From Zero to Hero
lessons and experiences from the growth of the China’s green bond market

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What is a green bond?

International Green Bond Definitions
Green Bond Principles vs. Climate Bonds Standards

“The Green Bond Principles are intended for broad use by the market: they provide issuers with guidance on the key components involved in launching a credible Green Bond…”

“The Climate Bonds Standard sets out clear criteria to verify certain green credentials of a bond or other debt instrument. It aims to provide a robust approach to verifying that the funds are being used to finance projects and assets that are consistent with delivering a low carbon and climate resilient economy…”
## Climate Bonds Taxonomy

<table>
<thead>
<tr>
<th><strong>ENERGY</strong></th>
<th><strong>TRANSPORT</strong></th>
<th><strong>WATER</strong></th>
<th><strong>LOW CARBON BUILDINGS</strong></th>
<th><strong>INFORMATION TECHNOLOGY &amp; COMMUNICATIONS</strong></th>
<th><strong>WASTE &amp; POLLUTION CONTROL</strong></th>
<th><strong>NATURE BASED ASSETS</strong></th>
<th><strong>INDUSTRY &amp; ENERGY-INTENSIVE COMMERCIAL</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar</td>
<td>Rail</td>
<td>Built (grey) infrastructure</td>
<td>Residential</td>
<td>Power management</td>
<td>Recycling</td>
<td>Agricultural land</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Wind</td>
<td>Vehicles</td>
<td>Green and hybrid infrastructure</td>
<td>Commercial</td>
<td>Broadband</td>
<td>Other Recovery</td>
<td>Forests (managed and unmanaged)</td>
<td>Energy efficiency processes</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Mass transit</td>
<td></td>
<td>Retrofit</td>
<td>Resource efficiency</td>
<td>Disposal</td>
<td>Wetlands</td>
<td>Energy efficiency products</td>
</tr>
<tr>
<td>Hydropower</td>
<td>Bus rapid transport</td>
<td></td>
<td>Products for building carbon efficiency</td>
<td>Teleconferencing</td>
<td>Prevention</td>
<td>Degraded Lands</td>
<td>Retail and wholesale</td>
</tr>
<tr>
<td>Bioenergy</td>
<td>Water-bourne transport</td>
<td></td>
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<tr>
<td>Wave and Tidal</td>
<td>Alternative fuel transport</td>
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<tr>
<td>Energy distribution &amp; management</td>
<td></td>
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<tr>
<td>Dedicated transmission</td>
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</tr>
</tbody>
</table>

**Climate Bond Certified**

- Certification Criteria approved
- Criteria under development
- Due to commence

- Coastal infrastructure
- Land Remediation
- Combined heat & power
- Energy efficient appliances
- Data centers
- Process & fugitive emissions
- Energy efficiency products
- Retail and wholesale
- Energy efficiency processes
- Manufacturing
A global green bond market in 2017

- Top 10 countries (>3bn)
- $1-3bn
- $0.5-1bn
- <$0.5bn

- China Total issuance $37.1bn
  - $22.9bn (aligned)
  - $14.2bn (not aligned)

- Supranational $9.2bn

- Mexico $4bn
- United States $42.4bn
- Canada $3.4bn
- Spain $5.6bn
- France $22.0bn
- Netherlands $4.3bn
- Sweden $5.3bn
- Germany $9.6bn

- Other country
- USA
- China

Bar chart showing green bond issuance in billions from 2014 to 2017.
Issuer types:

- Commercial banks and other financial institutions
- Non financial corporates
- Government-backed entities
  - e.g. metro companies, or financing vehicles of local government
- Policy banks:
  - China Development Bank
  - Agricultural Development Bank of China
  - Export-import Bank of China

Commercial Bank and other financial institutions: 47%
Government-backed: 10%
Non financial Corporate: 28%
Policy Bank: 15%
The Troika that has been driving the China green market

- Xi Administration’s commitment to develop the “Ecological Civilization”
- People’s Bank of China (PBoC)
- National Development and Reform Commission (NDRC)
- China Securities Regulatory Commission (CSRC)
- National Association of Financial Market Institutional Investors (NAFMII)
- Stock exchanges
- Green bond indices
- Green bond verification agencies
Timeline: green finance & green bond policies

- **People’s Bank of China (PBOC)** issued green bond guidelines
- **National Development and Reform Commission (NDRC)** issued green bond guidelines
- Green Financial System endorsed in 13th Five Year Plan
- Shanghai Stock Exchange and Shenzhen Stock Exchange announced Green Bond Pilot Programmes
- 7 ministries jointly released “Guidelines for Establishing Green Financial System”
- China Securities Regulatory Commission (CSRC) issued green bond guidelines
- NAFMII approved green finance and innovation pilot zones in five provinces
- PBoC and CSRC jointly released ‘Green Bond Assessment and Verification Guidelines’ for green bond verifiers and verification activities in China
- PBoC includes green bond as collateral for MLF

2015 2016 2017 2018
China central bank to include green bond as eligible collateral for medium-term lending facility (MLF)

“The move is beneficial in guiding financial institutions to better support ... and the green economy and other areas”

1ST June 2018, the People’s Bank of China

China central bank has included Green Credit into its macro-prudential assessment (MPA)

• MPA monitor banks’ capital adequacy ratios, assets and liabilities, liquidity, and risk.

