



# WHAT ARE GREEN BONDS?



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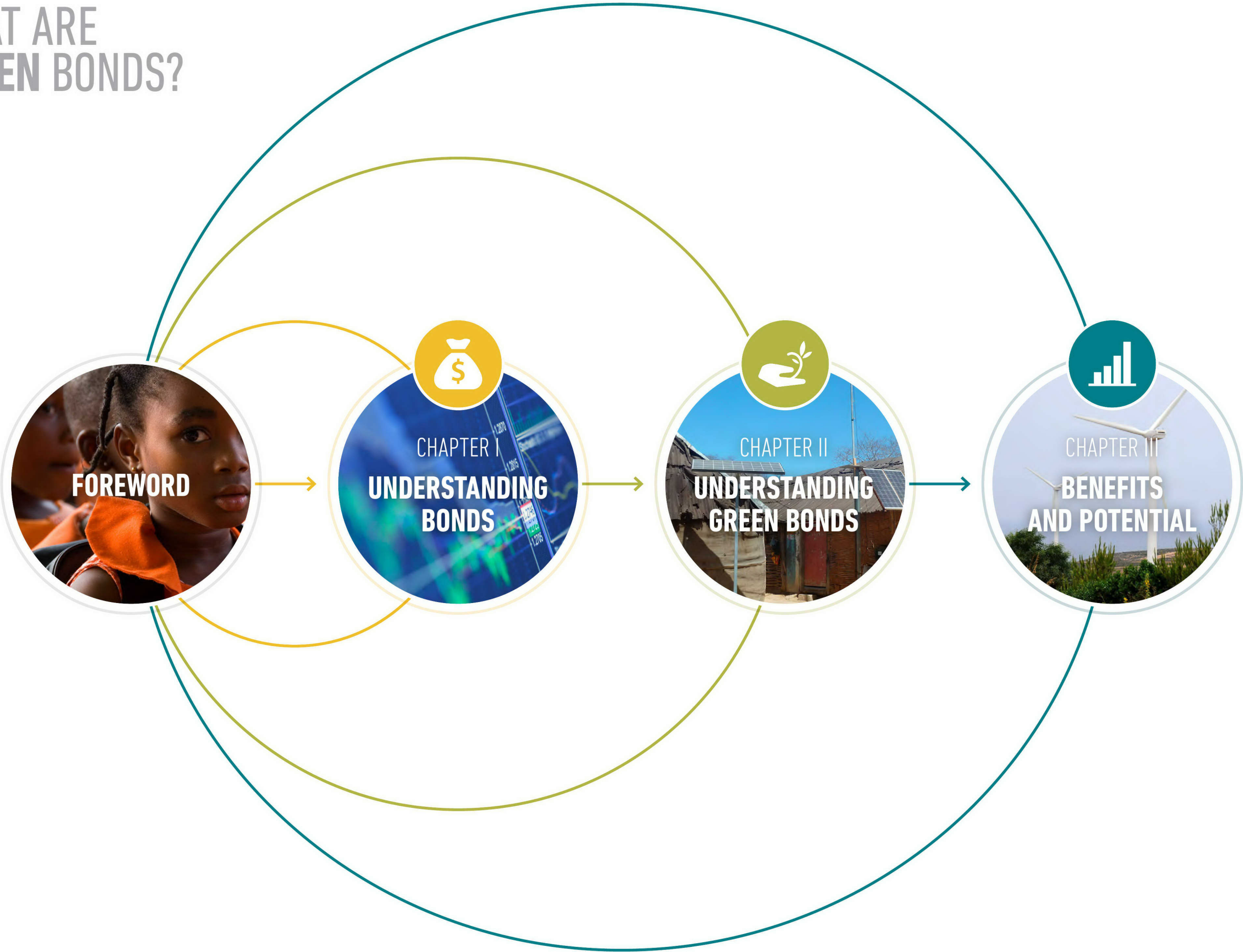


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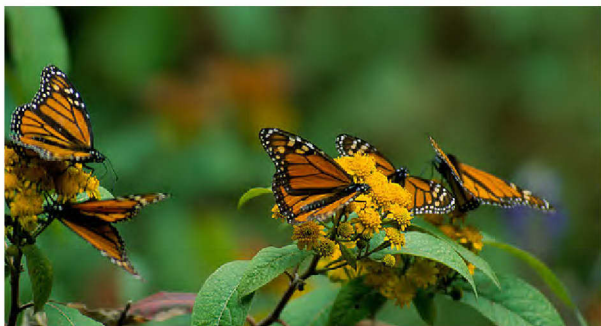




WHAT ARE  
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# FOREWORD

The explosive growth of green bonds in the capital markets is increasingly attracting attention from investors.

This surge in interest has created a demand for accessible information on the green bond market. This primer was created in response to this demand and covers the principles of this relatively new financial instrument. The following intends to serve as a guide for those

interested in better understanding the nature of green bonds. The content will aim to distinguish green bonds from other traditional financial instruments. It will also provide insight into the potential of green bonds to mobilize new sources of climate finance.

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# WHAT ARE GREEN BONDS?

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## CHAPTER I UNDERSTANDING BONDS

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## WHAT IS A BOND AND HOW DOES IT DIFFER FROM OTHER FINANCING OPTIONS?

A bond is a form of debt security. A debt security is a legal contract for money owed that can be bought and sold between parties.

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Entities seeking financing have two basic options to raise funds: *stocks (equities)* and *bonds*. Bonds are a form of debt, whereas stocks are a form of ownership.

Investors in bonds become creditors of the issuing entity. They are paid a fixed interest rate (coupon) and returned their initial investment (principal) upon maturity. Because bonds typically pay a fixed interest over the maturity period, they are often referred

to as fixed-income securities. Once purchased from the issuer (through financial institutions acting as *dealers*), bonds can continue to be traded in the securities market.

Investors in stocks, on the other hand, purchase a portion of the issuing firm. Therefore, the returns of their investment fluctuate in accordance with dividends paid by the issuing firm and the value of the issuing firm. Stocks are also traded in the securities market.





## HOW DO CREDIT RATINGS RELATE TO THE RISK-RETURN FUNDAMENTAL OF INVESTING?

Investors seek returns commensurate to the risk of investment opportunities.

Many investors have mandated thresholds for risk tolerance and often compare risk-adjusted returns to a *benchmark* or reference. In judging risks of various investment opportunities, including assessing the *creditworthiness* of bond issuers, investors use their own due diligence and other sources, such as *credit ratings* by the rating agencies (for example, Fitch, Moody's, or Standard & Poor's).

## WHY DO INVESTORS SOMETIMES CHOOSE BONDS OVER OTHER INVESTMENT OR SAVING OPPORTUNITIES?

An investor may choose to invest in the bond market over other alternatives for several reasons.

Fixed-rate bonds offer fixed returns over a fixed time, in fixed periodical installments. This generally makes for a more predictable, less risky investment than other investment options. This higher predictability of cash flows makes bonds a good counterbalance to riskier, more volatile elements in an investment portfolio.

## WHAT ARE THE REQUIREMENTS, AND WHO CAN ISSUE BONDS? (PRIVATE AND PUBLIC EXAMPLES)

Issuers of bonds can be private companies, supranational institutions (such as multilateral banks), and public entities (municipal, state, or federal).

Issuing bonds is a complex process involving several steps to meet requirements of specific markets and countries of issuance. Figures 1 and 2 present examples of corporate bond issuance requirements in Brazil and China, respectively.

Entities issuing bonds must disclose financial information to regulators, rating agencies, and investors. Bond issuers appoint investment banks as “*underwriters*” to help them meet these requirements, drawing on their expertise of bond markets, government regulations, and other related factors.

### Government Bonds

A bond issued by a public governmental entity, such as a city or state, to finance its activities is commonly referred to as a municipal

bond. For example, in December 2014, the Bay Area Toll Authority in northern California issued bonds in the amount of US\$811.4 million. The bonds have been assigned an “AA/Stable” rating by a credit agency, Standard & Poor's. The bonds' proceeds will be used to finance and refinance the construction, improvement, and equipping of the bridges and toll roads in the San Francisco Bay Area.<sup>1</sup>

### Corporate Bonds

A bond issued by a company is referred to as a corporate bond. Corporate bonds can either be designed for institutional investors (insurance companies, banks, hedge funds, and the like) or retail investors. For example, in late 2014, heart-rhythm device maker Medtronic Inc. issued a US\$17 billion corporate bond to help fund its acquisition of a surgical gear maker.<sup>2</sup>

### Multilateral Development Bank Bonds

Other types of issuers include multilateral development banks (MDBs) and other supranationals or international agencies. For example, the World Bank, an MDB that issued its first bond in 1947, recently issued a landmark US\$4 billion 10-year transaction, raising funds from different types of investors all over the world.<sup>3</sup>

Financial terms presented in *italics* are defined in the Glossary on pages 50-51.





Figure 1

### Issuing Bonds in Brazil

Source: Leal, Ricardo P. C., and Andre Carvalhal da Silva, "The Development of the Brazilian Bond Market," IADB (Inter-American Development Bank) paper, IADB, Washington, DC, October 2006.

