# Meeting Agenda

## 30th ASEAN+3 Bond Market Forum (ABMF) Meeting

**28-29 January 2019**

Auditorium Zone ABCD  
Asian Development Bank Manila, Philippines

## Time Table

<table>
<thead>
<tr>
<th>TIME</th>
<th>PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAY 1 – 28 January 2019: ABMF Sub Forum 1 (SF1) Meeting</strong></td>
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<tr>
<td>08:30 – 09:00</td>
<td>Registration</td>
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<tr>
<td>09:00 – 09:10</td>
<td><strong>Welcome Remarks</strong> by Mr. Bambang Susantono, Vice President (Knowledge Mgt and Sustainable Devt), ADB</td>
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<tr>
<td>09:10 - 09:15</td>
<td><strong>Opening Remarks of SF1</strong> by Mr. Koji Ito, Sub Forum 1 Chair</td>
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<tr>
<td>09:15 - 10:45</td>
<td><strong>Session 1:</strong> Update of ASEAN+3 Multi-Currency Bond Issuance Framework</td>
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<td>- Presentation on the first CGIF-guaranteed AMBIF Bond in the Philippines</td>
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<td>- Presentation by SEC Philippines (20 min) by Comm. Ephyro Amatong</td>
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<td></td>
<td>• Role of regulators to innovate the market</td>
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<td>- Presentation by AEON Credit Philippines (30 min) by Mr. Takayuki Araki</td>
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<td>• Fintech and bond market to support financial inclusion</td>
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<td>- Presentation on the first corporate bond in Cambodia</td>
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<td>- Presentation by SEC Cambodia (20 min) by Mr. Rady Mok</td>
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<td></td>
<td>• First bond issue: lessons for other markets</td>
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<td>- Presentation by SBI Royal (20 min) by Mr. Seng Chan Thoeun</td>
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<td>• Prospect of Cambodia Bond Market</td>
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<td>10:45 – 11:05</td>
<td><strong>Coffee Break</strong></td>
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<tr>
<td>11:05 - 11:20</td>
<td><strong>Session 2:</strong> Update of CGIF guarantee operations by Mr. Kiyoshi Nishimura, Credit Guarantee and Investment Facility (CGIF)</td>
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<td>11:20 – 12:15</td>
<td><strong>Session 3:</strong> Country study update by Mr. Kengo Mizuno, Nomura Research Institute as TACT consultant</td>
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<td>- Corporate bond regulations in Indonesia, Lao PDR and Viet Nam</td>
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<td>12:15- 12:35</td>
<td><strong>Session 4:</strong> Bond Market Guide Update by Prof. Shigehito Inukai, ADB Secretariat</td>
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<td>- China exchange market and interbank bond market</td>
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<td>12:35 – 12:55</td>
<td><strong>Session 5:</strong> Asian Bonds Monitor update by Dr. Donghyun Park and Dr. Shu Tian, ABO team, ADB</td>
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(30th ABMF Agenda as of 25-Jan-19)
<table>
<thead>
<tr>
<th>TIME</th>
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<tbody>
<tr>
<td>12:55 – 13:00</td>
<td><strong>Closing Remarks</strong> by Mr. Koji Ito, Sub Forum 1 Chair</td>
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<tr>
<td>13:00 – 14:10</td>
<td><strong>Lunch</strong> <em>(EDR Coffee Lounge, 2nd Floor)</em></td>
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<tr>
<td><strong>ABMF Sub Forum 2 (SF2) Meeting</strong></td>
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<tr>
<td>14:10 – 14:15</td>
<td><strong>Opening Remarks</strong> by Mr. Seung-Kwon Lee, Sub Forum 2 Chair</td>
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</tbody>
</table>
| 14:30 – 15:00 | **Session 7: Update on the New Registry of Scripless Securities (nRoSS) in the Philippines** by DTOP Erwin Sta. Ana, Bureau of Treasury of the Philippines  
- Improvements in account structure management |
| 15:00 – 15:15 | **Session 8: Progress and update on standardization in the Philippines** by Ms. Cornelia Dagdag, PH-NMPG |
| 15:15 – 15:35 | **Coffee Break**                                                        |
| 15:35 – 15:55 | **Session 9: Progress and update on standardization in the region** by Ms. Cindy Foo, SWIFT |
| 15:55 – 16:05 | **Wrap-up** by Mr. Satoru Yamadera, ADB Secretariat                     |
| 17:30         | **Welcome cocktail** *(ADB Central Courtyard)*                          |

**DAY 2 – 29 January 2019: ABMF Sub Forum 2 (SF2) Meeting**

<table>
<thead>
<tr>
<th>TIME</th>
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<tbody>
<tr>
<td>08:30 – 09:00</td>
<td><strong>Registration</strong></td>
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<tr>
<td>09:00 – 10:20</td>
<td><strong>Session 10: WG-Cross-Border Collateral and Repo</strong></td>
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<td>- Recap of WGCR discussion by Messrs. Shinya Kim, Daisuke Kim &amp; Naotaka Shibasaki, NTT DATA System Technologies Inc., International Expert (15 min)</td>
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<td></td>
<td>- Study on prime collateral usage in Asia by Dr. Gong Pil Choi, Korea Institute of Finance (20 min)</td>
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<td></td>
<td>- Presentation by Mr. Eric Chng, BNY Mellon on APAC Hub (15 min)</td>
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<td></td>
<td>- Presentation by Mr. Fei Tao, CCDC on cross-border collateral service (30 min)</td>
</tr>
<tr>
<td>10:20 – 10:40</td>
<td><strong>Coffee break</strong></td>
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<td>TIME</td>
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<tr>
<td>10:40 – 11:10</td>
<td><strong>Session 11: Use of Distributed Ledger Technology by market</strong></td>
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<td><strong>infrastructures</strong> by Ms. Cornelia Dagdag, DTCC**</td>
</tr>
<tr>
<td>11:10 – 11:40</td>
<td><strong>Session 12: APEC Data Ecosystem Roadmap</strong> by Dr. Julius Caesar Parreñas,</td>
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<td>Mizuho Bank, Ltd - APFF**</td>
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<tr>
<td>11:40 – 12:00</td>
<td><strong>Session 13: Good Practice to develop a Bond Market</strong> by Mr. Satoru Yamadera, ADB Secretariat**</td>
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</tbody>
</table>

**17th CSIF Meeting**  
13:15 - 16:30 CSIF meeting (official members and observers only)  

ABMF - Slideline meetings between the ABMF members and the Secretariat team  
The secretariat will request a meeting with selected members.
Session 10 : SF2 WG Cross-Border Collateral and Repo

30th ABMF Meeting

Daisuke Yachi
NTT DATA SYSTEM TECHNOLOGIES Inc.
Backgrounds of establishment of WG–CBCR

- In Europe and the US, secured or collateralized transactions have increased after the financial crisis.
- Similarly, Asia will face increase in demand for more secured transactions.

