

GREEN FINANCE

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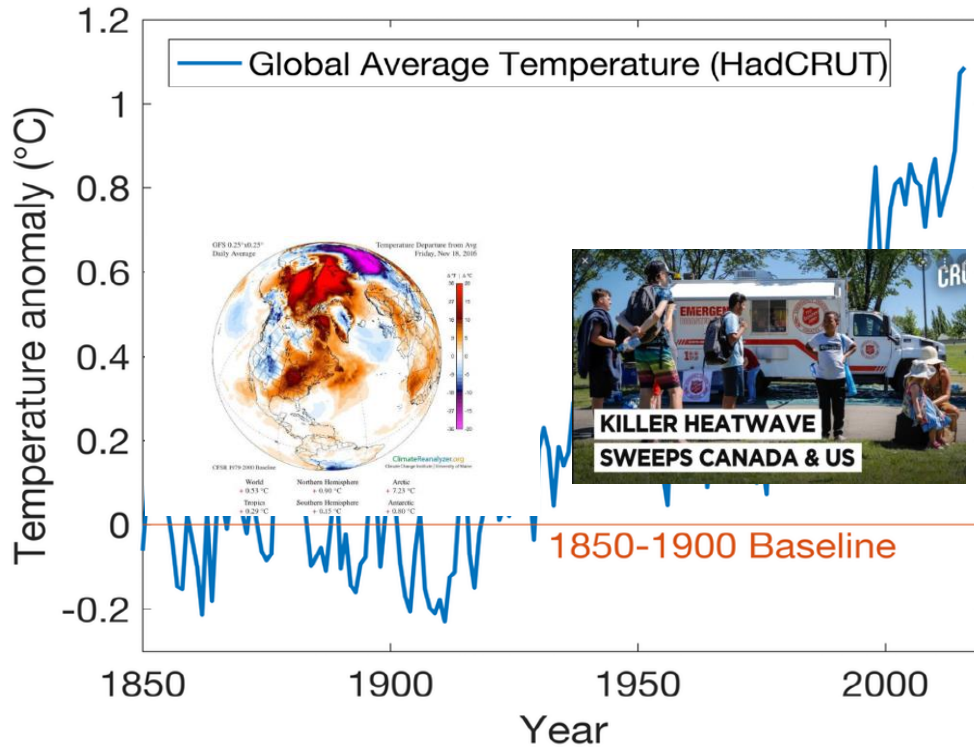




Outline

- **The background of Green Finance (GF)**
- **How climate change and environmental issues affect financial markets?**
- **How to finance projects that mitigate environmental risks?**