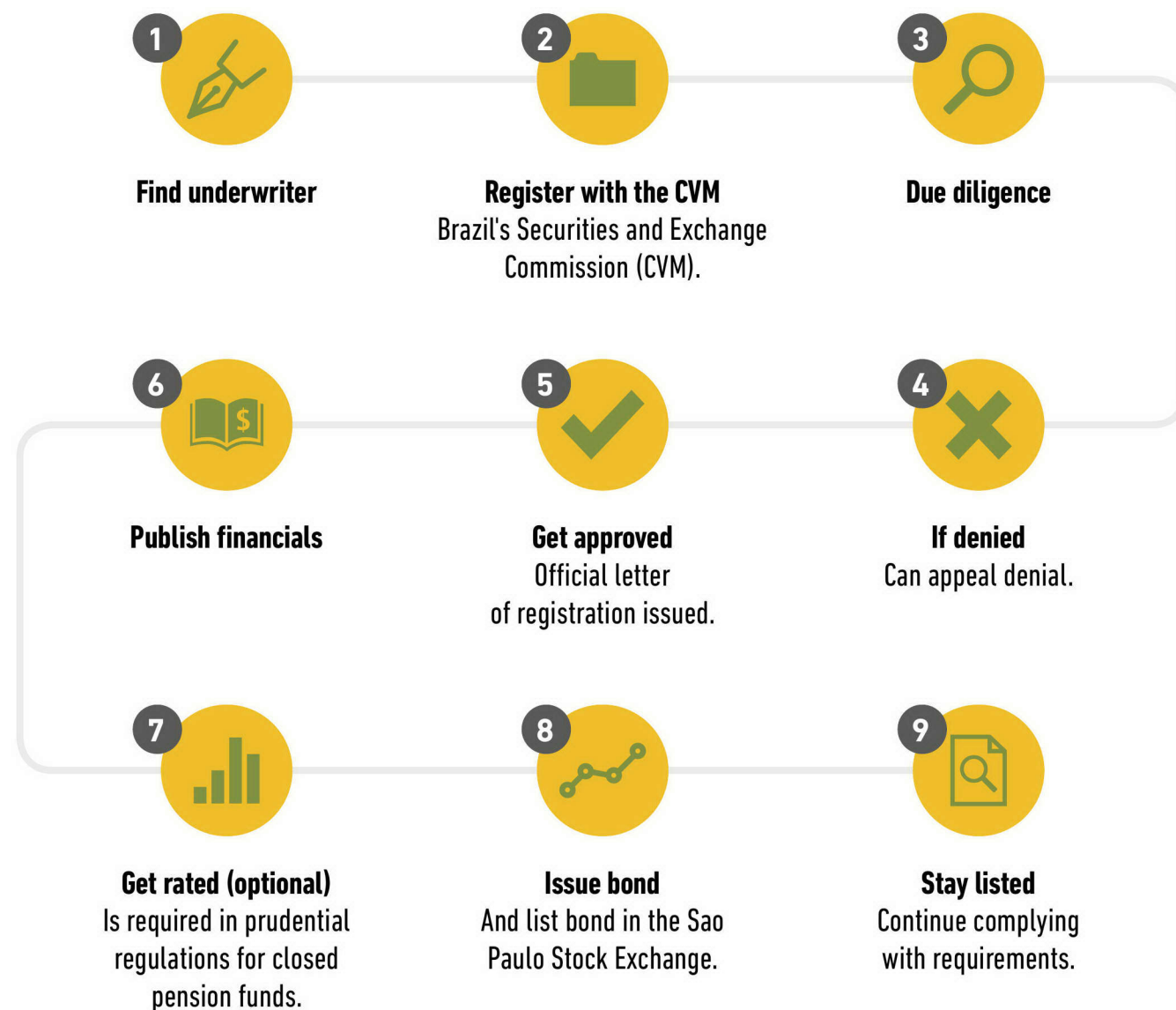
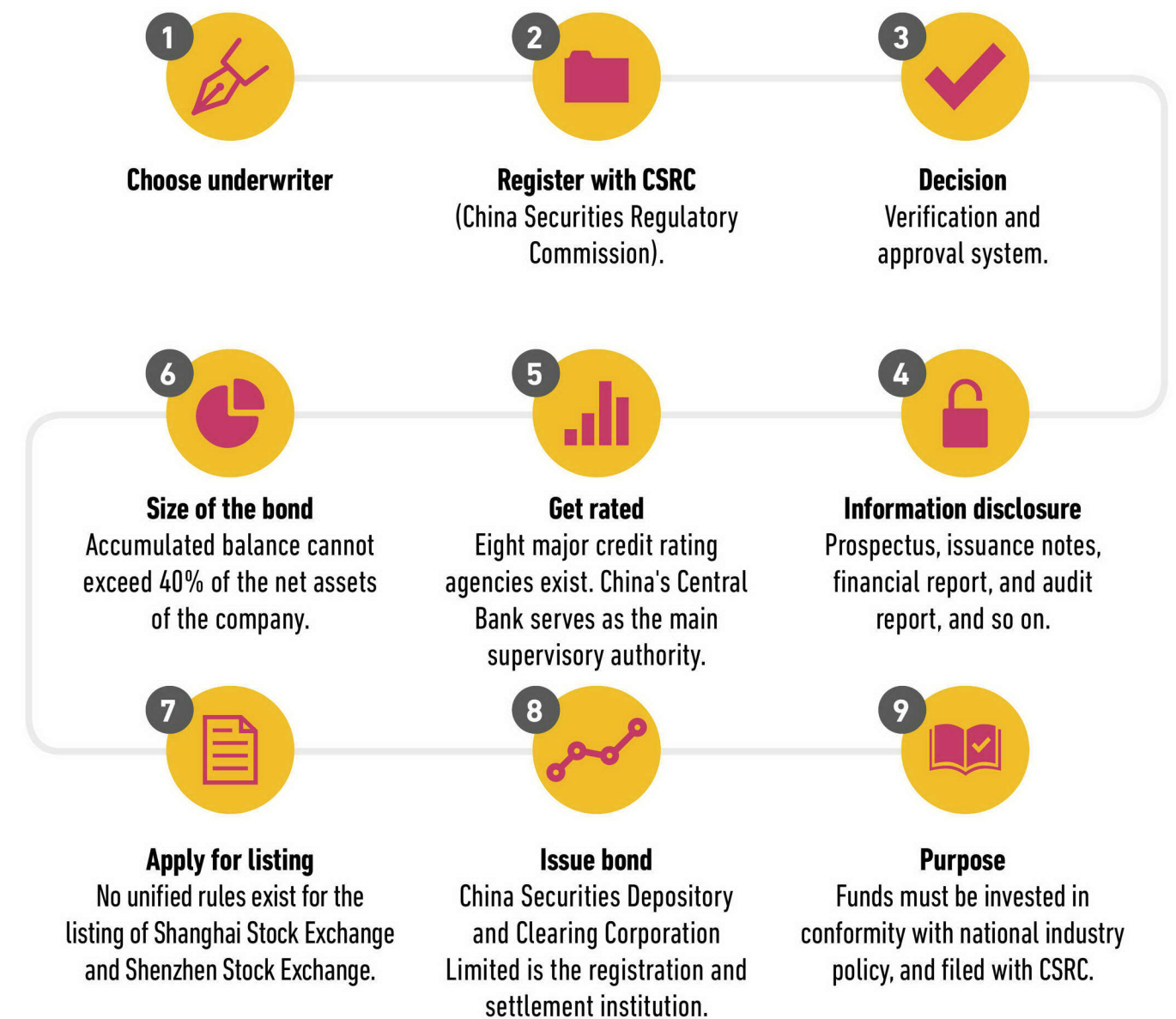


Figure 2

### Issuing Bonds in China

Sources: ADB (Asian Development Bank), *ASEAN+3 Bond Market Guide*. (Manila: ADB, 2012); "Introduction on Corporate Bonds," Shanghai Stock Exchange, accessed Nov. 11, 2014, <http://english.sse.com.cn/listing/bonds/corporate/overview/>.



