

Policy Support in Promoting Green Bonds in Asia: Longitudinal Multilevel Model

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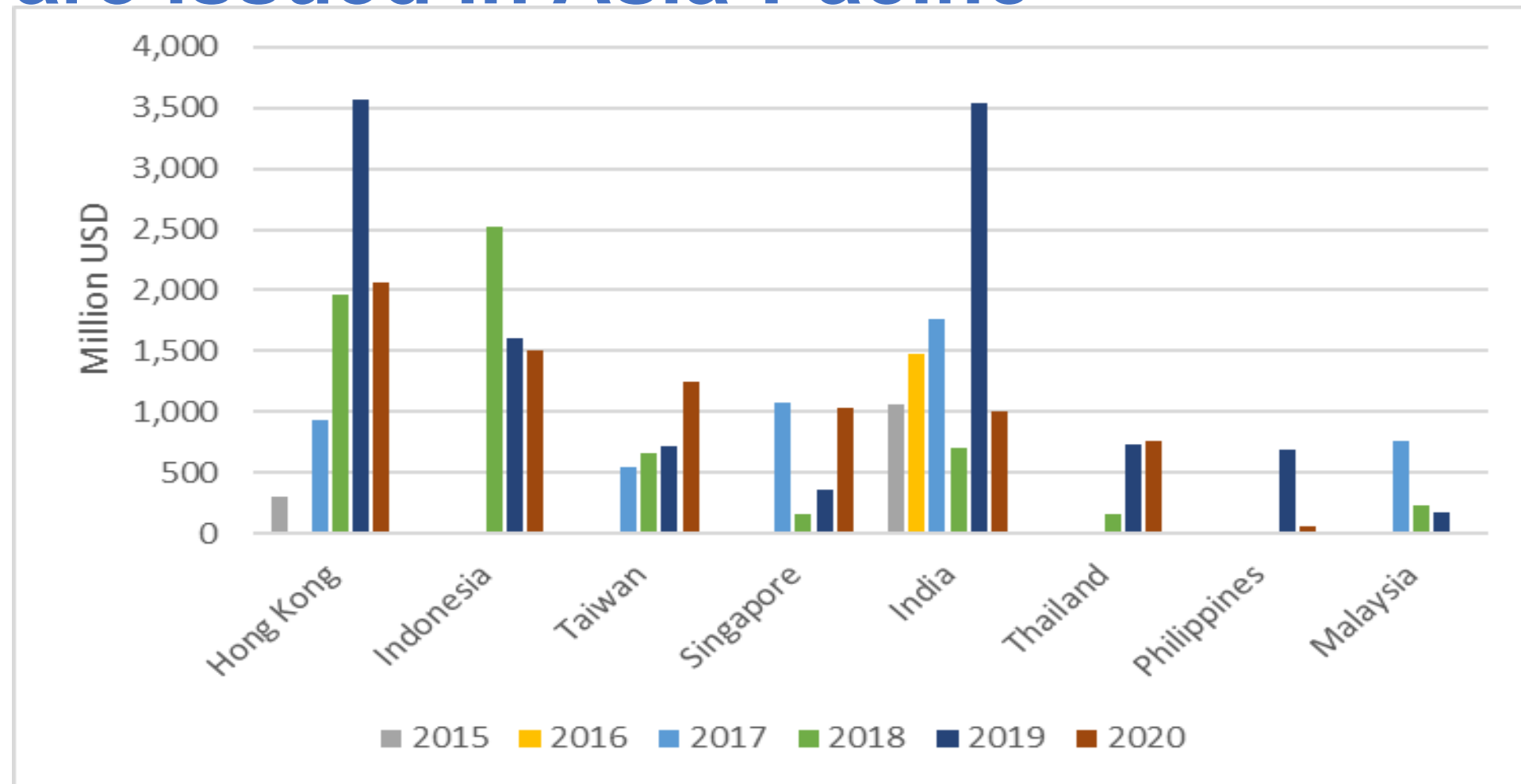
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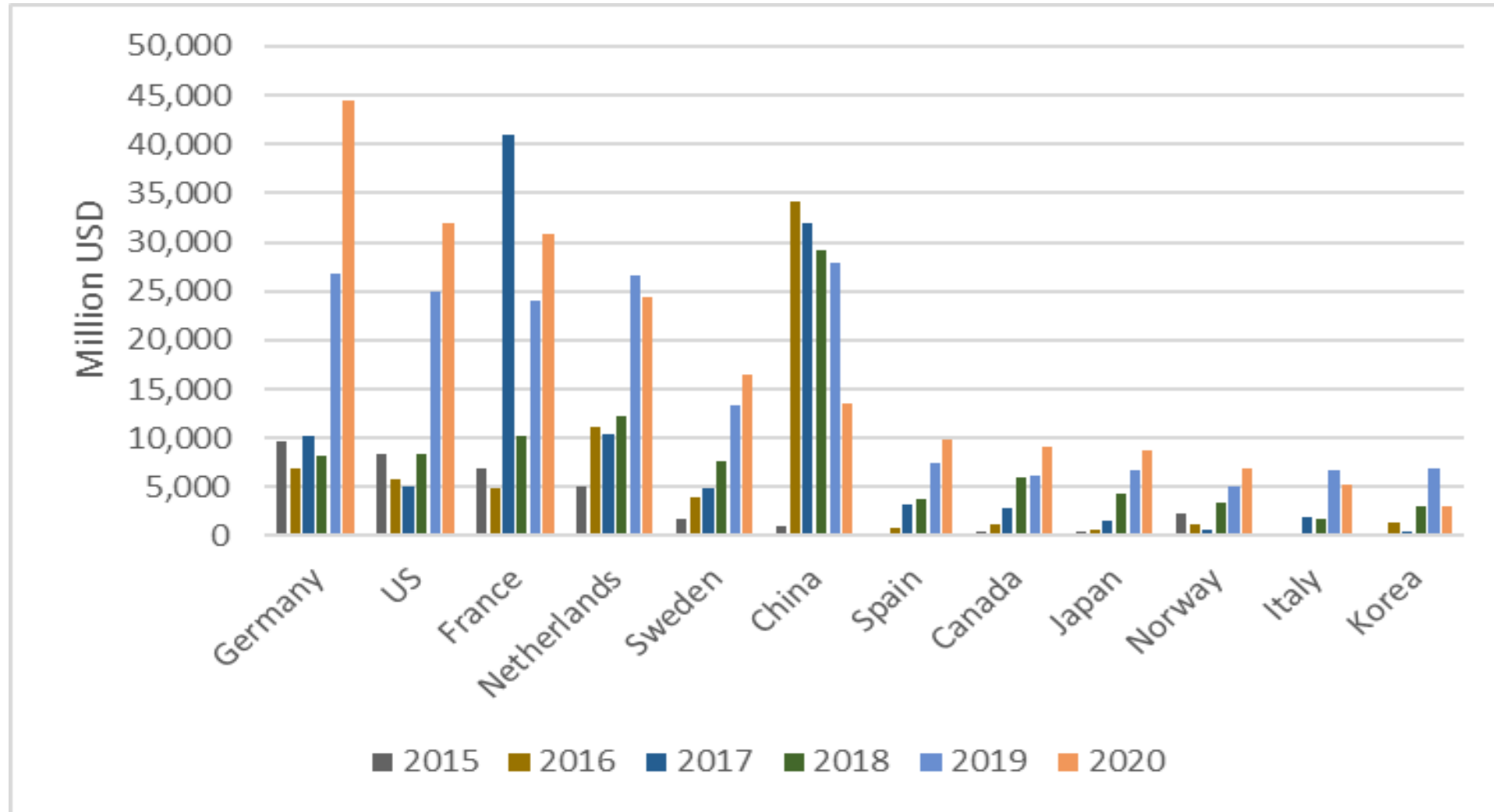
What are Green Bonds?