Climate Change

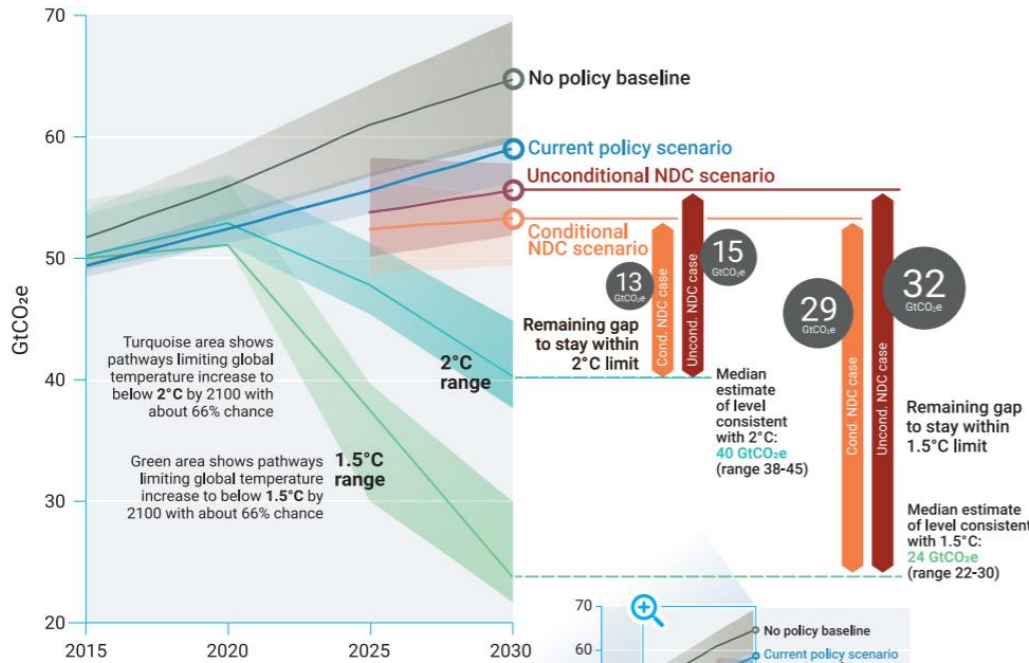


2015: Paris climate change agreement to “*[hold] the increase in the global average temperature to well below 2 °C above pre-industrial levels*”. drafted by BASIC countries (Brazil, South Africa, India and China) and the U.S.

2016: ratified at G20 Hangzhou Summit on “Green finance”



Large Emission Caps



- 75% of current national plans are insufficient to meet the goal of keeping global warming within 2 °C
- The emission gap will be between 13 billion and 15 billion tonnes

Source: UNEP Emissions Gap Report 2018
NDC: Nationally Determined Contributions



Climate-neutral Economy

UN: Carbon neutrality by 2050: World's most urgent mission

- 70% of world economy commit to net-zero emissions:
 - EU by 2050
 - The United Kingdom by 2050
 - China by 2060
 - USA by 2050 (verbally)

Carbon neutrality by 2050: World's most urgent mission

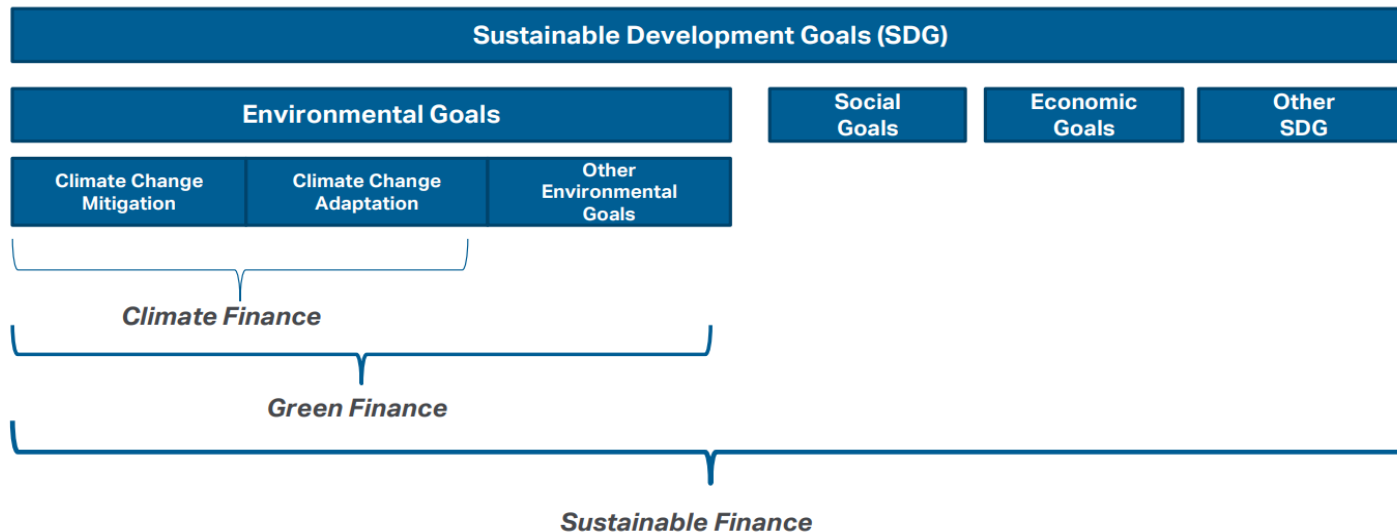
by UN Secretary-General António Guterres