### Asian currency crisis in 1997
- Various international projects have been carried out so far after the crisis.

![Graph showing Historical Growth of Asian LCY Bond Market (excluding Japan)](source: Asian bond online)

- Outstanding of LCY bonds is increasing thanks to improvements of Asian bond markets.

### The financial crisis in 2008
- A chain bankruptcy of market participants
- The fall in security prices and increases of margin call
- Having difficulties in funding due to sudden drop of liquidity

### Market
- The change from uncollateralized to collateralized

### Regulation
- Margin requirements for non-centrally cleared OTC derivatives
- The LCR requirement

- Can we utilize such large LCY bonds for secured transactions regionally?
- Repo markets become more important.
- Collateral demand will increase globally because of Basel III

Under these circumstances, this WG was established to find out current CBCR market situation and understand impediments for CBCR.
The scope of this survey and conceptual understanding of CBCR is as follows:

**Central Bank side**

- **Purpose**
  - Monetary Policy

**Market side**

- **Needs of funding, pledging, ensuring liquidity**

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**Central Bank side**

1. The fund supply and absorption by operation
2. Credit to FIs

**Diagram:**

- **Central Bank**
  - Collateral
  - Credit

- **Market side**
  - Securities
  - Funds

- **FIs**

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3. Repo for funding or reverse repo between FIs.

*FI= Financial institution*
Conceptual understanding of cross-border collateral and repo business

The scope of this survey and conceptual understanding of CBCR is as follows:

**Purpose**
- Central Bank side: Monetary Policy
- Market side: Needs of funding, pledging, ensuring liquidity

**Central Bank side**
- Central bank A
- Cross-border collateral scheme
- Central bank B

**Market side**
- FI

1. The fund supply and absorption by operation
2. Credit to FIs
3. Repo for funding or reverse repo between FIs.

*FI= Financial institution
Survey findings

- We collected information through survey among ABMF and WG members.

1. Collecting information from WG members

2. Interviewing targeted FIs

Findings

1. Invisibility of transactions
2. Differences in legal arrangement represented in GMRA and CSA
3. Some possible transactions in the region
Fact Findings ① Invisibility of transactions

- **Limited cross-border transactions**
  - CBCR transaction in the region is limited.
  - Most of transaction are USD/UST, USD/JGB, USD/AGB.

- **Lack or fragmentation of information**
  - Identifying whether a transaction is repo or buy/sell is difficult because transactions are booked outside the region (e.g. London).
  - It is not easy to trace CBCR because FI’s systems does not capture such data.

Difficult to capture current state of the market

- Market players may have psychological barriers to use CBCR because they can’t judge what they can or cannot do, with whom, and where.

- Invisibility of transaction may be a barrier for CBCR market.
- We need to gather further information to understand and validate possible transactions.
Fact Findings②: Differences in legal arrangement


The extension of BOJ-NET operating hours enabled JGBs to be collateral in Europe. Some FIs revised CSA to accept JGBs.

Though Singapore and Malaysia are English law countries, there is a difference in GMRA country annex, which seems preventing cross-border collateral.

- We suspect lack or limited confidence in legal framework and market practices of developing markets may be one of reasons why financial institutions can’t accept LCY bonds in CSA, particularly for cross-border transactions.

- To change the situation, it is often recommended to changing domestic laws to meet international practices, but it is not easy.

- As domestic repo and collateral transactions expands, there will be more sound market practices in developing markets, which foreign FIs also participate. Then, we may be able to create common recognition that the differences in legal arrangements in Asia may be negligible or not as large as expected.
Fact Findings③:
Some possible transactions in the region [example]

I  Repo using USD

Global custodian

Bank A in London  USD  Bank B in Tokyo  JGB

Ⅱ  BOJ-BOT cross-border collateral

*This scheme has used in the case of emergency such as natural disaster.

BOJ  BOT

JGB

Bank A Tokyo office

Bank A Bangkok office

Ⅲ  Cross-border repo between Singapore and Malaysia

Singapore

Bank A  Bank B branch

Funds

Malaysia

Bank A branch

FOP

Bank B

securities
Proposals to create regional CBCR market

- Most of cross-border collateral and repo transactions are in USD/UST or limited currencies and bonds.
- Difficulty in accepting different legal framework and market practices seems to be the biggest hurdle for CBCR to be created in the region.
- Besides, demand for such cross-border transaction may not be large because cross-border transactions are mostly done by internationally active banks which have large operation in USD/UST.
- But regional CBCR needs to be considered if Qualified ASEAN Bank (QAB) is realized.
- To foster CBCR market in future, can we explore feasibilities of connecting each market with existing legal framework?
- Central banks may agree cross-border collateral for emergency, but can we make a similar arrangement for “peace time”?

(Proposed transaction models)
1. Cross-border repo or collateral in two transactions by local branches
2. Tri-party cross-border transaction
3. Cross-border collateral agreement by central banks
4. Cross-border collateral and repo via CSD-RTGS Linkages
1. Cross-border repo or collateral in two transactions by local branches

- Bank B’s branch M provides credit to Bank A’s M branch while Bank A N branch sells or pledges securities to Bank B’s N branch.

Assumption

- Both Bank A and B have branches (or subsidiary) in the two countries concerned.
- Though sales of securities and provision of funds are two separate transactions, Bank A and B can agree to consider them as one.
2. Tri-party cross-border transaction

- Service provider provides tri-party repo service through local branches.