- Green bonds are fixed income financial instruments used to fund projects that have positive environmental and/or climate benefits.
- The issuer commits to use proceeds only for ‘green projects’ with clear environmental benefits.
- Labelling provides a guarantee that proceeds will be used only to fund Green Projects.

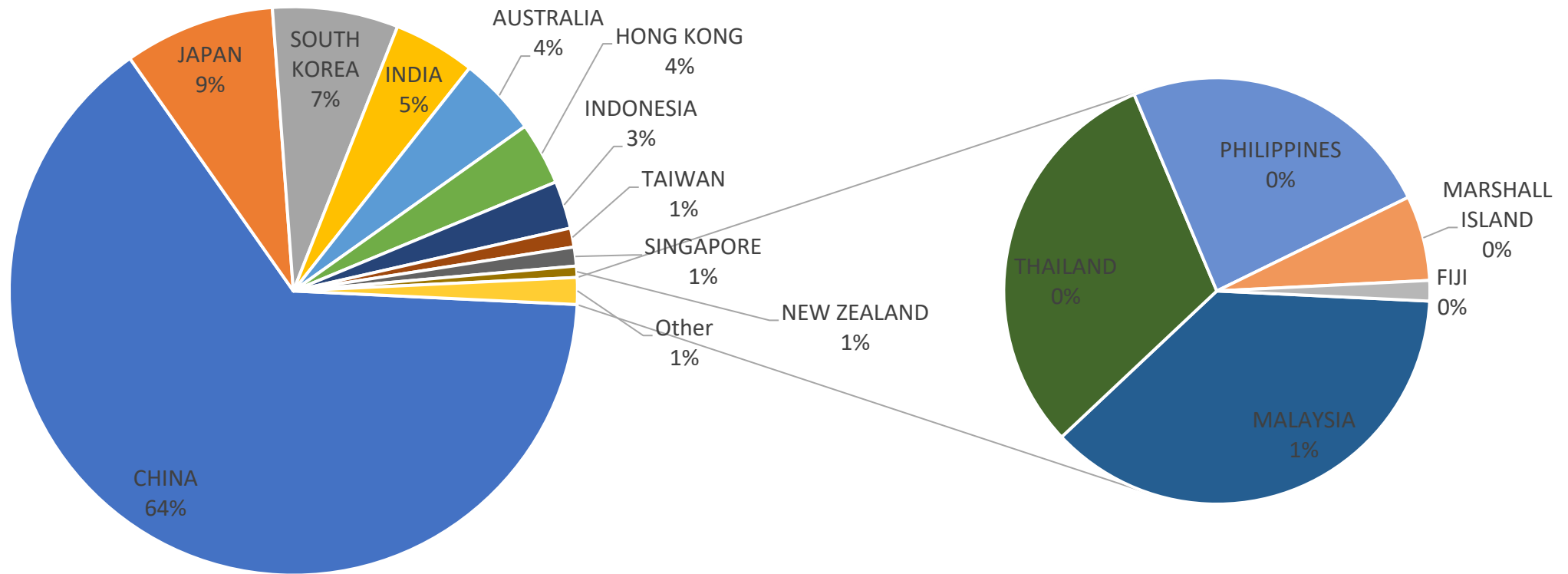
The global green bond market grew from \$3 billion in 2012 to over \$200 billion in 2019 (not cumulative). 1/5 of green bonds are issued in Asia-Pacific



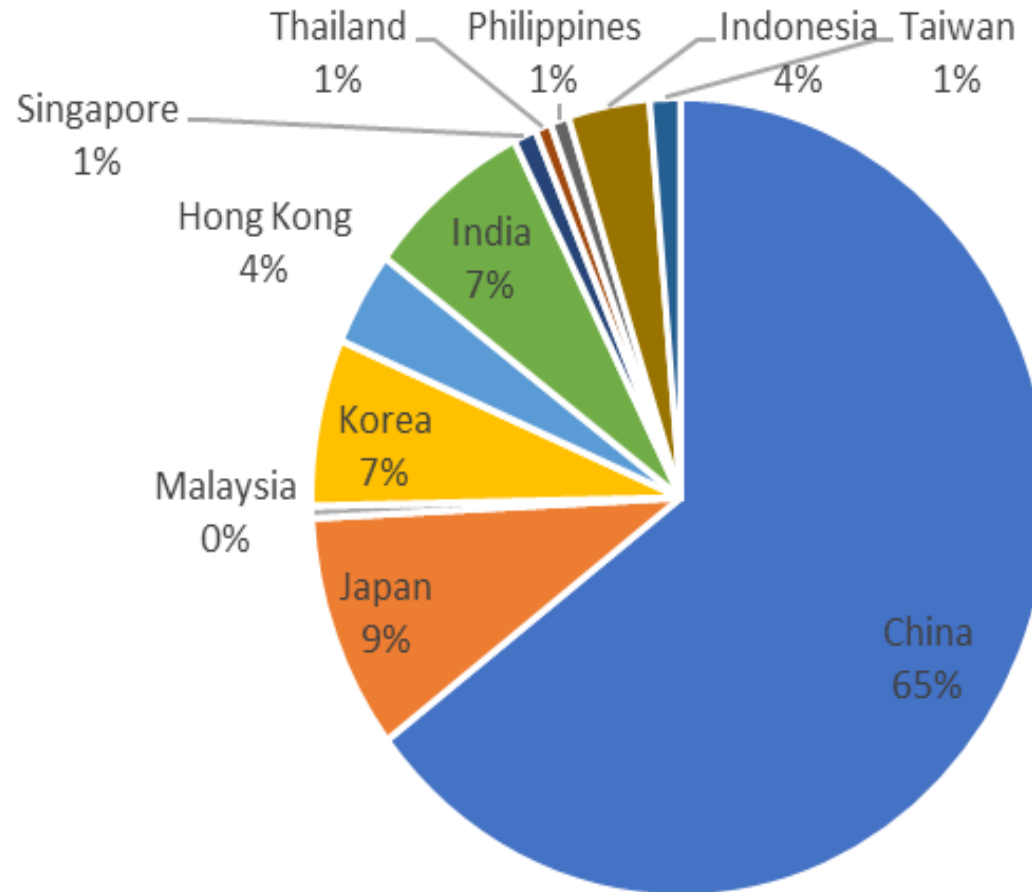
Major issuers in Asia-Pacific: Peoples' Republic of China, Japan and Republic of Korea