Green Finance

- **General Definition:** The funding of efforts to confront the global environmental challenge is what can be broadly referred to as Green Finance
 - Recognized within international, regional, national and sub-national legal frameworks (e.g., SDGs, UNEP, ASEAN Declaration on Environmental Sustainability, California Environmental Flows Framework)

Green Finance – An Emerging Asset Class





Major Drivers of Green Finance

- **The growing acceptance of the materiality of climate change at all levels of the economy**
 - How climate change and environmental issues affect financial markets
(**physical risk and transition risk**)

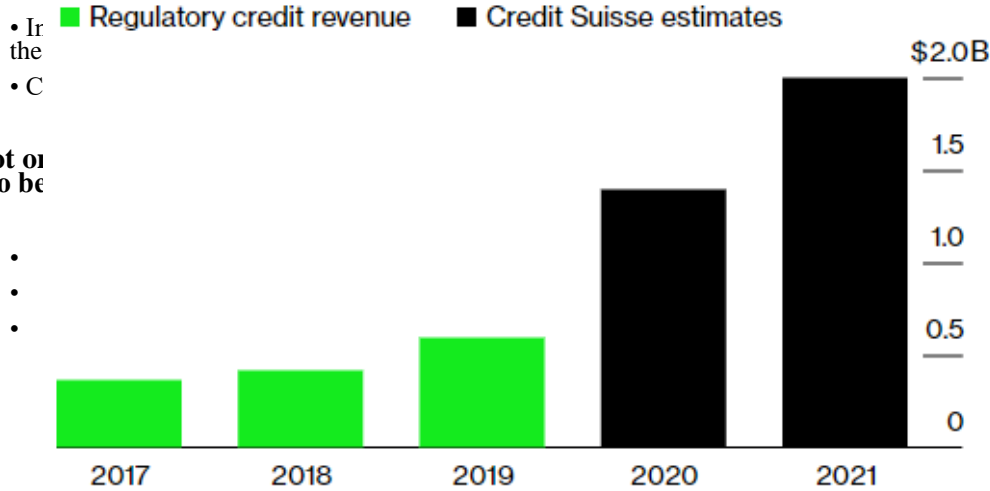


How to affect financial markets?

➤ Example 1: Climate Change and Stranded Assets (**Transition Risk**)

Cashing In

- **Stranded or carbon-intensive assets** Tesla's revenue from regulatory credits has been on the rise



- Irregular
- Changes
- Not only
- also be
-
-
-

downs, devaluations
changes associated with
and distribution can

➤ Note climate Sources: Tesla filings, Credit Suisse



How to affect financial markets?

➤ Example 2: affecting stock prices in food sector (**Physical Risk**)

- Trend towards global warming exacerbates the risks of droughts
- And prices of food stocks may discount these risks
- Hong, Li, Xu (2019, Journal of Econometrics): using data from 31 countries with publicly-traded food companies, rank these countries each year based on their long-term trends toward droughts using the Palmer Drought Severity Index, and find a poor trend ranking for a country forecasts:
 - Relatively poor profit growth for food companies in that country
 - Relatively poor food stock returns in that country

➤ Food stock prices underreact to climate change risks



How to affect financial markets?

> Example 3: Affecting real estate prices in coastal regions (Physical risk)

- Baldauf, Garlappi, Yannelis (2019, “Does Climate Change Affect Real Estate Prices?” Review of Financial Studies)
- Climate change might have significant impact on coastal regions
- Find that houses that are projected to be underwater in believer neighborhoods sell at a discount.
- Real estate valuations reflect the differential beliefs among the general population on the long-run climate change risks



Major Drivers of Green Finance

➤ **The strong commitment by national, international frameworks (e.g., Paris Agreement in 2015) , and the major stock exchanges worldwide**

- Numerous public- and private-sector projects have been launched for the transition to a low-carbon future
- How to finance projects that mitigate environmental risks?