**Assumption**

- A service provider needs to have branch offices in each country.
- The service provider can provide custody service to banks in each market.
- The service provider will transfer funds in Country M in exchange for securities in Country N.
- Service provider needs to be permitted FOP transfers.
3. Cross-border collateral agreement by central banks

- Tri-party transaction with central banks
  - Like CCBM in Europe, banks can get local liquidity in another country by pledging home-country’s securities to the central bank.

Assumption

- Central banks accept other country’s securities as eligible collateral.
  - In emergency situation, some central banks have already agreed.
  - It is not clear to what extent central bank can accept other country’s securities as eligible collateral in peace time.
4. Cross-border collateral and repo through CSD–RTGS linkages

- CSD-RTGS Linkages will provide DVP
- The Linkages can accommodate increase in demand for cross-border collateral by central banks.

**Assumption**

- Demand for DVP is high because settlement risks is high.
- Demand for DVP is high because it reduces counterparty risks
- Central banks accept other country’s securities as eligible collateral.
Note

- The model of U.S. Dollar funds-supplying operations by BOJ is as follows. ⇒ The fund supplier is BOJ.
Next steps

- Further fact finding
  - potential demand
  - Potential service providers

- Identification of legal issues related with CSA

- Identification of barriers which may impede the proposed transaction models

- Identification of legal gaps in each market which affects CSA
Thank you.
yachid@nttdst.com
Expanded Use of Collateral for Trust-Building in Asia:

“Inclusive Collateral” as the Catalyst for Asian Bond Market Development

Gongpil Choi
KIF & Asian Prime Collateral Forum
1. Bank-dominant financial system

   - Serious regional efforts, including ABMI, CMIM, and AMF, to develop capital market after the Asian financial crisis, but only limited progress

2. Efficient centralized legacy System / US centric global financial system

   - Keep on doing things without changing structural parameters

3. Dislocated from global trends (Periphery): No significant market infrastructure for diverse market participants

   - Significant entry barrier and a lack of incentives to do something different
**Limits of Fiat Trust**

<table>
<thead>
<tr>
<th>“Safe asset” is a stricter definition of prime assets, HQLA.</th>
</tr>
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<tbody>
<tr>
<td>A broader definition of safe assets would include debt securities issued by supranational agencies, some quasi-sovereign entities and local governments.</td>
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</table>

| Even “safe Asian assets (except for JGB)” cannot be taken as collateral for cross-border transactions |

<table>
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<tr>
<th>Trust among member countries is limited and hindered. No regional governance (except for ASEAN+3) to promote this.</th>
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<tbody>
<tr>
<td>No official arrangements other than ABMI to make serious efforts going forward</td>
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| The new supply and demand dynamics for safe assets point toward a steady increase in demand and a decrease in global supply. |

Four Main Functions of Safe Assets (IMF)

1. Reliable store of value
2. Safe collaterals in repurchase and derivatives markets
3. Benchmarks to measure the relative risks of other assets
4. Ingredient to the prudency framework for banks

Global demand for safe assets related with emerging economies (domestic lack of savings vehicle, regulatory reform) Supply of safe assets (bank deposits decline, private label debt via securitization of risky assets, Treasuries increase).
Credit-ratings of the Asian Government Bonds and Others

Over BBB- (ECB standard)

Source: Trading Economics
Only JGB is accepted

Source: ECB (2018)
Difference between Pledgeability and Credit-ratings

Pledgeability vs. credit rating over BBB- (ECB standards)

Source: Trading Economics
Geographical Analysis of Collateral Exchanges in Asia and Europe

Within Asia
- Domestic: 59.4%
- Cross-border in Asia: 29.6%
- Cross-border in Europe: 4.7%
- Cross-border elsewhere: 6.3%

Within Europe
- Domestic: 25.9%
- Cross-border in eurozone: 17.1%
- Cross-border in non-eurozone: 40.5%
- Anonymous: 16.5%

Source: ASIFMA and ICMA (2017)
## Italian Bonds as Collateral?

The share of government bonds within the pool of EU-originated fixed-income collateral

<table>
<thead>
<tr>
<th>Country</th>
<th>Credit Rating</th>
<th>Share</th>
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<tbody>
<tr>
<td>Germany</td>
<td>AAA</td>
<td>19.6%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>AA</td>
<td>13.7%</td>
</tr>
<tr>
<td>France</td>
<td>AA</td>
<td>13.2%</td>
</tr>
<tr>
<td><strong>Italy</strong></td>
<td>BBB</td>
<td><strong>11.7%</strong></td>
</tr>
<tr>
<td>Spain</td>
<td>A-</td>
<td>5.5%</td>
</tr>
<tr>
<td>Belgium</td>
<td>AA+</td>
<td>3.0%</td>
</tr>
<tr>
<td>United States (Treasuries)</td>
<td>AA+</td>
<td>4.6%</td>
</tr>
<tr>
<td>Japan</td>
<td>A+</td>
<td>3.3%</td>
</tr>
<tr>
<td>China</td>
<td>A+</td>
<td>0%</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>AA+</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>A-</td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td>AAA</td>
<td></td>
</tr>
<tr>
<td>South Korea</td>
<td>AA</td>
<td></td>
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<tr>
<td>Taiwan</td>
<td>AA-</td>
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</table>

Source: Trading Economics & ICMA (2017)
• **PI Index**: non-pledgeable = 1, narrowly pledgeable = 2, pledgeable = 3  
• **Credit rating**: credit rating under BBB+ = 1, credit rating A = 2, credit rating over AA = 3  
• **PIC Index** (Total pledgeability) = PI*Credit rating / **PIC2 Index** (Gap Indicator) = Credit rating / PI  

Source: ECB(2018) and Trading Economics (as of Jan 2019)
Supply concentrates on Re-use rather than including eligible assets

Safe asset shortage is not about heavier re-use or better infrastructure

Safe asset shortage is about a lack of inclusiveness and coherent eligibility framework

If Asian collateral comes into collateral equation, Asia would enjoy sustainable growth with financial stability
Something Wrong with Global Collateral Supply

