.

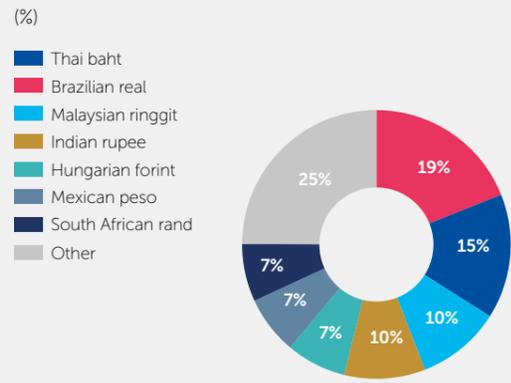
**Currency:** Emerging market green bonds outside China have been mostly denominated in foreign currency, notably in US dollars, euros, Swiss francs, and pound sterling (figure 2.11). As overall issuance has picked up, local currency issuance has also expanded somewhat indicating that domestic investors are driving some of the increased demand for green bonds. The bulk of cumulative local currency issuance outside China has been in Brazilian real, Thai baht, Malaysian ringgit, Indonesian rupiah, Hungarian forint, Mexican pesos, and South African rand (figure 2.12). Given that most of China's green bonds continue to be issued onshore, foreign currency bonds accounted for only about 29 percent of volume in 2021.

**Figure 2.11: EMDE Green Bond Issuance, by Currency, 2012-21**



Note: EMDE = emerging market and developing economy.  
Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

**Figure 2.12: EMDE Local Currency Green Bond Issuance, 2012-21**



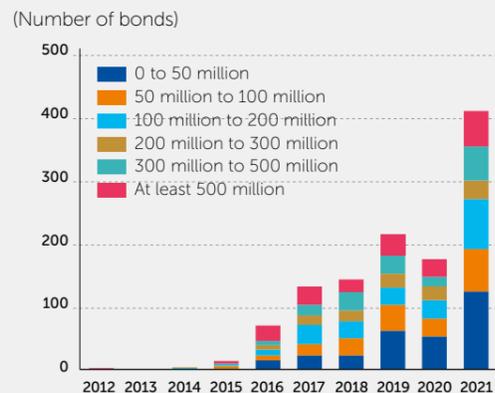
Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

**Issue Size:** Bond issues that are sufficiently large to be considered as benchmarks by international investors provide greater access to external financing, as they can be included in major indices. Of the EMDE green bonds issued in 2021, there were 110 benchmark-size bonds of at least US\$300 million (of which just over half were US\$500 million or more), representing 27 percent of the number of bonds issued (figure 2.13). However, reflecting the small size of most projects, the bulk of new issuance is still smaller than benchmark size.

**Ratings:** Investment in EMDE green bonds has been limited to some extent by the lack of internationally recognized credit ratings, which are key to assessing creditworthiness. Of the total number of green bond issues in 2021, 14 percent were rated investment grade and another 9 percent were rated subinvestment grade. The lower percentage of internationally rated bonds in 2021 compared with 2020 is a result of the overall higher issuance in China, where many issuers have relied on local credit ratings (figure 2.14), making valuation and credit assessment more difficult for international investors. Defaults have been rare in the green market as a whole<sup>9</sup>. Among EMDEs, there have so far been three defaults: two in 2021 by a Chinese solar power firm and a property developer and one in 2020 by an Indian irrigation firm.

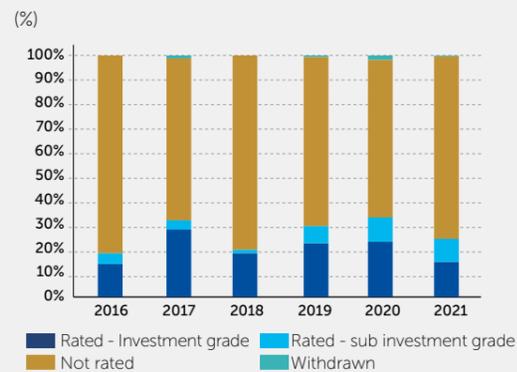
**Tenor:** Through 2019, EMDE green bonds were typically medium-term instruments issued by financial institutions, with the majority of issuances having a 3- to 5-year tenor. Over the past 2 years, however, as new entrants came to market, including a larger number of nonfinancial corporates and sovereigns, the range of tenors widened. In 2021, one-third of issuance was medium term, while another third was in the range of 5 to 10 years, 15 percent was longer dated at over 10 years, and the remainder was less than 3 years.

**Figure 2.13: EMDE Green Bond Issuance Size**



Note: EMDE = emerging market and developing economy.  
Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

**Figure 2.14: EMDE Green Bond Issuance, Ratings**



Note: EMDE = emerging market and developing economy.  
Source: IFC, Bloomberg, Environmental Finance, Climate Bonds Initiative.

## MARKET PERFORMANCE

Rising interest rates starting in 2021 affected the market performance of green bonds globally<sup>10</sup>. On a euro-hedged total return basis, the Bloomberg Barclays MSCI Global Green Bond index slightly underperformed the Bloomberg Global Aggregate index (figure 2.15). The difference in performance arose mainly because the green bond index tends to have a lower average yield and higher duration, making it relatively more sensitive to changes in interest rates. The total accumulated return of the global green bond index over the past five years continued to outperform the aggregate index, by 280 basis points as of end-2021. However, 2022 marks a period of market uncertainty as interest rates continue to rise, reflecting increasing inflationary pressures.

**Figure 2.15: Total Return Performance of Green Bonds versus Global Aggregates**



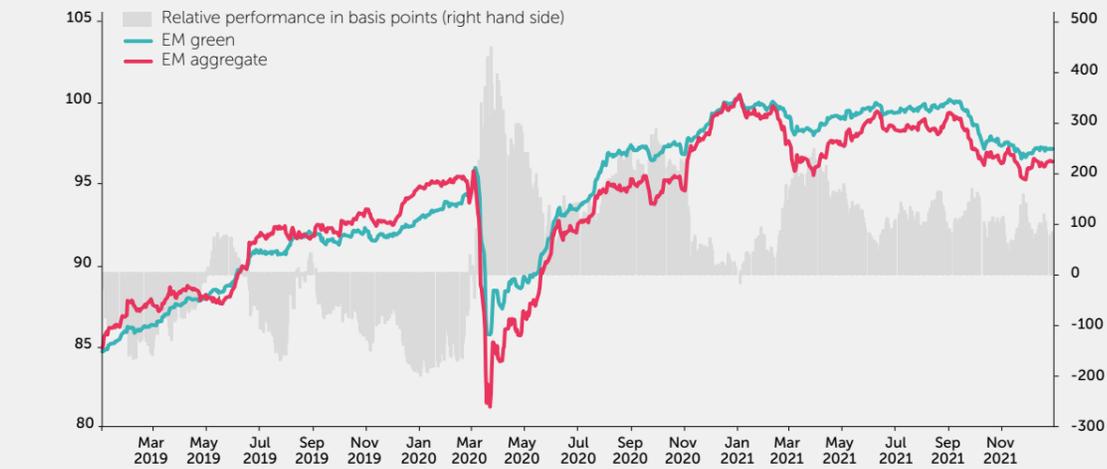
Source: Bloomberg.

Due to the strong volumes of green bonds issued from EMDEs in 2021, emerging markets have maintained their 9 percent weight in the Bloomberg Barclays MSCI Global Green Bond index.

Although at this point there is no dedicated index for EMDE green bonds, it is possible to use the subindexes of the J.P. Morgan Green Bond and Global Aggregate indexes to assess the performance of emerging market (EM) constituents. In 2021, the total return performance of the EM subset of the J.P. Morgan Green Bond index stayed relatively flat until September 2021, before being adversely affected by turmoil in the Chinese credit market, especially in the property sector. By year's end, returns were negative both for the J.P. Morgan EM index and the green bond subset. Green bonds nonetheless continued to outperform the overall EM index by 77 basis points (figure 2.16).

**Figure 2.16: Total Return Performance of J. P. Morgan EM Green Bond Index versus J. P. Morgan EM Aggregate**

(base 100 = December 31, 2020)



Note = EM = emerging market. Source: J.P. Morgan, Amundi, IFC.

## The Green Premium in Emerging Markets

The green premium, or greenium, corresponds to the difference in the spread of a green bond and a hypothetical conventional bond of the same issuer, currency, and seniority. Because the two bonds compared share similar credit risk profiles, the valuation gap can be attributed to supply and demand effects. A negative greenium signals a higher cost for the investor.

Secondary market data<sup>11</sup>, indicate that the average greenium observed for EMDE bond issuers stands at about 3.4 basis points (table 2.1).

**Table 2.1: EMDE Green Premium Statistics**

Median Premium (basis point)	Average Premium (basis point)	Number of observations	T statistic	Average Modified Duration	Average Spread (basis point)	Average Premium vs Average Spread (%)
-1.3	-3.4	27	-1.7	5.8	81	-4.2

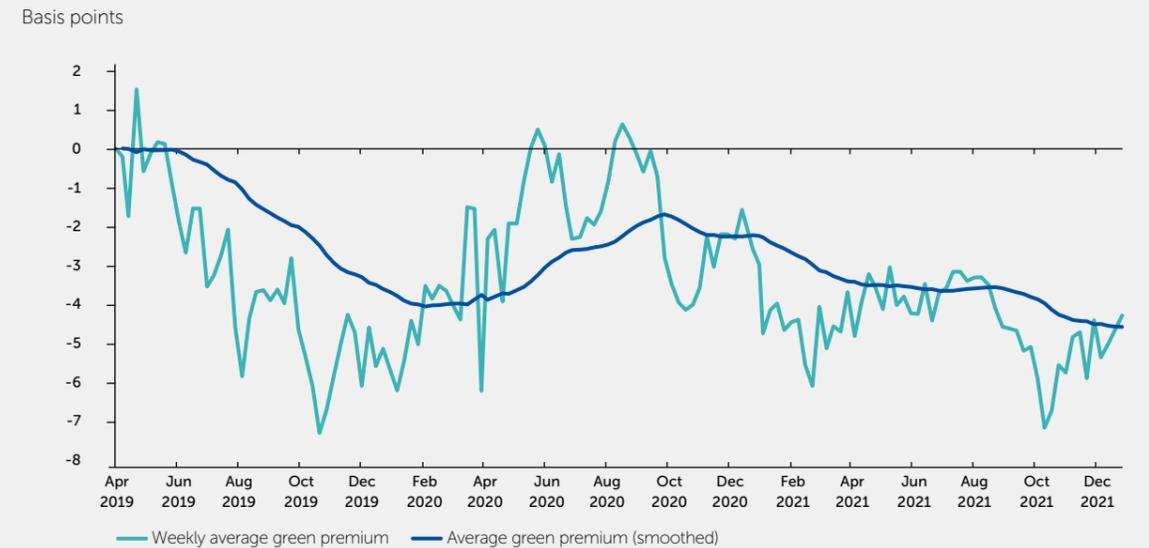
Note: EMDE = emerging market and developing economy. This data sample includes green and sustainability bonds from EMDE issuers.  
Source: Amundi, Bloomberg

While the average greenium is unchanged from the 2020 assessment, it is interesting to highlight two developments in 2021:

- the average greenium now represents 4.2 percent of the average spread of bonds in the sample, up from 3.5 percent; and
- the average greenium widened during 2021 from -2.2 basis points to -4.6 basis points at the end of the year, on a rolling-average basis (figure 2.17).