Green bonds

Transition bonds

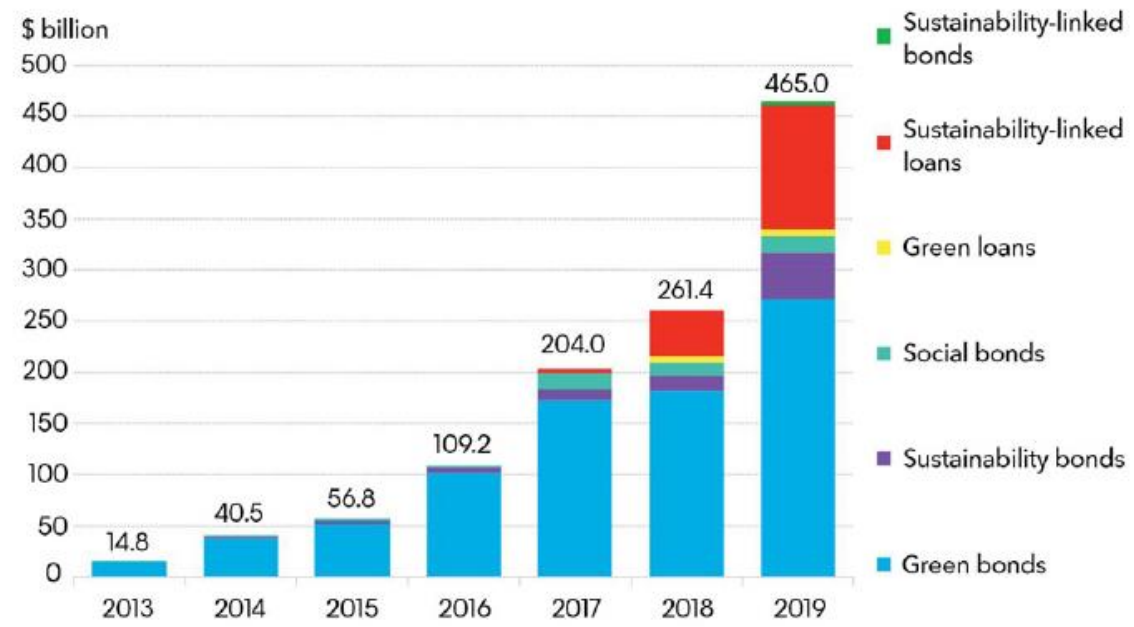
Green loans

Sustainability-linked loans



The Growth of Global Green Finance

Figure 4 – Global sustainable debt annual issuance, 2013-2019



Source: Green and sustainable finance, European Parliamentary Research Service 2021

Stock Exchanges Dedicated to Green Bonds

Green Bond Segments on Stock Exchanges

Stock exchanges play a vital role in providing market access. Dedicated green bond lists have been crucial in showcasing green bonds.

The table below lists the Stock Exchanges that have launched a dedicated green bond or sustainable bond section.

