<table>
<thead>
<tr>
<th>TIME</th>
<th>PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30 - 09:00</td>
<td>Registration</td>
</tr>
<tr>
<td>09:00 – 09:15</td>
<td><strong>Welcome Remarks</strong> by Mr. Daikichi Momma, Director-General, International Department, Ministry of Finance of Japan</td>
</tr>
<tr>
<td>09:15 – 09:20</td>
<td><strong>Opening</strong> by Mr. Koji Ito, SF1 Chair</td>
</tr>
<tr>
<td>09:20 – 10:00</td>
<td><strong>Session 1: AMBIF Updates</strong>&lt;br&gt;- Potential issues&lt;br&gt;- Brief updates by NAFMII, Philippine SEC, Thai SEC, and HNX</td>
</tr>
<tr>
<td>10:00 – 10:20</td>
<td><strong>Session 2: WG-IP Progress</strong> by ADB Secretariat&lt;br&gt;- Workshop on Bond Pricing and evaluation&lt;br&gt;- Multilateral MOU&lt;br&gt;- Enhancement of ABO website</td>
</tr>
<tr>
<td>10:20 – 10:35</td>
<td><strong>Session 3: WG-CBCR Progress</strong> by ADB Secretariat&lt;br&gt;- Tentative survey results&lt;br&gt;- Next steps</td>
</tr>
<tr>
<td>10:35 – 11:00</td>
<td><strong>Session 4: Updates on ABMF Bond Market Guides 2016</strong> by ADB Secretariat</td>
</tr>
<tr>
<td>11:00 – 11:15</td>
<td><strong>Coffee Break (Conference Room A)</strong></td>
</tr>
<tr>
<td>11:15 – 12:15</td>
<td><strong>Session 5: Synthetic Peso Note</strong> by RCBC/SMETRIX Fixed Income Partners&lt;br&gt;- Possible cross-border issuance with AMBIF SSF&lt;br&gt;- Basic structures of the note&lt;br&gt;- Tax and regulatory implication&lt;br&gt;- Q&amp;A</td>
</tr>
<tr>
<td>12:15 – 13:30</td>
<td><strong>Lunch (Conference Room A)</strong></td>
</tr>
<tr>
<td>13:30 – 14:30</td>
<td><strong>Session 6: Update on CGIF</strong> by Mr. Nishimura. CEO&lt;br&gt;- Construction Period Guarantee Facility&lt;br&gt;- Securitization&lt;br&gt;- Q&amp;A</td>
</tr>
<tr>
<td>14:30 – 15:30</td>
<td><strong>Session 7: SRO</strong> by ASEAN+3 SRO group&lt;br&gt;- Significance of SRO roles in the AMBIF bond market&lt;br&gt;- Outline of “SRO WG Activity Report”&lt;br&gt;- Experience of 1st Pilot Issue of AMBIF Bond in Thailand and SRO’s involvement&lt;br&gt;- Q&amp;A</td>
</tr>
<tr>
<td>TIME</td>
<td>PROGRAM</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>15:30 – 15:45</td>
<td><strong>Wrap up</strong> by Mr. Satoru Yamadera, ADB Secretariat</td>
</tr>
<tr>
<td></td>
<td>- Next step of ABMF</td>
</tr>
<tr>
<td></td>
<td>- <strong>Includes opportunity for final Q&amp;A session</strong></td>
</tr>
<tr>
<td>15:45 – 15:50</td>
<td><strong>Closing remarks</strong> by Mr. Koji Ito, SF1 Chair</td>
</tr>
<tr>
<td>15:50 – 17:00</td>
<td>(individual meetings with some members)</td>
</tr>
</tbody>
</table>

**Sub-Forum 2 (SF2 Session) – 8 June 2016**

<table>
<thead>
<tr>
<th>TIME</th>
<th>PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30 – 09:00</td>
<td><strong>Registration</strong></td>
</tr>
<tr>
<td>09:00 – 09:10</td>
<td><strong>Opening Remarks</strong> by Mr. Jong Hyung Lee, SF2 Chair</td>
</tr>
<tr>
<td>09:10 – 10:30</td>
<td><strong>Session 8: AMBIF Tax Procedure Survey</strong> by ADB Secretariat</td>
</tr>
<tr>
<td></td>
<td>- Survey structure</td>
</tr>
<tr>
<td></td>
<td>- Survey result</td>
</tr>
<tr>
<td></td>
<td>- Next steps</td>
</tr>
<tr>
<td>10:30 – 10:50</td>
<td><strong>Coffee Break (Conference Room A)</strong></td>
</tr>
<tr>
<td>10:50 – 11:50</td>
<td><strong>Session 9: ISO 200222 and XBRL</strong> by Mr. Yoshiaki Wada, NTT Data</td>
</tr>
<tr>
<td></td>
<td>- Possible use of ISO 20022 for corporate ERP and various reporting</td>
</tr>
<tr>
<td></td>
<td>requirements with XBRL</td>
</tr>
<tr>
<td></td>
<td>- Recent XBRL application in Asia as well as the rest of the world</td>
</tr>
<tr>
<td></td>
<td>- Q&amp;A</td>
</tr>
<tr>
<td>11:50 – 12:30</td>
<td><strong>Session 10: ISO 200222 Implementation</strong> by Dr. Taiji Inui, ADB</td>
</tr>
<tr>
<td></td>
<td>consultant</td>
</tr>
<tr>
<td></td>
<td>- Implementation in ASEAN+3</td>
</tr>
<tr>
<td></td>
<td>- How to promote local implementation</td>
</tr>
<tr>
<td></td>
<td>- Q&amp;A</td>
</tr>
<tr>
<td>12:30 – 13:00</td>
<td><strong>Session 11: Next step of SF2</strong></td>
</tr>
<tr>
<td></td>
<td>- The members are requested to provide opinions what SF2 should discuss</td>
</tr>
<tr>
<td></td>
<td>regionally as the next step. Any comments from the members are</td>
</tr>
<tr>
<td></td>
<td>appreciated.</td>
</tr>
<tr>
<td>13:00-14:00</td>
<td><strong>Lunch (Conference Room A)</strong></td>
</tr>
<tr>
<td>14:00 – 15:00</td>
<td>**Session 12: Information session: Blockchain technology and its</td>
</tr>
<tr>
<td></td>
<td>implication** by Mr. Taketoshi Mori, Senior Manager, Financial</td>
</tr>
<tr>
<td></td>
<td>Services Industry Group, Deloitte Touche Tohmatsu</td>
</tr>
<tr>
<td></td>
<td>- What is Blockchain?</td>
</tr>
<tr>
<td></td>
<td>- Possible application</td>
</tr>
<tr>
<td>15:00 – 15:25</td>
<td><strong>Wrap up</strong> by Mr. Satoru Yamadera, ADB Secretariat</td>
</tr>
<tr>
<td></td>
<td>- Next step of ABMF</td>
</tr>
<tr>
<td>15:25 – 15:30</td>
<td><strong>Closing remarks</strong> by Mr. Jong Hyung Lee and Mr. Yuji Sato, SF2</td>
</tr>
<tr>
<td></td>
<td>Chairs</td>
</tr>
<tr>
<td>15:30 – 17:00</td>
<td>(individual meetings with some members)</td>
</tr>
</tbody>
</table>
DAY 2
8 JUNE 2016

SUB FORUM 2 (SF2) MEETING
SESSION 8

AMBIF TAX
PROCEDURE SURVEY
Survey Objective and Guidelines

Survey Objective:
To identify interest income withholding tax procedures which could be applied to bonds issued under the AMBIF program, specifically those purchased by professional investors.

- It is important to clarify tax procedures for investors to calculate their returns accurately. Uncertainty in tax procedures would discourage investors to invest in AMBIF.
- As financial institutions are often exempted from withholding tax, we may be able to establish favorable tax environment for AMBIF because AMBIF investors are mostly financial institutions.

- **Tax on interest payment by an issuer**: In principle, it is taxable where income is generated. It is necessary to investigate taxation on interest payment.
- **Tax on income of investors**: In principle, it is taxable on income of residents. But if interest is received outside of jurisdiction, withholding tax cannot be levied.
- **Tax at the market of issuance**: Even if issuers and investors are non-residents, some tax authorities may consider bond issuance in its jurisdiction is taxable because it regards as doing business in the jurisdiction.
### Scenarios included in Survey Scope

<table>
<thead>
<tr>
<th>Situation</th>
<th>Existing Practice (Note 1)</th>
<th>AMBIF (Note 2)</th>
</tr>
</thead>
</table>
| Your country is the market of issuance                        | **Case A**  
Resident Issuer  
Most investors are resident of your country | **Case B**  
Non-resident Issuer  
Most investors are resident of your country |
| Your country is not the market of issuance                    | **Case C**  
Resident Issuer issuing offshore (Your Eurobonds)  
Most investors are non-resident of your country | **Case D**  
Resident Issuer issuing in another country  
Most investors are non-resident of your country |
| Your country is not the market of issuance. Your resident investor invests in issuance by non-resident outside of your country | **Case E**  
Offshore Issue by Non-Resident (Eurobonds) | **Case F**  
Issuer and issuance outside of your country but issued in the region.  
(.Depending on markets, withholding tax may be levied) |

**NOTES:**
1. Document based on transactions already happening in your country.
2. Using the existing practice as baseline, devise the process that could apply for AMBIF issuance.