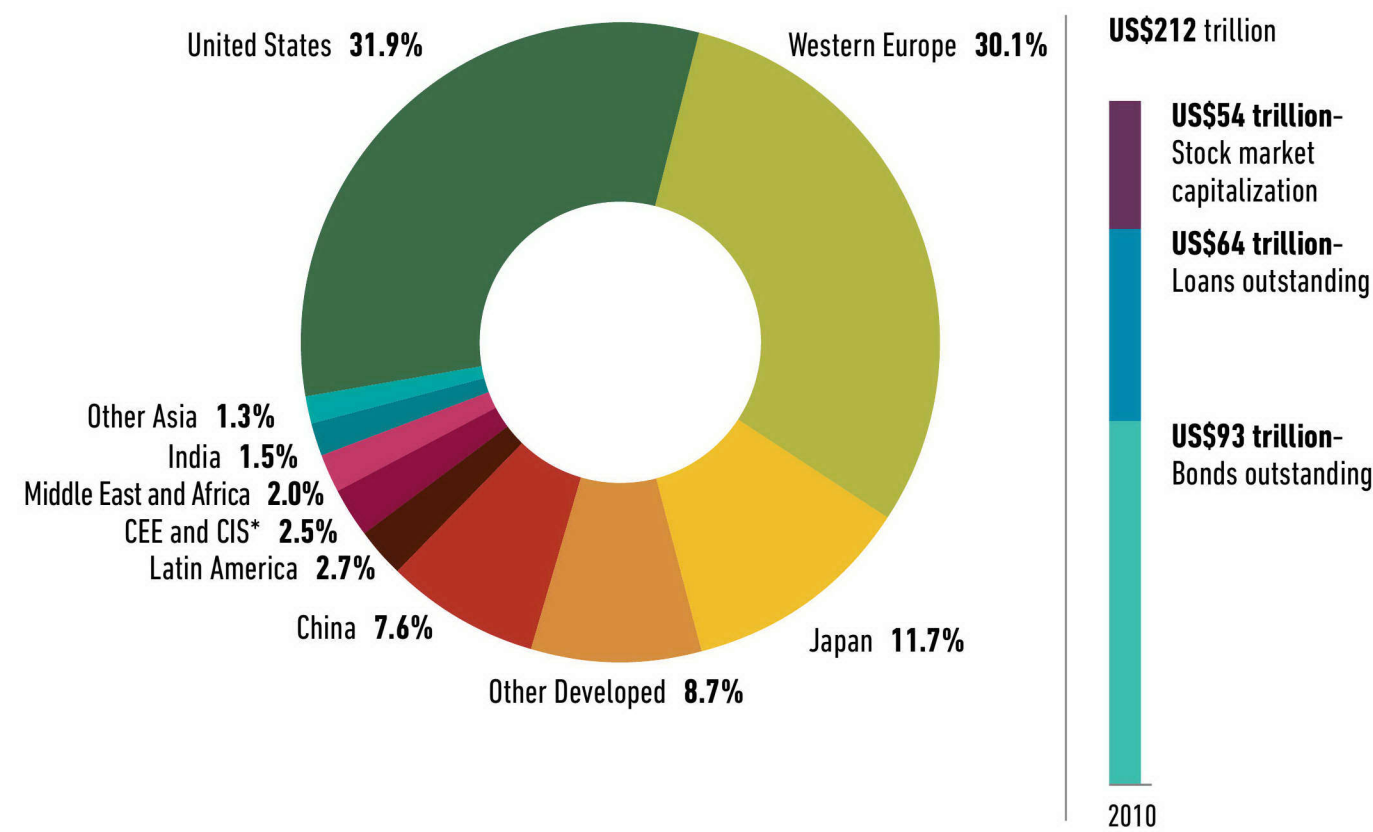


WHAT IS THE CONTEXT OF BONDS IN GLOBAL FINANCIAL MARKETS?

Globally, financial markets—both equity and debt—were worth US\$212 trillion in 2010, with bonds reaching about US\$93 trillion or 44 percent of the total.

The largest markets were in the United States (32 percent), Western Europe (30 percent), Japan (12 percent), and other regions, as shown in figure 3. Emerging financial markets account for about 17 percent and are growing fastest, particularly in China and India.

Figure 3  
Composition of Global Financial Markets, 2010.



Source: Roxburgh, Charles, Susan Lund, and John Piotrowski, “Mapping Global Capital Markets 2011,” McKinsey Global Institute Updated Research (McKinsey & Company, August 2011), based on data from the Bank for International Settlements, Dealogic, Securities Industry and Financial Markets Association (SIFMA), Standard & Poor’s, and McKinsey Global Banking Pools.

\* CEE and CIS = Central and Eastern Europe and Commonwealth of Independent States.





# HOW DO EMERGING FINANCIAL MARKETS COMPARE?

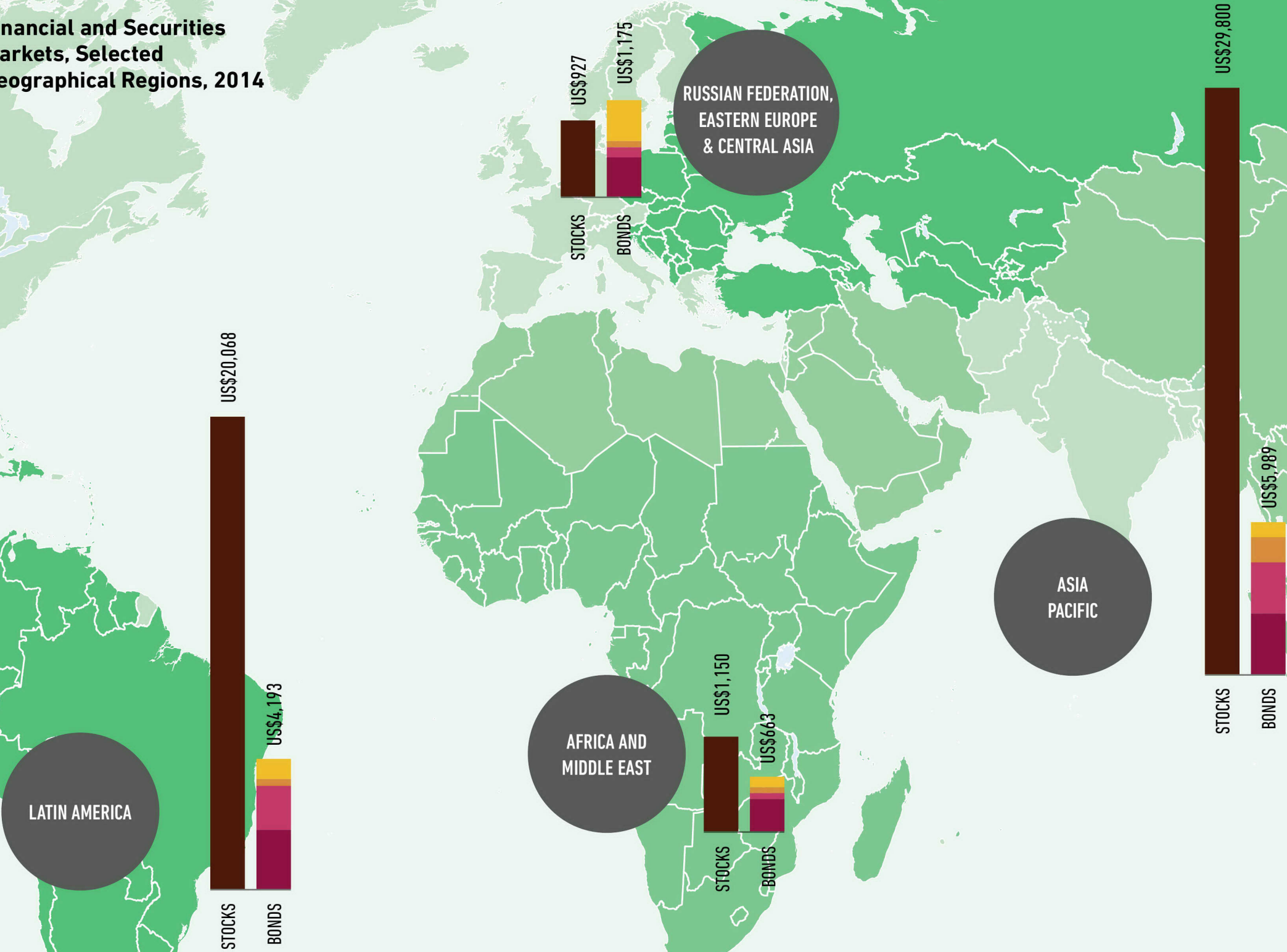
Asia Pacific and Latin America are the largest emerging financial markets. The total value (market capitalization) of their equity market is 20–30 times higher, and the size of their bond markets 4–5 times bigger, than those of Africa and the Middle East, and the Russian Federation, Eastern Europe, and Central Asia combined.

- International
- Nonfinancial
- Financial
- Government
- Stocks

In 2014 US\$, billions

Source:  
 Background map: IBRD WLD41787, August 2015.  
 Data from Bank for International Settlements, *BIS Quarterly Review*, September 2014 (Basel: BIS, 2014); World Federation of Exchanges database (<http://www.world-exchanges.org/statistics>); *Financial Times* database (<http://markets.ft.com/research>).  
 Note: Equities are the total market capitalization of that particular region's developing countries. Bonds are reported as amounts outstanding.

Map 1  
 Financial and Securities Markets, Selected Geographical Regions, 2014





## ASIA PACIFIC BOND MARKET

Asia Pacific's bond market is the largest among emerging nations in large part because of China's growing US\$4.3 trillion bond market. The region also contains the highest concentration of developing countries with growing domestic and international bond markets.

