THE ROLE OF EXCHANGES IN ACCELERATING THE GROWTH OF THE GREEN BOND MARKET

Climate Bonds INITIATIVE

Prepared by the Climate Bonds Initiative

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1. Background: Growth of the green bond market

The growth of the global green bond market, albeit from a small base, has been a phenomenon in recent years. 2016 has just set a new record for global green bonds issuance at USD 81bn[1] (Figure 1) .

Underlying this growth has been strong institutional investor demand for financial instruments that both meet their short-term portfolio risk/yield requirements, as well as address concerns about the risks of catastrophic climate change. Green bonds - with their vanilla bond characteristics, mostly investment-grade profiles, and climate benefits - fit this bill.

To make a material contribution to addressing climate change, and to continue to attract investors, the green bond market needs scale. Government support in the form of policies and sovereign issuance is vital to achieving this. However larger investor participation is also dependent on market liquidity. From their unique position in financial markets, exchanges[2] are critical actors for providing such market liquidity. Exchanges also provide regulated and transparent markets, which give investors the necessary confidence that the green bonds they buy can be traded. Exchanges, therefore, are institutions facilitating a robust green bond market development.

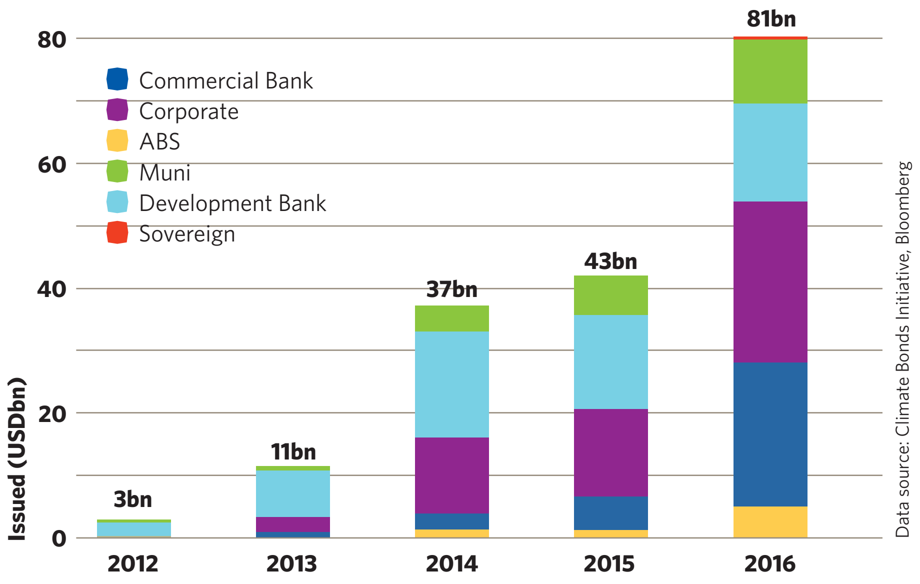
In 2016, exchanges and some regulators demonstrated leadership in growing the market: the launch of the Luxembourg Green Exchange (LGX), the establishment of the first green bond segment outside of Europe by the Mexican Stock Exchange (BMV), the announcement of the Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) green bond pilot programmes, and the London Stock Exchange (LSE) as the first exchange to partner with the Climate Bonds Initiative and join the Green Infrastructure Investment Coalition.

In February 2017, LSE and Borsa Italiana issued guidance on ESG reporting, including recommendations on ESG disclosure for green bond issuers.

In March 2017, the China Securities Regulatory Commission (CSRC) released green bond guidelines, encouraging the Shanghai Stock Exchange and Shenzhen Stock Exchange to set up green bond lists and develop green bond indices to further boost China's green bond market.

In March 2017, Borsa Italiana established a list for green and social bonds on its markets, MOT and ExtraMOT.

Figure 1. Green bond market growth 2012-16



In addition, the United Nations' Sustainable Stock Exchanges (UN SSE) initiative has been increasingly involved in green finance. The UN SSE held its first event on green finance in 2015 at COP21 in Paris. The following year, they held an executive dialogue on green finance in Nairobi, alongside the UN Conference on Trade and Development's (UNCTAD) World Investment Forum, and a forum on green finance in Marrakesh running parallel to COP22. At the World Investment Forum in 2016, the UN SSE announced the launch of a new work stream on green finance in response to partner exchange interest. They will be launching guidelines for exchanges on facilitating green finance at COP23 in Bonn, Germany.