### Guidelines in Answering the Survey:

- **Focus is on** financial institutions including insurance companies, pension funds, asset management and investment trusts. We need to confirm the definition of financial institutions in financial regulations and taxation is the same or not.
- **Procedure for High Net Worth Individuals** in markets where HNWI are deemed professional investors need not be included if it will unduly complicate the responses.
- **Process flows covered:** (i) interest payment, (ii) withholding tax, and (iii) information on beneficiary owners.
  - Only for corporate bonds since initial AMBIF issuers are corporates
  - Where there are no taxes on interest payments, focus on documenting the information flow of identifying and reporting beneficial owners including regulatory screening such as AML
- **We assume the tax procedures would be different,** depending on (i) residency of the issuer; and (ii) residency of investors. In the diagram, we differentiate your domicile as “Your economy”.
- **We assume issuers are legally responsible** for withholding taxes and remitting to taxation bodies. Where either one or both is delegated to other entities (e.g., withholding agent, paying agent), please depict the other entities in the diagram.
- **The diagrams provided are examples** of each case, which may not be the same as those of your country. Please revise accordingly.
- Please answer as much as you can. We understand you may not be able to answer all questions. If the Case scenario is not applicable to your country (e.g., there is no such transaction), please indicate the Case as UNKNOWN.
Q1. Bond interest taxation for resident investors when your country is the market of issuance
Is interest paid to resident investors (financial institutions) on corporate bonds issued by a resident issuer in your country, subject to withholding tax?
 No
 Yes
 It depends (Please explain briefly below)

If you answered “Yes”, what is applicable rate: __ %

Who is responsible to withhold the tax?
 Issuer (or paying agent)
 Custodian (or NCSD)

Please list other factors, if any, that influence the taxability status of the bond interest payment?
 Bond tenor exceeding a threshold, e.g., tenor of up to 5 years are taxable and tax-exempt above 5 years
 Holding period of the bond investment, e.g., bond investment held for at least 5 years and 1 day are exempt
 Others (Please explain briefing below)

Q2. Withholding tax exemption for resident financial institutions in your country: If the answer of the question above is yes, are financial institutions exempted from withholding tax?
 No
 Yes
 It depends (Please explain briefly below)

If yes, what is the definition of financial institution under your taxation?

Q3. Bond interest taxation for non-resident investors when your country is the market of issuance
Is interest paid to non-resident investors on corporate bonds issued by a resident issuer in your country subject to withholding tax?
 No
 Yes
 It depends (Please explain briefly below)

If you answered “Yes”, what is applicable rate: __ %

Who is responsible to withhold the tax?
 Issuer (or paying agent)
 Custodian (or NCSD)

In some countries, non-resident investors are exempted from withholding tax to promote investments by non-residents. But it required a proof that the investors are non-resident.

Do you have a scheme such as qualified foreign intermediary (QFI), such as a custodian, to provide tax information for non-resident investors and trace the change of ownership between non-resident and resident?
 No
 Yes. Please describe the general process of tracing the change in ownership between non-resident and resident.
### Q4. Bond interest taxation for resident investors when your country is the market of issuance

Is interest paid to resident investors (financial institutions) on corporate bonds issued by a non-resident issuer in your country (i.e., AMBIF) subject to withholding tax?

- [ ] No
- [ ] Yes
- [ ] It depends (Please explain briefly below)

If you answered “Yes”, what is applicable rate: __%  

Who is responsible to withhold the tax?

- [ ] Issuer (or paying agent)
- [ ] Custodian (or NCSD)
- [ ] Investor

Non-resident issuer may need to pay tax on interest to its tax authority. The rate is up to 10% under OECD convention. In such case, the issuer may gross up to compensate the amount for investors.

The tax authority of resident investors may levy withholding tax on investors’ income. Custodians may need to act as withholding agent in such case.

### Q5. Bond interest taxation for non-resident investors when your country is the market of issuance

Is interest paid to non-resident investors on corporate bonds issued by a non-resident issuer in your country subject to withholding tax?

- [ ] No
- [ ] Yes
- [ ] It depends (Please explain briefly below)

If you answered “Yes”, what is applicable rate: __%  

Who is responsible to withhold the tax?

- [ ] Issuer (or paying agent)
- [ ] Custodian (or NCSD)

In this case, source of income is outside of tax authority’s jurisdiction, besides, it is not practical to levy tax on non-resident investors. But there may be a case that all interests are subject to withholding tax because the tax authority of the market of issuance considers bond issuance as doing business within the jurisdiction. In such case, non-resident investors may claim tax return later.

If this is the case in your country, please clarify whether non-resident financial institutions are exempted from withholding tax or not.
Q6. Agents for the Issuers
When bonds are issued in your country, do Issuers appoint agents for the following functions either as required by law or as a matter of common practice?

i. Calculating and Withholding Agent
- No
- Yes, required by law
- Yes, by common practice

ii. Paying Agent
- No
- Yes, required by law
- Yes, by common practice

Who are generally appointed as agents of the Issuer for these functions?
- Central securities depository duly licensed by a regulator
- Central entity duly licensed by a regulator
- Licensed entity, independent from the Issuer
- Licensed entity, owned by the Issuer
- Bank, do not need a special license
- Non-bank, do not need a special license
- Others, please specify

Q7. Change in ownership between taxability status (e.g., taxable to tax-exempt) and between different tax rates
Do you allow bonds to be traded/transferred between investors of different taxability status or tax rates?
- No
- Yes

If you answered “Yes”, is the trade/transfer restricted to be done only on interest payment date?
- Yes, can change taxability status only on interest payment date
- No restriction. Please specify how the Issuer tracks the changes in ownership resulting to change in taxability status or tax rates. *(Validate the existence of pro-rata temporis practices.)*
Q8. Documentation required from investors on their taxability status
Do you require supporting documents to prove the taxability status or entitlement to a reduced tax rate from investors?

- No, a declaration in the account opening form of the investor’s taxability status or entitlement of a reduced rate suffices
- Yes, supporting documents are required to be submitted (list below)

If you answered “Yes”, when are the supporting documents required to be submitted?

- Only once, upon registration of the investor as a qualified investor whereupon a universal Investor ID is granted indicating the taxability status or entitlement to a reduced rate
- Upon registration with a designated intermediary (such as a depository or a custodian) and the intermediary’s representation of the investor’s taxability status or entitlement to a reduced rate is accepted by all bond issuers without the need for supporting documents
- Every bond subscription/purchase, i.e., each ISIN purchased requires the submission of a separate set of documentation
- Each interest payment period for each bond requires the submission of supporting documents

Q9. Regulatory requirement to collect information on residency/nationality of investors
Aside from taxation purposes, is the nationality and residency of the investor used for other regulatory reporting requirements?

- No
- Yes (Please list the regulatory bodies and description of reports)
Q10. Bond interest taxation for resident investors when the market of issuance is not your country
Is interest paid to resident investors (financial institutions) on corporate bonds issued by your resident issuer in outside of country subject to withholding tax?
☐ No
☐ Yes
☐ It depends (Please explain briefly below)

If you answered “Yes”, what is applicable rate: ___ %

Who is responsible to withhold the tax?
☐ Issuer
☐ Custodian (or NCSD)

Tax authorities may want to levy withholding tax if investors are resident because this is economically the same as a domestic bond issuance. However, it is practically very difficult because it is difficult to know whether the investors are resident or non-resident investors.

To maintain equal condition for domestic and offshore issuance, the Japanese tax authority will ask an issuer whether there is no Japanese investor holding the bond or not. If the issuer cannot provide the information, the withholding tax is levied. And the issuer needs to make up the tax for issuers.

Q11. Bond interest taxation for resident investors when the market of issuance is not your country
Is interest paid to resident investors (financial institutions) on corporate bonds issued by a non-resident issuer in outside of country (AMBF investment) subject to withholding tax?
☐ No (practically not possible)
☐ Yes
☐ It depends (Please explain briefly below)

If you answered “Yes”, what is applicable rate: ___ %

In this case, it is assumed a tax authority cannot levy a tax on resident investor because source of interest paid is not in your country. Besides, the bond is issued outside of its jurisdiction.

But if there is any restriction on resident investors (financial institutions) to invest in a bond issued outside of your country, please explain the regulation.
Case B: the issuer is a non-resident of your country and issuing in your country

Case B': Mizuho's case, from the view point of Thailand
Case C: Issuer is a resident of your country and issuing offshore

Your country

Issuer

Offshore

Paying agent

Info of beneficiary owner
Interest payment
Tax withheld
Tax withheld

ICSD

Direct participant of ICSD
(Qualified Foreign Intermediary?)

Non-resident investor

Indirect participant of ICSD

Resident investor

Resident investor

Direct participant of ICSD
(withholding agent)

Indirect participant of ICSD

Tax authority

Case D: the issuer is a resident of your country but issuing in country B

Your country

Issuer

Country B

Paying agent?

Paying agent
(Withholding agent?)

CSD B

Direct participant of CSD B

Indirect participant of CSD B

Investor of country B

Investor of country B

Tax authority of Country B

Tax authority of Country C

Foreign indirect participant of CSD B

Foreign indirect participant of CSD B

(WHT agent)

Resident investor

Resident investor

Non-resident investor

Non-resident investor

Tax authority

Country C

Foreign indirect investor
Case C: Case of Japan

Your country

Issuer

Tax authority

Direct participant of ICSD (withholding agent)

Indirect participant of ICSD

Resident investor

Resident investor

ICSD

Withholding tax agent

Paying agent

Non-resident investor

Indirect participant of ICSD

Resident investor

Non-resident investor

Case E: Issuer is a non-resident of your country and issuing offshore, i.e., your resident investor is investing in offshore bond issued by non-resident

Your country

Issuer

Tax authority

Direct participant of ICSD (WHT agent?)

Indirect participant of ICSD

Resident investor

Resident investor

ICSD

Direct participant of ICSD

Paying agent

Non-resident investor

Indirect participant of ICSD

Non-resident investor

Non-resident investor
Case F: the issuer is a non-resident of your country and issuing in country B, i.e., your resident investor is investing in other country’s domestic bond

OECD Model Tax Convention ARTICLE 11 INTEREST

1. Interest arising in a Contracting State and paid to a resident of the other Contracting State may be taxed in that other State.