Map 2

### Asia Pacific Bond Market, Selected Countries, 2013 -14

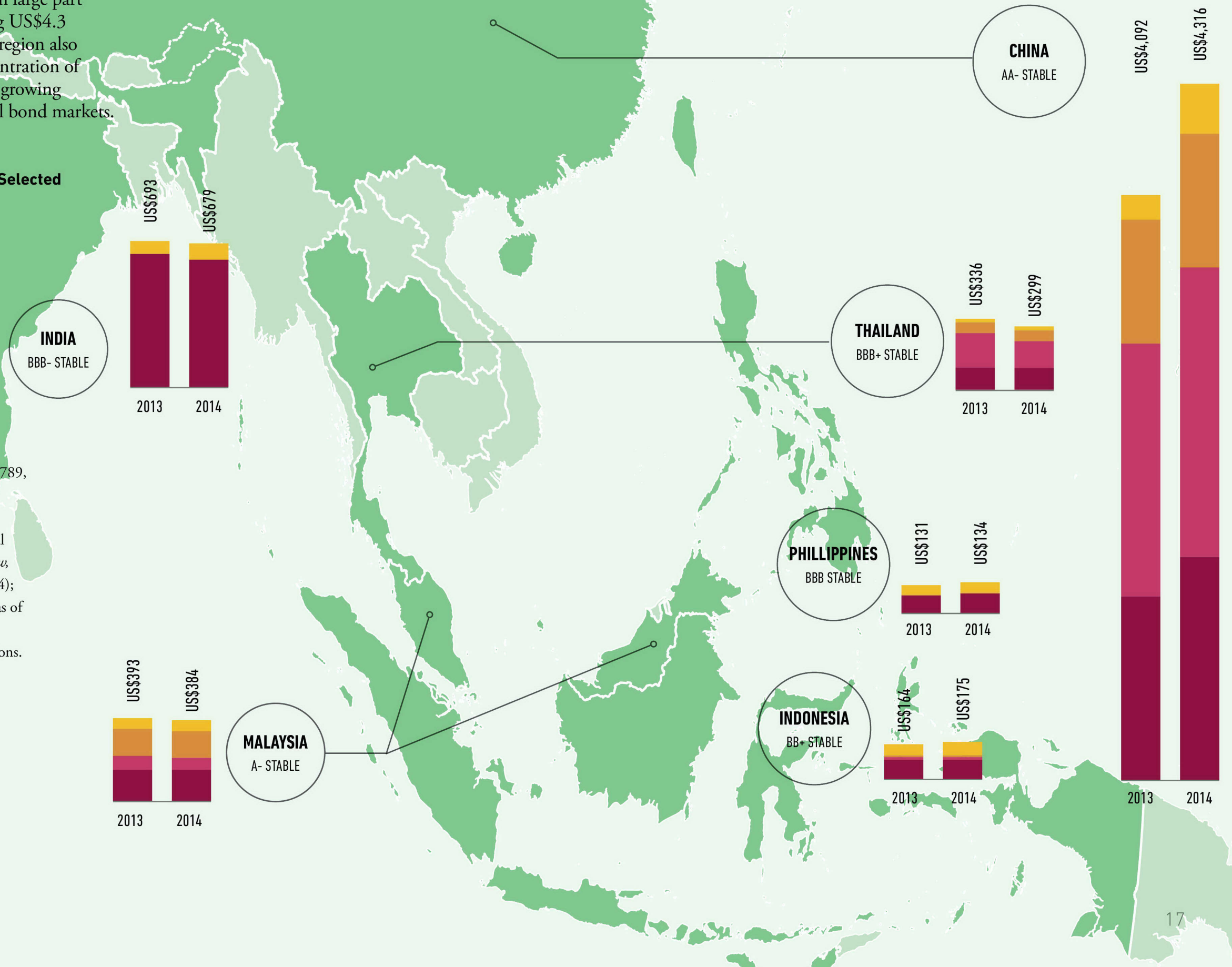
Source:

Background map: IBRD SOA41789, August 2015. ©World Bank.

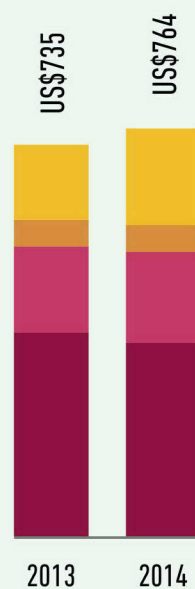
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Data from Bank for International Settlements, *BIS Quarterly Review*, September 2014 (Basel: BIS, 2014); Standard & Poor's credit rating as of Sept. 28, 2014.

Note: All values are in US\$, billions. Bonds are reported as amounts outstanding.





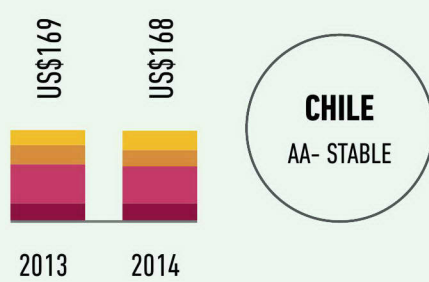


## LATIN AMERICAN BOND MARKET

Some countries in the Latin American region have fast-growing domestic debt markets and sizable international investor participation.

Map 3  
**Latin American Bond Market, Selected Countries, 2013-14**

Source:  
Background map: IBRD LAC41788, August 2015. ©World Bank. Permission required for reuse.  
Data from Bank for International Settlements, *BIS Quarterly Review, September 2014* (Basel: BIS, 2014); Standard & Poor's credit rating as of Sept. 28, 2014.  
Note: All values are in US\$, billions.  
Bonds are reported as amounts outstanding.





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2. Medtronic, "Medtronic Prices \$17 Billion in Private Placement of Senior Notes," press release, Dec. 1, 2014, <http://newsroom.medtronic.com/phoenix.zhtml?c=251324&p=irol-newsArticle&iD=1993937>.

3. World Bank Treasury, "World Bank Raises USD 4 Billion in a Landmark 10-Year Global Bond," press release, Nov. 18, 2014, [http://treasury.worldbank.org/cmd/htm/USD\\_4BillionLandmarkGlobalBond.html](http://treasury.worldbank.org/cmd/htm/USD_4BillionLandmarkGlobalBond.html).





# WHAT ARE GREEN BONDS?

## CHAPTER II

# UNDERSTANDING GREEN BONDS



## WHAT IS A GREEN BOND AND HOW DOES IT DIFFER FROM A REGULAR BOND?

A green bond is a debt security that is issued to raise capital specifically to support climate-related or environmental projects.

This specific use of the funds raised—to support the financing of specific projects—distinguishes green bonds from regular bonds. Thus, in addition to evaluating the standard

financial characteristics (such as maturity, coupon, price, and credit quality of the issuer), investors also assess the specific environmental purpose of the projects that the bonds intend to support.



WHAT ARE GREEN BONDS?



## WHY DID MULTILATERAL DEVELOPMENT BANKS ISSUE THE FIRST GREEN BONDS?

Several multilateral banks have issued bonds supporting the financing of “green” projects, including the following:

**The African Development Bank (AfDB)** serves the development needs of its member countries and issued a first US\$500 million green bond in October 2013, building on previous experience with clean energy bonds for the Japanese retail market.<sup>4</sup> The proceeds are allocated to support the financing of climate change solutions as part of a broader strategy to support inclusive and sustainable growth in Africa.

**The European Investment Bank (EIB)** issued a €600 million Climate Awareness Bond in 2007 that focused on renewable energy and energy efficiency.<sup>5</sup> Instead of a fixed coupon, the bond returns were linked to an equity index (such a bond is commonly referred to in the bond market as “structured”).

**The World Bank (International Bank for Reconstruction and Development or –IBRD–)** launched the first labeled green bond in 2008 in the amount of SKr 3.35 billion (approximately US\$440 million).<sup>6</sup> The rationale for this first green bond was threefold:

- First, it responded to specific demand from Scandinavian pension funds seeking to support climate-focused projects through a simple fixed-income product. It also fit well with IBRD's efforts to cater to investors interested in sustainable and responsible investing (SRI).
- Second, it supported the World Bank's strategy to introduce innovation in climate finance.
- Third, by focusing on climate change mitigation and adaptation projects, World Bank Green Bonds helped raise awareness among investors and the financial community about how developing countries can take action on climate change but also stand to be affected by it.

As of the end of June 2015, the World Bank (IBRD) has issued US\$8.5 billion in over 100 green bond transactions in 18 currencies, supporting about 70 climate mitigation and adaptation projects around the developing world.<sup>7</sup>



**The International Finance Corporation (IFC)**, also part of the World Bank Group, initially issued green bonds in 2010 at the demand of investors seeking climate-related investments with a fixed income. IFC's inaugural green bonds were in relatively small sizes to fit the investor appetite at the time. As investors became more engaged in the climate arena, IFC met the growing demand with larger bond sizes, culminating in two US\$1 billion three-year green bonds issued in 2013, the largest green bonds in the market at the time. To date, IFC

has issued over 37 green bonds, raising US\$3.8 billion outstanding in nine currencies.<sup>8</sup> Climate change is a major strategic priority for IFC. Since 2005, IFC has committed more than US\$13 billion to climate-smart projects, some of which have been funded by green bonds.

**Other multilaterals and agencies that have also issued green bonds include** the Asian Development Bank (ADB),<sup>9</sup> the European Bank for Reconstruction and Development (EBRD),<sup>10</sup> and the Nordic Investment Bank (NIB).<sup>11</sup>



## HOW DO GREEN BONDS FIT INTO AN ISSUER'S FUNDING STRATEGY?

Green bonds allow issuers to reach different investors and promote their environmental credentials.