Government action on green bonds

2016 and early 2017 saw many governments lay out implementation plans for achieving their pledged climate change targets by mobilising the capital required through green bonds, including:

Brazil: The International Finance Corporation (IFC) and the Brazilian Development Bank (BNDES) announced green bond cornerstone funds.

Morocco: The Moroccan Capital Markets Authority (AMMC) released a green bond guide.

India: The Securities and Exchange Board of India (SEBI) released draft green bond guidelines.

Italy: The Italian government convened the Italian National Dialogue on Sustainable Finance, and issued recommendations for greening debt capital markets.

France: Issued a landmark €7bn sovereign green bond.

Poland: Issued the world's first sovereign green bond (USD 784m).

Singapore: The Monetary Authority of Singapore (MAS) announced a grant scheme to subsidize green bond issuance for three years.

China: Seven Chinese state ministries jointly released the "Guidelines for Establishing the Green Financial System", naming green bonds as a key component.

UK: The City of London established the Green Finance Initiative, under the auspices of the Treasury, the ministry ofenvironment (DEFRA) and the Bank of England. The Governor of the Bank of England delivered landmark speeches on the implication of climate change for financial stability.

Multilateral: Increased international collaboration on green finance and green bonds: G20, Financial Stability Board (FSB) and European Commission (EC).

2. Green bonds and "climate-aligned" bonds listing

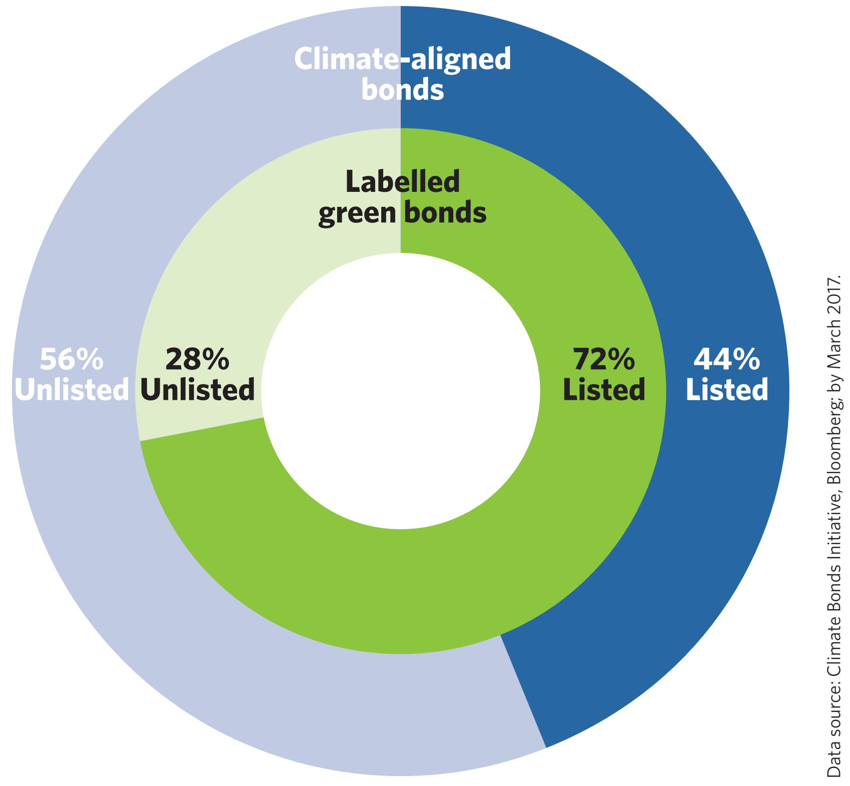
At the end of 2016, labelled green bonds outstanding totalled USD 180bn. However, this is only a small segment of a larger market of bonds financing "climate-aligned" assets that do not carry a green label, which amounts to more than USD 694bn.[3]

44% (USD 308bn) of these unlabelled climate-aligned bonds are listed on exchanges, while the percentage of labelled green bonds is much higher, at 72% (USD 130bn) (Figure 2).