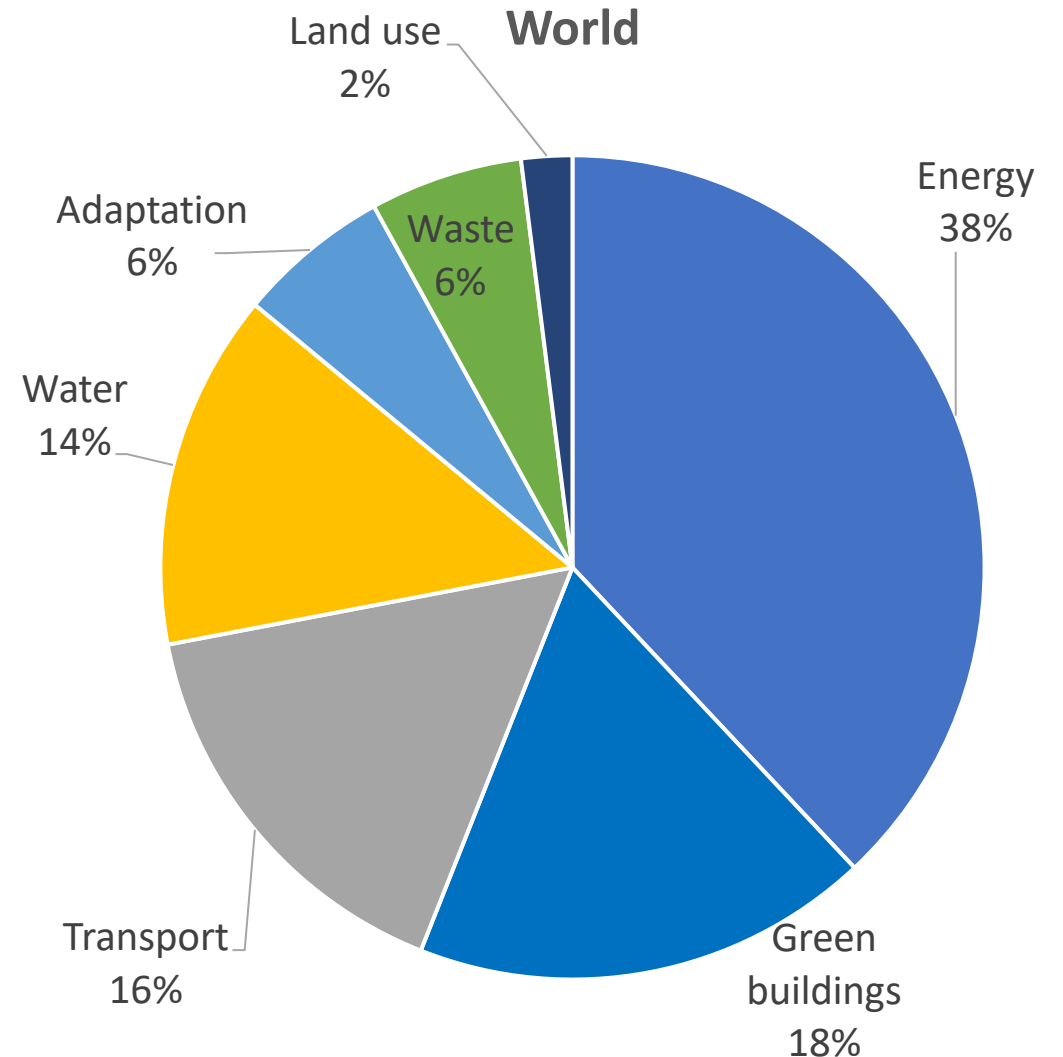
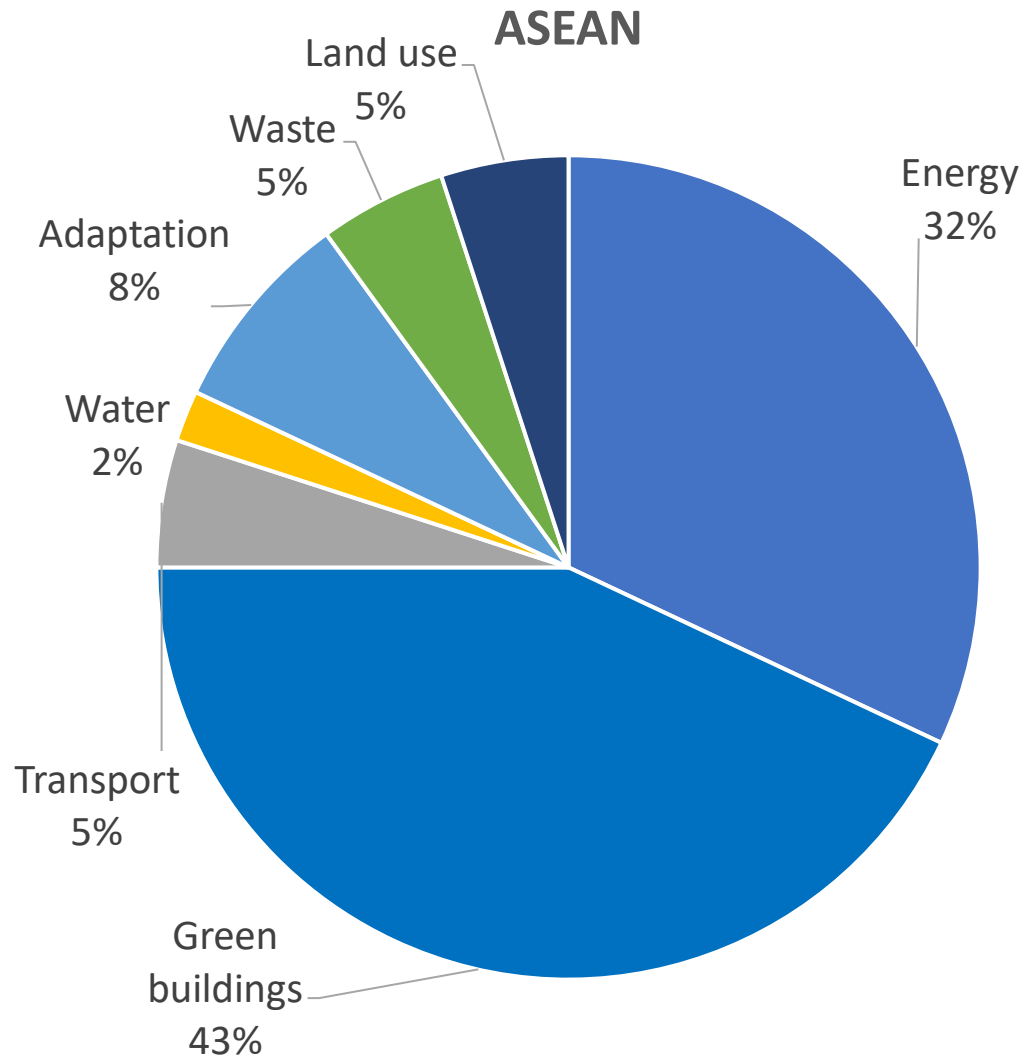
Out of 58 green bond issuing countries, 15 are from Asia-Pacific