For example, the World Bank (IBRD) designed the green bond as part of its overall bond program to cater to sustainable and responsible investors and promote its support of climate change projects in its borrowing

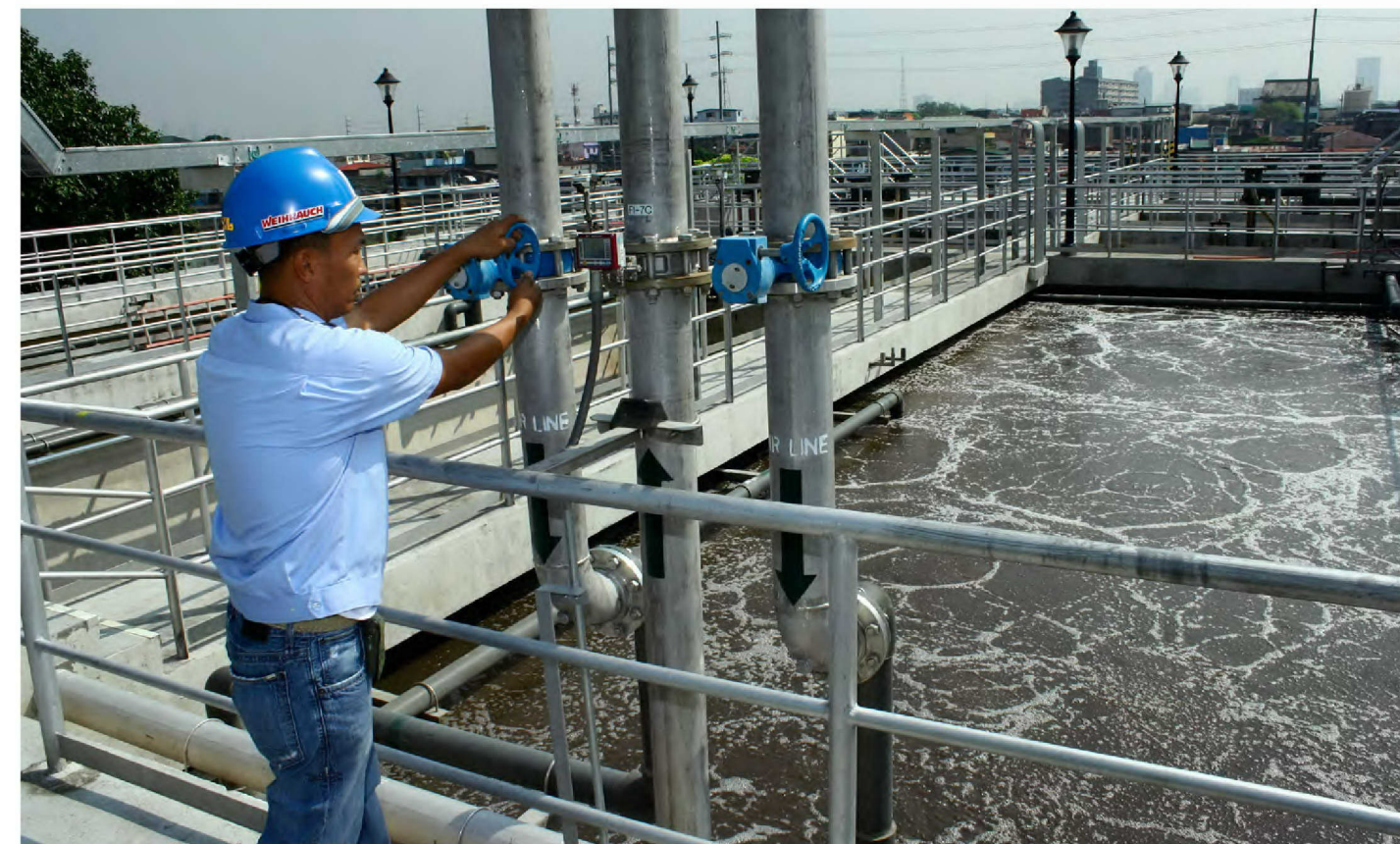
member countries. As a multilateral development cooperative, IBRD offers the same pricing in its lending to all its member countries in lending rates that reflect its total average funding cost plus a percentage spread. Because IBRD green bonds are part of its general funding program, lending rates for projects included in IBRD's green bond program receive the same treatment as all other IBRD loans.

In the case of IFC, green bonds are aimed at its renewable energy investments and energy efficiency investments.

### The World Bank's Bond Program

The World Bank (IBRD) is a development cooperative owned by 188 member countries and is the original institution of the World Bank Group. The World Bank was created at the end of World War II and issued its first bond in 1947 to raise financing that helped the reconstruction of war-torn Europe. The World Bank's focus later shifted toward broader economic development to help its borrowing member countries reduce extreme poverty and share prosperity with the bottom 40 percent of the population in income terms.

Today, the World Bank issues a wide range of debt instruments to raise financing for the development programs it supports in borrowing member countries. The World Bank is rated triple-A by Moody's and Standard & Poor's based on its solid financial structure, conservative financial policies, and strong capital base. IBRD has a high-quality globally diversified loan portfolio. The loans and financial services are only extended to sovereign governments and projects with sovereign guarantee. For its fiscal year ending June 30, 2015, IBRD outstanding loans and guarantees were US\$154 billion, and the total bonds issued were worth a total of US\$58 billion equivalent.



### International Finance Corporation

IFC is a member of the World Bank Group established in 1956 and owned by 184 member countries. IFC provides loans and equity investment, advisory services, and asset management on a commercial basis. It is the largest global development institution focused exclusively on the private sector in developing countries. Its global portfolio is highly diversified and contains debt and equity exposure in 126 countries and nearly 2,000 companies. By June 30, 2014, investments outstanding totaled US\$38 billion.

IFC has a US\$84 billion balance sheet and is rated triple-A. It has funded its investments primarily by issuing bonds since 1989. The bond program for 2016 is US\$17 billion, to be raised by accessing various markets including green bonds for the additional value of investor diversification. IFC's green bonds attract new investors and highlight IFC's work in providing climate-smart solutions to emerging-market private sector clients.





## WHAT IS THE GREEN BOND PROCESS?

Using the World Bank (IBRD) process as an example, the steps followed by most green bond issuers generally fall into four categories:

1

**Define project selection criteria.** The issuer defines the kind of green projects it seeks to support with green bonds. For the World Bank, such eligible projects must support the transition to low-carbon development and climate-resilient growth. The selection criteria are often reviewed and assessed by an external expert party to provide investors the assurance that they meet generally accepted technical definitions. The World Bank's green bond criteria were defined in consultation with the initial investors and underwent an independent review by the Center for International Climate and Environmental Research at the University of Oslo (CICERO). CICERO concurred that, combined with the governance structure of the World Bank, the World Bank eligibility criteria provided a sound basis for selecting climate-friendly projects.

2

**Establish project selection process.** All World Bank projects—including the projects supported by its green bonds—undergo a rigorous review and approval process, which includes early screening, identifying and managing potential environmental and/or social impacts, and obtaining the approval of the Bank's Board of Executive Directors. Subsequently, environmental specialists then screen the approved projects to identify those that meet the World Bank's green bond eligibility criteria.