The unlabelled climate-aligned data demonstrates the potential for green bond market growth across the world. Exchanges can use this information to identify existing and potential issuers, fast-growing markets as well as large and new sectors for green bond issuance.

For example, according to the analysis presented in the State of the Market 2016 Report,[4] the largest proportion of unlabelled climate-aligned bonds were issued by Chinese issuers – demonstrating the huge potential for a green bond market in China. As a result, stock exchanges such as the SSE, SZSE and Hong Kong Stock Exchange (HKEX) could capitalise on the opportunities of growing green bonds issuance and listing from Chinese companies and financial institutions.

Figure 2. A high proportion of labelled green bonds are listed on exchanges



3. Why exchanges are important for green bond market growth

Facilitate investor decisions

By providing financial services such as guidance, training and tools for investors, exchanges can play an impotant role in facilitating investment in climate solutions.

The development of the market can be accelerated by the creation of performance benchmarks such as indices, further assisting investors in identifying green finance investment opportunities.

Example: exchange collaboration

LuxSE and SZSE have partnered with China Central University of Finance and Economics to launch a new Green Bond Index Series to facilitate access to China's green bonds for European investors.

Provide access to a wide range of investors

Exchanges provide issuers access to a large potential investor base for the green bond market, including large institutional investors such as pension funds, mutual funds and insurance companies as well as small and medium-sized institutions and even individuals. Thus, exchanges can support the mobilisation of investor demand for green investment. In addition, listing green bonds on exchanges gives issuers access to a deeper pool of investment capital. By receiving enhanced visibility on exchanges, green bonds issuers are exposed to a far wider segment of potential investors.

Exchanges can also provide small and medium enterprises with access to green finance, as in the case of Borsa Italiana's ExtraMOT Pro.

Improve the liquidity of green bonds

Low liquidity is a barrier to investing in the bond market generally, and in the green bond market in particular. When liquidity is low, it is more difficult to match potential sellers with potential buyers resulting in a more time-consuming process and higher transaction costs. Greater use of "all-to-all" venues such as exchanges enhances liquidity by enabling greater market connectivity and more centralised liquidity than the over-the-counter (OTC) market.[5]

Exchanges can also channel the liquidity of retail investors, as in the case of LSE's ORB (Shanks green bond) and the World Bank's sustainable bonds listed on Borsa Italiana.

In addition, stock exchanges are situated at the central marketplaces, acting as facilitators between issuers and investors. They are the vital part of the ecosystem which enables overall green bond market growth both domestically and internationally.

4. How exchanges can accelerate the growth of the green bond market

Promote green bond transparency

Transparency is one of the most important features of a green bond, with disclosure and reporting on the use of proceeds being key elements in meeting market expectations. Exchanges can support the integrity and growth of the green bond market by encouraging both the application and development of robust standards. Exchanges could leverage existing standards and guidelines such as the Green Bond Principles and the Climate Bonds Standard to better promote international harmonisation and comparability.

Encouraging the development of common practices can increase investor confidence by providing them with transparent, consistent and comparable information on the type of projects financed for the listed bonds. Robust standards around what is classified as green can also reduce the risk of 'greenwashing' as the market develops and grows.

Develop green bond guidelines

Guidance documentation could be provided by exchanges to pave the way for new issuances and listing. Clarifying criteria for the eligibility of projects, and guidance for reporting on the intended and actual use of proceeds are critical for building a fully-functional green bond market.

Example: guidelines

SSE and SZSE published guidelines for their green bonds pilot programmes in March and April 2016 respectively. These guidelines provide details on the definition of a "green project", eligibility of green bonds issuers, management of proceeds, reporting and disclosure, and the use of third party certification.

LSE and Borsa Italiana have included disclosure guidelines for green bonds in their ESG reporting guide.

Table 1. Exchanges with a dedicated green bond list/segment

Exchange	Type of dedicated list/segment	Launch date
Oslo Stock Exchange	Green Bonds	January 2015
Stockholm Stock Exchange	Sustainable Bonds*	June 2015
London Stock Exchange	Green Bonds	July 2015
Mexico Stock Exchange	Green Bonds	August 2016
Luxembourg Stock Exchange	Green Bonds	September 2016
Borsa Italiana	Green and Social Bonds	March 2017

* Including bonds related to climate change mitigation, adaptation, enhancing or protecting biodiversity.