- Persistent gap needs to be addressed
- Re-use would not solve it!
- Tokenization is a leap-frogging with no real base
- It has to be rigged on tax base of good prime assets
- Asian prime assets are the best choice for globally-pledgeable collateral
Safe Asset Shortage due to very limited supplier (US, Euro)

- **ZLB interest** cannot work in negative interest territory
  - Recession results because quantity equilibrium was reached
  - Artificial demand for safe assets
- **Equity premium**: widened even with interest rates going down
  - Shortage of "safe" assets explains the gap
  - Inflationary expectation forward guidance
  - The global financial system runs on a narrowly defined collateral based assets (Trust) and remains unstable
- **Safety Trap**: Securitization externality that leads to under-provision of safe assets
  - Decentralized crypto assets can ease the shortage of safe assets over time if there is no contribution from Asia
Any chance Asia can be safe asset supplier?

Decline of Safe Assets
(unit: billion)

Source: Barclays Equity Gilt Study, 2012
Any chance Asia can be safe asset supplier?

- If we consider safe assets to be central government debt securities rated no lower than AA category, sovereign downgrades reduced the supply during the crisis euro denominated safe assets 5.2 trillion euro in 2010 to 3.5 trillion in 2012.

- US Treasury is the primary supplier of safe assets, accounting for 45% of government securities AAA-AA among vehicle currency countries. Ratings unchanged, US Treasuries net issuance USD 1.6 trillion in 2010 to USD 687 million in 2015.

- Before the global financial crisis in 2008, private AAA filled the gap with devastating results.

Asian prime assets are much safer and have better quality than private labels.
Ultimate point is not the lack of safe assets, but the narrowly defined and poorly utilized Asian assets as collateral.
Poorly defined, vaguely recognized, and passively managed Asian collateral resources

- Anemic cross-border activities
- Low market liquidity
- High proportion of government collateral in repo market
- Disparate/non-existent criteria on prime collateral in the region
Where Do We Start? Improve Cross-Border Pledgeability

Start from the Base
“COLLATERAL”

- Catalyst for market liquidity and profit
- Building Blocks for trust building
- Lower initial entry level of counterparty risk
Eligibility of the Pledgeable Asian Collateral

1. What can be eligible as collateral?
   - Government bonds, MBS, covered bonds, and prime corporate bonds, digital assets, etc

2. The FX risk is regarded as the barrier
   - Limited cross-border repo transactions because of the lack of trust and infrastructure

3. However, markets have all sorts of risk mitigants and transformation services
   - Hair-cuts, margin requirements in repo, hedging instruments and derivative transactions

4. True problem is our silo-ed mindset and fragmented regulatory framework
How? Get away from Improving on Trodden Path!

Three stages to develop Asian bonds as pledgeable collateral for cross-border transactions

1. Identify eligible assets for broader recognition vs. Improving existing market infrastructures
2. Utilize the expanded pool for cross-border transactions via strong market incentives vs. Emphasizing re-using and greasing the existing wheels
3. Seek diversity and openness in collateral operations vs. Rely on legacy players and outsource resources
Future Infrastructure: Implementation of RTGS on DLT
Decentralized, Distributed Architecture to avoid Single Point of Failure

1. Due to the advent of Distributed Ledger Technology (DLT), it is inevitable to re-organize the existing Real-Time Gross Settlement (RTGS) system.

2. Improvement in the system is vital to make better use of Asian prime collateral.

3. The existing eligibility criteria must be re-examined to take the Technological development into account.

4. It is urgent to establish comprehensive criteria on Private Trust Machine.

5. Implementing a RTGS on DLT requires us to re-examine the existing eligibility criteria. This would give Asia a better chance to prepare for the future.
Asian Prime Collateral Forum (APCF)

Catalyst for Studies on Pledgeable Collateral

- Encourage interactions among ASEAN+3 member countries
- Develop collateral infrastructures
- Promote research on global prime collateral issues
- Global recognition for Asian bonds as usable collateral
Possible Size of Collateral with the inclusion of ASEAN+3 bonds
(Unit: billion USD)

- Current ECB: 8,996 billion USD
- ASEAN+3 with A or higher: 15,855 billion USD
- ASEAN+3 with A- or higher: 16,011 billion USD
- ASEAN+3 with BBB- or higher: 16,478 billion USD

Source: ECB, Eurosystem Collateral data; Asian Bonds Online (2017)
1. Enhanced Financial Stability
2. Improved Market Liquidity
3. Accelerated Capital Market Development

- Stabilization costs can be reduced
- Reduced dependency on FX reserves and swap arrangement
- Financial stability can be enhanced *without outsourcing regional financial resources*
## Conclusion

The world is changing fast.
Our system is centralized and cannot identify and respond properly.
We come to witness decentralized alternatives
Unlocking the Value of Cryptocurrencies = Digital Assets as Loan Collateral

<table>
<thead>
<tr>
<th>What we need is a new source of trust.</th>
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<tbody>
<tr>
<td>That new trust is prime collateral from Asian nations.</td>
</tr>
<tr>
<td>Crypto collateral needs to be attached with expanded prime collateral.</td>
</tr>
<tr>
<td>Expanded trust based on expanded collateral could evolve into a new financial system – More distributed and decentralized!</td>
</tr>
</tbody>
</table>

Asian prime collateral needs to be given renewed recognition via wider acceptance.
Eventually, cryptos and other assets will be exchanged freely on a global platform.
Otherwise, Asian collateral would not exist,
and our value creation would entirely depend on borrowed system.
Wrapping up,

• **Wider market consensus-building** to engage more in various transactions

• **Official recognition of pledgeable collateral** to encourage more active participation of member countries

• **Harmonized tax treatment and other regulatory incentives**

• **Open exchange platform and inclusive market infrastructure**

• **In-depth studies and forward-looking leadership**
CCDC Collateral Management Service

China Central Depository & Clearing Co., LTD.
FEI TAO
Collateral Management Center
CONTENTS