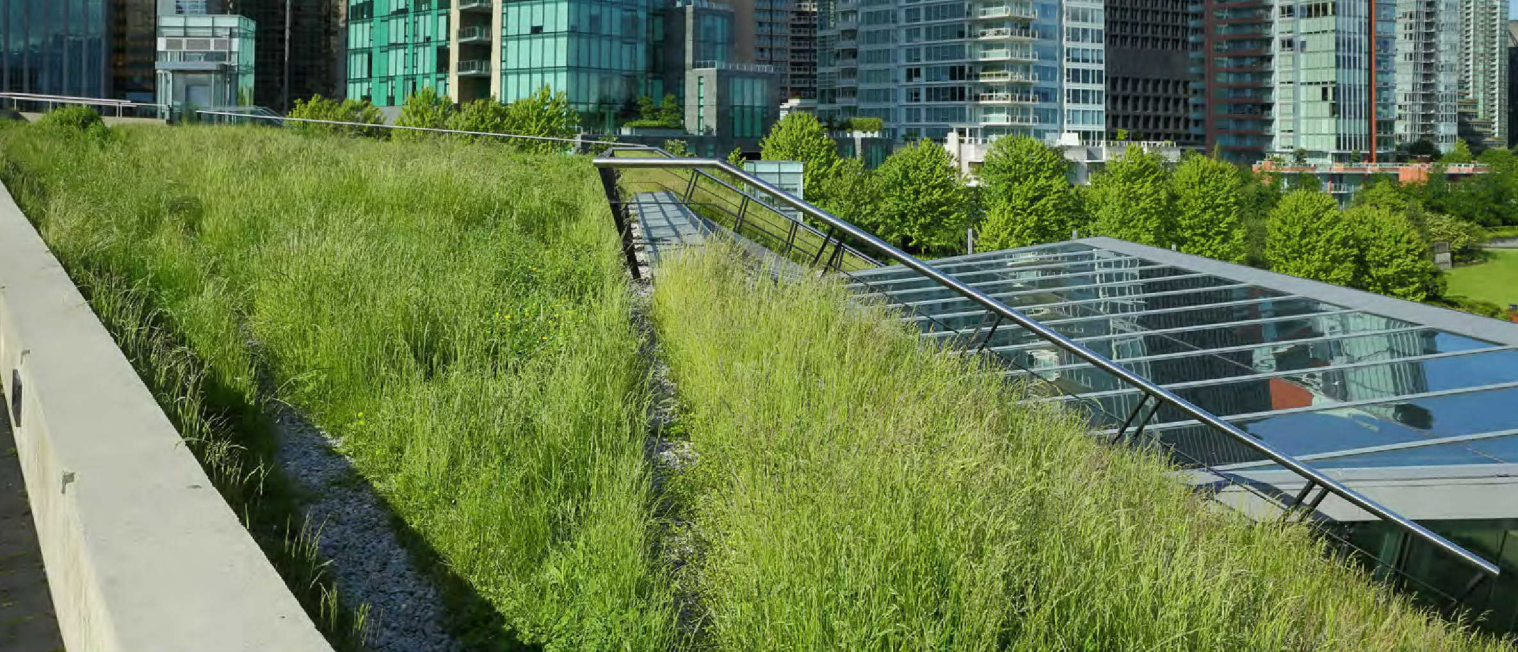
3

**Earmark and allocate proceeds.** The issuer discloses how it will separate green bond proceeds and make periodic allocations to eligible investments. The World Bank credits green bond proceeds to a special account and invests the funds in accordance with its conservative liquidity policy until they are used to support eligible green bond projects. Funds are periodically allocated in an amount equal to the disbursements of eligible projects.

4

**Monitor and report.** The issuer monitors the implementation of the green projects and provides reports on the use of proceeds and the expected environmental sustainability impacts. Summaries and key impact indicators for green-bond-eligible projects are provided on the World Bank's Green Bond website with links to relevant documents and more detailed project information.<sup>12</sup>





## WHAT ARE THE GREEN BOND PRINCIPLES?

As the market grew rapidly, market players have sought to bring greater clarity to the definitions and processes associated with green bonds. Using the experiences of the multilateral development banks, in early 2014, —a group of banks initiated the development of the Green Bond Principles (GBP)—a set of voluntary guidelines framing the issuance of green bonds.<sup>13</sup>

In a second edition published in March 2015, the GBP encourage transparency, disclosure, and integrity in the development of the green bond market. The GBP suggest a process for designating, disclosing, managing, and reporting on the proceeds of the bond. They are designed to provide issuers with guidance on the key components involved in launching a green bond, including providing information to aid investors in evaluating the environmental impact of their green bond investments. The International Capital Markets Association acts as the GBP's secretariat and facilitates the work of its members, including issuers, investors, banks underwriting green bonds, and other market participants.

The GBP recognize several broad categories of potential eligible projects, which include but are not limited to the following:

- Renewable energy
- Energy efficiency (including efficient buildings)
- Sustainable waste management
- Sustainable land use (including sustainable forestry and agriculture)
- Biodiversity conservation
- Clean transportation
- Sustainable water management (including clean and/or drinking water)
- Climate change adaptation



## HOW DO ISSUERS DEFINE WHAT IS 'GREEN' WITH CREDIBILITY?

Issuers define categories for environmental projects they plan to support with green bonds and report back to investors depending on their business model and context.

Drawing from the practice of earlier issuers and the GBP, green bond issuers have developed their own green bond definition and process to suit their business profiles.

Investors in green bonds expect information from issuers in sufficient detail to allow them to assess green bond offers, such as how issuers track and use green bond proceeds and how they report the positive impacts expected from green projects. The Investor Network on Climate Risk (a North American nonprofit organization convened by Ceres that advocates for leadership in sustainability) has articulated its “expectations” in a statement to guide issuers and other market participants.<sup>14</sup>

The market has been relying on issuer disclosures, second opinions, and commentary from academics; investment advisers; auditors; technical experts; media; and nongovernmental organizations (NGOs) such as CICERO, the Climate Bonds Initiative, Det Norske Veritas, (DNV), Norway, Oekom, Sustainalytics, and Vigeo, among others. Also, several green bond indices (for example, Barclays/Morgan Stanley Capital International [MSCI], Standard & Poor's, and Solactive) are useful benchmarks for green bond portfolios and support transparency in definitions and processes.



## WHAT ARE SOME EXAMPLES OF GREEN BONDS BY TYPE OF ISSUER?

A variety of issuers have taken the early examples of MDBs and the GBP and developed processes that work for their business models and practices. Many have worked with investors to fine-tune the categories of eligible projects and disclosure and reporting aspects. Examples include the following:

### CITIES, STATES, AND STATE-OWNED ENTITIES (SUBNATIONALS)

**British Columbia** supported energy efficiency in new hospitals meeting Leadership in Energy & Environmental Design (LEED) gold certification through a 32-year, Can\$231 million green bond issued in July 2014.<sup>15</sup>

**City of Gothenburg**, together with Swedish bank Skandinaviska Enskilda Banken (SEB), developed a six-year, Skr 500 million green bond to finance various environmental projects in public transport, water management, energy, and waste management.<sup>16</sup>

**City of Johannesburg** issued a 10-year, R 1.46 billion green bond in June 2014 to finance green initiatives such as the Biogas to Energy Project, the Solar Geyser Initiative, and other projects that will move the city closer to a low-carbon infrastructure and increase preservation of natural resources.<sup>17</sup>

**State of Massachusetts** issued two green bonds—a 20-year, US\$100 million green bond in June 2013 and a series of green

bonds with maturities ranging from 5 to 17 years in September, 2014—to finance environmentally beneficial projects in clean water, energy efficiency, and land remediation, among other areas.<sup>18</sup>

### BI-LATERAL TRADE AND DEVELOPMENT AGENCIES

**Export Development Canada** issued a three-year, US\$300 million green bond in January 2014 to support direct loans in sectors that preserve, protect, or remediate air, water, or soil or help mitigate climate change.<sup>19</sup>

**KfW Development Bank** has issued green bonds since July 2014, including a five-year, €1.5 billion bond to finance KfW's environment investment program including generation of renewable power, especially from wind and photovoltaics.<sup>20</sup>

### UTILITIES

**The District of Columbia, Water and Sewer Authority (DC Water)** issued US\$350 million in green bonds in July 2014 with a 100-year final maturity to finance a portion of its Clean Rivers Project.<sup>21</sup>

**GDF Suez**, the French utility, issued the largest-ever green bond—a €2.5 billion (about US\$3.4 billion) bond in May 2014—to fund renewable energy projects.<sup>22</sup>

### CORPORATES

**Regency Centers Corporation**, a real estate investment trust, issued US\$250

million in green bonds in May 2014 to finance the construction of shopping malls that meet the standards of the U.S. Green Building Council.<sup>23</sup>

**Toyota Financial Services** issued a US\$1.75 billion green bond in March 2014 to fund consumer loans and leases for its electric, hybrid, and low-emission vehicles. The bond returns are linked to the performance of these consumer loans and leases.<sup>24</sup>

### BANKS

**Bank of America** issued two green bonds—US\$500 million in November

2013 and US\$600 million in May 2015—to finance renewable energy projects such as wind, solar, and geothermal energy as well as energy efficiency projects.<sup>25</sup>

**ABN AMRO** of the Netherlands issued a five-year, €500 million green bond in June 2015 to support mortgages in energy-efficient homes, loans for home solar panels, and sustainable commercial property.<sup>26</sup>

**YES BANK**, India's fourth-largest private sector bank, issued Rs 10 billion in 10-year green infrastructure bonds in February 2015 to support its renewable energy portfolio.<sup>27</sup>





# WHAT HAS BEEN THE GROWTH AND COMPOSITION OF THE GREEN BOND MARKET?

The market has grown from about US\$4 billion in 2010 to over US\$37 billion in 2014.