The evidence of an average negative green premium for EMDE issuers covers the secondary market only and does not necessarily cover all green bonds. If this premium were also applied in the primary market, it would mean lower funding costs and would give issuers an incentive to adopt the green bond format. However, it is difficult to draw firm conclusions about that, given the relatively small size of the EMDE green bond market. This is also reflected in the significant volatility of the weekly average green premium (figure 2.17).

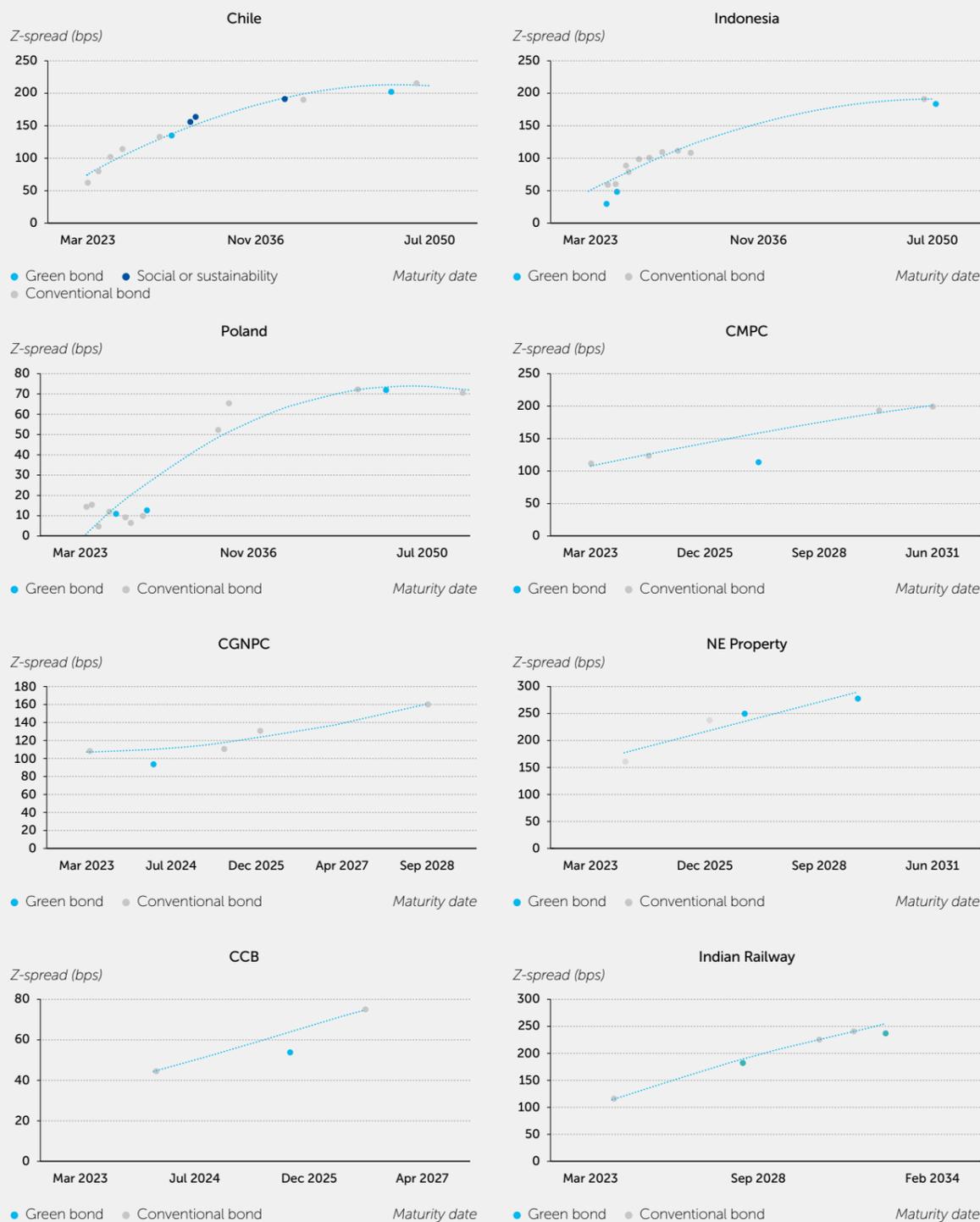
**Figure 2.17: Trend in the Observed Emerging Market Greenium**



Source: Amundi, Bloomberg

The panels of figure 2.18 provide illustrations of the issuer curves of several EMDE issuers showing the relative valuations of green, social, and sustainability bonds. For instance, the green bond issued by Chilean pulp and paper company Compañía Manufacturera de Papeles y Cartones (CMPC) was trading tighter than the theoretical conventional curve, indicating a negative green premium.

Figure 2.18: Curves of Select Green Bond EMDE Issuers



Note: EMDE = emerging market and developing economy; bps = basis points. The Z-spread or zero volatility spread is the constant yield spread over the entirety of the swaps spot curve such that the present value of the cash flows matches the clean price of the bond. Data as of April 13, 2022. Source: Amundi, Bloomberg.

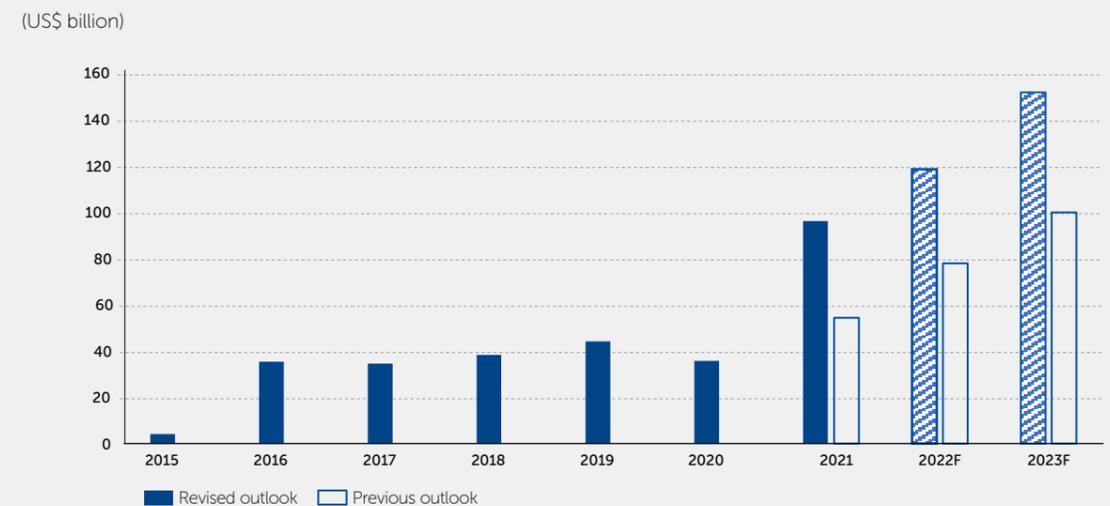
## MARKET OUTLOOK

The sharp rebound in EMDE green bond issuance in 2021 from the dip in 2020 exceeded the forecast in the previous report. For 2022, this report assumes continued growth in issuance of GSSS bonds even in the face of many challenges. At the global level, these include increased market uncertainty and the rising interest rate environment. At the country level, these include lack of awareness and technical knowledge about these bonds; the quality and availability of information to identify, measure, and track green and sustainable investment; overall macroeconomic and policy challenges; and underdeveloped capital markets. Moreover, increased uncertainties in the energy market due to the war in Ukraine may lead to an acceleration of clean energy investment and supporting infrastructure. In the near term, however, the depth and breadth of the war's impact on EMDE growth, government finance, and overall investment sentiment remains unclear.

As in previous years, the outlook uses three scenarios. These are all based on two key assumptions: first that total bond issuance will remain stable based on the average of the past three years; and second, that the share of green bonds to total bond issuance in EMDEs excluding China follows a similar growth trajectory to that in Western Europe (the most mature market for green bonds). In the "central" scenario, there is a time lag of three years for EMDEs as compared to Western Europe. In the "catch-up" scenario, the time lag is closer to two years. The "slow take-off" scenario is more conservative and projects linear growth—that is, the market share will continue growing at the same pace from year to year, whereas in the central and catch-up scenarios, the market share grows at faster rates from year to year.

By 2023, the central scenario anticipates that green bond issuance in EMDEs will climb toward US\$150 billion annual issuance, or about 50 percent higher than in 2021, with Chinese issuers contributing more than half the total (figure 2.19). In the more optimistic catch-up scenario, annual EMDE green bond issuance would double to US\$200 billion by 2023. In the third, slower take-off scenario, issuance would be essentially flat compared with 2021.

Figure 2.19: Projections for EMDE Green Bond Issuance in the Central Scenario



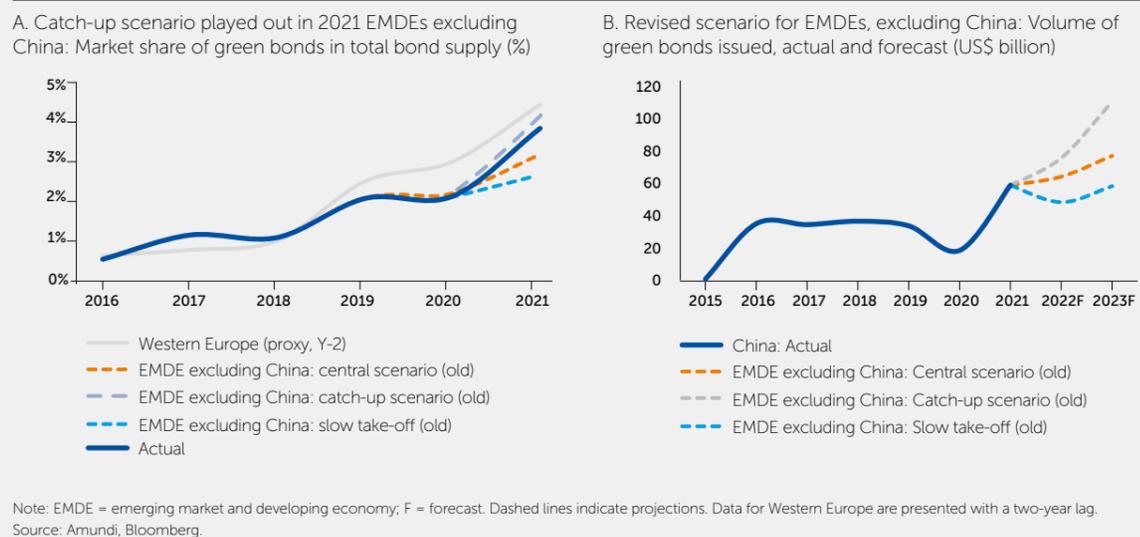
Note: EMDE = emerging market and developing economy; F = forecast. Source: Amundi, Bloomberg.

## Scenarios for EMDE Market Growth, Excluding China

The catch-up scenario in the previous report had factored in a faster recovery of green bond issuance in 2021, with the market share reaching 4.2 percent of total supply. That scenario was almost realized, with the green bond market share reaching 3.9 percent of the total in 2021 (figure 2.20, panel a). Although many other factors were at play, continuation of this trend is a key assumption behind the projections underlying the revised central scenario.

In the more optimistic catch-up scenario, the volume of green bond issuance excluding China is projected to accelerate over the next two years, reaching nearly US\$90 billion by 2023. This scenario implies that the share of green bonds would exceed 10 percent by 2023. In this scenario, the contribution of sovereigns is particularly crucial. The scenario assumes that EMDE sovereigns with established green funding programs will continue issuance, and that several other EMDEs, including Brazil and India, will also join, in line with their stated intentions. Finally, the slow takeoff scenario assumes incremental growth, excluding China, corresponding to the average of the past five years (figure 2.20, panel b).