The leader of green bonds issuance in Asia is China, followed by Japan, Korea, India, Indonesia, Hong-Kong, and other countries.



Green Bond mostly finance Green Buildings & Energy



Policies supporting green bonds

1. Green bond guidelines
2. Public issuance of green bonds
3. Green Bond Grant
4. Real sector policy support (Loans, Feed-in tariffs, Market-based instruments for green projects etc.)

Policy 1: Green Bond Guidelines (GBG)

- GBG encourage more transparency and standardisation to bring more credibility and to hence promote green bonds.
- Countries either accept International Green Bond Standards or set their own national green bond standards (usually based on International Green Bond Standards):
 - International Capital market Association's (ICMA) Green Bond Principles (GBP)
 - Climate Bond Initiative's Climate Bonds Standards
 - ASEAN Capital Market Forum's ASEAN Green Bonds Standards



Green Bond Principles

Voluntary Process Guidelines for Issuing Green Bonds



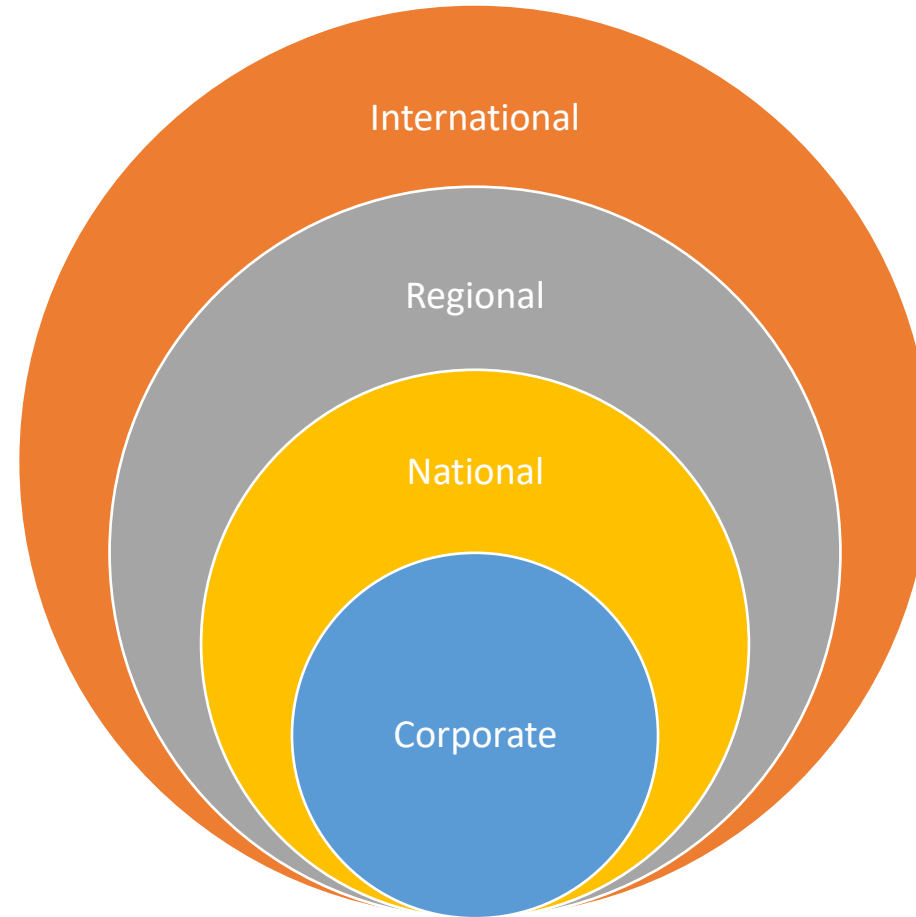
Climate Bonds INITIATIVE



**Assurance/Integrity/
Transparency**

For Climate Bonds and Green Bonds

Eligible green projects are stated in Green Bond Principles/Framework/Standards



Policy 2. Public issuance of green bonds (Sovereign Bonds)

- Public issuance of green bonds by city municipals, development banks and governments with objective to:
 - Provide initial market product pipelines and liquidity
 - Engage investors and educating them about green bonds

Policy 3. Green Bond Grant

- The grant covers the cost of external review in order to label it 'green' following specified standards national or international.
- Usually covers 90-100% of cost with a maximum cap.
- Examples: Singapore, Malaysia, Hong-Kong and Japan.