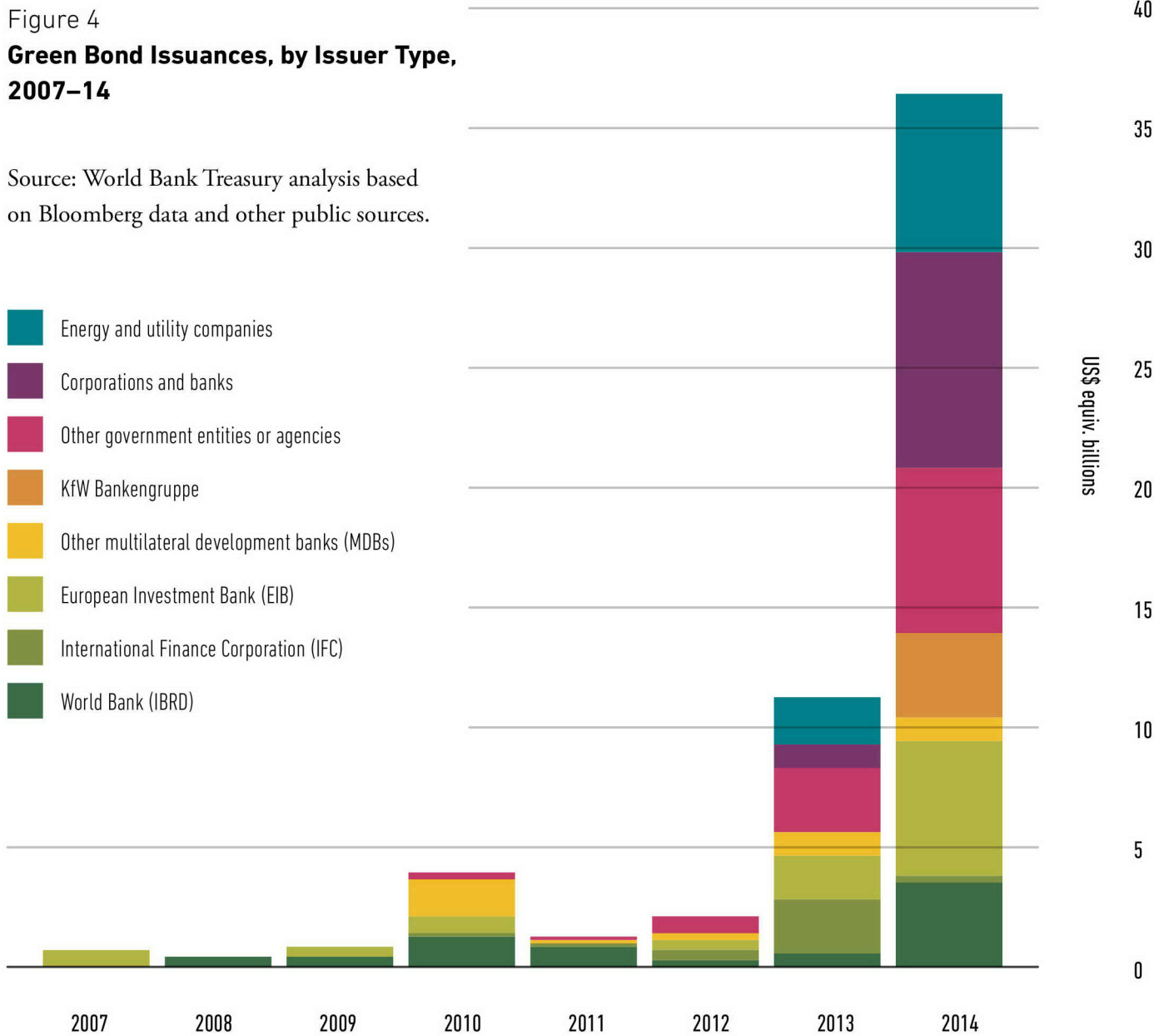
As discussed earlier, the EIB issued the first climate-focused bond in the form of a *structured product* in 2007. In 2008, the World Bank issued the first bond labeled "green" for mainstream investors with a fixed coupon. By 2010, they were joined for the first time by other MDBs such as the IFC and by public entities (governments, agencies, and municipalities) in issuing a total of about US\$4 billion worth of climate-focused bonds. This total nearly

tripled in 2013, as corporations, energy utilities, and other agencies entered the market, and several issuers drastically increased the issue size (figure 4). This trend continued in 2014, when the green bond market volume rose to over US\$37 billion, over half of which was issued by corporations such as Toyota and public entities such as the State of Massachusetts. To date (mid-July 2015), green bond issuances in 2015 have reached about US\$23 billion.



Figure 4  
Green Bond Issuances, by Issuer Type, 2007–14

Source: World Bank Treasury analysis based on Bloomberg data and other public sources.



Most investors have been investing in green bonds within their existing portfolios—responding to interest in supporting climate-focused activities. Asset managers have set up dedicated green bonds funds or have set targets for funds under management that should include green bonds. For example, Nikko Asset Management set up a World Bank Green Bond Fund in 2010.<sup>28</sup> A few years later,

announcements were made by Zurich Insurance<sup>29</sup> and Natixis Asset Management's Responsible Investment management company, Mirova,<sup>30</sup> to set up portfolios dedicated to green bonds in the magnitude of US\$1 billion and €1 billion, respectively. In late 2014 and early 2015, the treasuries of Barclays Bank<sup>31</sup> and Deutsche Bank<sup>32</sup> set up dedicated funds to invest £1 billion and €1 billion in green bonds, respectively.



## WHO BUYS GREEN BONDS?

The main investors are located in Europe, followed by Japan and the Americas.

In Europe, institutional investors (such as pension funds and insurance companies) and, in the United States, investors with strong environmental focus were the first green bond investors. Since then, green bond issuers have tapped into a broader group of investors including asset managers, companies, foundations, and religious organizations. As issuances have grown in size, the types of investors have grown increasingly diverse as well. For example, in 2014, Zurich Insurance Group announced that it would “double its commitment to green bonds,” mandating the asset management firm Blackrock to invest US\$1 billion in green bonds.<sup>33</sup>

Just like issuers, fixed-income investors are using green bonds to communicate to their stakeholders their commitment to supporting environmentally friendly investments. Many of them, for example, disclose their green bond purchases through press releases and other communication.

## HOW HAS THE PROFILE OF ISSUERS CHANGED?

As shown in figure 5, the green bond market from January 2014 to April 2015 has benefited from the participation of different kinds of issuers, which is also providing a broader spectrum of risk (and return) in green bond offerings.

From the total of about US\$51 billion over the period, US\$32.4 billion represented offerings issued below a composite rating of AAA, of which US\$15 billion were offerings rated below BBB, denoting bonds with higher yields increasingly offered by corporatios, subnationals, and utilities.

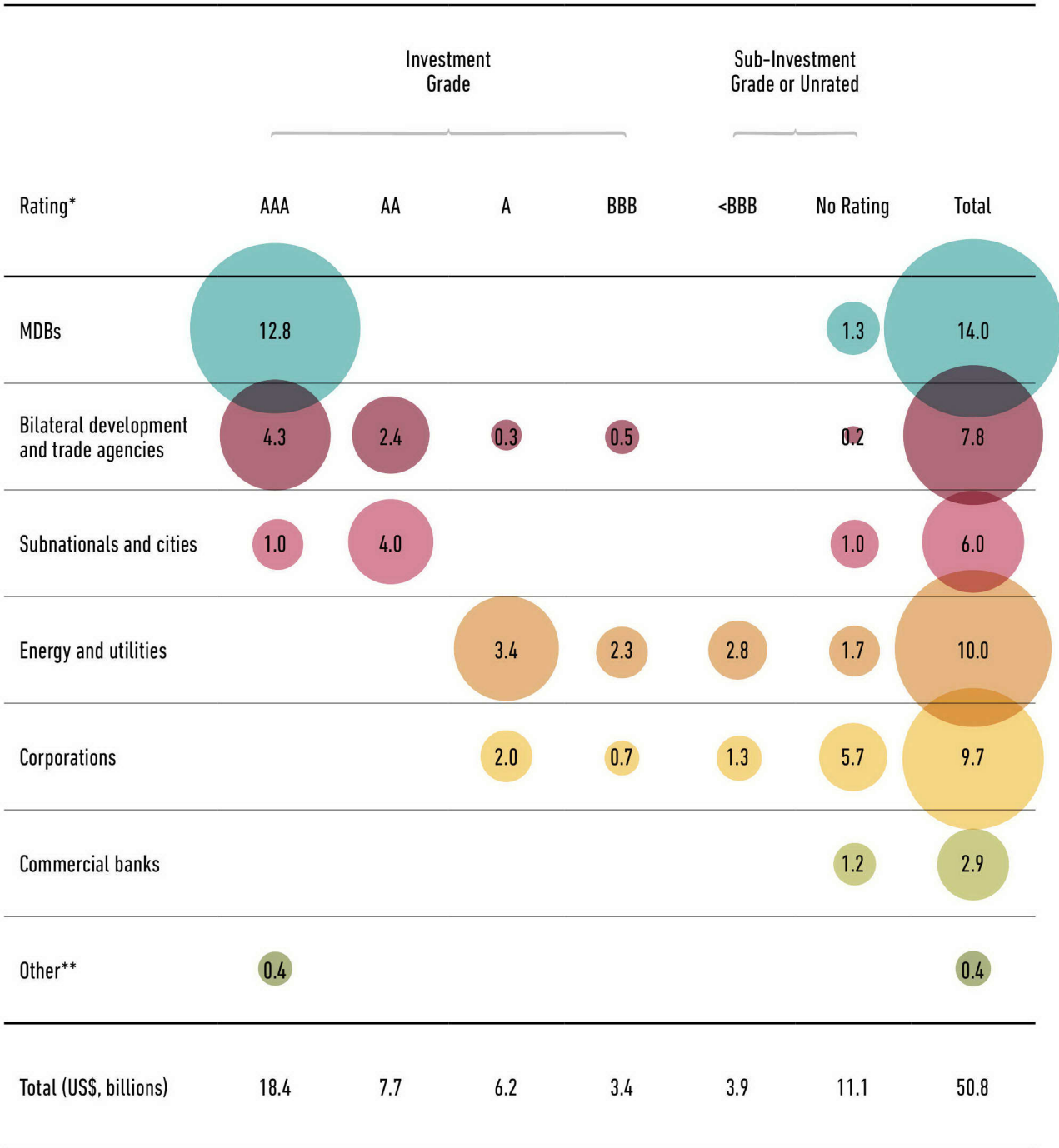


Figure 5  
Green Bonds Issued by Issuer Type and Credit Ranking, Jan. 2014 to April 2015

Source: World Bank Treasury analysis based on Bloomberg data.