Figure 2.20: Outlook for Green Bond Issuance



While this section focuses on green bonds, the positive momentum in issuance of social, sustainability, and sustainability-linked bonds is expected to continue, despite the increased market uncertainty and the rising interest rate environment. Sustainability-linked bonds, in particular, have significant potential. Since these bonds free borrowers from constraints in terms of proceeds allocation, a greater number of issuers will be able to use them. The main challenge for this versatile format will be to ensure that issuers select relevant sustainability KPIs and set ambitious targets—a key condition for demonstrating a significant contribution to SDGs.

### Opportunities for Green Bond Market Growth

The potential for further green bond market growth will depend on sustainable finance policies and frameworks, the momentum of green bond issuance based on investor demand and country commitments, capital market development, and governance and political stability. The first two determinants are specific to the development of the green bond market, while the latter two determinants focus on the potential for growth more broadly. For many EMDEs, limited capital market depth and underdeveloped financial market infrastructure are hindrances to boosting green bond issuance. Sound governance and political stability are necessary for supportive regulatory sustainable finance policies and frameworks.

Table 2.2 illustrates how individual EMDEs perform across these measures and indicates whether there has been a notable change from 2020 to 2021. While some of the 43 members of the IFC-initiated Sustainable Banking and Finance Network (SBFN) have not yet issued green bonds, they demonstrate potential based on their commitment to national sustainable finance initiatives. Market prospects for each region are discussed in the remainder of this section. Although some green and sustainability bond issuance may be delayed given the elevated geopolitical and market uncertainties, as happened at the onset of the COVID-19 pandemic, these markets will continue to grow over the long term as their fundamentals remain intact.

Table 2.2: Determinants of Green Bond Market Potential

Country	Region	US\$ bn Volume of Green Bonds Issued in 2021	Cumulative US\$bn Volume of Green Bonds Issued in 2012-21	SBFN Score		Green Bond Momentum		Capital Market Development			Governance	
				Overall	Sovereign Green Issuance	Relative Green Bond Issuance	Domestic Credit to Private Sector	Market Capitalization	EMBI Spreads	Regulatory Quality	Rule of Law Index	
Cambodia	EAP											
China	EAP	59.3	221.3									
Fiji	EAP		0.0									
Indonesia	EAP	0.8	5.5									
Lao PDR	EAP											
Malaysia	EAP	0.3	1.8									
Mongolia	EAP											
Philippines	EAP	0.5	2.9									
Samoa	EAP											
Thailand	EAP	0.9	2.8									
Vietnam	EAP	0.2	0.2									
Armenia	ECA		0.1									
Czech Republic	ECA	4.0	7.3									
Estonia	ECA		0.1									
Georgia	ECA	0.5	0.8									
Hungary	ECA	1.2	3.4									
Kazakhstan	ECA		0.0									
Kyrgyz Republic	ECA											
Latvia	ECA	0.2	0.3									
Lithuania	ECA	0.0	0.8									
Poland	ECA	2.7	7.4									
Romania	ECA	0.9	1.9									
Russian Federation	ECA	1.6	2.6									
Serbia	ECA	1.2	1.2									
Slovak Republic	ECA	0.5	0.5									
Slovenia	ECA		0.1									
Turkey	ECA	1.2	1.4									
Ukraine	ECA	0.8	1.2									
Argentina	LAC	0.5	1.2									
Barbados	LAC	0.0	0.0									
Brazil	LAC	2.0	10.2									
Chile	LAC	5.7	13.6									
Colombia	LAC	0.4	1.1									
Costa Rica	LAC		0.5									
Dominican Republic	LAC	0.0	0.0									
Ecuador	LAC		0.2									
Guatemala	LAC	0.7	0.7									
Honduras	LAC											
Mexico	LAC	0.8	3.6									
Panama	LAC		0.3									
Paraguay	LAC											
Peru	LAC		1.7									
Uruguay	LAC		0.4									
Egypt, Arab Rep.	MENA	0.1	0.9									
Iraq	MENA											
Jordan	MENA											
Lebanon	MENA		0.1									
Morocco	MENA		0.4									
Saudi Arabia	MENA		1.3									
Tunisia	MENA											
United Arab Emirates	MENA	0.6	2.6									
Bangladesh	SA	0.0	0.0									
India	SA	5.9	17.7									
Nepal	SA											
Pakistan	SA	0.5	0.5									
Sri Lanka	SA											
Côte d'Ivoire	SSA	0.0	0.0									
Ghana	SSA											
Kenya	SSA	0.0	0.1									
Maldives	SSA											
Namibia	SSA		0.0									
Nigeria	SSA	0.0	0.2									
Seychelles	SSA		0.0									
South Africa	SSA	0.5	2.8									

Notes: Countries included are those that are Sustainable Banking and Finance Network (SBFN) members and/or green bond issuers. Countries are scored from 0 to 5 on each of the components, with 5 being the highest on a relative basis, according to available data.

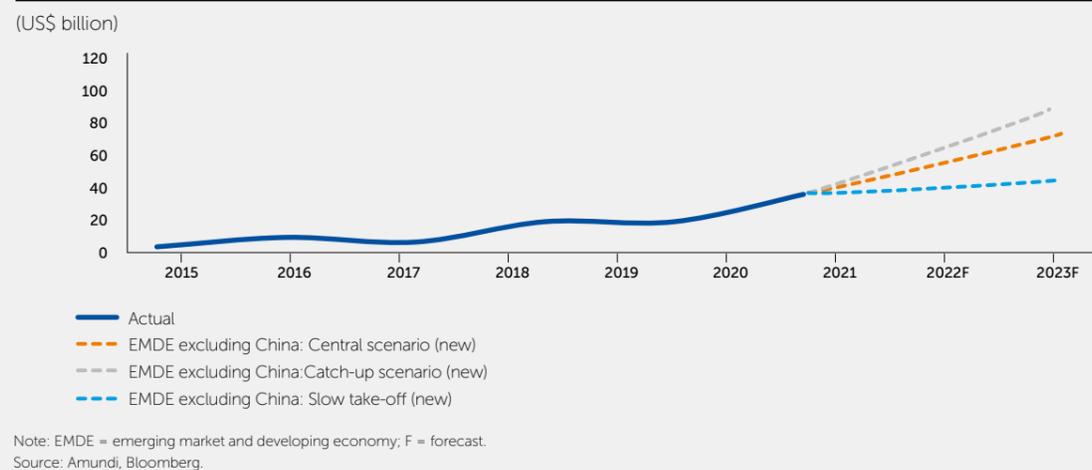
The SBFN Score is based on the Sustainable Banking and Finance Network measurement framework assessing national sustainable finance policies. Countries that are not SBFN members are indicated in gray. Sovereign Green Bond Issuance is based on whether the sovereign has already issued green bonds and whether it has announced plans to do so. Relative Green Bond Issuance measures the share of green bond issuance relative to total bond issuance from 2017-21. Domestic Credit to Private Sector is based on the percent of gross domestic product (GDP) and refers to financial resources provided to the private sector by financial institutions. The data source is the World Bank. Market Capitalization data is based on the percent of GDP and are sourced from the World Bank and World Federation of Exchanges. J.P. Morgan Emerging Market Bond Index (EMBI) spreads are measured in basis points and are from May 2022. Lower spreads are scored as a 5, while higher spreads are scored as a 1. The Regulatory Quality and Rule of Law Index indicators are sourced from the World Bank. EAP = East Asia and Pacific; ECA = Eastern and Central Asia; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SA = South Asia; SSA = Sub-Saharan Africa.

**China:** The rebound in green issuance in China in 2021 was even more pronounced than expected in last year's report following the contraction in 2020, in part due to regulatory changes, specifically the Green Bond Endorsed Project Catalogue, which became effective July 1, 2021.

The optimistic catch-up scenario assumes that the rebound seen in 2021 will continue at the same pace and that China will close the gap with other emerging markets, bringing the market share of green bonds aligned with international definitions to similar levels as in other EMDEs. In this scenario, Chinese issuers would issue about US\$110 billion of green bonds by the end of 2023. Given that the share of green bonds in total offshore deals was already high (about 11 percent) in 2021, this scenario assumes the development of the domestic green bond market. In this connection, the introduction by the People's Bank of China of qualitative and quantitative indicators related to green bond business in its Green Financial Evaluation Program for Banking Financial Institutions could be supportive and add incentives for green bond holdings, issuance, and underwriting.

The central scenario is more conservative and replicates the incremental increase in the penetration rate of the green format seen in EMDEs over 2019–21. The slow takeoff scenario assumes that the boom seen in 2021 would be followed by a temporary pause, as in 2017. In all scenarios, however, the buildup of green debt from China's property developers will likely slow given the pressures on the sector, including one bond default and a couple of distressed debt exchanges in 2021 (figure 2.21).

**Figure 2.21: China: Volume of Green Bonds Issued, Actual and Forecast**



**East Asia and the Pacific, excluding China:** In ASEAN countries, the scale-up of green and sustainability bond markets is supported by the ASEAN taxonomy released in late 2021, designed to complement the existing taxonomy in **Malaysia** and initiatives in **Indonesia**, the **Philippines**, **Thailand**, and **Vietnam**. These taxonomies or classification systems set out to establish which economic activities are considered environmentally sustainable for investment purposes. Indonesia has launched the second phase of its comprehensive sustainable finance roadmap. The central bank of the Philippines is considering introducing preferential treatment for banks that provide green loans through rediscount rates or provision of higher loan values. The broader focus on ESG considerations and engagement from both issuers and investors in the region points to continued growth of social and sustainability bond issuances as well.

**Europe and Central Asia:** The Europe and Central Asia region continues to build on the significant momentum generated over 2020–21 with green bonds in new markets, as well as repeat issuance, such as **Hungary's** sovereign green bonds. In early 2022, the Bank of International Settlements launched an Asian green bond fund, which could boost fledgling markets in Central Asia through investment in bond issuance by sovereigns and corporates.

The considerable policy push by the European Union (EU) on green initiatives has influenced many countries in the region and will continue to play an important role, especially in EU member and accession countries. Following the invasion of Ukraine, the European Commission announced its REPowerEU initiative on March 8, 2022, which seeks to accelerate the clean energy transition, including a faster roll-out of renewable energy sources for heating and power generation, as part of a strategy to reduce fossil fuel dependency well before 2030. This initiative also highlights the European Commission's efforts to support the energy security needs of **Georgia**, **Moldova**, **Ukraine**, and countries in the Western Balkans. Early discussions of reconstruction efforts in Ukraine include allocating investments to green infrastructure and energy efficiency. These markets are most directly exposed to the fallout from the war in Ukraine and thus subject to conflict-related disruptions and considerable geopolitical uncertainty.

**Latin America and the Caribbean:** While the green bond market continues to grow in Latin America and the Caribbean, issuance of social, sustainability, and sustainability-linked bonds is growing, with more corporates signaling intent to issue. Ongoing sovereign issuance programs in **Chile** and **Colombia**, as well as planned green issuance in **Brazil** and an SLB in **Uruguay**, will further boost the market. Initiatives to strengthen market infrastructure include local taxonomy development, which has been completed in Colombia and is underway in Chile, the **Dominican Republic**, and **Mexico**. Several countries in the region are also expected to focus efforts on sustainable agriculture (with Brazil's central bank seeking to facilitate issuance in the sector), and accelerated activity in this sector could address some of the supply constraints faced by fertilizer importers who have been most directly impacted by the war in Ukraine. Other areas of focus in the region include low-carbon transport and biodiversity.

