Strategic Development of Green Bond Market in Hong Kong
Overview and Considerations for Future Actions of the Government

19th October 2017
Impact of climate change

Selected global climate impacts in 2100

- Heatwaves: Millions of people
- Cropland decline: Thousand km square
- Flooding: Millions of people
- Water Stress: Millions of people

**No mitigation**
- +5.2 °C

**Emissions capped at constant 2030 level**
- +3 °C

**Strong further action to meet two-degree target**
- +2 °C

Avoided impacts:
- -89%
- -41%
- -76%
- -26%

**Source:** Bank of England (2017)
Climate-related financial risks

**Transition risk**
- Disruptive Technological advances
- Governments’ climate policies

**Physical risk**
- Extreme weather events
- Changing climatic conditions

**Firms in sectors affected by the transition**
- Impact on profits
- Changes in valuations
- Lower asset values
- Lower productivity

**Physical assets, agriculture, workers**
- Exposure to

**Financial institutions**
- e.g. Banks, insurers, institutional investors
- Exposure to

**Risk to financial stability:**
- Higher insurance claims
- Portfolio losses
- Sentiment shocks
- Defaults on loans

The stance of Bank of England on climate change

Insured losses (from natural catastrophes) have increased (globally) from an average of around US$10 billion per annum in the 1980s to an average of around US$45 billion per annum so far this decade.


This could ultimately lead to a ‘climate Minsky Moment’—a rapid system-wide adjustment that threatens financial stability.


Governor of Bank of England, Mark Carney
A new model of economic development

Ecological conservation is vital not only to sustained, healthy economic development, but also to political and social progress, and must therefore be given a position of prominence and incorporated into every aspect and the whole process of economic, political, cultural, and social development.

The State Council of the P.R.C.’s “Integrated Reform Plan for Promoting Ecological Progress”

Economic development should move away from the typical industrial economic growth strategies which advocate “development first, conservation later”.

There should be the right balance between development and conservation to achieve “green growth” and form a new pattern of modernization in harmony with nature.
**The megatrend of green finance**

<table>
<thead>
<tr>
<th>Limiting global temperature rise well below 2 degrees Celsius above pre-industrial levels</th>
<th>Investment needed for 2015-2030: around USD 90 trillion</th>
</tr>
</thead>
</table>

195 members of the United Nations Framework Convention on Climate Change have signed the Paris Agreement
Recent development of green finance in China

Integration Reform Plan for Promoting Ecological Progress

1. 13th Five-Year Plan establishes importance of green finance
2. Chinese co-chairmanship at G20 Green Finance Study Group with UK
3. China was the largest country of green bond issuance in 2016
4. PBOC and EIB initiative to harmonize Chinese and global green bond standards
5. Shanghai Stock Exchange launches a green bond index
6. Shenzhen Stock Exchange launches a green bond index
7. China established five pilot zones for green finance

Guidelines on the Issue of Green Bonds
Guidelines for Establishing Green Financial System

Notes:
1. Published by the State Council.
2. The People’s Bank of China (PBOC) published a notice of which the Catalogue by the Green Finance Committee of China Society of Finance and Banking is a supplement.
3. Published by the National Development and Reform Commission (NDRC).
4. Co-published by the PBOC, MOF, NDRC, MEP, CBRC, CSRC and CIRC.
A day late and a dollar short

Shenzhen has long started building green finance infrastructure
The first emission trading system in China was established in China in 2010
Shenzhen Stock Exchange co-launched a green bond index with Luxembourg Stock Exchange
Establishment of Shenzhen Green Finance Committee in 2017

China has established five pilot zones in June 2017
Guangzhou in Guangdong
Huzhou and Quzhou in Zhejiang
Guian New Area in Guizhou
Hami, Changji Hui Autonomous Prefecture, Karamay
Ganjiang New District in Jiangxi

Shanghai also attaches great importance to green finance
Shanghai Environment and Energy Exchange was established in 2011
Shanghai Stock Exchange co-launched a green bond index with Luxembourg Stock Exchange
Establishment of Lujiazui Green Finance Development Centre in 2017
China also faces the lack of green financing

Achieving national environmental goals during the 13th Five-Year Plan period from 2016-2020 will require an annual investment of at least RMB 2 trillion

Private investment needed: RMB 1700 billion

Source: Green Finance Task Force (2015)
Rapid development in the global market

Issuance of green bonds in 2016 doubled the amount in 2015

Source: Climate Bonds Initiative (2017)
Poland issued the first green sovereign in the world in Dec 2016.

France issued a green sovereign bond with the maturity of 22 years in Jan 2017. It also introduced mandatory climate risk reporting for different institutions.