Name of Stock Exchange	Type of Dedicated Section	Launch Date
Oslo Stock Exchange	Green bonds	January 2015
Stockholm Stock Exchange	Sustainable Bonds	June 2015
London Stock Exchange	Green bonds	July 2015
Shanghai Stock Exchange	Green bonds	March 2016
Mexico Stock Exchange	Green bonds	August 2016
Luxembourg Stock Exchange	Luxembourg Green Exchange	September 2016
Borsa Italiana	Green and Social bonds	March 2017
Taipei Exchange	Green bonds	May 2017
Johannesburg Stock Exchange	Green bonds	October 2017
Japan Exchange Group	Green and Social bonds	January 2018
Vienna Exchange	Green and Social bonds	March 2018
Nasdaq Helsinki	Sustainable bonds	May 2018
Nasdaq Copenhagen	Sustainable bonds	May 2018
Nasdaq Baltic	Sustainable bonds	May 2018
Swiss Stock Exchange	Green and Sustainability bonds	July 2018
The International Stock Exchange	Green bonds	November 2018
Frankfurt Stock Exchange	Green bonds	November 2018
Santiago Stock Exchange	Green and social bonds	July 2019
Moscow Exchange	Sustainable bonds	August 2019
Euronext	Green bonds	November 2019
Hong Kong Exchange	STAGE, Sustainable and Green Exchange	June 2020
Singapore Stock Exchange	Green, Social and Sustainability bonds	n.a

Source: <https://www.climatebonds.net/green-bond-segments-stock-exchanges>



Green Bonds

- **Green Bonds (GB)** enable capital raising and investment for new and existing projects with environmental benefits
 1. Specifically earmarked to be used for climate and environmental projects
 2. The proceeds typically fund towards large-scale, capital-intensive green infrastructure projects that can be repaid from steady, modest, long-term cash flows

- **The Green Bond Principles (GBP) :**
 1. Use of Proceeds

A business will need to declare which of the eligible 'green project' categories the project falls into, and the environmental benefits
 2. Process for Project Evaluation and Selection

An issuer will need to determine and communicate to investors about the process for selection and determining how the project fits within the eligible green projects categories
 3. Management of Proceeds

Funds should be segregated or otherwise tracked
 4. Reporting

The use of proceeds should be reported at least annually to investors and promptly updated with any material developments



Green Bonds

➤ Economic incentives for issuing green bonds:

- **Tax credit bonds:** bond investors receive tax credits instead of interest payments, so issuers do not have to pay interest on their green bond issuances.
 - e.g., US Federal Government Clean Renewable Energy Bonds and Qualified Energy Conservation Bonds.
- **Direct subsidy bonds:** bond issuers receive cash rebates from the government to subsidize their net interest payments.
- **Tax-exempt bonds:** bond investors do not have to pay income tax on interest from the green bonds they hold (so issuer can get lower interest rate).



Green Bonds





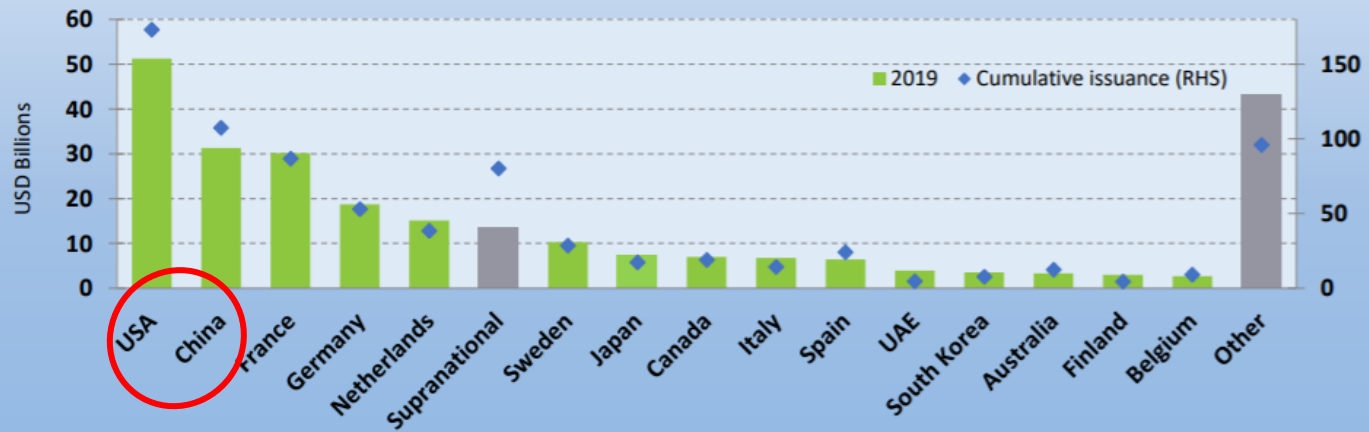
Green Bonds

2019 at a Glance

- A new global record: USD257.7bn total green bond issuance*
- 51% growth on 2018 **Primarily driven by the European market**
- 1788 green bonds from 496 issuers
- 250 new issuers, bringing a total of USD67.8bn