**Middle East and North Africa:** Several countries in the Middle East and North Africa have been seeking to diversify energy sources, with large solar projects and green hydrogen as key drivers of potential green bond issuance in the region. Despite the pronounced uncertainty in energy markets, these efforts are likely to continue as part of a medium- and long-term strategy. For example, the **United Arab Emirates** remains a steady source of bonds to fund solar projects. Sovereign issuance is attractive for countries seeking to expand their investor base. The **Saudi** government and sovereign wealth fund have plans to issue green bonds, which will likely generate significant interest, and **Kuwait's** sovereign wealth fund has signaled its intent to invest in Saudi green initiatives. As the host country for COP27 in November 2022, the **Arab Republic of Egypt** has said it intends to repeat its green sovereign issuance.

**South Asia:** **India** surpassed previous green bond issuance volumes in 2021, with potential for more issuance, given the significant capital needs to meet its net-zero emissions target by 2070. Although nonfinancial corporates in the renewable energy sector accounted for most of the recent issuance, banks could start increasing their issuance to finance sustainable lending projects. India is in the early stages of developing a green taxonomy, which would replace guidance issued several years ago with a more comprehensive set of definitions and metrics. Elsewhere in South Asia, debut issuances in **Pakistan** and **Bangladesh** open the path for more issuance in the region. Shortly after Pakistan issued its first green bond in 2021, the Securities and Exchange Commission of Pakistan published green bond guidelines (which also apply to green sukuk), designed to encourage further issuance. Both India and Pakistan have announced plans to issue green sovereigns, although Pakistan's planned March 2022 issuance was delayed amidst market volatility.

**Sub-Saharan Africa:** After 2020 proved a difficult year for the nascent GSSS market in Sub-Saharan Africa, new issuance in a number of countries has been encouraging, as has policy support for guidelines and taxonomies. **Kenya's** sovereign green bond framework signals its readiness to issue a green sovereign once market conditions are favorable. Green sovereign plans are also underway in **Namibia**, where the use of proceeds would facilitate investment in the production of green hydrogen. Many countries in Sub-Saharan Africa have prioritized the development of green and sustainability bond guidelines, including those published by WAEMU, **Kenya**, **Nigeria** and **Zambia** and under development in **Ghana** and **Mauritius**. **South Africa's** National Treasury published a green finance taxonomy in April 2022 to principally align with the guidance provided by the recently developed EU Taxonomy.

The following sections provide detail on additional opportunities for investment, initiatives to address some of the challenges noted earlier, and other avenues to raise capital for sustainable investment beyond debt issuance. Section 3 focuses on the need for an increased focus on climate adaptation investment to strengthen the resilience of EMDEs, which will be disproportionately affected by climate change. In addition, the availability of blended finance can be a significant catalyst, particularly for certain types of projects. The discussion of global policy initiatives in Section 4 highlights how these initiatives could generate new investment opportunities in EMDEs and addresses some of the challenges related to sustainable finance reporting policies and disclosure standards. Finally, Section 5 outlines how "green" debt restructuring could link debt restructuring with sustainable objectives.

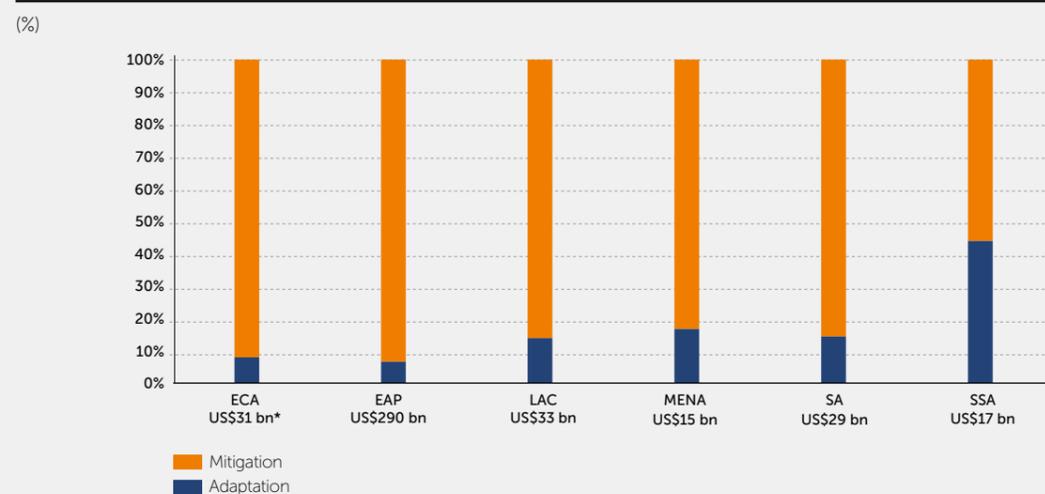
## SECTION 3: FOCUS ON FINANCING CLIMATE ADAPTATION

### Taking Stock of Climate Adaptation Financing

The Climate Policy Initiative's Global Landscape of Climate Finance estimated global climate finance flows at US\$632 billion per year for 2019–20, financing both climate change mitigation and adaptation projects. Climate change mitigation addresses the causes of climate change, whereas climate change adaptation addresses its consequences by strengthening the resilience of economies and societies.

Despite widespread recognition that both types of climate efforts are essential and recent estimates suggesting that adaptation needs are growing quickly, especially in developing countries (see below), adaptation financing remains a small portion of global climate finance to date. The bulk of it (US\$571 billion) has gone to mitigation projects, with only US\$46 billion contributing to adaptation, and the remaining flowing to projects that include both mitigation and adaptation aspects (Figure 3.1)<sup>12</sup>. This section explores some of the reasons for the gap and potential ways to boost adaptation financing.

**Figure 3.1 Climate Finance Flows in EMDEs: Adaptation vs. Mitigation, 2019/2020 Average**



Note: EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SA = South Asia; SSA = Sub-Saharan Africa. Regions are based on World Bank definitions.  
\*US\$ amounts refer to the total amount of climate finance flows in each region.  
Source: IFC, Climate Policy Initiative.

The lack of adaptation financing is significant because the effects of climate change are inevitable and will be felt for several decades to come, regardless of mitigation policies. It would thus make sense to focus greater efforts on adaptation to build resilience to climate change. This was in fact one of the stated goals of COP26, which aimed to address adaptation to protect communities and natural habitats in the face of a changing climate.

There are two main ways to reduce the damage and costs resulting from climate change. The first is to provide financial support, social protection to affected populations, or both. In this regard, insurance is an important tool to increase financial resilience; however, it is not widely used. Close to 70 percent of losses from climate events remain uninsured, with the burden of liabilities falling on governments through disaster relief and reconstruction, as well as through welfare payments<sup>13</sup>. A second, more holistic approach would require public and private actors to make climate change adaptation an important consideration in all their investments and policy decisions. This could involve addressing slow-onset climate events such as rising temperatures or loss of biodiversity, financing immediate post-event disaster relief and planning, or improving data collection, risk analysis, and estimation of future losses.

Article 8 of the Paris Agreement emphasizes “the role of sustainable development in reducing the risk of loss and damage” from climate change–related events. In that regard, the financial sector has a key role to play in enhancing climate adaptation<sup>14</sup>. Two types of climate adaptation–related investments can be identified. The first one involves asset-level adaptation—that is, investments aimed at maintaining or enhancing the resilience of an asset or activity to climate change (for example, upgrading, replacing, or relocating infrastructure to reduce vulnerability to floods). The second type is system-level adaptation, which involves investment in assets or activities whose purpose is to enhance the climate resilience of an economy as a whole (for example, research into drought-resistant crops)<sup>15</sup>. Relevant sectors for adaptation projects include water, buildings, forestry, energy, information and communications technology, and health infrastructure.

Both types of adaptation investments are particularly important for developing countries. Adaptation finance gained momentum over 2019–20, rising by 53 percent to an annual average of US\$46 billion. Nonetheless, the level of funding currently falls considerably short of estimated needs. Indeed, estimated climate change adaptation costs in developing countries have increased significantly over the past several years, widening the gap between financing flows and real needs. The estimated annual adaptation costs in the literature are now generally in the upper range of the United Nations Environment Programme (UNEP) 2016 estimate of US\$140 billion to US\$300 billion by 2030 and US\$280 billion to US\$500 billion by 2050. Overall, climate adaptation financing needs are deemed to be 5 to 10 times greater than current international public adaptation finance flows<sup>16</sup>.

Part of this increase in estimated adaptation needs reflects the update of national adaptation plans (NAPs) in many countries, which now incorporate a wider range of sectors. Established under the Cancun Adaptation Framework (CAF) and reemphasized in the Paris Agreement, the NAP approach aims to reduce vulnerability to the impacts of climate change and to integrate adaptation into new and existing policies and programs. An analysis of these plans shows that four sectors—agriculture, infrastructure, water, and disaster risk management—make up three-quarters of adaptation finance needs.

Recent estimates of the physical and economic impacts of climate change are also higher than reported in earlier studies, both in the short term under ambitious mitigation scenarios and later under higher warming scenarios<sup>17</sup>. This is mechanically pushing up the cost of and need for climate adaptation efforts<sup>18</sup>. For example, losses due to weather-related events have increased nearly 10-fold, from a 10-year global average of US\$12 billion in 1980 to US\$119 billion in 2017, according to the Climate Bonds Initiative (CBI). In the most extreme climate change scenario, costs from extreme weather alone could reach 1 percent of global gross domestic product (GDP) annually by 2050, and up to 20 percent of the world’s GDP in 2100 if a wider range of risks and impacts is taken into account<sup>19</sup>.

### Barriers to Climate Adaptation Finance

Why is financing for climate adaptation lagging financing for climate mitigation?

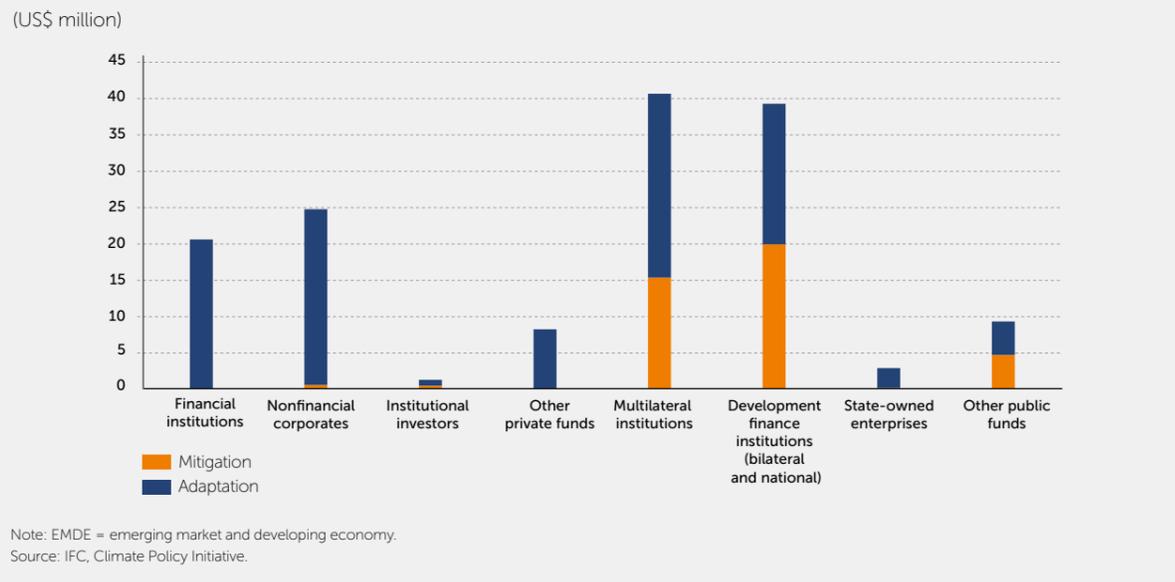
Structural reasons may help explain why investors have been less interested in financing climate adaptation projects. First, the concept of climate adaptation is very broad, and its benefits are hard to measure. As a result, there is a need for better quantification of climate adaptation outcomes. This is a challenge, given the context-specific nature of climate adaptation projects in contrast to mitigation targets that are easier to quantify in terms of greenhouse gas emission reductions. The lack of common definitions around climate adaptation is a related obstacle. The way in which an entity defines adaptation has a direct impact on the range of climate risks considered and the type of resilience action that can be taken to limit these risks<sup>20</sup>.