2. However, interest arising in a Contracting State may also be taxed in that State according to the laws of that State, but if the beneficial owner of the interest is a resident of the other Contracting State, the tax so charged shall not exceed 10 per cent of the gross amount of the interest. The competent authorities of the Contracting States shall by mutual agreement settle the mode of application of this limitation.

3. The term “interest” as used in this Article means income from debt-claims of every kind, whether or not secured by mortgage and whether or not carrying a right to participate in the debtor’s profits, and in particular, income from government securities and income from bonds or debentures, including premiums and prizes attaching to such securities, bonds or debentures. Penalty charges for late payment shall not be regarded as interest for the purpose of this Article.

4. The provisions of paragraphs 1 and 2 shall not apply if the beneficial owner of the interest, being a resident of a Contracting State, carries on business in the other Contracting State in which the interest arises through a permanent establishment situated therein and the debt-claim in respect of which the interest is paid is effectively connected with such permanent establishment. In such case the provisions of Article 7 shall apply.

5. Interest shall be deemed to arise in a Contracting State when the payer is a resident of that State. Where, however, the person paying the interest, whether he is a resident of a Contracting State or not, has in a Contracting State a permanent establishment in connection with which the indebtedness on which the interest is paid was incurred, and such interest is borne by such permanent establishment, then such interest shall be deemed to arise in the State in which the permanent establishment is situated.

6. Where, by reason of a special relationship between the payer and the beneficial owner or between both of them and some other person, the amount of the interest, having regard to the debt-claim for which it is paid, exceeds the amount which would have been agreed upon by the payer and the beneficial owner in the absence of such relationship, the provisions of this Article shall apply only to the last-mentioned amount. In such case, the excess part of the payments shall remain taxable according to the laws of each Contracting State, due regard being had to the other provisions of this Convention.
### Tax Implications – Hong Kong

<table>
<thead>
<tr>
<th>Resident Financial Institutions (FI) (including foreign FI with permanent establishment)</th>
<th>Non-Resident Investors (no permanent establishment)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interest</strong></td>
<td><strong>Capital Gain</strong></td>
</tr>
<tr>
<td><strong>Resident Issuers</strong></td>
<td>No WHT but include as revenue for corporate income tax**/**</td>
</tr>
<tr>
<td><strong>Non-resident Issuers</strong></td>
<td></td>
</tr>
</tbody>
</table>

* Full exemption from profits tax for interest income and trading profits in respect of Qualifying Debt Instruments (QDI) e.g. long-term debt instruments (original maturity not less than 7 years) granted under section 26A of the Inland Revenue Ordinance. However, interest on corporate bond listed on Hong Kong Stock Exchange is taxable.

** Concessionary tax rate of 50% of profit tax rate applies for QDI with less than 7 years but not less than 3 years to maturity.

### Tax Implications - Japan

<table>
<thead>
<tr>
<th>Resident Financial Institutions (FI)</th>
<th>Non-Resident Investors (no permanent establishment and not related to the issuer)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interest</strong></td>
<td><strong>Capital Gain</strong></td>
</tr>
<tr>
<td><strong>Interest</strong></td>
<td><strong>Capital Gain</strong></td>
</tr>
<tr>
<td><strong>Resident Issuers</strong></td>
<td>No tax for financial institution or else 15.315%</td>
</tr>
<tr>
<td><strong>Non-resident Issuers</strong></td>
<td></td>
</tr>
</tbody>
</table>

Attributable to business: No WHT, but include in revenue for corporate income tax purpose.
### Tax Implications - Malaysia

<table>
<thead>
<tr>
<th>Resident Financial Institutions (FI) (including foreign FI with permanent establishment)</th>
<th>Non-Resident Investors (no permanent establishment)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interest</strong></td>
<td><strong>Capital Gain</strong></td>
</tr>
<tr>
<td>Resident Issuers</td>
<td>No WHT but include as revenue for corporate income tax*</td>
</tr>
<tr>
<td>Non-resident Issuers</td>
<td></td>
</tr>
</tbody>
</table>

*Profit paid from Sukuk may be tax exempted.

### Tax Implications - Philippines

<table>
<thead>
<tr>
<th>Resident Financial Institutions (FI) (including foreign FI with permanent establishment)</th>
<th>Non-Resident Investors (no permanent establishment)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interest</strong></td>
<td><strong>Capital Gain</strong></td>
</tr>
<tr>
<td>Resident Issuers</td>
<td>20% WHT</td>
</tr>
<tr>
<td>Non-resident Issuers</td>
<td>Any amount in excess of P100,000 - 10%</td>
</tr>
</tbody>
</table>

* Certain types of bond can be classified as loan, thus subject to 20% WHT
### Tax Implications - Singapore

<table>
<thead>
<tr>
<th>Resident Financial Institutions (FI) (including foreign FI with permanent establishment)</th>
<th>Non-Resident Investors (no permanent establishment)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interest</strong></td>
<td><strong>Capital Gain</strong></td>
</tr>
<tr>
<td><strong>Resident Issuers</strong></td>
<td>No WHT for non-resident if funds used to acquire securities are not obtained from Singapore operations, or else 10% concessionary rate</td>
</tr>
<tr>
<td><strong>Non-resident Issuers</strong></td>
<td></td>
</tr>
</tbody>
</table>

* Corporate income tax rate varies depending on types of investors and whether they are FCI award holders

### Tax Implications - Thailand

<table>
<thead>
<tr>
<th>Resident Financial Institutions (FI) (including foreign FI with permanent establishment)</th>
<th>Non-Resident Investors (no permanent establishment)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interest</strong></td>
<td><strong>Capital Gain</strong></td>
</tr>
<tr>
<td><strong>Resident Issuers</strong></td>
<td>No WHT in case issuer and investor are Thai commercial banks or else 1% WHT + include as revenue for corporate income tax purpose</td>
</tr>
<tr>
<td><strong>Non-resident Issuers</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Tax Treaties

<table>
<thead>
<tr>
<th></th>
<th>HK</th>
<th>JP</th>
<th>MY</th>
<th>PH</th>
<th>SG</th>
<th>TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>HK</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>JP</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>MY</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>PH</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>SG</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>TH</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>
SESSION 9

ISO 200222 AND XBRL
ISO20022 and XBRL
--- Best Mix of XML based Formats and some Technical Challenges for Data Aggregation

May, 2016
Former BOJ Director & XBRL Project Leader
XBRL Asia Round Table Chair
Senior Manager of NTT Data System Technologies Inc.
Yoshiaki Wada

About Myself

- 1982: Joined the Bank of Japan
- 1982-1995: Economic Research Department, Bank Supervision Department
- 1995: IT department
- 2000: Director, Bank Examination and Financial Systems Department
- 2003-2010: Lead the XBRL Project Team
- 2009-2014: Member of the Board of Directors of XBRL International
- 2010: Resigned the BOJ and Joined NTT DATA CORPORATION
ISO20022 and XBRL Basic

Background of ISO20002 and XBRL (1)

- ISO20022 and XBRL is belonging to XML family.

- XML was released in 1998, as a new data format to allow users to design data element structure flexibly.

- XML has high system compatibility, data reusability, and disseminated in the world.
Back Ground of ISO20020 and XBRL (2)

- ISO20022 was developed as an universal financial industry **messaging scheme**.
- XBRL was developed as an universal business/financial **reporting scheme**.

Both are based upon XML

More Schema oriented

More Taxonomy oriented

Both Needs to share common schema/taxonomy

Structure of XML

**Basic Structure of XML Document**

```
Current Assets
    Cash 2500
    Deposit 1000
    Goodwill and other receivables 500
    Inventory 750

<Current Assets>
    <Cash>2500</Cash>
    <Deposit>1000</Deposit>
    <Goodwill and other receivables>500</Goodwill and other receivables>
    <Inventory>750</Inventory>
</Current Assets>
```

Structural description of this document is described as "Schema"
**Structure of XBRL**

**XBRL 2.1 Spec.**
(XML Schema + Link Base)

- **Instance Document**
- **XML Schema**
  - **Link-base Label**
  - **Link-base Presentation**
  - **Link-base Calculation**
  - **Link-base Definition**
  - **Link-base Rendering**
  - **Link-base Dimension**
  - **Link-base Formula**
  - **Link-base Table**

**Data Value Definition**

**Data Structure Definition**

Source: XBRL International, XBRL Japan

---

**Meta data management/sharing scheme**

**ISO20022**

- **Repository**
  - Message Model
  - XML Schema, etc.

- **Management Organizations**
  - SEGs
  - RMG
  - RA

- **Market Participants**
  - D/L & Implement

**XBRL**

- **XBRL International**
  - (Spec development)
  - Monitoring Organizations
  - Disclosure Organizations

- **Fixed-Taxonomy**
  - (not-extendable)

- **Base-Taxonomy**
  - (extendable)

- **Instance File**
  - (rigid-format)
  - Instance File (extended-format) & Extended-taxonomy

**Market Participants**

Source: XBRL International, XBRL Japan
XML (Extensible Markup Language) describes the relation between each data, using tag and layered structure.

```
<Current Assets>
  <Cash>2500</Cash>
  <Deposit>1000</Deposit>
  <Goodwill and other receivables>500</Goodwill and other receivables>
  <Inventory>750</Inventory>
</Current Assets>
```

On the other hand, XML is very flexible and this flexibility sometimes causes confusion in the way of information description.
Practical Difference between ISO20022(Native XML) and XBRL

For example, assuming the case of adding total value of Current Asset, there are different way of description such as,

<table>
<thead>
<tr>
<th>Current Asset</th>
<th>4750</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>2500</td>
</tr>
<tr>
<td>Deposit</td>
<td>1000</td>
</tr>
<tr>
<td>Goodwill and other receivables</td>
<td>500</td>
</tr>
<tr>
<td>Inventory</td>
<td>750</td>
</tr>
</tbody>
</table>

```xml
<Current Asset>
  <Cash value="2500"/>
  <Deposit value="1000"/>
  <Goodwill and other receivables value="500"/>
  <Inventory value="750"/>
</Current Asset>
```

Both are correct as XML documents. However, data structure is different and data compatibility is not assured.