Such guidance would not only help issuers but also provide assurance for investors and encourage further investment in this rapidly-growing asset class.

It is important to note that in most countries the green bond market is underpinned by a broad range of voluntary standards, principles and best practices rather than a single set of mandatory requirements.

Exchanges could contribute to the efforts to promote the strongest of these standards in the local context as well as the further harmonisation of green bond standards more generally.

Exchanges can further encourage the issuance and listing of green bonds by creating more efficient procedures which shorten and streamline the issuing process.

Exchanges can also help green bonds issuers to prepare their listing prospectus not only by publishing guidance documentation but also by offering advice on the additional non-regulatory best practices. Such tasks could be undertaken by internal staff or accredited external consultants.

Example: FSB

The set of recommendations produced by the Financial Stability Board's Task Force on Climate-Related Financial Disclosures could, for instance, be disseminated by exchanges to investors and issuers.

Establish green bond lists/ segments

Creating a specialised green bond list or a dedicated segment enables investors to easily discover and invest in assets addressing climate change. They are useful in improving the visibility of green bonds to investors, and encouraging secondary market trading. This will facilitate green bond issuers access to a deep pool of green capital domestically and internationally.

Lists or segments can also play a role in ensuring the environmental integrity of the market by requiring issuers to provide a second or third party review of the green credentials of the bond in order for it to be included in their lists.

Table 1 above shows exchanges that have launched dedicated green bond (or sustainable bonds) lists/segments.

In order to ensure and maintain the quality of green bond lists, exchanges may need to reserve the legal right to exclude or remove bonds from the list or segment if they do not meet ongoing reporting requirements. Luxembourg's LGX and Borsa Italiana for instance are already doing so. If an issuer fails to provide information on the actual use of proceeds at least one year after issuance, it will be prevented from being included in the list/segment until its reporting obligations are fulfilled. In this way, exchanges can reinforce transparency in the allocation of green/ sustainable bonds proceeds.

Example: green bond lists

LuxSE, the first exchange to list a green bond in 2007, took a further step forward by launching the Luxembourg Green Exchange (LGX) in September 2016. LGX is the first ever platform dedicated entirely to green securities.

Admittance to LGX is subject to adherence to a set of mandatory criteria, covering external review of the green bond framework and its intended use of the proceeds, and a commitment to continuous post-issuance reporting. The platform not only makes green bonds visible, but also ensures their adherence to transparent and robust criteria. In addition, it offers centralised information via the corresponding security card[6]. LuxSE has also opened a window dedicated to social and sustainable bonds. (Appendix 1)

In the future, exchanges could require that an issuer's auditor attest to the issuer's deployment of funds. While this attestation may add to compliance costs, it could further increase investors' confidence in green bonds at a post-issuance phase.

Balancing robustness and simplicity

While robust requirements for listing green bonds can enhance the quality of green assets, a key challenge will be for exchanges to promote robustness without placing an unnecessary burden on potential green bond issuers.

Criteria need to be robust enough to ensure that investors have confidence that projects funded by green bonds have demonstrable environmental and climate impacts, while still being flexible and simple to achieve for potential green bond issuers.

Table 2. Examples of green bond indices

- Solactive Green Bond Index Series
- S&P Dow Jones Green Bond Index
- Barclays & MSCI Green Bond Index
- Bank of America Merrill Lynch Green Bond Index
- ChinaBond China Green Bond Index Series
- ChinaBond China Climate-aligned Bond Index
- CUFE-CNI Green Bond Index Series

Support green bond indices and ETFs

A green bond list shows adherence with certain green criteria but it does not track the financial performance of the included bonds or identify environmental risks embedded in the financial market. Once sufficient market scale has been achieved, introducing one or more green bond indices could make it easier for investors to track the performance of green bonds, and compare returns and volatility with other investments.

Existing green bond indices have been launched by a number of ratings agencies, financial institutions and international institutions (Table 2).

Exchanges could draw lessons from the experiences of these institutions or develop partnerships with them to establish green bond indices.