Lack of clarity regarding the nature of adaptation financing can deter investors. Seeing adaptation solely as a loss-avoidance strategy can make it unattractive and conceal potential collateral benefits. For example, switching to sustainable agricultural practices may not only be considered as an adaptation action, it may also lead to the emergence of new economic opportunities in the context of a changing climate. There are also concerns regarding the risk-return profile of climate adaptation projects reflecting the difficulties of measuring adaptation benefits, as well as uncertainty about the financial returns generated by such investments.

Moreover, some governments, especially in emerging markets, may lack the capacity to analyze climate hazards and exposure, which could prevent them from identifying climate resilience risks and opportunities<sup>21</sup>.

The fact that the broader public sector, including multilateral organizations and development banks, has so far played a major role in providing adaptation finance (Figure 3.2) points to a possible limitation to further growth. Public sector funding is critical but cannot be scaled sufficiently to meet the growing adaptation needs. For this, private sector funding sources must be mobilized.

**Figure 3.2 Sources of EMDE Climate Finance, 2019/20 Average**



Finally, the COVID-19 pandemic could be seen as an additional factor that has depressed adaptation funding in the past two years, along with all other types of climate financing. Despite a recent trend of rising international public adaptation financing for developing countries up to 2019–20, adaptation finance flows are expected to stabilize or even decline as a result of the health crisis<sup>22</sup>. This is due to the priorities of financial institutions and governments—including those in advanced economies, which provide the majority of international adaptation financing—to meet the urgent health care and financial needs caused by the pandemic.

## Investment Opportunities

Notwithstanding such barriers, a wide range of opportunities exists for investors to scale up investments in favor of climate adaptation.

Several tools and approaches targeted toward climate adaptation are emerging. These include, for example, climate resilience bonds or traditional green use-of-proceeds bonds earmarked for adaptation projects. Blended finance, structured as debt, equity, risk-sharing, or guarantee instruments, could also constitute a way to fund adaptation projects. Indeed, using small amounts of public concessional funding to de-risk investments and make them commercially viable is a promising solution to attract private investors and start bridging the financing gap for adaptation. Moreover, while the private sector is well equipped to manage risks related to project implementation, public sector financial institutions can be best suited to provide technical assistance during the project design phase.

Nature-based solutions provide an additional instrument to finance climate adaptation. These are solutions aimed at the restoration and protection of natural habitats. Examples include the restoration of coastal ecosystems to protect communities from storm surges and erosion and agroforestry to stabilize crop yields in dry climates. Nature-based solutions may help counter the perception that climate adaptation investments have an unattractive risk-return profile. Indeed, since they are supported by nature, they can often be more affordable than alternative engineered climate adaptation approaches<sup>23</sup>.

Climate adaptation is, to some extent, already being financed by the green bond market. According to the Global Center on Adaptation, 16.4 percent of the global green-labeled bond market up to September 2020 includes activities related to adaptation, mostly water related. However, only 6 percent of these activities have come from emerging markets<sup>24</sup>. Going forward, leveraging of the credibility, scale, and liquidity of the green bond market to issue adaptation-related bonds could greatly facilitate investment by tapping into already-high investor demand for green bonds.

In EMDEs, sovereign entities can lead the way when it comes to financing climate change adaptation. The governments of **Fiji** and **Indonesia** have included climate adaptation components in their green bond frameworks. For example, Fiji would be particularly affected by climate change through rising sea levels, ocean acidification, rising temperatures, and extreme rainfall events. Its government was the first in emerging markets to issue a green bond supporting climate change mitigation and adaptation. The F\$100 million (US\$48 million) bond was one of the first sovereign bonds for which the majority of proceeds was allocated to build resilience in highly vulnerable areas and sectors, such as agriculture, health and education infrastructure, and rural housing. It was a collaborative effort between ministries and the Reserve Bank of Fiji to identify eligible projects with technical assistance from the World Bank Group, which allowed Fiji to reach an untapped international investor base to build resilience to climate change.

Finally, although the private sector has to take the lead in scaling adaptation investments, supranational organizations can also play a catalytic role by becoming early adopters of financial instruments targeting climate change adaptation. The first labeled climate resilience bond was issued by the European Bank for Reconstruction and Development in 2019. Proceeds from the bond were fully dedicated to support climate-resilient infrastructure, businesses, agriculture, and ecological systems. The Asian Development Bank issued a bond in 2019 that predominantly targeted adaptation activities, although it was not labeled a climate resilience bond as such. Proceeds from the sale of the bond funded the Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Sector Project, which targeted some of **Mongolia**'s most vulnerable areas. Specifically, the program involved building 10,000 low-carbon housing units and key infrastructure efforts, including roads, water, and sewage, as well as a smart system for monitoring building performance to improve resilience in the face of physical climate risks.

## Climate Adaptation Financing: Market Outlook

There is significant need, as well as potential, in the established green bond market to finance adaptation projects, including in EMDEs. Recognition of the importance of this aspect of climate action is increasing worldwide. As climate change-related weather events become more frequent and intense, the costs of adaptation will continue to rise. The Green Climate Fund, created in 2010 by the United Nations to support efforts of developing countries in response to climate change, aims to allocate 50 percent of its funds to climate adaptation projects<sup>25</sup>. This goal could be considered a sign of increased recognition of the need for greater climate resilience.

Although growing awareness is key, the issuance of green bonds with resilience and adaptation components will increase substantially only if current reporting and disclosure frameworks are strengthened. As a result, the inclusion of adaptation elements in frameworks and taxonomies developed by EMDEs will be necessary. The Climate Bonds Initiative's work on resilience and adaptation projects serves as a solid starting point to advance more robust and context-centric resilience guidelines. When first developed, the Climate Bonds Standard and Certification Scheme incorporated only sector-specific screening criteria related to climate change mitigation impacts. Climate resilience considerations were subsequently integrated, eventually leading to the introduction of the Climate Resilience Principles in 2019. The principles aim to provide high-level guidelines to determine when use-of-proceeds may be considered to contribute adequately and sufficiently to climate adaptation<sup>26</sup>.

Other actions initiated by the EU, such as the EU Taxonomy and the Platform on Sustainable Finance, also should contribute to filling the gaps in existing guidance, improving risk assessment methodologies for bond issuers, and developing more granular impact reporting metrics. The EU's guidance can be especially valuable for capital market actors in developing countries, where understanding of climate adaptation and of its benefits is still limited.

## SECTION 4: RECENT GLOBAL INITIATIVES AND IMPLICATIONS FOR EMERGING MARKET AND DEVELOPING ECONOMIES

### The 26th United Nations Climate Change Conference of the Parties

Announcements made at the 26th United Nations Climate Change Conference of the Parties (COP26) in Glasgow in November 2021 will directly and indirectly affect the green and sustainable bonds market across EMDEs.

Pledges such as those by the Glasgow Financial Alliance for Net Zero (GFANZ) and the Climate Finance Partnership represent important opportunities to finance projects that contribute to the low-carbon transition. The question is how much of this funding will reach EMDEs. As GFANZ members seek bankable projects, mostly in infrastructure and energy, EMDEs will need to strengthen their policy and regulatory frameworks and raise industry standards to attract international green bond investors.

In the runup to COP26, many EMDEs renewed their climate commitments through updated nationally determined contributions (NDCs) designed to reduce national greenhouse gas emissions and adapt to the impacts of climate change. As part of these new plans, several governments have made pledges to phase out coal and transition to clean power. Those pledges translate into commitments to end all investments in new coal power generation domestically and internationally, as well as phasing out coal in the 2040s for emerging markets. Five of the top 20 power-generating countries have signed the pledge, four of which are emerging economies—namely, **Indonesia, Poland, Ukraine, and Vietnam**. If implemented, this could create new investment opportunities in clean energy infrastructure as countries move away from coal and seek to invest in alternative sources of energy.

Finally, because COP26 placed a relatively greater focus on the need for climate adaptation funding to strengthen resilience to the effects of climate change, an increasing number of climate adaptation projects should be financed going forward. This is especially relevant for EMDEs because of their exposure to the physical risks from climate change. Scaling up climate adaptation finance in EMDEs, particularly the smaller ones, may require financial innovation to attract private investors, such as aggregation mechanisms to combine small-scale projects into larger vehicles or blended finance instruments to de-risk investment projects.

### International Sustainability Standards Board

In November 2021, the International Financing Reporting Standards Foundation, whose standards are used in 140 countries, announced the creation of the International Sustainability Standards Board (ISSB). This initiative is the result of the merger of several existing standards—the Task Force on Climate-Related Financial Disclosures (TCFD), the Value Reporting Foundation with its Sustainability Accounting Standards Board and the Integrated Reporting Framework, and the Climate Disclosure Standards Board—to create a unique framework for sustainability related financial disclosure.

The ISSB will develop global and consistent standards of sustainability disclosures. Working closely with the International Accounting Standards Board (IASB), the aim of this initiative is to provide investors with information needed to make informed decisions in line with their sustainability objectives. The starting point of the newly created board is the work done by the Technical Readiness Working Group, which has already produced two prototypes on climate-related disclosure, using TCFD recommendations, and general sustainability disclosure requirements. This initiative also involves EMDEs, which were represented in the working group established to lay the groundwork for the ISSB.

The development of these new standards is likely to have a beneficial effect on the global sustainable bond market, giving investors access to more homogenized information. For EMDE sustainable bond markets specifically, close alignment with new sustainability disclosure standards can increase their attractiveness to investors, thereby accelerating foreign capital inflows into these countries.

### Sustainable Finance Disclosure Regulation

In March 2018, the European Commission launched its Action Plan on Sustainable Finance, of which the Sustainable Finance Disclosure Regulation (SFDR) is a key pillar. SFDR came into force on November 2019 (Regulation EU 2019/2088), and the majority of its provisions have been applicable since March 2021, with a phase-in period expected to end in June 2024.

The SFDR aims to strengthen investor protection by improving disclosure of the negative impacts of investment decisions—defined as principal adverse impacts (PAIs) and of the main sustainability features of financial products. The SFDR seeks to avoid “greenwashing” of financial products and advice in the EU, to achieve clear comparability between end-investment products, and to put risks and sustainability elements at the heart of the investment approach.