Luxembourg has the largest green bond exchange in the world. The Luxembourg Stock Exchange has also collaborated with the Shenzhen Stock Exchange and the Shanghai Stock Exchange to launch Chinese green bond indices.

The Monetary Authority of Singapore has announced in Mar 2017 the establishment of the Green Bond Grant Scheme in which will cover external review costs. Singapore also actively participates in the G20 Green Finance Study Group, as well as promoting the GreenInvest platform.

The first Chinese green covered bond issued by Bank of China and the first RMB-denominated bond issued by IMF were both listed on London Stock Exchange. Also, the UK and China co-published the “UK-China Collaboration on Growing a Global Green Bond Market” report.

Singapore also actively participates in the G20 Green Finance Study Group, as well as promoting the GreenInvest platform.

Poland issued the first green sovereign in the world in Dec 2016.

Japan has published its own guidelines on green bonds. The Tokyo municipal government also issued the “Tokyo Environment Supporter Bond”.

The United Nations Environment Programme – Finance Initiative has over 200 members from the financial industry who support sustainable development. The Sustainable Stock Exchanges initiative is a learning platform for global stock exchanges to share their experiences in sustainable development.

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Why is green finance significant to Hong Kong?

The Chinese Government aims at building a green silk road and the Belt and Road initiative will bring opportunities in green finance. Hong Kong is equipped to explore the untapped markets.

Hong Kong has experience in verification of environmental projects, which will facilitate the growth of green accreditation services.

The Government can issue green bonds which will help develop the local bond market at the same time.
A green bond differs from a traditional bond with its external review which comprises four processes:

1. **Component 1**
   - Green Bond Principles

2. **Component 2**
   - Consultant Review (e.g. CICERO, EY & HKQAA)

3. **Component 3**
   - External Standard (e.g. Climate Bonds Standard, Green Bond Endorsed Project Catalogue)

4. **Component 4**
   - Rating Assessment (e.g. S&P, Moody’s)

5. **Component 5**
   - Verification (e.g. Vigeo Eiris, EY)

6. **Component 6**
   - Certification (e.g. Climate Bonds Certification)
Global green bond standards

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**Case study**

<table>
<thead>
<tr>
<th>Issuer</th>
<th>Iberdrola</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Apr 2016</td>
</tr>
<tr>
<td>Size</td>
<td>USD 1 billion</td>
</tr>
<tr>
<td>Duration</td>
<td>10 years</td>
</tr>
<tr>
<td>Coupon</td>
<td>1.125%</td>
</tr>
<tr>
<td>Over-subscription</td>
<td>4x</td>
</tr>
<tr>
<td>Consultant</td>
<td>Vigeo Eiris</td>
</tr>
<tr>
<td>Verifier</td>
<td>Vigeo Eiris</td>
</tr>
<tr>
<td>Principles</td>
<td>Green Bond Principles</td>
</tr>
<tr>
<td>Use of proceeds</td>
<td>Develop wind farms in UK, Spain and Germany</td>
</tr>
</tbody>
</table>

**Process 1**

- **Component 1**: Green Bond Principles
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3. **Component 3**
   - **Rating Assessment**
     - (e.g. S&P, Moody’s)

4. **Component 4**
   - **Verification**
     - (e.g. Vigeo Eiris, EY)

5. **Component 5**
   - **Certification**
     - (e.g. Climate Bonds Certification)

**Case study**

- **Issuer**: Shanghai Pudong Development Bank
- **Date**: Jan 2016
- **Size**: RMB 20 billion
- **Duration**: 3 years
- **Coupon**: 2.95%
- **Over-subscription**: 2x
- **Verifier**: EY
- **Standard**: Green Bond Endorsed Project Catalogue
- **Use of proceeds**: Provide financing for 6 categories of projects (e.g. energy, transport, energy efficiency)
Global green bond standards

A green bond differs from a traditional bond with its external review which comprises four processes:

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4. **Component 4**: Rating Assessment (e.g., S&P, Moody’s)
5. **Component 5**: Verification (e.g., Vigeo Eiris, EY)
6. **Component 6**: Certification (e.g., Climate Bonds Certification)

**Case study**

| **Issuer** | Société nationale des chemins de fer français |
| **Date**   | Nov 2016                              |
| **Size**   | EUR 900 million                        |
| **Duration** | 15 years                      |
| **Coupon** | 1.104%                               |
| **Over-subscription** | 5x                                 |
| **Verifier** | Oekom                        |
| **Standard** | Climate Bonds Standard            |
| **Use of proceeds** | Develop railway system in France        |
Global green bond standards

A green bond differs from a traditional bond with its external review which comprises four processes:

Component 1
Green Bond Principles

Component 2
Consultant Review
(e.g. CICERO, EY & HKQAA)