01 Overview of CIBM

02 Application of Bond Collateral in China

03 Use of RMB Bonds in Cross-Border Business

04 Innovations of Collateral Service Arrangements
PART ONE

01

Overview of CIBM
Overview of CIBM

Three types of institutions allowed to trade and settle bonds in the CIBM:

- Asian Bond Fund II (ABF II), the first overseas institution allowed to invest in the CIBM
- First panda bond issued
- HK-based RQFIIs given access to the CIBM

Foreign central banks and equivalents allowed to invest in the CIBM without approval requirement or quota limits:

- RQFIIs across jurisdictions and QFIIs allowed to access the CIBM subject to application
- Scope of eligible overseas investors to the CIBM further expanded

Bond Connect:

- Restrictions on QFIIs & RQFIIs all removed
- Registration procedures for overseas investors to access the CIBM further simplified
Overview of CIBM

Number of accounts of foreign investors (by end of 2018)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Accounts</th>
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</thead>
<tbody>
<tr>
<td>2012</td>
<td>82</td>
</tr>
<tr>
<td>2013</td>
<td>112</td>
</tr>
<tr>
<td>2014</td>
<td>185</td>
</tr>
<tr>
<td>2015</td>
<td>305</td>
</tr>
<tr>
<td>2016</td>
<td>411</td>
</tr>
<tr>
<td>2017</td>
<td>618</td>
</tr>
<tr>
<td>2018</td>
<td>769</td>
</tr>
</tbody>
</table>

Composition of investors in CIBM (by bond holding, Nov 2018)

- Foreign Central Banks: 79.68%
- Foreign banking financial institutions: 14.98%
- Others: 5.34%

Data Source: CCDC
Overview of CIBM

Bond holdings of overseas investors (in trillion RMB)

<table>
<thead>
<tr>
<th>Year</th>
<th>CIBM Holdings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>0.1555</td>
</tr>
<tr>
<td>2013</td>
<td>0.3124</td>
</tr>
<tr>
<td>2014</td>
<td>0.5362</td>
</tr>
<tr>
<td>2015</td>
<td>0.6026</td>
</tr>
<tr>
<td>2016</td>
<td>0.7788</td>
</tr>
<tr>
<td>2017</td>
<td>1.1473</td>
</tr>
<tr>
<td>2018</td>
<td>1.5069</td>
</tr>
</tbody>
</table>

Composition of overseas investors' bond holdings

- CGB: 73%
- Policy Bank Bond: 24%
- Others: 3%

Data Source: CCDC
02
PART TWO

Application of Bond Collateral in China
Studied both the global best practice and domestic market needs; And based on that, designed our system structure.

The bond collateral management system went live;

 Initiated pledged agreement deposits with Postal Savings Bank in June.

Started to provide services for repo, bond lending and other bilateral market transactions after the release of the new Master Repurchase Agreement;

In January, initiated the business of using treasury bonds as futures margin, and extended services to the derivatives market;

Provided services for local pension funds and national social security funds.

In June, formally set up a service center in Shanghai.

The business of using bonds as margin for gold trading was formally launched;

In December, CCDC supported Bank of China in issuing the offshore "green covered bond".

In January, 2011

In June, 2011

2013

2015

2016

2017

2018

Provide service for credit management of financial institutions

Preparing to start tri-party repo service

Support overseas loans under domestic pledge

Support currency swap transaction between domestic commercial banks and foreign central banks

Application of Bond Collateral in China
Application of Bond Collateral in China

### Field | Balance | Ratio
--- | --- | ---
China Bond Market | 76.45 | 100%
Bonds deposited in CCDC | 57.62 | 76%
Bonds pledged in CCDC | 13.90 | 18%

Unit: Trillion RMB

Collateral under the management of CCDC (in RMB trillion)

<table>
<thead>
<tr>
<th>Year</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>3.1</td>
</tr>
<tr>
<td>2014</td>
<td>6.3</td>
</tr>
<tr>
<td>2015</td>
<td>8.0</td>
</tr>
<tr>
<td>2016</td>
<td>12.2</td>
</tr>
<tr>
<td>2017</td>
<td>14.6</td>
</tr>
<tr>
<td>2018</td>
<td>13.9</td>
</tr>
</tbody>
</table>
Application of Bond Collateral in China

We provide services to 5924 market institutions.

Number of clients of Collateral Management Center

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Clients</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>3000</td>
</tr>
<tr>
<td>2015</td>
<td>4500</td>
</tr>
<tr>
<td>2016</td>
<td>6000</td>
</tr>
<tr>
<td>2017</td>
<td>7500</td>
</tr>
<tr>
<td>2018</td>
<td>5924</td>
</tr>
</tbody>
</table>
PART TWO

Use of RMB Bonds in Cross-Border Business
Market Level: Active Cross-Border Trades Create Solid Demand for Collateral Services

China's position in the global investment landscape has been steadily enhanced.

Since this year the cross-border use of RMB has exceeded RMB 10 trillion
Market Level: Active Cross-Border Trades Create Solid Demand for Collateral Services

Recent feedback from Foreign Investors

- **71.43%**
  - Willing to accept RMB bonds as eligible collateral in the global financial market

- **60.42%**
  - Looking forward to linkage between local CSDs with ICSDs for cross-border collateral management

- **68.75%**
  - Willing to use offshore bonds as collateral for exposures in China

- **56.25%**
  - Looking forward to cross-border mutual recognition and use of collateral to increase value of bond holdings
Business Level: Abundant Innovations Pave Way for Best Practice

Support Overseas Issuance of BOC Green Covered Bonds

BOC used its green bonds as collateral to guarantee its issuance of overseas bonds. CCDC, as the collateral management provider, carried out the valuation, mark-to-market and assessment of the pledged assets pool. Meanwhile, CCDC acted as an executing agent to perform the default operation of the collateral in the event of default.