Practical Difference between ISO20022(Native XML) and XBRL

When using Excel, B/S can be displayed as follows;

<table>
<thead>
<tr>
<th>Period</th>
<th>ABC Trust</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Name</td>
<td>ABC Trust</td>
</tr>
<tr>
<td>Period Start Date</td>
<td>1-Apr-04</td>
</tr>
<tr>
<td>Period End Date</td>
<td>31-Mar-05</td>
</tr>
</tbody>
</table>

Consolidated Balance Sheet

<table>
<thead>
<tr>
<th>Current Assets</th>
<th>723891</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and Deposit</td>
<td>307254</td>
</tr>
<tr>
<td>Notes Receivable and Accounts Receivable Trade</td>
<td>72422</td>
</tr>
<tr>
<td>Marketable Securities</td>
<td>97558</td>
</tr>
<tr>
<td>Inventories</td>
<td>36639</td>
</tr>
<tr>
<td>Prepaid Expenses</td>
<td>71881</td>
</tr>
</tbody>
</table>

Difference between header and data is visible for human but not for computer

If any change of the format is done, re-mapping must be done.
If XBRL is applied:

<table>
<thead>
<tr>
<th>Period</th>
<th>Company Name</th>
<th>XBRL Trust</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1-Apr-04</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31-Mar-05</td>
</tr>
</tbody>
</table>

Consolidated Balance Sheet

<table>
<thead>
<tr>
<th>Current Assets</th>
<th>Cash and Deposit</th>
<th>Notes Receivable and Accounts Receivable Trade</th>
<th>Marketable Securities</th>
<th>Inventories</th>
<th>Prepaied Expenses</th>
<th>Total Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,466,500,000</td>
</tr>
</tbody>
</table>
Practical Difference between ISO20022(Native XML) and XBRL

- XBRL is controlling too much flexibility of XML, by using Taxonomy
- This means, both formats are basically built on the same data structure, i.e., XML schema.
- And, Interoperability between them is easily realized.

Therefor, optimally mixed use of ISO20022 and XBRL maximizes the overall messaging/reporting efficiency.

Harmonization of ISO20022 and XBRL

Financial Institutions

- Financial Reporting Line
- Taxonomy Repository

Monitoring Organizations

- XBRL

Settlement Network

ERPs, etc.

- XML, etc.
- Transaction/Settlement System
- Data Logging System
- Reporting System
- XBRL Converter
- Repository
- Monitoring Organizations
Changes in Data Demand and Challenges for ISO20022/XBRL

Recent Challenges

Changes in data demand

Increasing variety of Schema/Taxonomy
### Changes in Data Demand (1)

**Stage of XBRL**
- **Early Implementation Stage** (Early ~ Middle 2000)
- **Full Implementation Stage I** (Late 2000~Early 2010)
- **Full Implementation Stage II** (Middle of 2010~)

**Image of Data Volume**
- **Accounting Scandals**
- **Financial Crisis**

**Underlying Technology in Demand**
- XBRL Convertor
- RDB+OLAP Tool

**Diversification and Volume Increase of Data**
- BCBC239, Solvency II, CDP, GRI, Environment Report, etc.,
- DWH for Large/Non-financial Data

**Needs for breakthrough to tackle with this leap!**

### Changes in Data Demand (2)

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Data Character</th>
<th>Easiness of Handling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reporting Frequency</td>
<td>Data Granularity</td>
</tr>
<tr>
<td><strong>Financial Data</strong></td>
<td>Low</td>
<td>Middle</td>
</tr>
<tr>
<td><strong>Risk Monitoring and Financial Transaction Data</strong></td>
<td>High</td>
<td>Fine</td>
</tr>
<tr>
<td><strong>ESG・CSR Data</strong></td>
<td>Low</td>
<td>Rough</td>
</tr>
</tbody>
</table>
Light and Shadow of XML based Format

The use of ISO 20022/XBRL is expected to make the followings possible.

- To easily process / analyze data
- To easily compare data
- To acquire the data transparency

However, these merits are assured if the Schema/taxonomy is common and stable across all filers and users along the timeline.

Difficulty in the Comparison between different regulatory reports

Current Situation

Regulator A  | Regulator B  | Regulator C

Company D

Company E
### Difficulty in the Comparison of Transaction Data

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>MT103</th>
<th>pacs.008 FitToFiCustomerCreditTransfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Receiver</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The country part of BIC Code (5-6 digits)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Account with Institution</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The country part of BIC Code (5-6 digits)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option D</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Last part of Name &amp; Address, Notation of the country</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Beneficiary customer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tag58</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Last part of Name &amp; Address, Notation of the country</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Sender</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The country part of BIC Code (5-6 digits)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Ordering institution</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The country part of BIC Code (5-6 digits)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Option D</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Last part of Name &amp; Address, Notation of the country</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Ordering customer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The country part of BIC Code (5-6 digits)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There are also various kinds of version with minor difference, as registered in ISO Repository and make data comparison difficult.

### New Approach
Traditional XML/XBRL processing architecture

RDB + OLAP

- Need to define schemas beforehand, and cannot store specific extended items for each company.
- Restrictions on changing axis and number of axes. In traditional RDB, thousands axis was maximum, but ten thousands axes were required for filing.

Document DB

- XML files are stored in document DBs as they are, but they are not suitable for read/analyze purposes.
- Need to parse each XBRL data for picking up for processing/plotting, but the performance will be low.

Our Target

- Transaction Data Consolidation/Aggregation
- Analysis by historical/geographical
- Combine XBRL/XML data to other information in different format
One Breakthrough (1)

- XBRL Data
  - XBRL Parser
  - API

- Non-XBRL Data
  - JSON
  - XML
  - CSV

- No-SQL DB
- Query Engine
- API
- BI, OUTPUT

Data Lake

One Breakthrough (2)

- Regulator A
- Regulator B
- Regulator C

- Company D
- Company E

Report

Information Type: Confidential
Company Name: NTT DATA Corporation
Information Owner: Financial Segment
**Benefit**

**Consolidation**

Each transaction

-> Every transaction

**Transaction Format**

Absorb the changing format

**Historical Cut**

Daily, Weekly, Monthly, Quarterly

As you needed

【Past Pain】Unutilized Transaction Data

【Achieved】Take advantage of transaction data for advanced Analytics

**Demo**
SESSION 10

ISO 20022

IMPLEMENTATION
Session 10: ISO 20022 Implementation

Prepared for the discussions at ABMF SF2 on 8 June 2016

Taiji Inui, ADB Consultant for ABMF SF2 and NTT DATA Group

1. Implementation of International Standard for Market Infrastructures
2. How to adopt and migrate for participants of Market Infrastructures.
This diagram shows entities involved in major types of transactions. Retail bond markets are not included in this diagram.

NOTE: Direct inter-system connection
Indirect connection: trade data (bond settlement instructions) are entered into CSD by agent custodians

To be developed

Source: ABMF SF2
### International Standard for Message Items of CSD Systems

<table>
<thead>
<tr>
<th>CSD</th>
<th>Name of Bond Settlement System</th>
<th>Inst</th>
<th>ISO</th>
<th>ISIN</th>
<th>BIC</th>
<th>Charac. Code set</th>
<th>Comm protocol</th>
<th>Overall Inauguration</th>
<th>Current System</th>
</tr>
</thead>
<tbody>
<tr>
<td>HK</td>
<td>HKMA CMU</td>
<td>G/C</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Mar 1990</td>
</tr>
<tr>
<td>ID</td>
<td>BI BIS SSSS</td>
<td>G</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Mar 2002</td>
</tr>
<tr>
<td>ID</td>
<td>KSEI C-BEST</td>
<td>C</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>JP</td>
<td>BOJ BOI</td>
<td>G</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Oct 2015</td>
</tr>
<tr>
<td>JP</td>
<td>JASDEC BETS</td>
<td>G</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Jan 2014</td>
</tr>
<tr>
<td>KH</td>
<td>NIBC</td>
<td>G</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Jan 2014</td>
</tr>
<tr>
<td>KR</td>
<td>KSJ SSS SAFE+</td>
<td>G/C</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Nov 2011</td>
</tr>
<tr>
<td>LA</td>
<td>BOL</td>
<td>G</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>LA</td>
<td>LSS</td>
<td>C</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>MM</td>
<td>CMB CBM-NET</td>
<td>G</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y (2015)</td>
</tr>
<tr>
<td>MM</td>
<td>CBM/YSS</td>
<td>C</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y (2015)</td>
</tr>
<tr>
<td>MY</td>
<td>BNM RENTAS SSTS</td>
<td>G/C</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y (2016)</td>
</tr>
<tr>
<td>PH</td>
<td>BTr BI-RTGS</td>
<td>G</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Nov 2014</td>
</tr>
<tr>
<td>PH</td>
<td>PDBC PDBC Depository</td>
<td>G/C</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Nov 1996</td>
</tr>
<tr>
<td>SG</td>
<td>MAS MEPS+ SGS</td>
<td>G</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Nov 2000</td>
</tr>
<tr>
<td>TH</td>
<td>TSD BAHTNET</td>
<td>G/C</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Dec 2002</td>
</tr>
<tr>
<td>VN</td>
<td>SBV VSD-BS</td>
<td>G/C</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Dec 2006</td>
</tr>
</tbody>
</table>

Notes: the above information is based on the understanding and prognosis of the ADB consultant. Source: ABMF SF2.