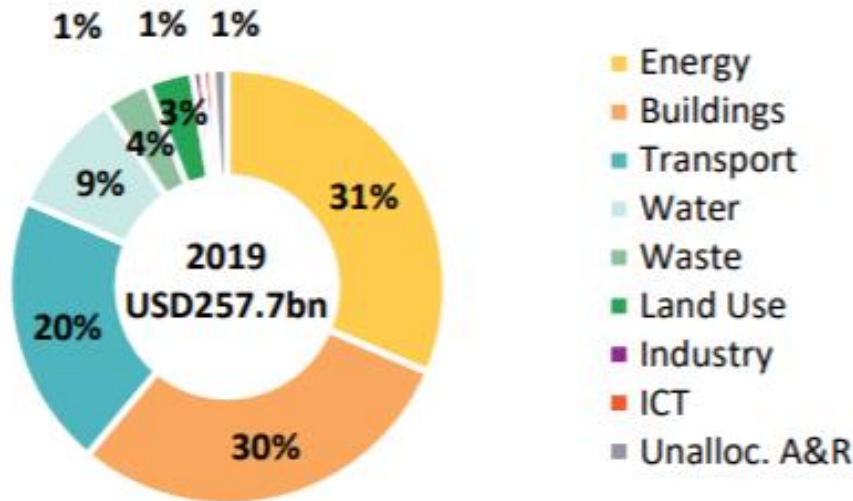
2019 green bond issuance: top 15 countries





Where the green capital flow to?

Energy and Buildings remain the largest
Use of Proceeds sectors in 2019





Example -HK Green Bonds

https://www.hkex.com.hk/Join-Our-Market/Sustainable-Finance/HKEX-STAGE/Product-Repository?sc_lang=en

HKEX - Join Our Markets / Sustainable Finance - Sustainable & Green Exchange (STAGE) / Product Repository

Discovering our sustainable finance products.

Sustainable, Green and Social Product Repository

US\$269.5bn	US\$26bn	US\$28.7bn
Global green bond and green loan issuance in 2020	Cumulative Green bonds arranged and issued in Hong Kong by 2019	Raised by Sustainability, Green, Social or Transition Bonds listed on HKEX as of 31 December 2020

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“
Green finance is a cornerstone of future global sustainability and a powerful engine of economic and social growth. HKEX is committed to promoting sustainability and the development of financial products that underpin the global resiliency of financial markets.
”

Laura M Cha
HKEX Chairman



Example -HK Green Bonds

ISIN	Stock Code	Issuer	Name	Type of Bond	Trading Currency
HK0000352432	5252	MTR Corporation Ltd.	MTR CORPORATION LTD. 2.98% FIXED RATE NOTES 2047	Green	HKD
HK0000536349	85910	Agricultural Development Bank of China	AGRICULTURAL DEVELOPMENT BANK OF CHINA 3.18% CNY BONDS 2022	Green	RMB
HK0000707312	85954	MTR Corporation Ltd.	MTR CORPORATION LTD. 2.90% FIXED RATE CNY NOTES 2022	Green	RMB
HK0000707445	85968	MTR Corporation Ltd.	MTR CORPORATION LTD. 2.80% FIXED RATE CNY NOTES 2024	Green	RMB
HK0000707460	85962	MTR Corporation Ltd.	MTR CORPORATION LTD. 2.90% FIXED RATE CNY NOTES 2024	Green	RMB
HK0000722279	85978	MTR Corporation Ltd.	MTR CORPORATION LTD. 2.80% FIXED RATE CNY NOTES 2022	Green	RMB

Issuer

MTR Corporation Ltd.