The SFDR has immediate consequences on the activities of asset managers by requiring disclosure of how sustainability risks are included in their decision-making process; how these risks are reflected in their risk management process; and how they intend to assess the impact of risk on investment product performance.

The consequences for asset managers fall into two categories: entity level and product level. At the entity level, the SFDR requires asset managers to make a series of disclosures, specifically:

- Disclosure of material about the modality adopted by an entity to include sustainability risks in its investment decision-making or in its financial advice,
- Consistency of the remuneration policy with the sustainability risks, and
- Disclosure of the inclusion of these kinds of risks, with an evaluation of how the performance of financial products may be affected.

At the product level, all asset managers that include PAIs will have to explain how their products will account for the impacts generated, focusing particularly on the methodologies used to assess and measure the impact of sustainable investments. Finally, there are two specific provisions for Article 8 and Article 9 products. For Article 8 products, which promote environmental or social characteristics, asset managers must disclose information on how the environmental and social impacts will be achieved. For Article 9 products, which have a sustainable investment objective, asset managers will have to explain the strategy adopted to achieve these objectives, with additional information about the alignment with the EU Taxonomy, which entered into force in July 2020.

Although the SFDR is an EU regulation, some asset managers based outside the EU are trying to align their reporting policies to the one adopted by Article 8 and Article 9 products, even for products distributed outside the EU. For this reason, the SFDR is likely to have a major impact in EMDEs as well, especially for those with the most developed financial markets.

### The EU Taxonomy/Green Bond Standard

The EU Taxonomy is a classification system for environmentally sustainable finance that is rapidly becoming an international benchmark. Economic activities must meet four overarching conditions to qualify as environmentally sustainable. Recently, the EU Taxonomy extended its green finance criteria to include nuclear and natural gas-fired power as transitional activities, with stringent conditions attached to both. Additionally, the European Commission introduced specific disclosure requirements for businesses related to gas and nuclear energy activities, allowing investors to better identify which investment opportunities include gas or nuclear activities.

Although limited in scope to the EU, the taxonomy is highly relevant for issuers of securities in EMDEs. Indeed, international companies that finance, operate, or are listed in Europe will have to follow the guidelines of the EU Taxonomy, and EMDE issuers that seek to attract European investors are paying particular attention to it.

Establishment of the EU Taxonomy is propelling many EMDE governments as well as regional organizations to develop their own taxonomies as part of their sustainable finance strategies. Indeed, the EU Taxonomy has been a fundamental reference point for several EMDEs, such as **Colombia** (box 4.1), **Mexico**, and **South Africa**, which have sought to adapt the EU Taxonomy to their own national context. The EU Taxonomy has also served as a source of inspiration for **Chile** and **Malaysia**, which have tried to close potential gaps in the taxonomy and extend its scope to include a wider range of activities. Ultimately, this phenomenon could lead to a convergence of green finance norms and standards across the world.

**China** is an EMDE that has developed its own taxonomy, the Green Bond Endorsed Projects Catalogue, released in 2015 and updated in 2021. The 2021 edition increased the degree of convergence with international standards, notably through the removal of clean coal from its classification system. The release of the catalogue is expected to significantly increase the market size, liquidity, and transparency of the green bond market in China.

ASEAN released the first version of the ASEAN Taxonomy for Sustainable Finance in November 2021. This taxonomy specifies four environmental objectives, which are largely aligned with those in the EU Taxonomy<sup>27</sup>. Differences between the taxonomies include the ASEAN Taxonomy's multitiered approach, which consists of a foundation framework and a "plus" standard that can be used to adapt the taxonomy to local contexts.

Although the specific environmental objectives of green taxonomies can vary by jurisdiction, the development of taxonomies allows stakeholders in EMDEs to make more informed decisions when it comes to specific sustainable investment solutions. More broadly, taxonomies contribute to the promotion and adoption of green finance principles, especially in regions that have yet to embrace sustainability objectives on a widespread basis.

Development of a European green bond standard (GBS) could similarly serve as a benchmark for capital market actors in emerging markets. In July 2021, the European Commission proposed regulation for the GBS that would set a standard for how companies and public actors use green bonds to raise funds on capital markets. More specifically, the GBS would allow issuers to demonstrate that they finance legitimate green projects aligned with the EU Taxonomy. Importantly, the new green bond standard would be open to any issuer outside the EU, benefiting EMDE issuers that want to attract European investors. Development of such a standard should be accompanied by strengthened reporting and disclosure standards at the country level, as these will have a significant impact on a country's ability to mobilize capital for EMDE green bond markets.

### Box 4.1: Policy Initiatives in Colombia

Colombia is an upper-middle-income country with a gross domestic product (GDP) estimated at about US\$300 billion in 2021. It is the fifth largest economy in Latin America and the Caribbean. Colombia's green bond market is still relatively small, with cumulative (public and private) issuance of just over US\$1 billion by the end of 2021, but the government has recently transformed the country's ecosystem for green bonds. What sets Colombia apart from similar emerging markets is its comprehensive regulatory framework for sustainable finance and the deliberate, medium-term approach taken by the government to deepen the green bond market.

#### Colombia's Green Bond Market

Until 2021, green bonds had been issued by a handful of Colombian financial institutions—private commercial banks and the development bank Bancóldex—and by energy companies, totaling about 2.8 trillion Colombian pesos (US\$700 million). Bancolombia issued the first of these in 2016, raising 350 billion Colombian pesos (US\$53 million), with the proceeds primarily designated to finance green buildings. About half of the proceeds for these bonds was designated for renewable energy, with another 32 percent for energy-efficient buildings, 10 percent for low-carbon transport, and the remainder for water and waste management and land use (figure B4.1.1). In late 2021, one additional green bond was placed in the Colombian market from the energy firm Celsia.

All these green bonds were issued domestically in Colombian pesos. There has been very little trading in the secondary market, as most of the bonds are held to maturity<sup>28</sup>. A few issuers have been able to repeat issuance, and the market has shown strong capacity to innovate. Bogota's Sustainable Mass Transit Securitization, for example, has a securitization structure to fund low-carbon buses.

In September 2021, Colombia issued its first green sovereign bond (Colombian government bonds are known as TES), increasing the initial offer from 500 billion Colombian pesos (US\$130 million) to 750 billion Colombian pesos (US\$195 million) as a result of strong demand from both domestic and foreign investors, which

was 4.6 times the amount originally offered. Similar to the German "twin bond" model, the green bond has the same terms and covenants as the conventional Colombian TES that is due 2031 with a coupon of 7 percent. Compared with the conventional TES, the green TES achieved a greenium of 7 basis points at issuance, setting a pricing benchmark for other green bonds. This bond was tapped in October 2021 for another 650 billion Colombian pesos (US\$169 million), rounding out the 2021 green sovereign issuance (figure B4.1.2).

Figure B4.1.1: Colombia's Green Bonds - Use of Proceeds

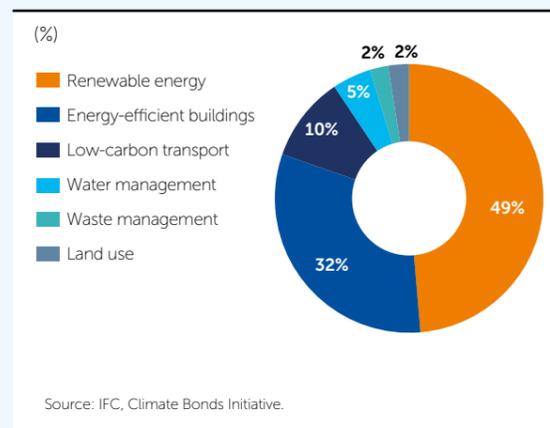
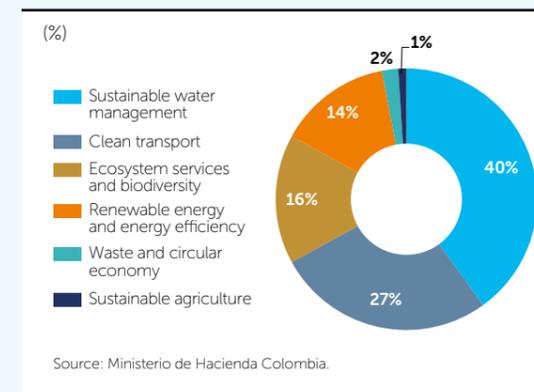


Figure B4.1.2: Colombia's Sovereign Green Bond Portfolio



#### The Policy and Regulatory Environment

Recent policy and regulatory initiatives in Colombia have transformed the ecosystem for the green bond market. These initiatives have been based on the country's overall climate, environmental, and sustainability objectives, notably its nationally determined contribution (NDC) to the Paris Agreement, which was updated in December 2020 prior to COP26. The NDC entails the reduction of greenhouse gas emissions by 51 percent from business-as-usual projections by 2030, carbon neutrality by 2050, and net zero deforestation by 2030. Through the government's Pack for Sustainability initiative and supporting legislation, the government has committed to an increase in the share of renewable energy sources, restoration of ecosystems, and incentives for electric vehicle purchases.

In addition to these commitments, the Colombian government and regulatory authorities took a number of steps to enhance the role of the financial system, particularly the domestic financial market, in achieving the country's sustainability objectives. These steps moved Colombia into the "maturing" stage of its national sustainable finance framework, alongside only China and Indonesia<sup>29</sup>, according to IFC's Sustainable Banking and Finance Network. Colombia's sustainable finance framework addresses environmental, social, and governance (ESG) integration, climate risk management, and financing sustainability for the banking sector, pension funds, capital markets, and asset management<sup>30</sup> and is crucial for creating a broad ecosystem for development of the green bond market and for providing signals to potential investors and issuers about the coherence of the country's sustainability strategy. Such initiatives draw on international standards and guidance, as well as other countries' experiences, while adapting to Colombia's unique circumstances, including an emphasis on biodiversity and land use.

#### Key steps include the following:

- In 2020, the financial market regulator, the Financial Superintendency of Colombia (Superintendencia Financiera de Colombia; SFC), published guidelines for

the issuance of green bonds, drawing on the International Capital Market Association's Green Bond Principles to outline the use of proceeds, the process for project evaluation and selection, the management of proceeds, and the reporting by an external review of placement and allocation prior to issuance as well as performance and impact post issuance. In addition, the SFC issued guidelines on the management of ESG and climate risks for the pension sector. Given that pension funds invest heavily in the domestic bond market, incorporating ESG risk into investment guidelines may create more demand for green bonds. Guidance on climate risk management and climate-related financial risk disclosure for financial institutions in line with the Task Force on Climate-Related Financial Disclosure (TCFD) is also forthcoming<sup>31</sup>. Colombia's stock exchange, the Bolsa de Valores de Colombia, which requires ESG metrics to be reported, has been ranked among the best in the world for disseminating ESG indicators<sup>32</sup>.