### International Standard for Message Items of RTGS Systems

<table>
<thead>
<tr>
<th>Operator</th>
<th>Name of the System</th>
<th>ISO messages</th>
<th>BIC</th>
<th>Charac. Code set</th>
<th>Comm protocol</th>
<th>Overall Inauguration</th>
<th>Current System</th>
</tr>
</thead>
</table>

Notes: the above information is based on the understanding and prognosis of the ADB consultant. Therefore, confirmation by market infrastructure operators is essential. Source: ABMF SF2.
Roadmap Overview (ABMF SF2)

<table>
<thead>
<tr>
<th>Standardization phase 2015-2016</th>
<th>Implementation phase 2017-2018</th>
<th>Fully Operational phase 2019-</th>
</tr>
</thead>
</table>

**CSIF Roadmap**

- **Implementation phase 1 2015-2016**
  - Develop standard message flows and items
  - Specifying essential user requirements

- **Implementation phase 2 2017-2018**
  - Develop CSD-RTGS Linkage
  - Defining detailed user requirements, design, coding, and testing

- **Implementation phase 3 2019-2020**
  - Implement CSD-RTGS Linkages
  - Starting production operation of CSD-RTGS Linkages

- **Integration phase 2020-**
  - Implement integrated solution
  - Developing a central hub and connecting each CSD and RTGS system with the hub

CSD = central securities depository, RTGS = Real-Time Gross Settlement.

Source: ABMF SF2.

---

ISO 20022 Adoption – Payments initiatives – Global view
From discussion to implementation

- Live CPAs, CA
- Live IPFA
- Live US
- Live UK
- Live T2, EU
- Live CH
- Live IT
- Live IN
- Live CMPG, RU
- Live SEPA, EU
- Live AU
- Live CO
- Live ZA
- Live SADC
- Live BN
- Live BOJNet, JP
- Live CMPG, RU
- Live SCORE

Slide 8
To implement ISO 20022
Message transactions from the viewpoints of conformity with ISO 20022

1. Business processes such as message transactions themselves and message flows need to be surveyed.
2. MT (ISO 15022) to MX (ISO 20022) reverse engineering will be required. But, before that fit and gap analysis between local standard and international standard (MT) needs to be carried out.
3. Conversion or full implementation need to be discussed.

FIT&GAP analyses between ISO20022 and a local standard

FIT&GAP of messages themselves
- ISO20022 versus local standard
  - 1-to-1
  - 1-to-N, N-to-1
- CSD messages mandate items
  - ISO20022 messages mandate items

FIT&GAP of formats
- ISO20022 versus local standard
  - 1-to-1
  - 1-to-N, N-to-1
  - items need to be converted
- CSD messages mandate items
  - ISO20022 messages mandate items

Message flow needs to be harmonized.

partly quoted from Federal Reserve Bank Services
Standards (numbering and coding)

5. Languages

2. Party Identification and Account
   - BIC
   - Proprietary identification
   - Name and address

3. Safekeeping (Securities) account identification
   - There is no account structure (simple text).

4. Cash account
   - ISIN
   - Other (Proprietary) Identification
   - IBAN
   - Proprietary

1. Financial Instrument (Securities) identification

Local Language and Character Set

UTF-8 contains Japanese settlement system’s character set.

ASEAN+3 language characters are accepted. But, it may be difficult to be understood by the people who don’t speak the language.

Cost implication
Various kinds of International languages

- British English
- American English
- Chinese English
- Japanese English
- Thai English
- Singlish

English with their original accent

Each has its own accent

Source: NTT DATA Corporation

Without having standard (ISO 20022 or English), it is almost impossible to communicate each other.

Also, there are significant benefits to adopt ISO 20022 including global interoperability and flexibility as well as structured field capable of carrying rich data.
Implementation of ISO® 20022 Payment Messages for U.S. Wire Transfer Systems

<table>
<thead>
<tr>
<th>Strategic Reason to Adopt ISO 20022 in U.S.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Momentum</td>
<td>Large U.S. corporates and banks are actively adopting ISO 20022 and that is expected to continue.</td>
</tr>
<tr>
<td>Global Competition</td>
<td>Compatibility with the ISO 20022 format enables the U.S. to maintain parity with other global markets and U.S. dollar clearing systems in other jurisdictions that are adopting ISO 20022 messaging, which may help preserve the attractiveness of the U.S. dollar as a global currency.</td>
</tr>
<tr>
<td>Cost Savings &amp; Processing Efficiency</td>
<td>Standardizing message formats allows for consolidation of payments platforms at banks and corporations, which could promote straight-through processing and drive down costs.</td>
</tr>
<tr>
<td>Consistent &amp; Rich Data</td>
<td>While domestic formats support robust data content, ISO 20022 enables all parties to leverage a common set of data dictionary elements to build transactions and messages under an internationally agreed approach.</td>
</tr>
<tr>
<td>Interoperability</td>
<td>A common format promotes ease of transacting domestically and globally by using a single, open standard rather than multiple proprietary standards.</td>
</tr>
<tr>
<td>Agility to Meet Evolving Regulatory Needs</td>
<td>The ISO 20022 format provides for full originator and receiver information, allowing for improved regulatory/reporting and monitoring.</td>
</tr>
<tr>
<td>New, Innovative Products</td>
<td>A common format across systems reduces the amount of change required to bring innovative new products and services to market.</td>
</tr>
</tbody>
</table>

Source: Federal Reserve Financial Services modified by ADB consultant

XML is used

- Unique to each economy - do not have to standardize
- The ratio of ISO messages differs economy by economy

Have to adopt ISO20022 standards, but minimize the impact of the rest of the operation

Source: NTT DATA Corporation
Every economy has its own ISO20022 format

Various adoptions of ISO20022

Source: NTT DATA Corporation

Every economy has its own market practice

ABMF sf2 is discussing common business flows and practices

Various market practices

Source: NTT DATA Corporation
Require more maintainable and flexible systems

Even using standard (ISO 20022 or English), there are some differences. Also, not all messages need to follow international standard.

1. Gateways (GWs) to absorb the differences need to be implemented.
2. Also, some measures such as “closed user group” protecting the market infrastructure and its participants from the changes may be necessary.
In order to adopt ISO 20022, it may be necessary to reconstruct the core banking system as well as market infrastructures (MI)s. Reconstructing the MI needs huge investment cost. Also, not only MI but also core banking systems of the participants (banks) which have already invested huge money can’t be reconstructed within a short period of time.
1. It is important for the market infrastructure to show roadmap (timeline) of adopting ISO 20022 clearly.
2. Then, participants of the MI can make their own roadmap to adopt ISO 20022.

ISO20022 implementation

- Infrastructure operators (CSD, RTGS…)
  - Under Consideration
  - Preparing
  - Completed

- Local Banks
  - Under Consideration
  - In a few years
  - Immediately

<table>
<thead>
<tr>
<th>Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Have to adopt ISO</td>
</tr>
<tr>
<td>(2) Have to keep up with the ISO updates</td>
</tr>
<tr>
<td>(3) Have to interconnect bilaterally</td>
</tr>
</tbody>
</table>

In the coming years:
increase of cross-border transactions

Source: NTT DATA Corporation
ISO 20022 Adoption in Japan

1. 2011 November: Zengin System (dual track without decommission period: no sunset of legacy format)
2. 2014 January: JASDEC system (dual track for 5 years and decommission ISO 150022 at the end of 2018)
3. 2015 October: BOJ-NET (no dual track, only new ISO 20022 can be used)

Migration from ISO 15022 to ISO 20022 in JASDEC

New System from 2014!
Able to choose network among “SWIFTNet”, “Arrownet” and “JASDEC Network”

Coexisting period of ISO 15022 and ISO 20022 until end of 2018.

Source: JASDEC modified by ADB consultant
1. The Eurosystem is exploring synergies between TARGET2 and T2S, with the ultimate goal of achieving a consolidated Eurosystem market infrastructure.

2. We are assessing new service opportunities arising from bringing the two infrastructures closer together. In particular, we are considering enhancements to the TARGET2 services in the field of instant payments.

3. The Eurosystem will increase harmonisation of its own collateralisation techniques and procedures. We will also consider the business case for a common Eurosystem collateral management system.
The Federal Reserve is making strides to adopt ISO® 20022 in the U.S.

“I think a key element of the narrative here is that the adoption of ISO globally is no longer a matter of ‘if’ but a matter of ‘when.’ As a consequence, we in the United States have to contemplate whether we are going to ultimately conform with that global standard or risk our payment systems becoming idiosyncratic in a global world.” (March 2016)

By Mr. Richard Dzina, Executive Vice President and Wholesale Product Director, Wholesale Product Office — Federal Reserve Bank of New York

ADB (Mr. Satoru Yamadera mentioned that the adoption of ISO globally is no longer a matter of ‘if’ but a matter of ‘when’ for many years. Is ASEAN+3 ahead of U.S. ?