• The more lending to green business a bank has, the higher credit it will receive in the MPA.
Who is providing external reviews?

58% provided by the “Big 4s”
China green bond market: use of bond proceeds

- Clean Energy: 22%
- Low Carbon Transport: 19%
- Water: 16%
- Waste Management: 12%
- Adaptation: 16%
- Energy efficiency or low carbon building: 12%
- Agriculture, forestry and other land use: 3%
- Agriculture, forestry and other land use: 3%

By Climate Bonds Taxonomy
Challenges: harmonization of green bond definitions

Only 62% of green bonds from China are in line with international definitions

Bonds fail to meet international definitions because:

1. Differences in green eligibility definitions
   - Clean coal technologies
   - Coal power plant retrofit
   - and others

2. More than 5% of proceeds allocated to working capital
   - Threshold – at least 95% should be used as green

3. Lack of disclosure
Key deals: retail green bond

China Development Bank

- CNY 5bn ($763.2m), CNY 600m of the bond is available to individual investors
- Use of Proceeds: water protection and treatment projects in central China's provinces along Yangtze river
- Expected environmental impacts:
  - Reduction in BOD 365 t/a;
  - TSS 5787 t/a;
  - TN 761 t/a;
  - TP 60 t/a;
  - ....

Retail Green Bond

- Coupon rate 4.5%
- Tax exemption

Increase individual green investors base

Raise Environmental Awareness
Industrial and Commercial Bank of China’s (ICBC)
- USD2.15bn in 3 tranches
- Listed on Luxembourg Green Exchange
- “One Belt One Road Green Climate Bond”
- Use of Proceeds: renewable energy, low carbon transportation, sustainable water, etc.
- European investors took over 70% of the deal

Opportunities: greening infrastructure projects along the belt and road.

One Belt One Road Initiative
- Covering 68 countries
- 65% of the world's population
- 40% of the global GDP as of 2017

Key deals: one belt one road and opportunities for green bonds
Key deals: green investment overseas

Geely Auto (London Taxi Company)

• USD 400million
• Listed on Singapore Stock Exchange
• Use of proceed: manufacturing hybrid battery-powered London black cab
• 90% allocated to Asian investors
• 6 times oversubscribed
New Development Bank

CNY3bn (USD470m), 5 years, 3.07%

To finance renewable energy, low carbon transport, pollution control projects in member countries, including Brazil, India, South Africa and China

e.g. Grid infrastructure connected to renewable energy source in South Africa

• Market: China Interbank Bond Market
• 3.1 times over subscription
• External review: EY
• AAA Rated by Lianhe Credit Rating
• Underwriter: Bank of China, ICBC, CCB, CDB
Key deals: dual recourse green bond

Bank of China

- USD 500m
- Listed on London Stock Exchange
- Dual recourse structure allowing claims over a dedicated "asset pool", and the usual claim against Bank of China.
- Rated Aa3 by Moody's

Green Bond
- Use of proceeds
  - Water
  - Clean transport
  - Clean energy

Asset Pool
- Constituents in the Climate-aligned Bond Index
  - Credit enhancement
  - Invest in green bonds
  - Lower climate risks on balance sheet

Constituents in the Climate-aligned Bond Index

Use of proceeds
- Water
- Clean transport
- Clean energy
Key deals: moving to green

Three Gorges Finance II (Cayman Islands) Limited

- EUR 650 million
- Listed on Irish Stock Exchange
- Use of proceeds: **100% Wind Energy**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Location</th>
<th>Project</th>
<th>Use of Proceeds (€ Mil.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Energy</td>
<td>Germany</td>
<td>Offshore Wind</td>
<td>€400</td>
</tr>
<tr>
<td>Green Energy</td>
<td>Portugal</td>
<td>Onshore Wind</td>
<td>€250</td>
</tr>
</tbody>
</table>

- Expected climate impact: reduction of 2.21 million tons of CO2
- Certified by Climate Bonds Initiative
Next steps – what to expect in the future?

1. Harmonization of green bond definitions
   - Domestic: PBoC and NDRC
   - International: EIB and PBoC

2. Opportunities: greening the one belt one road

3. Local government financing vehicles (LGFVs)
   - What is a LGFV?
   - Longer investment horizon
   - Green Finance Pilot Zones will accelerate green bonds issuance from local government and LGFVs
Next steps – what to expect in the future?

4. Green securitization

5. Hong Kong, the next powerhouse for green bond market
   • Bond Connect scheme
   • The largest government green bond programme just released
   • Incentives for green bond issuing

6. More green bond based financial products
   • Green bond fund and ETF
Thank you!

For further information please contact:

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