ISIN

HK0000352432

Stock Code

5252

Type of Bond

Green

Trading Currency

HKD

Listing Date

28 Jul 2017

Maturity Date

17 Jul 2047

Bond Standard/Principle

Green Bond Principles 2016

Framework Document(s)

[Green Bond Framework 2016](#) PDF

Offering Circular(s)

[Offering Circular_20161028](#) PDF

External Review/Certification Document(s)

[External Review_Sustainalytics_2016](#) PDF

Post-issuance Reports

[Post_Issuance Report 2019](#) PDF

Further Details

[Link](#)



Puzzles in Green Bond Premium

➤ Has greenium-evidence from corporate bonds

- Flammer (2020, Journal of Financial Economics) find that investors respond positively to the issuance of corporate green bond
- The findings are consistent with a signaling argument—by issuing green bonds, companies credibly signal their commitment towards the environment

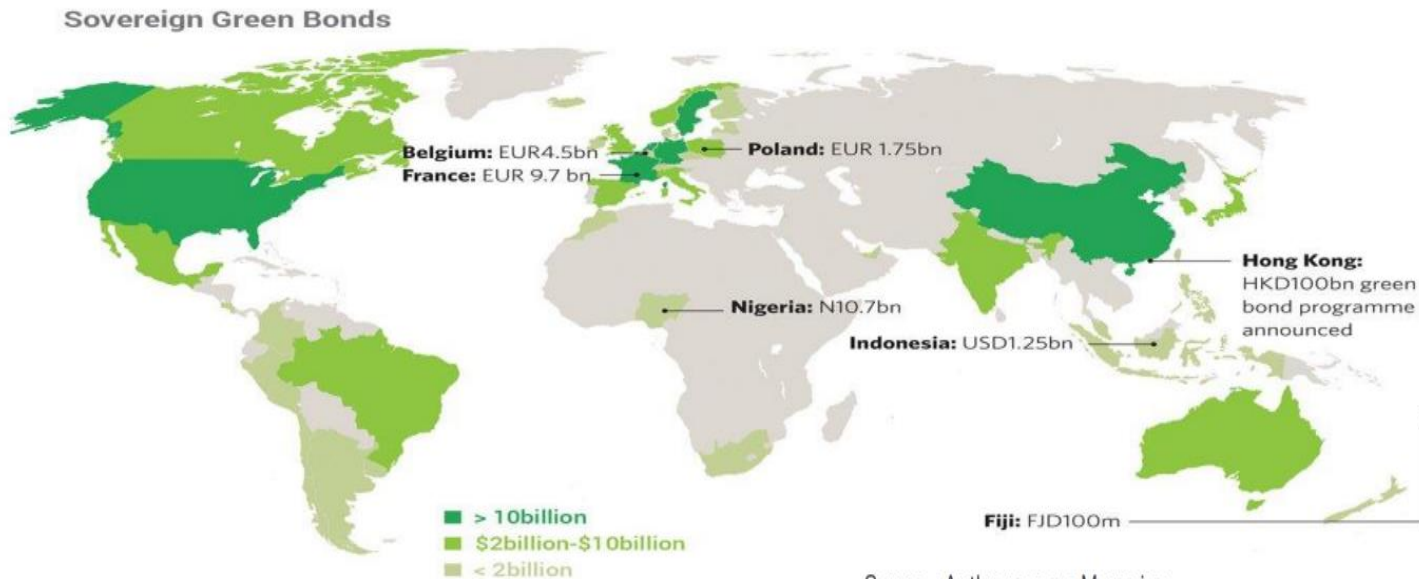
➤ Has no greenium-evidence from municipal bonds