Source: Federal Reserve Financial Services modified by ADB consultant
ISO 20022 Stakeholder Engagement
U.S. Wire Transfer Systems

### Completed
- Held joint Fed & TCH meeting with advisory group banks (Sept 2014)
- Finalized use cases to articulate the key benefits of ISO 20022 for wire transfer systems in May
- Held two ISO 20022 education webinars on May 19 and June 3
- Held vendor meeting on May 27 to discuss implementation approaches
- Held AFP webinar on July 1
- Held two webinars (July 15 & July 23) to explain survey being conducted to gather input on ISO 20022 implementation scope, approach, & timing for U.S. wire transfer systems – Survey closed September 4
- Call with Fed & TCH advisory group banks on August 25

### Upcoming
- SWIFT executive roundtable meeting on Sept 16
- Announce high-level plan and timeline to implement ISO 20022 for U.S. wire transfer systems at Sibos® 2015 in October

Note: The ISO 20022 business case assessment summary, webinar recordings & online survey have been posted to a dedicated page on the [FedPaymentsImprovement.org](http://FedPaymentsImprovement.org) website.

---

ISO 20022 Survey Distribution

### Federal Reserve Marketing Distribution
- Approximately 2,350 institutions:
  - All Fedwire Funds customers using the FedLine Direct® access solution
  - All Fedwire Funds customers using the import/export feature of the FedPayments® Manager Funds application via the FedLine Advantage® access solution

### Other Distributions
- Wholesale Payments Advisory Group
- CHIPS Business Committee
- FedLine Direct Service Providers/Software Vendors
- Industry groups
  - ABA
  - ICBA
  - BAFT
  - AFP
  - SWIFT Cash & Trade
Survey Results

- Survey invitations sent to 2,350 Fedwire Funds Service customers that would be most impacted by a format change to ISO 20022.

- Survey also sent to Fedwire & CHIPS advisory group banks; vendors; industry groups in the U.S.; and, individuals who signed up to be part of the FedPayments® Improvement Community.

- 85 responses received from a range of responders
  - Global banks, regional banks, bankers banks, community banks, credit unions, foreign banks, vendors, end-user payment providers, card network providers, corporates, consultants, university, individual person

- The responses received were generally consistent.

Source: Federal Reserve Financial Services modified by ADB consultant
Involvement of participants is essential

1. “Forum towards making effective use of the New BOJ-NET” was held 12 times from 2013 to October 2015 when the New BOJ-NET went live. The BOJ discussed a variety of issues including business cases adopting ISO 20022.

2. Three New Working Groups under the Forum Towards Making Effective Use of the BOJ-NET were established.

1. Involvement of and corporation with the market infrastructure participants are essential to implement ISO 20022.

2. Also, considering the benefit and business cases from the participants perspective is also very important.

### ISO 20022 Institutional Framework

<table>
<thead>
<tr>
<th>Country</th>
<th>ISO member</th>
<th>TC68 member</th>
<th>RMG</th>
<th>PSEG</th>
<th>SSEG</th>
</tr>
</thead>
<tbody>
<tr>
<td>BN</td>
<td>Correspondent member (ABCI)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>Full member (SAC)</td>
<td>Participant member</td>
<td>Member (PBOC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HK</td>
<td>Correspondent member (ITCHKSAR)</td>
<td>Observing member</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID</td>
<td>Full member (BSN)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JP</td>
<td>Full member (JISC)</td>
<td>Participant member</td>
<td>Member (BOJ)</td>
<td>Member (BOJ, Zenginkyo, NTT Data, JPMC, BTMUFJ)</td>
<td>Member (BOJ, JASDEC, Mizuho CB, BTMUFJ, NTT Data)</td>
</tr>
<tr>
<td>KH</td>
<td>Correspondent member (ISC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KR</td>
<td>Full member (KATS)</td>
<td>Participant member</td>
<td>Member (KFTC and KATS)</td>
<td>Member (KFTC)</td>
<td></td>
</tr>
<tr>
<td>LA</td>
<td>Subscriber member (DISM)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM</td>
<td>Correspondent member (MSTRD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MY</td>
<td>Full member (DSM)</td>
<td>Observing member</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PH</td>
<td>Full member (BSP)</td>
<td>Observing member</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SG</td>
<td>Full member (SPRING SG)</td>
<td>Observing member</td>
<td>Member (Standard Chartered Bank, Deutsch Bank)</td>
<td></td>
<td>Member (Standard Chartered Bank)</td>
</tr>
<tr>
<td>TH</td>
<td>Full member (TISI)</td>
<td>Participant member</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VN</td>
<td>Full member (STAMEQ)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chairs and conveners of related groups of ISO 20022

<table>
<thead>
<tr>
<th>Group</th>
<th>Chair/Convener</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Committee (TC) 68</td>
<td>Ms. McKenna (USA)</td>
</tr>
<tr>
<td>ISO 20022 Registration Management Group (RMG)</td>
<td>Mr. Whittle (GBR)</td>
</tr>
<tr>
<td>Payments Standard Evaluation Group (SEG)</td>
<td>Mr. Rantanen (FIN)</td>
</tr>
<tr>
<td>Securities SEG</td>
<td>Ms. Wurmsier (FRA)</td>
</tr>
<tr>
<td>Derivatives SEG</td>
<td>Mr. Engelen (ISDA)</td>
</tr>
<tr>
<td>Trade SEG</td>
<td>Mr. Turunen (FIN)</td>
</tr>
<tr>
<td>Foreign Exchange SEG</td>
<td>Mr. Komarraju (GBR)</td>
</tr>
<tr>
<td>Cards &amp; Related Retail Financial Services SEG</td>
<td>Mr. Vanobberghen (FRA)</td>
</tr>
<tr>
<td>Adoption Reporting Subgroup</td>
<td>Mr. Blair (USA)</td>
</tr>
<tr>
<td>Cross SEG Business Harmonization</td>
<td>Mr. Krsgaard (DNK)</td>
</tr>
<tr>
<td>Technical Services Group for ISO 20022</td>
<td>Mr. Dreisch (DEU)</td>
</tr>
<tr>
<td>Rule Subgroup</td>
<td>Ms. Wurmsier (FRA)</td>
</tr>
<tr>
<td>Subgroup for Strategic Review</td>
<td>Mr. Whittle (GBR)</td>
</tr>
<tr>
<td>Ad-hoc Real-Time Payments Working Group</td>
<td>Mr. Decicco (USA)</td>
</tr>
</tbody>
</table>

Vision of ABMF SF2

Asia should engage standard setting more closely and should lead discussions in the international forum

International standards (such as ISO20022) will be the focal point and hub of local standards

Source: ABMF SF2
Institutional framework

1. Establish TC68 mirror committee in each country, if not (and become ready)
2. Join Payment Standard Evaluation Group (PSEG) and Securities Standard Evaluation Group (SSEG), if not (and become ready)
3. Discuss regional framework to maintain ISO 20022 messages in the region
4. Establish National Numbering Agency (NNA) for ISIN allocation in each country

Regional institutional framework in ASEAN+3

1. Institutional framework to discuss international standards in particular ISO20022 from regional perspective may be necessary.
2. Support from Registration Authority is also important.
Outcome of ABMF, remaining challenges, and next steps

1. Most of the CSD and RTGS operators in ASEAN+3 generally agreed to adopt ISO 20022 by around 2020 for the CSD and RTGS systems, respectively.

2. The reference DVP model is to be adopted as much as possible when the CSD and RTGS system operators in ASEAN+3 reconstruct the CSD and RTGS systems, respectively.

3. International standards including ISO 9362 (BICFI), ISO 6166 (ISIN), ISO 3166-1 (country code), and ISO 4217 (currency code) are to be adopted whenever the CSD and RTGS operators become ready to adopt the international standards (please refer to the slide shown later).

4. Remaining challenges including harmonizing settlement cycle, tax processes (not taxation itself) for interest payment and redemption, access to the MI by non-residents, opening omnibus accounts outside the economy are identified.
ABMF SF2 Policy Recommendations

1. Harmonization of message flows
   a. DVP model 1 of BIS definition
   b. For cross-border DVP (repo), securities shall be blocked first, then cash settlement be effected. After that, securities shall be released to buy side.

2. Adoption of international standards
   a. ISO 20022 for message standard
   b. ISO 9362 (BICFI) for financial institution identification
   c. ISO 6166 (ISIN) for securities numbering (KSD)
   d. ISO 3166-1 for country code, and
   e. ISO 4217 for currency code

ABMF's Focus on Settlement Barriers

Number of markets involved

More Fewer

Private sector Public sector

Area of influence

Pre-matching Settlemnet cycle Physical certificates

Messaging format Securities numbering

Cash controls, credit balances, overdrafts FX controls, conversion, repatriation

Timely information, uniform disclosure, price transparency, market statistics, information on corporate actions and legal information such as bankruptcy and insolvency laws.

ABMF = ASEAN+3 Bond Market Forum, FX = foreign exchange, SF1 = Sub-Forum 1, SF2 = Sub-Forum 2.
Source: Group of Experts Report modified by ADB consultant for ABMF SF2.
Next steps forward

1. Complete remaining challenges of ABMF SF2
   - Making a survey on the necessity to harmonize settlement cycle and (if yes) identify the purpose and way to harmonize it.

2. Support SF1
   - Support AMBIF taxation issues
   - Identify the barriers related to SF1 in particular withholding tax processes, access by non-residents, opening omnibus account outside the economy, and others from payment and settlement process including interest payment flow perspective.

3. Support CSIF
   - Harmonization and standardization of message items related to CSD–RTGS linkages.
   - Develop generic user requirements for CSD and RTGS systems

Long term goal

1. Deeper and more liquid bond markets in ASEAN+3 economies;

2. Government debt in each economy to be people’s asset in ASEAN+3 economies; and

3. Interoperability of CSD–RTGS linkages not only within ASEAN+3 but also with other regions.
   - Measures to protect each market including FX and cash controls need to remain under the discretion of authorities in each market.
Thank you for your attention!

On Withholding Tax and its Collecting Procedures for Interest Payment and Redemption of Coupon-bearing Bonds
Main purpose of this discussions
To share understanding on withholding tax and its collection procedure related to cross-border interest payment and redemption in ASEAN+3.