Note: Totals rounded to nearest US\$100,000.

\* Composite (average) rating of Fitch, Moody's, and Standard & Poor's credit ratings when available

\*\* "Other" consists of entities that don't fit into the other categories, such as universities, nonprofits, and so on.



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A photograph of two white wind turbines on a grassy hill under a clear blue sky. The turbines are the central focus, with one in the foreground and another slightly behind it to the left. The foreground is filled with green bushes and some yellow wildflowers.

WHAT ARE  
GREEN BONDS?

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CHAPTER III

# BENEFITS AND POTENTIAL

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## **WHAT ARE THE BENEFITS OF ISSUING GREEN BONDS AND THE POTENTIAL OF THE GREEN BOND MARKET?**

The benefits for issuers include investor diversification, closer engagement with investors, raising awareness for an issuer's activities, and helping to build a market that helps mobilize private sector financing for climate-focused and environmentally friendly activities.

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## HOW DO THE FINANCIAL CHARACTERISTICS OF GREEN BONDS COMPARE WITH REGULAR BONDS FROM THE SAME ISSUER?

In general, green bonds are priced very close to regular bonds.

The market price of green bonds is determined like any other bond in relation to market conditions at the time of issuance (often relative to reference bond rates). For dollar-denominated bonds, U.S. Treasury Bonds are the reference benchmark.

To compare a green bond with a regular bond would require the issuer

to issue them almost simultaneously and with almost identical terms—including currency, structure, yield, and maturity. This is rare. It is generally accepted that green bonds are priced very close to regular bonds; that is, investors are not willing to give up return or pay extra for the green aspect of the bond and related reporting. However, observers of this nascent market point to growing demand and preference for green bonds by a growing number of mainstream investors. Anecdotally, investors in green bonds have been able to sell at higher prices than conventional bonds because of the rarity of green bonds. Depending on demand and supply trends in specific markets, differential pricing for green bonds relative to other bonds could emerge in the future.

## IF GREEN BONDS RAISE FUNDS THAT COULD HAVE BEEN RAISED BY REGULAR BONDS, WHAT ARE THE BENEFITS TO ISSUERS?

The funds raised by the first green bonds could have been raised with regular bonds. Green bonds, however, allow issuers to reach new investors, making such issuers less dependent on specific markets. Green bonds also help raise awareness about issuers' environmental programs.

Since most green bonds in the market today carry similar financial characteristics as regular bonds from the same issuer (that is, they are backed by the full credit of the issuer), one could argue that they offer limited benefit to issuers. However, reaching different investor groups is valuable to expand funding sources. In particular, green bonds have attracted investors from the growing segment focused on sustainable and responsible investing (SRI) and investors that incorporate ESG (environmental, social, and governance) criteria as part of their investment analysis.

In addition to reaching different types of investors, green bonds have

proven to be an effective tool to raise awareness and open intense dialogue with investors about projects that help address climate change and other environmental challenges.

For example, issuers in state and local governments are using green bonds as a tool to reach constituencies physically located close to the green projects they intend to support. The opportunity to invest in a program that improves one's community increases one's sense of connection and social responsibility.





## WHAT IS THE POTENTIAL OF GREEN BONDS TO RAISE MORE CAPITAL?

There is an urgent need to transition to low-carbon and climate-resilient development and growth. Effective policies and more financing will be needed to achieve these goals. Green bonds could play a bigger role.

Globally, a transition to low-carbon, climate-resilient growth is needed to avert worsening consequences of climate change and natural resource scarcity. Public policy plays a key role in signaling the urgency of moving toward such a long-term goal. This includes avoiding price distortions (for example, reducing subsidies on fossil fuels) and applying policies that manage natural resources to reduce emissions, manage scarcity, and mitigate climate risk.

Experts have estimated the amount of financing that is needed to support this transition. The estimates vary, but all agree that the financing gap cannot be covered by public sources alone.<sup>34</sup> Private financing already accounts for about 60 percent of the estimated flows supporting climate action.<sup>35</sup>

Most green bonds issued so far are part of the overall funding program of issuers. For example, MDBs have provided about US\$42 billion in loans for low-carbon and climate-resilient projects. To the extent that a portion of the MDB funding for these loans was raised from capital markets in the form of green bonds, MDBs are already part of the existing climate funding sources.

The market for green bonds is still at an early stage, but as the range of investors is growing, so could the variety of bonds being offered. This includes, for example, bonds of different issuers that carry higher risk but yield higher returns, bonds in currencies of more countries, and bonds with returns linked to revenues of specific projects. The larger this variety becomes, the higher the potential for green bonds to help raise more private capital to support environmental and climate-friendly investments. Of course, green bonds are only one instrument in the menu of financing innovations that can be developed. Other instruments may be more suitable, particularly in countries with less-developed capital markets. The World Bank Group works to develop financing structures that enhance the attractiveness of climate investments and, more broadly, to deepen local financial markets.

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# IN CLOSING...

With more than a threefold increase in green bond issuances in 2014 over the previous year, the green bond market's growth and development has been impressive.

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At a cumulative amount of almost US\$60 billion, considering a total bond market size of over US\$90 trillion globally, there certainly is room to grow.

To some, the total volume of the green bond market is less important than the variety of bonds being offered, the increased transparency around connecting the source of funding with the expected impact, and the role green bonds are playing

in the overall transition to more sustainable and responsible fixed-income markets.

In sum, green bonds are not a “magic solution” to the climate finance challenge, but they are definitely moving market participants in the right direction. To reach meaningful scale and contribute to abating climate change, active public policy and continued private engagement will help green bonds reach their full potential.



# GLOSSARY

## Benchmark

A standard of reference against which the performance of a security, a portfolio, or an investment manager can be measured. Generally, indices of the broad stock and bond markets, or segments thereof, are used for this purpose.

## Bond

A financial debt instrument issued to investors for a predetermined duration of time and interest rate. Investors in the bond market are typically paid a fixed interest rate (coupon) for the duration of their loan and returned their initial investment upon maturity. As such, bonds are often referred to as fixed-income securities. Bond issuers can take the form of private companies, supranational institutions, or public entities (municipal, state, or federal).

## Credit Rating

A grade classification of a debtor's creditworthiness assigned by specialized agencies, the most prominent of which include Standard & Poor's, Moody's, and Fitch Ratings. Credit ratings for corporations and countries are holistically determined through investigations and the analysis of several credit metrics. The resulting rating

is typically some variation of a letter grade, ranging in Standard & Poor's case from AAA (highest quality) to D (lowest quality). Higher credit ratings results in lower costs to mobilize resources from capital markets (that is, the costs they pay on bonds issued).

## Creditworthiness

An evaluation of a borrower's ability to manage current and potential debt obligations that is performed by rating agencies and lending institutions. Creditworthiness is based on several metrics that include, but are not limited to, a borrower's credit history, assets, and liabilities.

## Dealer

A person or firm in the business of buying and selling securities for their own account, whether through a broker or otherwise. A dealer is defined by its role as principal in trading for its own account, as opposed to a broker who acts as an agent in executing orders on behalf of clients.

## Equity / Stock

Any financial instrument that represents ownership of private property, including but not limited to shareholder stock in a privately held company. The value of equity corresponds to the ownership value of the asset net of all associated debt.

## Structured Product

Also known as a market-linked investment, generally a prepackaged investment strategy based on derivatives, such as a single security, a basket of securities, options, indices, commodities, debt issuance or foreign currencies, and to a lesser extent, swaps.

## Underwriter

A company or other entity that administers the public issuance and distribution of securities from a corporation or other issuing body. An underwriter works closely with the issuing body to determine the offering price of the securities, buys them from the issuer, and sells them to investors via the underwriter's distribution network.





# ABBREVIATIONS

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|               |  |
|---------------|--|
| <b>ADB</b>    | Asian Development Bank   |
| <b>CICERO</b> | Center for International Climate and Environmental Research,<br>University of Oslo |
| <b>EIB</b>    | European Investment Bank   |
| <b>GBP</b>    | Green Bond Principles  |
| <b>IBRD</b>   | International Bank for Reconstruction and Development                              |
| <b>IFC</b>    | International Finance Corporation  |
| <b>MDBs</b>   | multilateral development banks   |





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# USEFUL WEBSITES

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| <b>Climate Bonds Initiative (CBI)</b>                           | <a href="http://www.climatebonds.net/">http://www.climatebonds.net/</a>   |
| <b>Environmental Finance: Green Bonds</b>                       | <a href="https://www.environmental-finance.com/channels/green-bonds.html">https://www.environmental-finance.com/channels/green-bonds.html</a>                             |
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| <b>World Bank: Green Bonds</b>                                  | <a href="http://treasury.worldbank.org/cmd/htm/WorldBankGreenBonds.html">http://treasury.worldbank.org/cmd/htm/WorldBankGreenBonds.html</a>                               |
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## WHAT ARE **GREEN** BONDS?

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