- Lancker and Watts (2020, Journal of Accounting and Economics) find investors identically price green and non-green bonds issued by same issuer on same day
- Investors appear entirely unwilling to forgo wealth to invest in environmentally sustainable projects

Call for more academic research to explore these puzzles and impacts of Green bonds

Sovereign Green Bond

- > Green Bonds are a key tool for governments to raise capital to implement infrastructure plans in line with national climate targets
 - Under pressure to achieve their targets as set in the Paris Agreement and SDGs
 - provide a strong signal of the country's commitment to a low carbon economy



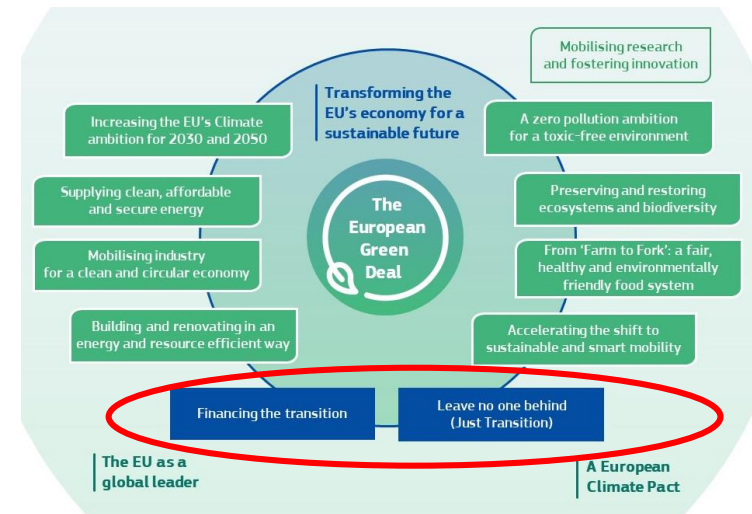
Source : Anthropocene Magazine

Transition Bonds

- Transitioning issuers are issuers who are on a transition pathway to Paris Agreement targets and wish to raise funds in order to help them achieve emission reduction goals
- Focus on **hard-to-abate sectors/carbon intensive sectors**
- More concern on greenwashing –called **‘Transitionwashing’**

ICMA Climate Transition Finance Handbook:

- Issuer’s climate transition strategy and governance
- Business model environmental materiality
- Climate transition strategy to be ‘science-based’, including targets and pathways
- Implementation transparency





Loans Labelled as Green

➤ Green loans (GL) definition:

- Any type of loan instrument made available **exclusively to finance or re-finance**, in whole or in part, new and/or existing eligible **Green Projects**.
- Green loans must align with the four core components of the Green Loans Principle (GLP)
 1. Use of Proceeds
 2. Process for Project Evaluation and Selection
 3. Management of Proceeds
 4. Reporting

➤ Sustainability-linked loans (SLL)

- The pricing is tied to the borrower's performance against certain pre-determined "sustainability performance targets" ("SPTs")

E.g., if "internal", reduction in greenhouse gas emissions; improvements in energy efficiency; or if "external", attaining a certain sustainability rating from an external reviewer
- **SLL proceeds do not need to be allocated exclusively to green projects.**



Loans Labelled as Green

➤ How to choose?

- If the fundamental purpose of the loan is to finance clearly identifiable green projects which the loan monies can easily be tracked, a GL may be the most suitable option

Larger corporates in certain sectors (e.g., energy, transportation) with a variety of sources of finance and the capacity to allocate sizeable chunks of capital to large-scale eligible projects will be best placed to borrow under the GL structure.

- If the borrower is looking to improve its overall sustainability profile, a SLL may be the most appropriate option

An advantage of the SLLs is that they open the sustainable loan market to companies in a wider variety of sectors (which may not easily track the proceeds) and to smaller companies that have not been able to overcome barriers to entry to participating in a GL or issuing a green bond



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Thanks for your
attention!

Lisa Chengzhu SUN



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