- Clarification of the process of taxation is essential to complete bond trade and settlement for cross-border transaction.
- Differences of taxation processes are being barriers for cross-border STP in the region.

<table>
<thead>
<tr>
<th>Categorization of coupon bearing bond</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Issuer’s country</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Domestic</td>
</tr>
<tr>
<td>Foreign currency denominated bond</td>
</tr>
<tr>
<td>Foreign</td>
</tr>
<tr>
<td>Foreign currency denominated bond</td>
</tr>
</tbody>
</table>


1. “Issuer’s country” is the country/economy where issuer is located. If the issuer is located in a same country/economy with the said tax authority, it means domestic.

2. “Issuing country” is the country/economy in which the CSD is located.

- CSD records ownership of the bond and allocate appropriate ISIN code for each bond. If the issuing country is the same country/economy with the said tax authority, it means domestic. As such, “Samurai bond” and “Shogun bond” are categorized as domestic bond from Japanese tax authority perspective although issuer (issuing entity) is located outside the issuing country (Japan).

Categorization of cases of issuer’s country and issuing country

<table>
<thead>
<tr>
<th>Issuer’s country</th>
<th>Issuing country</th>
<th>Tax payer (investor)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>Domestic</td>
<td>Resident</td>
<td>Domestic bond</td>
</tr>
<tr>
<td></td>
<td>Non-resident</td>
<td></td>
<td>Domestic bond</td>
</tr>
<tr>
<td>Foreign</td>
<td>Resident</td>
<td></td>
<td>Foreign issued bond (Euro bond)</td>
</tr>
<tr>
<td>Case B</td>
<td>Non-resident</td>
<td>Resident of issuing country</td>
<td>Foreign issued bond (Euro bond)</td>
</tr>
<tr>
<td></td>
<td>Non-resident</td>
<td>Non-resident of issuing country</td>
<td>Foreign issued bond (Euro bond)</td>
</tr>
<tr>
<td>Foreign</td>
<td>Domestic</td>
<td>Resident</td>
<td>Domestic bond (e.g. Samurai bond)</td>
</tr>
<tr>
<td>Case C</td>
<td>Non-resident</td>
<td>Resident in issuing country</td>
<td>Domestic bond (e.g. Samurai bond)</td>
</tr>
<tr>
<td></td>
<td>Non-resident</td>
<td>Non-resident in issuing country</td>
<td>Domestic bond (e.g. Samurai bond)</td>
</tr>
<tr>
<td>Foreign</td>
<td>Resident</td>
<td></td>
<td>Foreign issued bond</td>
</tr>
<tr>
<td>Case D</td>
<td>Non-resident</td>
<td></td>
<td>Foreign issued bond</td>
</tr>
</tbody>
</table>
1. "Resident" and "Non-resident" refer to the place in which the taxpayer locates. "Resident" represents a taxpayer of individual resident and domestic company here.

2. "Non-resident" represents a taxpayer of individual non-resident and foreign company here.
Case B (issuer is located domestically and issuing CSD is located in a foreign country from the tax authority of country X)

**Country X (domestic)**
- Issuer
- Domestic tax authority
- Indirect participant
  - Resident investor

**Country Y (foreign)**
- Paying agent (PA)
- CSD
- Direct participant
- Foreign tax authority
  - Non-resident investor
- Indirect participant
  - Non-resident investor

Interest payment flow
Tax information flow
Withholding tax flow

Case C (issuer is located in a foreign country and issuing CSD is located domestically from the tax authority of country X perspective)

**Country X (domestic)**
- Issuer
- Paying agent (PA)
- Domestic tax authority
  - Resident investor

**Country Y (foreign)**
- CSD
- Direct participant
  - Foreign tax authority
  - Foreign indirect participant (QFI)
- Nonresident investor

Interest payment flow
Tax information flow
Withholding tax flow
Possible discussion topics

1. Role of Paying Agent
2. Role of Tax Withholding Agent
3. Definition of Foreign Financial Institution
4. Exemption of Withholding Tax for Foreign Financial Institutions
5. Tax issues (exemption of capital gain tax) for repo
Paying agent (JP)

1. For government bond Bank of Japan is the payment agent.
2. For corporate bond, issuers need to file applications as a Paying Agent to JASDEC in advance. Please refer to the Article 14 (Paying Agents) of “Business Regulations Relating to Corporate Bonds, etc.” URL is shown as follows:

Withholding agent (JP)

• Withholding agent means a person and a corporation who has obligation to withhold and submit income tax to the government. In case of withholding agent for interest payment of bonds, the account management institution that is the nearest upper position of a bond holder should be the withholding agent for the bond holder.
Foreign Financial Institution (JP)

1. Foreign entities that engage in banking business, financial instrument business, or insurance business in a foreign country pursuant to the country’s act (excluding affiliated companies of domestic financial institutions)

2. Foreign central banks

3. International organization established in accordance with international agreement. (definition by Ministry of Finance Japan)
# Corporate Bond Interest Payment Related Entities in ASEAN+3

<table>
<thead>
<tr>
<th>CSD</th>
<th>Name of Bond Settlement System</th>
<th>PA</th>
<th>WHT for interest payment</th>
<th>TWA for resident</th>
<th>WHT for non-resident</th>
<th>TWA for non-resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>BN</td>
<td>(TBD)</td>
<td>(TBC)</td>
<td>(TBC)</td>
<td>(TBC)</td>
<td>(TBC)</td>
<td>(TBC)</td>
</tr>
<tr>
<td>CN</td>
<td>CCDC CBGS CCDC</td>
<td>Yes</td>
<td>Bond holder</td>
<td>Yes</td>
<td>Bond holder</td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>CSDC MNS CSDC</td>
<td>Yes</td>
<td>CSDC</td>
<td>Yes</td>
<td>CSDC</td>
<td></td>
</tr>
<tr>
<td>CN</td>
<td>SHCH SHCH-SSS SHCH</td>
<td>Yes</td>
<td>Bond holder</td>
<td>Yes</td>
<td>Bond holder</td>
<td></td>
</tr>
<tr>
<td>HK</td>
<td>HKMA CMU Commercial bank</td>
<td>No</td>
<td>None</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>ID</td>
<td>KSEI C-BEST KSEI</td>
<td>Yes</td>
<td>KSEI</td>
<td>Yes</td>
<td>KSEI</td>
<td></td>
</tr>
<tr>
<td>JP</td>
<td>JASDEC BETS Commercial bank</td>
<td>Yes</td>
<td>CSD participant</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>KH</td>
<td>CSX - (TBC) (TBC) (TBC) (TBC)</td>
<td>(TBC)</td>
<td>(TBC)</td>
<td>(TBC)</td>
<td>(TBC)</td>
<td></td>
</tr>
<tr>
<td>KR</td>
<td>KSD SSS/SAFE+ Commercial bank</td>
<td>Yes</td>
<td>KSD</td>
<td>Yes</td>
<td>CSD participant</td>
<td></td>
</tr>
<tr>
<td>LA</td>
<td>BOL - (TBC) (TBC) (TBC) (TBC)</td>
<td>(TBC)</td>
<td>(TBC)</td>
<td>(TBC)</td>
<td>(TBC)</td>
<td></td>
</tr>
<tr>
<td>MM</td>
<td>CBM CBM-NET Commercial bank</td>
<td>(TBC)</td>
<td>(TBC)</td>
<td>(TBC)</td>
<td>(TBC)</td>
<td></td>
</tr>
<tr>
<td>MY</td>
<td>BNM RENTAS SSTS Commercial bank</td>
<td>No</td>
<td>None</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>PH</td>
<td>PDTC PDTC Depository Commercial bank</td>
<td>Yes</td>
<td>Issuer</td>
<td>Yes</td>
<td>Issuer</td>
<td></td>
</tr>
<tr>
<td>SG</td>
<td>CDP DCSS Commercial bank</td>
<td>Yes</td>
<td>CSD participant</td>
<td>No</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>TH</td>
<td>TSD PTI Commercial bank</td>
<td>Yes</td>
<td>CSD participant</td>
<td>Yes</td>
<td>CSD participant</td>
<td></td>
</tr>
<tr>
<td>VN</td>
<td>VSD VSD-BES VSD</td>
<td>Yes</td>
<td>Issuer</td>
<td>Yes</td>
<td>Issuer</td>
<td></td>
</tr>
</tbody>
</table>

### Taxpayer
- **Individual**
- **Corporate**

### Resident
This shall mean an individual who has a domicile or has had a residence continuously for one year or more in Japan.

### Non-resident
This shall mean an individual who is not a resident.

### Domestic corporation
This shall mean a corporation that has its head office or principal office in Japan.

### Foreign corporation
This shall mean a corporation that is not a domestic corporation.
DVP Settlement (U.S.A.)

Two big clearing banks with DVP services linked by Fedwire Services

MT messages and/or proprietary messages
SESSION 11

NEXT STEP OF SF2
Session 11: Next step of SF2 by ADB Secretariat

22nd ABMF Meeting
Satoru Yamadera, Principal Financial Sector Specialist, SDCC, Asian Development Bank
Tokyo, 7 June 2016

Barriers identified by GoE and Progresses

Source: GOE Report modified by ADB consultant
Settlement cycle

• Should we discuss harmonization of settlement cycle as SF2?
  – The U.S. financial services industry is working to reduce operational and systemic risk by implementing the T+2 in Q3 2017.
  – EU moved to a T+2 in Q4 2015.
  – We can study current market practices in the region.

Other topics?