- In April 2022, Colombia launched a green taxonomy that aims to provide support for potential issuers and investors in identifying and evaluating economic activities or assets as "green" or as meeting environmental objectives. Not only will the taxonomy give necessary clarity and transparency for the green bond market to grow, but it will more broadly establish definitions for other green financial activities, including green funds and stock indexes. Although the draft taxonomy is inspired by the EU Green Taxonomy, it has a greater focus on land use, given the high percentage of land use in Colombia's carbon emissions, with special attention to livestock and agriculture, forestry, and marine resources.
- A number of legislative initiatives were taken to enable the issuance of Colombia's first sovereign green bond. Legislation authorizing the design of frameworks for the issuance of sovereign green, social, and sustainability bonds was adopted in 2020 (Law 2073 of 2020), followed by the adoption of the sovereign green bond framework through Resolution 1687 of 2021.
- Finally, the government established a 2 trillion Colombian pesos (US\$510 million) portfolio of eligible green expenditure for public investment based on the fiscal plans for 2020 and 2021 and aligned with the Green Bond Principles and the United Nations Sustainable Development Goals (UN SDGs). This portfolio includes 27 projects, allocating 40 percent to sustainable water management, use, and sanitation; 27 percent to clean and sustainable transport; 16 percent to the ecosystem services and biodiversity; 14 percent to nonconventional energy sources, energy efficiency, and connectivity; 2 percent to waste and circular economy; and 1 percent to sustainable agriculture (figure 2)<sup>33</sup>. The first green sovereign TES issued in September 2021 covered about 70 percent of the eligible green expenditure, leaving a buffer should spending for some of the projects need to be adjusted.

### Prospects for Colombia's green bond market

These policy and regulatory steps have accelerated the prospects for Colombia's green bond market by setting solid foundations for the growth of the market and bringing greater clarity as to what constitutes a "green" activity or asset. They could also help the market expand into other labeled bonds, such as social and sustainability bonds. Repeat sovereign issuance would help to establish benchmark pricing and enhance liquidity of the market.

Investor demand for Colombia's green bonds is likely to increase from both foreign and domestic investors. Despite rating downgrades in 2021, foreign purchases of Colombia's local and foreign currency bonds rose. Green bonds could attract additional foreign investors that have ESG mandates. A growing number of domestic institutional investors have ESG portfolios, while some sustainable investment funds are now available for retail investors<sup>9</sup>.

Nevertheless, challenges remain. As in other EMDEs, these challenges include ensuring a steady supply of green projects and assets, as well as making tangible progress on the government's climate and environmental commitments. For public issuance, the government needs to ensure that enough green projects are allocated in future budgets. On the corporate issuer side, nonfinancial corporates may be more likely to seek bank financing for green projects—which banks appear eager to provide—rather than tap the capital market because of the costs involved in bond issuance<sup>11</sup>.

More broadly, questions may come to the forefront about Colombia's dependence on hydrocarbons, which make up one-third of the country's exports (although its domestic energy mix is 68 percent based on hydropower), its ability to meet renewable energy targets, and the lack of a strategy to phase out coal.

a. IFC, "Thematic Bonds in Colombia: A Case Study."

b. For more details and definitions, see Sustainable Banking and Finance Network, *Accelerating Global Finance Together: Global Progress Report of the Sustainable Banking and Finance Network* (Washington, DC: International Finance Corporation, October 2021), <https://www.sbfnetwork.org/publications/global-progress-report-2021/>.

c. Sustainable Banking and Finance Network, *Accelerating Global Finance Together*.

d. Sustainable Banking and Finance Network, *Accelerating Global Finance Together*.

e. As ranked by Corporate Knights, "Measuring Sustainability Disclosure: Ranking the World's Stock Exchanges, 2019," [https://www.corporateknights.com/wp-content/uploads/2021/08/CK\\_StockExchangeRanking\\_2020.pdf](https://www.corporateknights.com/wp-content/uploads/2021/08/CK_StockExchangeRanking_2020.pdf).

f. Further details can be found in a slide presentation by the Colombian Ministry of Finance and Public Credit, [https://www.irc.gov.co/webcenter/ShowProperty?modelId=%2FConexionContent%2FWCC\\_CLUSTER-184498%2F%2FidcPrimaryFile&revision=latestreleased](https://www.irc.gov.co/webcenter/ShowProperty?modelId=%2FConexionContent%2FWCC_CLUSTER-184498%2F%2FidcPrimaryFile&revision=latestreleased).

g. IFC, "Thematic Bonds in Colombia: A Case Study."

h. IFC, "Thematic Bonds in Colombia: A Case Study."

## SECTION 5: GREENING DEBT RESTRUCTURING

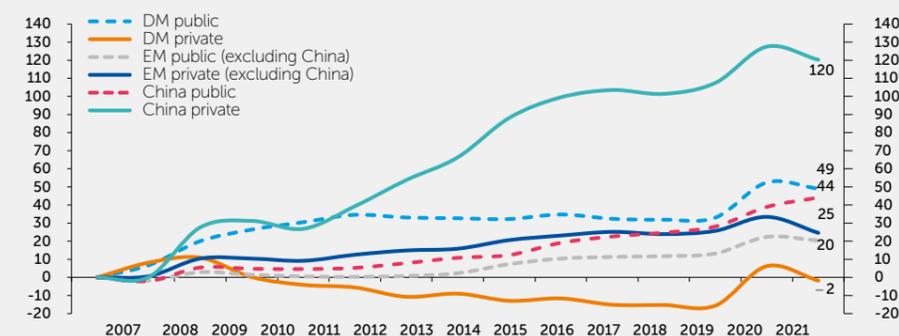
The pandemic accelerated substantial increases in global debt over the past decade (figure 5.1). Total debt surged to over 260 percent of global GDP in 2020, 30 percentage points higher than in 2019<sup>28</sup>. In EMDEs, the combination of a low interest rate environment since the global financial crisis, stagnant revenue, and the more recent slowdown in growth contributed to increasing indebtedness. As a share of GDP, total EMDE debt rose more than 60 percentage points from 2010 to 2019 and then another 26 percentage points in 2020 to reach 206 percent of GDP<sup>29</sup>. The International Monetary Fund (IMF's medium-term projections for public EMDE debt increased by eight percentage points from the October 2019 World Economic Outlook (WEO) to the projections in the April 2022 WEO. In some 21 EMDEs, however, the increase in public debt has been at least 20 percentage points (figure 5.2). Most hit have been small, open, and primarily tourism-dependent economies, where output contractions relative to pre-COVID-19 expectations are among the largest or where the fiscal stimulus was significant.

Although debt is often necessary to achieve development goals, the pandemic has exacerbated debt vulnerabilities for an increasing number of EMDEs, especially in Sub-Saharan Africa, Latin America, and parts of Asia. Rising debt levels and, more recently, rising interest rates have put interest payments as a share of already-low government revenue on an upward trajectory. Some 55 percent of low-income countries are considered by the IMF and World Bank to be at high risk of external debt distress or are already in distress, including the **Republic of Congo, Ethiopia, Grenada, Mozambique** and **Zimbabwe** (figure 5.3)<sup>30</sup>. Under the Group of 20's Debt Service Suspension Initiative, almost 50 low-income countries were able to obtain US\$12.9 billion in debt service relief from May 2020 to December 2021<sup>31</sup>. The lack of broader creditor participation, notably from the private sector, limited more substantial relief. Since the start of the pandemic, seven countries have already defaulted: **Argentina, Belize, Ecuador, Lebanon, Mali, Suriname, and Zambia**<sup>32</sup>. With more debt on commercial terms and more expensive rollovers, the capacity of low-income developing countries to meet rising debt service has worsened. Annual debt service payments in these countries have more than doubled in the past decade and are projected to surpass US\$140 billion in 2022 (figure 5.4).

The elevated debt levels in many EMDEs will complicate adjustment to the higher interest rates already underway as developed markets tighten monetary policy. In some EMDEs, this debt burden is likely to prove unsustainable. Given the high number of countries that are already in debt distress or at high risk of distress, restructuring of existing debt will become more pressing. At the same time, the transition to a low-carbon economy requires substantial capital to finance green and sustainable investments. Although some of these investments may be financed on concessional terms, mobilizing sufficient capital would run into the constraint of already-unsustainable debt burdens in many countries. Innovative ways to link debt restructuring with environmental goals could help resolve this impasse. Two such examples are discussed in detail below.

**Figure 5.1: Global Total Debt**

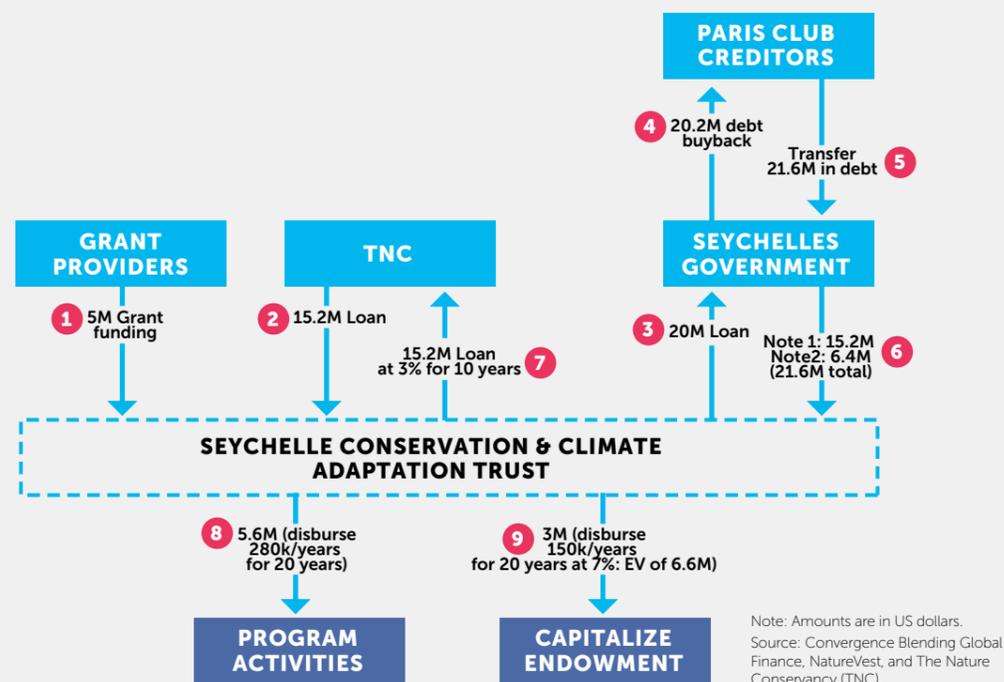
(% of GDP, difference from 2007)



Note: DM = developing market; EM = emerging market; GDP = gross domestic product. Figure is based on a sample of 172 economies (35 developed and 137 emerging). Source: World Bank, IMF, Bank of International Settlements, IFC.



Figure 5.6: Seychelles Debt Conversion



## Steps Forward and Obstacles to More Green Debt Restructuring Deals

Notwithstanding the benefits of linking restructuring bonds to sustainability objectives through vehicles such as green or social bonds, for now these operations are rare, and the reception in the EMDE issuer community has been lukewarm. There could be several reasons for that:

1. The extra costs and time involved in constructing a sustainability framework make it even harder for defaulting countries with tight timelines to raise financing.
2. Reliable data are needed for key performance indicators (KPIs), as well as infrastructure to report and measure KPIs, which is especially challenging in less developed countries.
3. Political reasons such as government changes result in low incentives to commit, plus sometimes a severe penalty is imposed on government representatives when KPIs are not met.
4. Lack of ESG awareness and buy-in among both issuers and investors (especially those in the hedge fund community) makes it more difficult to integrate sustainability objectives to the restructured bonds.