BOCL (issuer)

BOC (collateral giver)

CCDC

HSBC (collateral taker)

Investors

London Exchange

Onshore

Overseas

Authorized HSBC as the representative

• Pledge
• Reporting

Initial instruction

Bond Collateral Management Enforcement processing

Reporting

Initial instruction
Business Level: Abundant Innovations Pave Way for Best Practice

Support Overseas Loans under Domestic Pledge

In order to control risk, overseas banks prefer to offer FCY loans to domestic banks secured by domestic bank’s RMB bonds. CCDC plays the role of collateral management service provider, accomplishing bond pledge and regular reports.
Support Currency Swap Transaction Between Domestic Commercial Banks and Foreign Central Banks

To control the credit risk from their counterparties, domestic commercial banks accepted RMB bonds from the overseas central banks as collateral to ensure that the swap contract can be successfully implemented.
Use of RMB Bonds in Cross-Border Business

CCDC+ Cooperation
PART THREE

04

Innovations of Collateral Service Arrangements
Innovations of Collateral Service Arrangements

Tri-Party Repo

- In October 2018, PBOC officially announced the launch of tri-party repo in CIBM

- Tri-party repo is popular in global repo markets for its cost reduction and higher efficiency
• The core of tri-party repo is the introduction of a central securities depository acting as a third party to provide centralized and professional collateral management services.
Disposition of Collateral After Default

- Major breakthrough: disposition of collateral

- The core difference of pledge and title-transfer is whether the title of bond collateral has been transferred

- China’s legal support:

  debtor does not fulfill maturing debt, creditor can negotiate with debtor using pledged assets as a deduction, or creditor has higher priority with pledged assets which disposed for auction.
Disposition of Collateral in Tri-Party Repo

CCDC Solution

Collateral Buyer

CCDC

Collateral giver

Collateral taker
Reuse of Collateral to Increase High-Quality Liquidity Supply

- In global markets, bond collateral in repos can be reused to create more liquidity

- The multiplier effect of collateral reuse is moving towards a reasonable range

- No legal barrier to this mechanism
Thank You!

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E-mail: taofei@chinabond.com.cn

JAN 29, 2019
DTCC’s DLT Journey

Session 11: Use of Distributed Ledger Technology by Market Infrastructures

ABMF, January 2019
Since 2000, FinTech investments has grown dramatically

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Companies</th>
<th>Total Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>~1,600</td>
<td>~$5.5B</td>
</tr>
<tr>
<td>2010</td>
<td>~3,000</td>
<td>~$15.3B</td>
</tr>
<tr>
<td>Today</td>
<td>&gt;8,800</td>
<td>&gt;$100.2B</td>
</tr>
</tbody>
</table>

Visualization based on ~1,800 FinTechs receiving the highest amount of private funding. Dataset mapped with Quid and allowed to cluster based on similar products, technologies, customers etc.

1) Data based on over 8,800 companies which were discovered across over 4 data sources. Total funding based on date of funding. Total companies based on founding year. Data as of November 2016.

Source: Fintech Control Tower, Expand, November 2016
DLT INITIATIVES

- Organized the Office of Fintech Strategy; DLT Whitepapers
- Founding member and member of the Governing Board of the Linux Foundation’s HyperLedger Open Source project; hosted the first HyperLedger technology meeting in February 2016
- Leadership role in the Enterprise Ethereum Alliance; contributed over 50K lines of code
- Early investor in Digital Asset Holding
- In the US, involvement in multiple industry POC and pilots resulting in collective learning
- Notable DLT projects
  - Repo clearing
  - TIW re-platforming
  - Performance benchmark to settle US equities trades using DLT
- Globally, engage with clients, industry bodies and regulators to share experiences
RE-PLATFORMING DTCC’S TRADE INFORMATION WAREHOUSE (TIW) (aka Credit Market Infrastructure Refresh)

2003
Deriv/SERV established as a global matching service to automate the paper intensive process for credit default swaps

2006
Deriv/SERV launches its TIW

2009
Deriv/SERV sells its stake of MarkitSERV to Markit. Markit owns confirmation/matching; Deriv/SERV owns event processing/payments

2013
Markit and Deriv/SERV launch MarkitSERV as a joint venture that combines the firms’ confirmation services within the OTC derivatives space

2016
Successful Proof of Concept (POC) with Deriv/SERV, IHS Markit and 6 banks demonstrating CDS processing managed on DLT

2017
Agreement from IHS Markit and Deriv/SERV to work in parallel in migration to new technologies

2018
Integration, scripted, and open user acceptance testing for TradeServ and TIW DLT

2019
TradeServ and TIW DLT phase 1 go live
RE-PLATFORMING DTCC’S TRADE INFORMATION WAREHOUSE (TIW) – SOME LESSONS LEARNED

Tactical Considerations:
• Choosing how much business logic to put in smart contract vs. off-chain has a significant performance impact
• The tools for DLT development are still “primitive”
• The debugging tools for DLT production issues are non-existent
Bank of Japan and European Central Bank

Project Stella

Payment systems: liquidity saving mechanisms in a distributed ledger environment

September 2017

https://www.ecb.europa.eu/paym/groups/pdf/omg/2017/201712/2017-12-12%20ECB_OMG_Item2_STELLA_Project.pdf?640f7bd81214cf9c539b1735ce12d5ad
PROVING THAT DLT CAN SCALE – THE US EQUITIES MARKET
BENCHMARK TESTING

• **Test Objective:** To analyze DLT’s ability to process the massive trading volumes of the US equities market

• **Testers:** Accenture with support from Digital Asset and R3

• **Test Environment:** AWS cloud; network of 170+ participant nodes in a private blockchain; using a prototype to test the capture of matched equities trades, novate them, create netted obligations and settle the obligations

• **Key Findings:**
  - DLT can support the average daily trading volumes in the US equities market of 100+ million. DLT performed at levels necessary using peak volume of 6,300 trades/second processing for 5 continuous hours.
  - Private/permissioned blockchains can be more efficient and scalable because they allow for censorship and ensure that only known and trusted parties are participating in a network; eliminates inefficiencies in public blockchain to combat censorship resistance and need to deal with unknown/untrusted parties

• **Is DTCC ready to re-platform its core systems into DLT?**
  Not yet. Need to prove resiliency, security, operational and regulatory performance. Plus testing beyond the basic functionality such as asset servicing.
## COMPARING DLT TO EXISTING PLATFORMS

### ADVANTAGES
- Security is built in
- Sharing of documents and records is integral part of the technology
- Business rules and data schemas are built into the DLT and into the smart contract
- After the platform is implemented, time to market for adding new contracts for additional asset classes is much faster
- Resilience is enhanced by the distributed platform

### CHALLENGES
- DLT is unproven for big-scale use
- Distributed systems are inherently complex
- Fixing DLT is unproven
- Performance and scale are unproven
- DLT vendor viability, durability and sustainability is unproven
AS AN FMI (Operator or Participant), WHERE TO START?