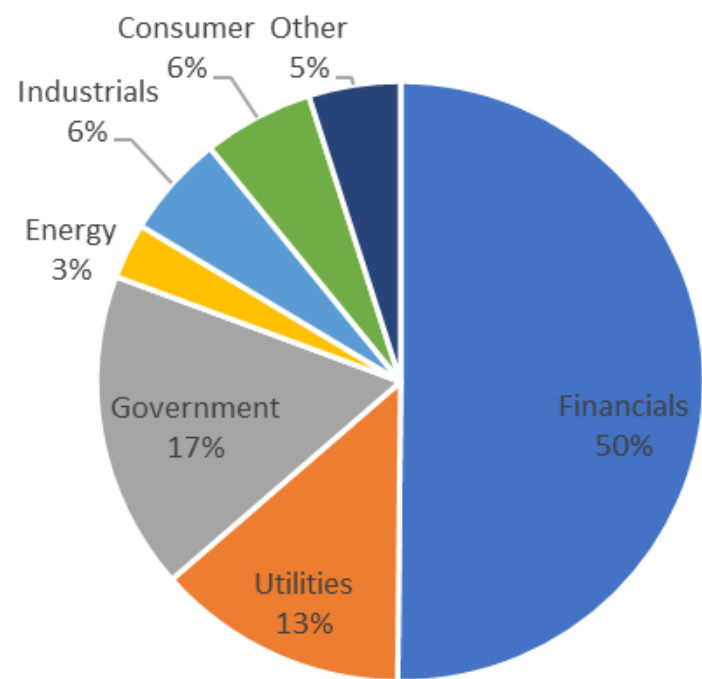


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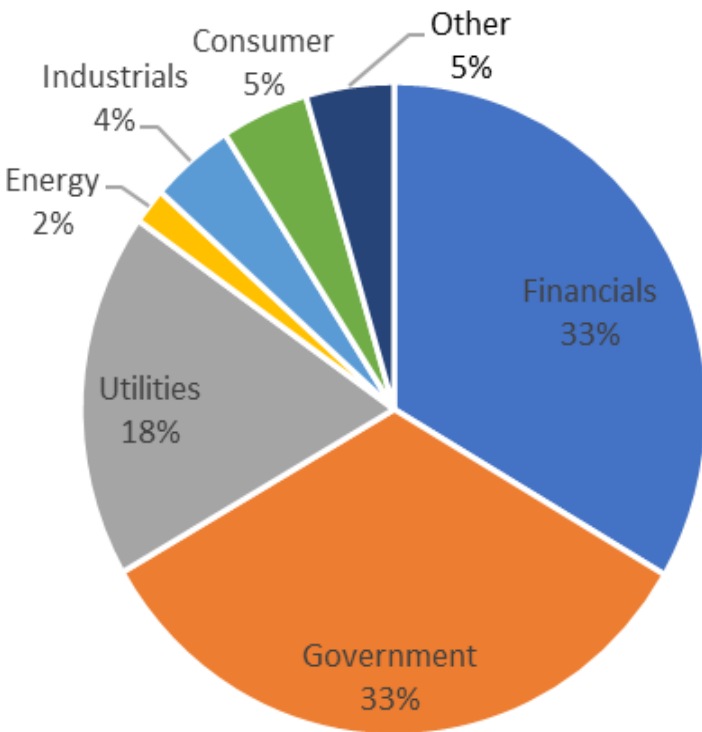
Hot off the press: Singapore's central bank announces Green Bond Grant scheme to cover any additional issuance costs of going green – what a way to kick-start the market!

Green bonds issuance by industry (2018-2020)

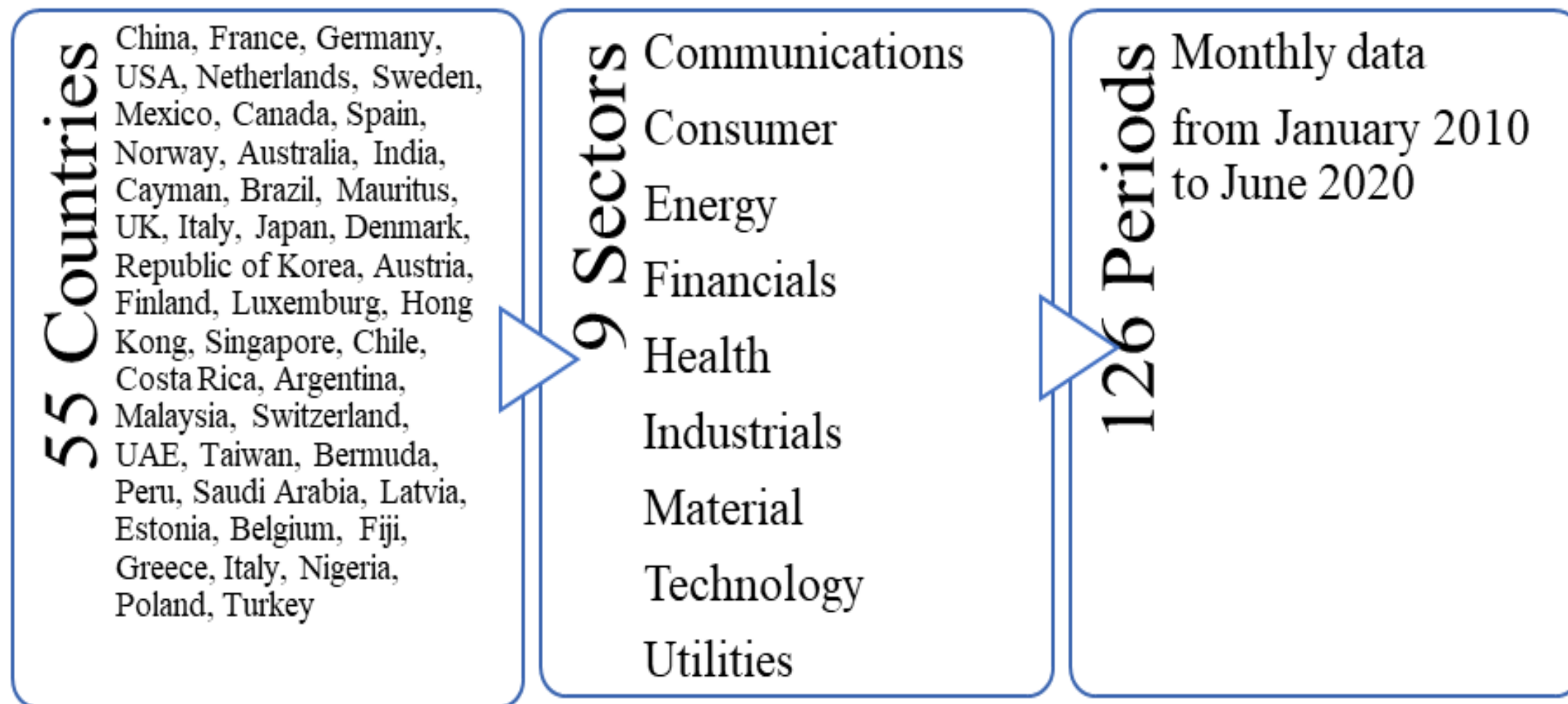
Asia-Pacific



WORLD



Multi-level data structure



Difference in Difference Model

$$\frac{GB^p}{B}_{ijt} = \mu_j + \beta_1 NGB_{ijt} + \beta_2 GB_{it}^s + \beta_3 Asia_i + \gamma_k \sum_{k=1}^6 \gamma_k Policy_{it} + \delta_k \sum_{k=1}^6 Asia_i \times Policy_{it} \\ + \theta \sum_{j=2}^9 J_j + \lambda \sum_{j=2}^{57} I_j + \varepsilon_{ijt}$$

here $j = 1, \dots, 58$ indexes countries, $i = 1, \dots, 11$ indexes sectors, and $t = Jan2010, \dots, Jun2020$ indexes months.