In time, as the green bond market scales up, such indices could cater to diverse investor interests by developing specific regional or sector focuses.

By developing green bond indices, exchanges can enable the development of ETFs or index-linked structured products which require indices. Such market infrastructure also promotes investment and liquidity in the green bond market (Table 3).

Table 3. Examples of green bond exchange traded funds (ETFs)

Name of green bond ETFs	Green bond index tracked	Listing exchange
Lyxor Green Bond UCITS ETF	Solactive Green Bond EUR USD IG Index	Euronext, London Stock Exchange
VanEck Vectors Green Bond ETF	S&P Green Bond Select Index	NYSE Arca

Climate Bonds Data

Climate Bonds Initiative provides green bonds data for Solactive, S&P, Barclays & MSCI green bond indices, and helped establish the China Climate-aligned Bond Index with China Central Depository & Clearing Co. and China Energy Conservation and Environmental Protection Consulting. Bonds have been judged to meet the minimum criteria of the CBI Taxonomy.

Implement market education and foster dialogue

By providing educational resources and expert assistance, exchanges can assist investors in understanding wider climate change risks and opportunities.

Capacity building for issuers and other stakeholders can also be organised to support them in understanding market expectations and interpreting listing requirements. Exchanges can foster dialogue on green bonds between all stakeholders including regulators, investors, issuers, rating agencies, international standard-setting bodies, certifiers and auditors.

Example: GIIC

An example of such activity is the Green Infrastructure Investment Coalition (GIIC) India Forum held at London Stock Exchange (LSE).

To date, other green bonds events have been held at both the LSE and LuxSE, connecting potential green bond issuers and investors. These events could be replicated by exchanges around the world.

5. Why exchanges should act

Reputation and credibility enhancement

Brands and reputation are the most important assets of exchanges; this can be derived from their participation in the green bond market. By harnessing the green bond market to drive the transition to a low carbon economy, exchanges will be able to generate clear climate change credentials, enhancing their reputation and credibility with future green bond issuers and cementing their role in climate finance. Furthermore, applying a green bond product-specific approach will prepare them to continue to serve international capital markets as green finance scales up to occupy a larger share of the market.

Protect investor interests

While investors are driven to maximise their investment returns, they do so within a specific risk profile and while (in the case of asset managers) respecting the full range of their fiduciary duties. In recent years, environmental, social and governance (ESG) factors are increasingly being recognised as having a material impact on risk, as well as being a component of broader fiduciary duty.[7] By facilitating greater transparency of green finance opportunities, stock exchanges can provide investors with additional investment tools with which to manage climate related investment risk, and meet their broader fiduciary duties.

Attracting green assets

By bringing together supply and demand and creating new market segments or sectors for green bonds, exchanges can facilitate investments in climate mitigation and adaptation projects while attracting more assets onto their platforms.

The European Investment Bank launched and listed the first ever green bond on LuxSE in 2007. As of April 2017 LGX displays 112 green bonds.

The rise of the green bond market in emerging economies such as Brazil, India, Mexico and China, is driving cross-regional trades and demonstrates international opportunities for exchanges (Table 4).

6. Summary and actions

Exchanges have played, and will continue to play, an important role in growing the green bond market by facilitating liquidity, geographic diversity and market integrity.

As more exchanges adopt the practices outlined in this paper, such as the creation of green bond lists/segments, collaboration between exchanges and harmonisation of standards will become particularly important to ensure that the market does not become fragmented.

Organisations such as the Climate Bonds Initiative, United Nations' SSE, and the Sustainability Working Group of the World Federation of Exchanges will continue to promote collaboration and harmonisation by working with exchanges around the world.

Example: UN SSE

The UN Sustainable Stock Exchange initiative and the Sustainability Working Group of the World Federation of Exchanges have fostered collaboration by providing tools and guidance on promoting sustainability and transparency through ESG tools and metrics. In addition, the UN SSE initiative's green finance work stream aims to help educate stock exchanges on opportunities and best practices in the promotion of green finance.