Distributed ledger technology in payment, clearing and settlement
An analytical framework

February 2017

https://www.bis.org/cpmi/publ/d157.pdf
“DLT may radically change how assets are maintained and stored, obligations are discharged, contracts are enforced, and risks are managed. Proponents of the technology highlight its ability to transform financial services and markets by: (i) reducing complexity; (ii) improving end-to-end processing speed and thus availability of assets and funds; (iii) decreasing the need for reconciliation across multiple record-keeping infrastructures; (iv) increasing transparency and immutability in transaction record keeping; (v) improving network resilience through distributed data management; and (vi) reducing operational and financial risks. DLT may also enhance market transparency if information contained on the ledger is shared broadly with participants, authorities and other stakeholders. The use of DLT, however, does not come without risks. In most instances, the risks associated with payment, clearing and settlement activities are the same irrespective of whether the activity occurs on a single central ledger or a synchronised distributed ledger. That said, DLT may pose new or different risks, including: (i) potential uncertainty about operational and security issues arising from the technology; (ii) the lack of interoperability with existing processes and infrastructures; (iii) ambiguity relating to settlement finality; (iv) questions regarding the soundness of the legal underpinning for DLT implementations; (v) the absence of an effective and robust governance framework; and (vi) issues related to data integrity, immutability and privacy. DLT is an evolving technology that has not yet been proven sufficiently robust for wide scale implementation.”
VIDEOS – DTCC 2018 Fintech Symposium


DTCC 2019 Fintech Symposium, 30 APRIL

THANK YOU!!!!
An APEC Roadmap
for a New
Financial Services Data Ecosystem

AN UNDERTAKING OF THE
ASIA-PACIFIC FINANCIAL FORUM
The APEC Mission Statement

“We are united in our drive to build a dynamic and harmonious Asia-Pacific community by championing free and open trade and investment, promoting and accelerating regional economic integration, encouraging economic and technical cooperation, enhancing human security, and facilitating a favorable and sustainable business environment. Our initiatives turn policy goals into concrete results and agreements into tangible benefits.”
“Data flows are the currency of the digital economy that fuels growth in the information age”

Concluding APEC Senior Officials’ Meeting
Sydney, Australia
2-3 September 2007
DATA COLLECTION ON CONSUMERS

SINCE DECADES

- Public available data, court records, vehicle records, voter records
- Name and address changes, marriages, divorces, births, deaths
- Lists from surveys, warranty registrations, and sweepstakes
- Newspaper and magazine subscribers, mailorder buyers, travel bookers
- Purchases from retailers, pharmacies, loyalty programs, clubs
- Credit histories, data from banks, credit card networks, insurers, healthcare, employers

RECENT YEARS

- Aggregated, anonymized "Big Data"
- Metadata about websites, apps, content, places
- Browser or device specific data
- Location, device IDs, email, cookie IDs
- Social media, platforms and user accounts
- Smartphone and app usage
- Online purchases
- Smart TVs, activity trackers, game consoles, e-readers, cars, and other devices

Family Interests
Attitudes
Lifestyle
Financial
Health
Behaviors
Personality
Risk Factors
Weaknesses
Movements

Your Profile

Profile data is stored by many companies from retailers to data brokers to online platforms.
Data and inclusive finance

1. Rapid Customer Segmentation/Customization
   - Analytics
     - Data mining of social signals from customers and prospects, i.e., key life events
     - Individualized reach campaigning
     - Tailor customer service & increase efforts to cross sell
   - Example: US insurer field pilot empowering reps to use social media
   - Impact
     - 22% increase in productivity
     - Reduced time for content distribution by 75%
     - Thousands of new leads generated monthly

2. Speed client acquisition through automation
   - DemystData
     - U.S.
     - Making data available
       - Scrapes internet to gather application data
       - Verifies identity
       - Reduction of ~15% “false negatives”
   - Agora Advisory
     - India
     - Auto-completing information analysis
       - Auto-populates “ability to repay” farmer data
       - Leaves bank staff to focus on “willingness to repay” judgments

3. Reducing risk through predictive analytics
   - MNO
     - Geographic, demographic, financial & social data
   - Lender
     - Offer
     - Consent
     - Customer’s data**
     - Credit Limit
     - Request score
     - First access
     - Customer consents to sharing mobile usage data
     - Usage for given period shared once
Nearly 100 countries around the world have adopted data protection and privacy laws

Selected Comprehensive Data Protection/Privacy Laws and Bills as of 1/2016

- **Canada**: PIPEDA and Provincial Privacy Laws
- **US Federal**: HIPAA, GLBA, COPPA, CAN-SPAM, Do Not Call, Safe Harbor Principles, Possible Cybersecurity Legislation, Student Privacy Legislation, California Requirements
- **Russia**: Federal Law of July 27th, 2006 No 152-FZ on personal data
- **South Korea**: Personal Information Protection Act 2011 (PIPA)
- **Japan**: Personal Information Protection Act (PIPA)
- **Singapore**: Personal Data Protection Act 2012 (PDPA)
- **Australia**: Amended Privacy Act and Spam Act
- **Argentina**: Personal Data Protection Act of 2000, Confidentiality of Information Law
- **Chile**: Law for the Protection of Private Life
- **South Africa**: The Protection of Personal Information Act 2013 (POPIA)
- **Dubai**: Data Protection Act 2007
- **United Kingdom**: UK Data Protection Act 1998
- **United States**: Federal Act on Data Protection