Summary Statistics

Variable	Obs.	Mean	S.D.	Min.	Max.
Green bonds issued, share in all bonds (%)	21,013	1.45	10.88	0	100
Conventional bonds issued, billion US\$	58,706	1.20	10.50	0	461
Sovereign green bonds, billion US\$	58,706	0.03	0.42	0	27
Asia	58,706	0.18	0.38	0	1
National green bond policies					
Grants and taxes	58,706	0.04	0.21	0	1
Guidelines	58,706	0.09	0.28	0	1
Monetary	58,706	0.05	0.22	0	1
Cooperation and policy signal	58,706	0.08	0.28	0	1
Regional green bond policy	58,706	0.37	1.05	0	4
Global green bond policy	58,706	2.80	3.13	0	8

Variables

Variable	Description	Level	Source
<i>Green Bonds</i>	Dollar value of green bond issuance over the dollar value of all bonds issuance	Country; Period; Industry	Bloomberg terminal
<i>All Bonds</i>	Dollar value of all bonds issuance over the dollar value of all bonds issuance	Country; Period; Industry	Bloomberg terminal
<i>Sovereign Green Bonds</i>	Dollar value of green bonds issuance by sovereigns over the dollar value of all bonds issuance	Country; Period; Industry	Bloomberg terminal
<i>Green Bond Policy</i>	Binary variable, equals one if policy supporting green bonds exists and zero otherwise	Country; Period	Various sources
Green Bond Principles Climate Bond Standards	Binary variable, equals one after GBP/CBS were introduced and zero before	Period	ICMA CBI
<i>FiT</i> <i>Loan</i> <i>MBI</i>	Binary variable, equals one if policy supporting renewable energy exists and zero otherwise	Country; Period	IEA/IRENA Global Renewable Energy Policies and Measures Database

VARIABLES	RIRC	RI	RIRC UC
Conventional bonds, bln.\$	-0.05***	-0.05***	-0.05***
Sovereign green bonds, bln.\$	0.12	0.11	0.12
Asia (1 if asia)	-3.52	-3.57*	-3.52
policy_granttax#1.asia	5.33***	3.71***	5.33***
policy_guidelines#1.asia	-0.46	-0.54	-0.46
policy_monetary#1.asia	-1.54	-1.69	-1.54
policy_cooperation#1.asia	1.05	1.11	1.05
asia#c.policy_regional	-2.36***	-2.33***	-2.36***
asia#c.policy_global	-0.04	-0.04	-0.04
policy_granttax	7.15***	5.55***	7.15***
policy_guidelines	-0.86*	-0.87**	-0.86*
policy_monetary	-0.75	-0.82	-0.75
policy_cooperation	0.78*	0.82**	0.78*
policy_regional	0.96***	0.96***	0.96***
policy_global	0.42***	0.42***	0.42***

Key results

- Overall green bond grants and tax incentives have a positive and significant effect on the issuance of green bonds across all sampled countries.
- Also, global, regional, and national cooperation and policy signals policies have a positive and significant effect on the issuance of green bonds.
- The issuance of sovereign green bonds does not have a significant impact on the green bond issuance.
- Global cooperation and internationally recognized standardization of green bonds is also effective in promoting private green bonds. However such global policies are less effective in promoting private green bonds than regional policies and did not demonstrate effectiveness in Asia.

National

Sovereign green bonds

Grants & taxes

+***

Guidelines

_*

Monetary

Cooperation

+*

Regional

+***

Global

+***

Policy recommendations

- The empirical evidence suggests that governments should consider green bond policies, i.e., providing grants and tax incentives and cooperation and policy signals policies that reduce the cost of green bond issuance, policies boosting the supply of bonds at the regional and global level to incentivize green bond issuance by the private sector.
- Knowing that some sectors are less experienced in issuing generic bonds, and issue fewer green bonds, governments can provide greater green bond policy support to sectors, which are less experienced in bond issuance and thus, have higher costs and risks. Such sectors include renewable energy generators and industries. Governments can incentivize issuance of green bonds using green bond grant and taxes; cooperation; as well as regional and global policies.