Component 3
External Standard
(e.g. Climate Bonds Standard, Green Bond Endorsed Project Catalogue)

Component 4
Rating Assessment
(e.g. S&P, Moody’s)

Component 5
Verification
(e.g. Vigeo Eiris, EY)

Component 6
Certification
(e.g. Climate Bonds Certification)

Process 4

Case study:

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Issuer</strong></td>
<td>Tennet Holdings</td>
</tr>
<tr>
<td><strong>Date</strong></td>
<td>Sept 2016</td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td>EUR 1 billion</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>8/12 years</td>
</tr>
<tr>
<td><strong>Coupon</strong></td>
<td>0.75/1.375%</td>
</tr>
</tbody>
</table>
| **Over-
  subscription**| 2x           |
| **Verifier**   | Oekom        |
| **Rating**     | S&P and Moody’s |
| **agencies**   |              |
| **Principles** | Green Bond Principles |
| **Use of
  proceeds**  | Develop wind farms in Holland and Germany |
Green projects help alleviate environmental problems

- Global warming: Modification to the drainage and sewerage system
- Air pollution: Renewable energy, Low-carbon transport, Green buildings
- Water pollution: Seawater Desalination
- Land and waste management: Recycling, Bioenergy
- Deforestation: Forestry
- Destruction of ecosystem: Ecological conservation

Green bond issues by category of green projects, 2016:
- Energy: 38%
- Transport: 16%
- Building & industry: 18%
- Water: 14%
- Waste management: 6%
- Agriculture and forestry: 2%
- Adaptation: 4%
Considerations for the Government

- Qualifying Green Bond (QGB) scheme
  - Provide subsidy for QGBs
  - Issue government green bonds
  - Align HKMA investments with the UNPRI
  - Encourage the HK Stock Exchange to be green
  - Establish an inter-departmental committee
  - Enhance communication with the Chinese Central Government and international promotion
  - Improve communication with the Chinese Central Government and international promotion

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Consideration 1

Bonds to be recognised as a Qualifying Green Bond (QGB) via processes 1 and 2

- The Government can consider recognizing independent consultants (e.g. HKQAA, CICERO) and companies for verification (e.g. Vigeo Eiris, EY) as qualified parties.

- Bonds that have obtained review against Climate Bonds Standard or Green Bond Endorsed Project Catalogue can qualify as QGBs.
## Consideration 2

<table>
<thead>
<tr>
<th>Provide subsidy on costs of external review of green bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Issuing green bonds incurs monetary costs for external review, which can hold potential issuers back.</strong></td>
</tr>
<tr>
<td><strong>The subsidy can reduce the costs of external review of a green bond.</strong></td>
</tr>
</tbody>
</table>
### Issue government green bonds

- All new public housing projects and new major government buildings are expected to meet at least Gold level standard under **BEAM Plus**, a local green building certification scheme.

- The Government can consider financing the construction costs by issuing government green bonds. Also, **Retrofitting** of government and public buildings can be financed via issuance of government green bonds.

- The **Hong Kong Mortgage Corporation (HKMC)** can issue long-term green bonds to acquire owner-occupied residential mortgage from banks. The underlying properties of the mortgages should be rated Gold or above under BEAM Plus.
The Principles for Responsible Investment supported by the United Nations (UNPRI): signatories contribute to developing a more sustainable global financial system.

UNPRI have more than 2000 signatories, including organisations managing government reserves.

Although the primary mission of the HKMA is to maintain stability for the currency of Hong Kong, we believe the HKMA can specifically be more flexible with its investments decisions on 33% of its assets.

The HKMA should consider introducing the endorsement of the UNPRI as a major area of assessment for its future Requests for Proposals, against a backdrop that the HKMA employs external managers for around 26% of the Exchange Fund’s assets.
Consideration 5

Promote listing of green bonds at the Hong Kong Stock Exchange

- Joining the UN’s Sustainable Stock Exchanges (SSE) initiative as a Partner Exchange
- Include investment in and issuance of QGBs as part of ESG reporting
- Collaborating with index companies to establish green bond indices
Consideration 6

Establish an inter-departmental committee

- Development of green bonds require expertise from the financial and environmental sectors, along with collaboration efforts from the business and public sectors.

- Members of the inter-departmental committee are expected to be secretaries of bureaus and heads of departments, chaired by a person who is able to coordinate different bureaus.
Consideration 7

Enhance communication with the Chinese Central Government and international promotion

- The Government can promote its potential in developing green finance, channeling investments between the mainland and overseas

- Implementing the Southbound Trading of the Bond Connect sooner rather than later to advance opportunities of the mainland investors
Hong Kong, an international financial centre, can leverage its competitive advantages to facilitate the flow of capital for global green finance.