- **Develop green bond guidelines**
- **Support green bond indices or ETFs**
- **Promote transparency**
- **Foster market dialogue and collaboration**
- **Establish green bond lists or segments**
- **Foster market education**

Table 4. Examples of green bonds from emerging markets listed offshore

	Issuer	Date of Issue	Amount	Exchange
BRAZIL	BRF SA	June 2015	EUR 500m (USD 564m)	Luxembourg
BRAZIL	Fibria	Jan. 2017	USD 700m	Frankfurt/New York
CHINA	Agricultural Bank of China	Oct. 2015	USD 995m in three tranches · CNY 600m (USD 95m) · USD 400m · USD 500m	 London London London
CHINA	London Taxi Company (Geely)	May 2016	USD 400m	Singapore
CHINA	Bank of China	July 2016	USD 3.03bn in 5 tranches · CNY 1.5bn (USD 225mn) · UDS 1bn · USD 750m · USD 500m · EUR 500m (USD 555m)	 Hong Kong Luxembourg Luxembourg Luxembourg Luxembourg
CHINA	Bank of China	Nov. 2016	USD 500m	London
COSTA RICA	Banco Nacional de Costa Rica	Apr. 2016	USD 500m	Luxembourg
INDIA	Export-Import Bank India	Apr. 2015	USD 500m	Singapore
INDIA	IDBI	Nov. 2015	USD 350m	Singapore
INDIA	Axis Bank	June 2016	USD 500m	London/Singapore
INDIA	NTPC	Aug. 2016	INR 20bn (USD 300m)	London/Singapore
INDIA	Greenko	Aug. 2016	USD 500m	Singapore
MEXICO	Nacional Financiera	Nov. 2015	USD 500m	Dublin
MEXICO	Mexico City Airport	Sept. 2016	USD 2bn	Singapore
UAE	National Bank of Abu Dhabi	Mar. 2017	USD 587m	London

Data Source: Bloomberg, Climate Bonds Initiative, by March 2017.

Appendix 1

Luxembourg Green Exchange social and sustainable window

After the successful launch of the Luxembourg Green Exchange (LGX) in September 2016, the Luxembourg Stock Exchange (LuxSE) has opened a window dedicated to social and sustainable (S&S) bonds. This new segment is integrated in LGX.

To be accepted to the S&S window of LGX, a similar process as for green bonds applies: once a social or sustainable bond is listed on one of LuxSE's markets, an issuer can apply for LGX display. The issuer must commit to disclosing detailed information relating to planned use of proceeds, provide an ex-ante external review, as well as a post-issuance report presented regularly throughout the lifespan of the security.

Notes:
1. This figure includes all green bonds aligned with international definitions. By taking into account bonds aligned with the People's Bank of China's green categories but not fitting the international definitions, the number would reach USD 93bn.
2. In this report, an exchange refers to a bourse where equities, bonds, and other securities are traded.
3. Data source: Bonds & Climate Change: State of the Market 2016 report, cut off data is end of May 2016.
4. Bonds & Climate Change: State of the Market 2016 report, Climate Bonds Initiative.
5. Novick, B., Prager, R., VedBrat, S. & Riaz, K. (2014) Corporate Bond Market Structure: The Time for Reform is Now. BlackRock.
6. https://www.bourse.lu/listing-green-bonds.
7. UNEP-FI, fiduciary Duty in the 2st Century, http://www.unepfi.org/fileadmin/documents/fiduciary_duty_21st_century.pdf

Climate Bonds Initiative
can assist exchanges in harnessing the green bond market. Partnering with CBI's strong, visible and independent brand helps exchanges to generate clear climate change credentials, enhance their reputation and credibility, and in so doing, attract more assets onto their respective platforms.

Climate Bonds Initiative's Partner-only Services for Exchanges

ADVISORY SERVICES	RESEARCH & DATA SERVICES
Green Bond Strategies & Requirements	Co-branded Research
Guidance for Issuers	Green Bond List/Segment Maintenance
Market Education & Awareness	Green Bonds & Climate-aligned Data
Market Dialogue	Exchange League Tables

Climate Bonds Initiative's Exchange Partners:
London Stock Exchange
Luxembourg Stock Exchange

The Climate Bonds Initiative is an investor focused not-for-profit, working to mobilize debt capital markets for a rapid transition to a low-carbon and climate resilient economy.

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