APEC Roadmap for a New Financial Services Data Ecosystem

- Identify critical **building blocks of an enabling data ecosystem**
- Outline concrete initiatives and actions to put these building blocks in place over a reasonable time frame
- Provide a tool for promoting consistency of laws, policies and regulations with existing internationally agreed principles, frameworks and good practices
- Identify areas where work is needed to achieve regional consistency
- Point out key considerations and the way forward
  - For reforms in individual jurisdictions
  - For regional cooperation
General Data Regulation
Consistency with core principles of data protection

- General agreement on core principles: Key examples
  - OECD Guidelines on the Protection of Privacy and Trans-border Flows of Personal Data
  - APEC Privacy Framework
  - WBG Good Practices for Financial Consumer Protection
- Diversity leads to significant differences among data protection regimes across jurisdictions
- Achieve a level of consistency to allow for interoperability among regimes and cross-border data transactions
Consistency among domestic laws and regulations

- **Overlaps:**
  - Multiple specific laws on data privacy and security
  - Different laws across levels of government (e.g., federal and state)
  - Overlaps of jurisdictions among regulatory bodies

- **Inconsistency of objectives**
  - Promotion of open banking vs. stringent data protection
  - Promotion of cross-border e-commerce vs. data localization requirements
  - AML/CFT requirements vs. privacy, consent, and confidentiality

- **Review laws, policies and regulations and initiate reforms**
Expanding data collection and sharing

- Establish full-file and comprehensive credit information systems
  - Positive and negative data
  - Traditional and alternative data
  - Expand sharing of credit information from various sources

- Develop potential of unstructured data
  - Balanced legal/regulatory approach to new data/analytics industry
  - Establish a general personal data regulator
  - Establish independent industry association; develop codes of conduct and self-regulatory capacity
Sound frameworks for data collection, storage, sharing and use

- **Build policy making and regulatory capacity** to deepen understanding of data technology and industry landscape
- **Support broader role for industry**
  - Codes of conduct
  - Self-regulation
  - Financial education and public awareness
  - Industry-regulator cooperation
    - Reviewing methodologies and algorithms
    - Developing robust data standards and best practices in data governance and management
Sound frameworks for data collection, storage, sharing and use

- Collaborate with public, private and international stakeholders to review adequacy and appropriateness of domestic laws and regulations and undertake reforms
  - Reforms: proactive, holistic and systemic
  - Approach: principles- and risk-based, technologically agnostic and avoid being unduly prescriptive
  - Regulations: flexible and proportionate
  - Focus: Misuse of data and collection limitation principle instead of assembly and use of data
  - Level-playing field and shift from entity-based to activity-based regulation
Cross-Border Data Flows
Addressing concerns behind data localization

- Data localization not consistent with APEC’s view:
  - Organizations increasingly rely on data for many purposes
  - Free and open trade and investment involving consumers cannot take place without the collection and sharing of personal data across borders
- Data localization has significant costs and unintended consequences
- Data localization creates tensions between competing regulatory requirements and business inefficiencies
- Identify concerns behind data localization and evaluate whether they can be better addressed through other measures that are compatible with wider cross-border data sharing
Cross-border data privacy

- **Goal:** APEC jurisdictions to agree on a common framework that enables cross-border data flow while assuring data protection

- **Current situation:**
  - APEC Privacy Framework + CBPR at very early stages of development
  - GDPR driving changes globally – bilateral negotiations

- **Challenges:**
  - How APEC can reach common framework / regional privacy regime
  - How to achieve inter-operability with GDPR

- **Undertake gap analyses between:**
  - APEC jurisdictions and APEC Privacy Framework/GDPR
  - APEC Privacy Framework/GDPR and CBPR

- **Ways to expand participation in CBPR**
Data security

- Comprehensive set of controls to prevent inadvertent disclosure of data
- Wider adoption of technology creates a growing need for public-private collaboration to build stronger foundations for data security
  - Long-term strategy for managing the data security environment
  - Comprehensive guidelines on data security and business continuity
  - Wider intelligence-sharing among jurisdictions
  - Innovative programs, development of expertise, regulatory sandboxes, prioritization, capacity building
- APEC long-term strategy for strengthening data security
- Review of cyber resilience legislation + industry best practices
Cross-border access to data for law enforcement

- Mutual Legal Assistance process overwhelmed by explosion of digital information
  - One of factors driving data localization
- MLA process needs to be reformed and streamlined (e.g., use of online forms)
- International agreements for data sharing for law enforcement purposes
- Public-private sector partnerships
Domestic infrastructure and industry development

- Another driver of data localization, which has unintended and adverse consequences

- Need for holistic set of enabling policies and measures, can benefit from:
  - APEC Blueprint for Action on Electronic Commerce
  - APEC Best Practices to Create Jobs and Increase Competitiveness
Regional platforms

- Deployment of new technologies – regulatory concerns on implications on cross-border data flows
  - Blurring of jurisdictional borders
  - Opacity of technologies – concerns about accountability, recourse and enforcement
  - Technology develops faster than legislation and rule/making
  - Scarcity of specialized technical experts
- Collaboration among regulators and industry to develop regional platforms for facilitating innovation in cross-border financial services
  - E.g., ASEAN Financial Innovation Network (AFIN)
  - Linkages among domestic regulatory sandboxes
Updates and Next Steps
Updates

- 17 October 2018: APEC Finance Ministers called for advancing the Roadmap in 2019 for their consideration
  - “We note the work of ABAC and the APFF in promoting regional public-private platforms for financial innovation and digitalization, cross-border data ecosystems and personal insolvency reform, and look forward to this work being advanced next year.”
Next Steps

- Further consultations
  - 29 January 2019, Manila: Consultations with regulators and officials at ABMF meeting
  - 2 March 2019, Atlanta: Further discussions of roadmap recommendations on data privacy and security
  - 7-8 March 2019, Santiago: Presentation to and discussions with APEC Finance and Central Bank Deputies
  - 2-3 April 2019, Shanghai: Data Ecosystem Roadmap conference
  - Further consultations with relevant public and private stakeholders in the region and relevant APEC fora

- Finalization of Roadmap
- Consideration by APEC Finance Ministers in October 2019
- After endorsement – collaboration with relevant policy makers and regulators to implement the Roadmap
Collaborators (as of December 2018)

We need your feedback!

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