While acknowledging those challenges, the likely trend going forward is for more sustainability objectives to be included in future debt restructuring. This is particularly true since COP26, with many countries having committed to carbon neutrality or net zero targets. This global initiative provides a strong incentive to link debt restructuring with relevant sustainability objectives. In turn, such restructuring has the following benefits:

- Allows the defaulting issuers to broaden their investor universe (and also tap into an investor base focused on long-term strategies);
- Offers more high-yielding choices for sustainability bond investors from a portfolio diversification perspective;
- Aligns restructuring incentives with sustainability goals, which should have a positive impact on the real economy over the medium term, thereby improving the credit quality (and thus credit spreads) of the country; and
- Opens the door for new money in the future through an established sustainability framework and enables the country to find its feet again.

## ENDNOTES

1. See IFC, "Green Bond Impact Report Financial Year 2021" for data on IFC's green bond issuance and IFC, "Social Bond Impact Report Financial Year 2021" for data on IFC's social bond issuance, both available here: [http://www.ifc.org/wps/wcm/connect/corp\\_ext\\_content/ifc\\_external\\_corporate\\_site/about+ifc\\_new/investor+relations/ir-info/impact+reports](http://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/about+ifc_new/investor+relations/ir-info/impact+reports)
2. See Intergovernmental Panel on Climate Change, Climate Change 2022: Impacts, Adaptation and Vulnerability, Summary for Policymakers: [https://www.ipcc.ch/report/ar6/wq2/downloads/report/IPCC\\_AR6\\_WGII\\_SummaryForPolicymakers.pdf](https://www.ipcc.ch/report/ar6/wq2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf).
3. See Dana Vorisek and Shu Yu, "Understanding the Cost of Achieving the Sustainable Development Goals" (Policy Research Working Paper 9146, World Bank, Washington, DC, 2020), <https://documents1.worldbank.org/curated/en/744701582827333101/pdf/Understanding-the-Cost-of-Achieving-the-Sustainable-Development-Goals.pdf>.
4. In the medium-term, real gross domestic product (GDP) in EMDEs is projected to fall 6 percent short of prepandemic projections, according to the IMF April 2022 World Economic Outlook.
5. Bloomberg, "ESG ETF Inflows Increase 46% to \$798.7M in Past Week," January 31, 2022.
6. According to Oxford's Global Recovery Observatory.
7. The dataset on GSSS bond issuance is based on consolidating available data from Bloomberg, Climate Bonds Initiative, and Environmental Finance. Bond issuance by countries is primarily defined as the issuer's country of risk according to Bloomberg. Bloomberg's methodology consists of four factors: management location, country of primary listing, country of revenue, and reporting currency of the issuer. The definition of emerging markets/economies/countries is based on Amundi Planet Emerging Green One's investment universe. It consists of the Fund's Target Countries—which are IFC member countries, including countries eligible to receive International Development Association resources and countries eligible to receive official development assistance, as defined by the Organisation for Economic Co-operation and Development's Development Assistance Committee—which qualify as emerging markets and are not excluded as per the Fund's Investment Guidelines. Although the Russian Federation is not included in the investment universe, it is included in this dataset. Bonds issued in China that do not meet international norms or standards as defined by Climate Bonds Initiative are excluded from the dataset.
8. International Renewable Energy Agency, "Renewable Energy Finance: Green Bonds," (Renewable Energy Finance Brief 03 2020), [https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Jan/IRENA\\_RE\\_finance\\_Green\\_bonds\\_2020.pdf](https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Jan/IRENA_RE_finance_Green_bonds_2020.pdf).
9. Defaults are defined in the same way as for all other bonds. Failure to comply with green bond standards, to use the proceeds for the stated projects, or to meet annual reporting requirements does not constitute default.
10. The global universe of outstanding green bonds is represented by the Bloomberg Barclays MSCI Global Green Bond index, for which the inclusion criteria are available at this link: [https://www.msci.com/documents/10199/242721/Barclays\\_MSCI\\_Green\\_Bond\\_Index.pdf/6e4d942a-0ce4-4e70-9aff-d7643e1bde96](https://www.msci.com/documents/10199/242721/Barclays_MSCI_Green_Bond_Index.pdf/6e4d942a-0ce4-4e70-9aff-d7643e1bde96).
11. This data sample includes green and sustainability bonds from EMDE issuers.
12. Climate Policy Initiative, "Global Landscape of Climate Finance," 2021.
13. Marsh & McLennan, "Companies Financing for Climate Resilience" (Marsh & McLennan, New York, 2017).
14. Paris Agreement, Article 8. Full document available at <https://unfccc.int/documents/9064#beg>.
15. Global Centre on Adaptation, "Green Bonds for Climate Resilience: A Guide for Issuers" (report by the Climate Policy Initiative for the Global Centre on Adaptation, Rotterdam, the Netherlands, 2021).
16. United Nations Environment Programme, Adaptation Gap Report 2021: The Gathering Storm—Adapting to Climate Change in a Post-pandemic World (UNEP, Nairobi, Kenya, 2021).
17. Nordhaus & Moffat, "A Survey of Global Impacts of Climate Change: Replication, Survey Methods, and a Statistical Analysis," (National Bureau of Economic Research, 2017); Chen et al., "Quantifying economic impacts of climate change under nine future emission scenarios within CMIP6," (Science of the Total Environment, 2020).
18. Nordhaus & Moffat, "A Survey of Global Impacts of Climate Change," Chen et al., "Quantifying economic impacts of climate change under nine future emission scenarios within CMIP6."
19. Climate Bonds Initiative, "Climate Resilience Principles: A Framework for Assessing Climate Resilience Investments" (Climate Bonds Initiative, London, 2019).
20. Climate Bonds Initiative, "Climate Resilience Principles."
21. Climate Bonds Initiative, "Climate Resilience Principles."
22. Climate Bonds Initiative, "Climate Resilience Principles."
23. Nature-Based Solutions Initiative, "Policy Brief: How cost-effective are Nature-based Solutions to climate change adaptation?"
24. Global Centre on Adaptation, "Green Bonds for Climate Resilience."
25. Green Climate Fund, "Adaptation," <https://www.greenclimate.fund/themes/adaptation>
26. Climate Bonds Initiative, "Climate Resilience Principles."
27. Mayer Brown "ASEAN Releases Sustainability Taxonomy for Southeast Asia."
28. World Bank Group Prospects Group, "What Has Been the Impact of COVID-19 on Debt?" (Policy Research Working Paper 9871, November 2021).
29. World Bank Group Prospects Group, "A Mountain of Debt," (Policy Research Working Paper 9800, October 2021).
30. Findings are based on the latest publicly available debt sustainability analyses under the Joint Bank-Fund Debt Sustainability Framework for Low-Income Countries.
31. As of December 2021.
32. These sovereign defaults are defined as such by the major credit rating agencies. Although Lebanon's default occurred after the first recorded case of COVID-19 in the country, it is not generally attributed to the impact of the pandemic but rather to existing fiscal, external, and political pressures.
33. The IFC Amundi Build-Back-Better Emerging Markets Sustainable Transaction (BEST) Strategy announced on November 3, 2021, is an example of the increasing focus on developing the sustainable bond market following the COVID-19 pandemic. See IFC (International Finance Corporation), "IFC, Amundi Launch \$2B Strategy to Support Green, Resilient, Inclusive Recovery," press release, November 3, 2021, <https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=26688>
34. Belize's public debt increased from 96 percent of GDP in 2019 to 133 percent in 2020.
35. IMF, "Belize: 2022 Article IV Consultation—Press Release; and Staff Report," <https://www.imf.org/en/Publications/CR/Issues/2022/05/10/Belize-2022-Article-IV-Consultation-Press-Release-and-Staff-Report-517761>.
36. See The Nature Conservancy, "The Government of Belize Partners with The Nature Conservancy to Conserve 30% of Its Ocean through Debt Conversion," press release, November 5, 2021, <https://www.nature.org/en-us/newsroom/blue-bonds-belize-conserve-thirty-percent-of-ocean-through-debt-conversion/>.
37. World Bank, "Seychelles Launches World's First Sovereign Blue Bond," press release, October 2018, <https://www.worldbank.org/en/news/press-release/2018/10/29/seychelles-launches-worlds-first-sovereign-blue-bond>.
38. NatureVest, Case Study: The Seychelles Debt Conversion for Marine Conservation and Climate Adaptation, March 2017.

### Investment Disclaimer

In the European Union ("EU"), this document is only for the attention of "Professional" investors as defined in Directive 2014/65/EC on markets in financial instruments ("MIFID"), to investment services providers and any other professional of the financial industry, and as the case may be in each local regulation outside of the EU and, as far as Switzerland is concerned, a "Qualified Investor" within the meaning of the provisions of the Swiss Collective Investment Schemes Act of 23 June 2006 (CISA), the Swiss Collective Investment Schemes Ordinance of 22 November 2006 (CISO) and the FINMA's Circular 08/8 on Public Advertising under the Collective Investment Schemes legislation of 20 November 2008. In no event may this document be distributed in the EU to non "Professional" investors as defined in the MIFID or in each local regulation, or in Switzerland to investors who do not comply with the definition of "qualified investors" as defined in the applicable legislation and regulation. This document is not intended for citizens or residents of the United States of America or for any "U.S. Person," as this term is defined in SEC Regulation S under the U.S. Securities Act of 1933. Neither Amundi nor IFC can in any way be held responsible for any decision or investment made on the basis of information contained in this document. The information contained in this document shall not be copied, reproduced, modified, translated or distributed to any third person or entity without the prior written approval of Amundi and IFC. This document is for distribution solely in jurisdictions where permitted and to persons who may receive it without breaching applicable legal or regulatory requirements. Amundi and IFC believe that the information contained in this document is accurate as of the date of publication set out on the first page of this document. Data, opinions and estimates may be changed without notice. For the avoidance of doubt, neither Amundi nor IFC shall have any duty to notify recipients of this document of any changes in the information set out herein.

This document has not been prepared to ensure compliance with the EU regulatory requirements aimed at promoting the independence of financial analysis and is not, and should not be construed as constituting, financial analysis under such regulations. As such, any prohibition in such regulations on concluding transactions of the financial instruments mentioned in this document is not applicable to Amundi and IFC. Past performance is not a guarantee or a reliable indicator for current or future performance and returns.

Amundi and IFC and its affiliates may have an investment in, provide other advice or services to, or otherwise have a financial interest in certain of the entities referred to in this document.

The findings, interpretations and conclusions expressed in this document do not necessarily reflect the views of the Executive Directors of the World Bank, IFC or the governments they represent or of Amundi.

## CONTACT DETAILS



**Eric Dussoubs**  
eric.dussoubs@amundi.com  
Senior Institutional Sales  
Amundi



**Séverine Alloy**  
severine.alloy@amundi.com  
ESG analyst  
Amundi



**Jean Pierre Lacombe**  
jlacombe@ifc.org  
Director, Global Macroeconomics,  
Market and Portfolio Research  
International Finance Corporation



**Jessica Stallings**  
jstallings1@ifc.org  
Sustainable Finance Consultant,  
Global Macroeconomics,  
Market and Portfolio Research  
International Finance Corporation



**Dimitri Demekas**  
dimitri@demekas.com  
Senior Consultant, Global  
Macroeconomics, Market and  
Portfolio Research  
International Finance Corporation



Amundi Asset Management, French "Société par Actions Simplifiée" - SAS with a registered capital of € 1 086 262 605 and regulated by the French Securities Regulator (Autorité des Marchés Financiers- AMF) under number GP 04000036 as a portfolio management company.

Amundi Asset Management - 90 Boulevard Pasteur 75015 Paris France - Tel: +33 1 76 33 30 30

Conception: Art'6 - Photo credit: © Getty Images - © Malorny.