• Tax procedures?
• Regulatory reporting?
SESSION 12

INFORMATION SESSION:
BLOCKCHAIN TECHNOLOGY AND ITS IMPLICATION
Consideration of New Technology in Financial Market Infrastructure

Adaption of Blockchain

Taketoshi Mori
Email:taketoshi.mori@tohmatsu.co.jp
8th June 2016
Deloitte Touche Tohmatsu

The views expressed in the material are those of the author and do not represent those of Deloitte Touche Tohmatsu Limited, its member firm, or their related entities (collectively, the "Deloitte Network") is, by names of this communication, rendering professional advice or services.

1. About the information of Blockchain
At the Cusp of a Technology Paradigm Shift

Financial technologies will disrupt traditional financial models and businesses, providing an array of new services, structures and ways of working with technology-based processes.

A technology revolution every 20 years?

<table>
<thead>
<tr>
<th>1970s</th>
<th>1990s</th>
<th>2010s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal computer</td>
<td>Internet</td>
<td>Blockchain</td>
</tr>
</tbody>
</table>

The application of blockchain technology is changing the role of trusted third parties.

What the Experts Are Saying

“You should be taking this technology as seriously as you should have been taking the development of the internet in the early 1990s” – Blythe Masters, Sept 2015

“The Blockchain protocol threatens to disintermediate almost every process in financial services.”
– World Economic Forum, September 2015

“We can re-implement the entire financial system as a distributed system as opposed to a centralized system. We can reinvent the entire thing.” – Marc Andreessen, October 2014

$20 Billion
Santander Bank estimates a reduction in infrastructure costs for banks of $20bn / year by 2022 because of blockchain.

$1.1 Billion
Aite Group sees steady increase of capital markets IT spending between now and 2019, $1.1 billion in total.

$1 Billion
Total VC investment in Blockchain startups to date (November 2015).
Blockchain Structure Overview

Blockchain technology can be used to record and prove transactional integrity and accuracy of a company’s finances without the need for an intermediary or third party. The distinction between existing network structures is highlighted below:

- **Distinct Systems**: Individual systems are maintained by individual entities. Each individual entity maintains and updates its own system. Security is maintained at the entity’s system level. When needed, distinct systems require manual processes to be compared against each other to ensure accuracy.

- **Centralized Networks**: Nodes on a network are connected to the central node and not to each other. Central node makes changes and maintains a single ledger containing data. Security and accuracy of the system is dependent on the integrity of the central node. When needed, centralized systems require reconciliation with other centralized systems maintaining reciprocal data.

- **Decentralized Networks**: Peers on a network are connected to each other in a peer-to-peer fashion. Each node maintains a copy of the distributed ledger which automatically synchronizes. Before the ledger is modified, multiple independent nodes must agree on the validity of the transaction. Reconciliation is implicit and does not require a follow-up manual process.

Blockchain utilizes distributed, replicated ledgers to transfer value securely at a low cost.

### How does Blockchain differ from traditional systems?

- **Traditional (Centralized) Systems**
  - A central intermediary (e.g., a bank, ACH) transfers actual value between two parties.
  - All parties involved in a transaction maintain a separate ledger.
  - Often requires multiple intermediaries to connect parties because no single intermediary has connections to all parties.
  - Security and accuracy of system is dependent on each central intermediary.

- **Blockchain**
  - Each node keeps a copy of a single distributed ledger, which is updated upon a transaction request.
  - Requires validation of consensus among several copies of a ledger kept at multiple individual nodes prior to approval of the request to maintain accuracy.
  - Utilizes cryptographic protocols for enhanced security.
  - Has native currencies that can be transferred within the system, often exclusively.

### Characteristics of Blockchain

- **Fast**: Copies of a distributed ledger are automatically updated, shortening transfer time from days to minutes or seconds.
- **Very low costs**: Transactions are processed by nodes that offer processing power without compensation.
- **Open source**: A common set of protocols used by the system is governed and maintained by a network of participants.
- **Traceable**: A record of each transaction is distributed among multiple nodes, offering superior immutability and traceability.
2. No third party
Blockchain technology is based on cryptographic proof instead of trust, allowing any two parties to transact directly with each other without the need for a trusted third party.

3. Distributed ledger
Blockchain technology includes a distributed ledger which generates computational proof of the chronological order of transactions. The peer-to-peer distributed network records a public history of transactions that quickly become computationally impossible for an attacker to change. Blockchain does not typically preserve the identities of the parties nor the transaction data, only the proof.

4. Irreversibility
The blockchain contains certain and verifiable record of every single transaction ever made. This prevents double spending, fraud, abuse and manipulation of transactions.

5. Censorship resistant
Work has been completed in crypto economics in order to ensure that the blockchain continue pumping out new blocks and that blocks are not being reverted or altered.

Very unique characteristics of Blockchain create a unique potential to transform the financial services infrastructure

1. Real time
Blockchain enables the near real time settlement of recorded transactions, removing friction, reducing risk but also limiting ability to charge back. Smart contracts were developed to address this.

Illustrative Applications

Where is the interest coming from?

**Reconciliation and Assurance**
Automate financial reconciliations between internal departments of a company or with trading partners. This functionality can provide near real-time confirmations and validations of every transaction.

**Land Registry**
Digitize and decentralize property deed transfers. Distribute the storage and verification of property deeds significantly reducing the risk of fraud of corruption.

**Health Records**
Decentralize and digitalize health records while allowing person’s complete medical history to be accessible from anywhere in the world.

**Customer Loyalty**
Create a cost effective and comprehensive rewards system which records all customer transactions.

**Payments and Settlements**
Significantly reduce time and costs associated with traditional payment and settlement infrastructures, and allow for new innovative client products.
2. Current Securities Settlement framework in Japan

Current Flow of Securities Post Trade

Stakeholder and Flow

- **Fund manager**
- **Asset manager**
- **Buyer (Trust Bank)**
- **Seller (Broker)**
- **Matching [JASDEC]**
- **Clearing [JSCC]**
- **BOJ JGB CSD**
- **Cash Settlement**
- **Deal Done**
Complicate Ledger Structure
(Framework is stipulated by Act on the Transfer of Corporate Bonds, Government Bonds, Equity)

Image of Multi-tier structure AMI (Account Management Institution)

Foreign Players are more complicated

In Japan, more than 60% are traded by foreign players

Complicated factors:  ■ business day  ■ law & regulations  ■ jurisdiction
3. Issues of adopting Blockchain in Financial Market Infrastructure

Challenge in domestic models (1/2)

Restructuring business process

- Legally building up the finality of settlement
- Impact from Multi-tier structure to distributed ledger style
- Reviewing the fail-rule (overseas players can adopt not only for shortage of securities but cash shortfall <In principal default>)

In practical, it is not easy to use the blockchain technology directly to Financial Market Infrastructure.
Challenge in domestic models (2/2)

Restructuring business process

- Is CCP really not necessary? (clearing function is important, settlement guarantee, reducing capital charge and liquidity)
- How to deal with the Chain transactions?
- Matching function and queuing facility
- Even now, T+0 Settlement may be possible. Financial Institutions should change their process and Market Practice and rules
- Connection to legacy system in Financial Institution
- Irregular transactions like double settlement, modification, partial settlement, cancel

Challenge in global base models

Not only domestic law but global base

[Cross-border Issues]
- Different business days
- In the case of bankruptcy of Financial Institutions or issuers (Jurisdiction, booking place, governing law)
- Harmonizing the settlement finality and investor protection (Hague Convention and UNIDROIT: International Institute for the Unification of Private Law)
- Omnibus accounts make more complicated. Increase the risk in the market.
- Conflict of Regulators coverage and surveillance
- 24/7 operation is necessary

Distributed ledger

USD  UK  SGP  China  Japan
It is essential to change business process when adapting blockchain. Creating the proto-type and industry-wide discussion with regulators are needed

- Introducing Blockchain is expecting technology 20% and business process change 80%
  - To utilize the advantage of blockchain technology, business process and market practice should be changed and improved
- Blockchain technology is overestimated these 2 years but underestimated 10 years.
- Blockchain is revolutionary and has improved rapidly, but it might take time to mature.
  - Continuous research is requested to adopt the Financial Market Infrastructures.
  - Especially securities for post-trade are complicated. It is recommended to study demonstration experiment including regulator and market players.
  - Pick up issues and tasks to tackle

The state of blockchain technology

We are here

Pervasive Industry Business Use

Early Adopters

Industry creates proto-type
Euroclear White Paper

**Initial capital markets start-ups, limited test cases**
- Investment in developing next generation technology
- Identifying initial use cases
- Efforts to build industry consensus/attention

**Initial seeds/proposals for market standards**
- Select industry consortia/groups, public bodies, large market infrastructures outlining/proposing some standards

**Thin applications gaining wide industry traction**
- Initial adoption of distributed ledgers in thin parts of industry-wide value chain
- Overall agreement in standards
- Mutualisation of technology/replacement of existing systems

**Overall agreement in standards**
- Initial adoption of distributed ledgers in thin parts of industry-wide value chain
- Mutualisation of technology/replacement of existing systems

**Bitcoin/cryptocurrency**
- Bitcoin a v1 application with current developers actively addressing perceived flaws...
  - Throughput restrictions
  - Inflexible code architecture
- ...and preliminary regulatory scrutiny

**Base case?**
- Today
- Next 12–24 months
- 5 years
- 10+ years

**Ambitious case?**
- Bitcoin/cryptocurrency
- Disruptive innovations in niche applications
  - Next generation of applications in
    - Bold transformations of small markets
    - Narrow applications in large markets
    - Define new markets that do not exist today

**Long term mass adoption**
- Major industry-wide disruptions
- Lessons learned from numerous iterations
- Industry-wide familiarity and confidence in technology

出典:
Euroclear, Blockchain in Capital Markets, The Prize and the Journey p19

© 2016. For information, contact Deloitte Touche Tohmatsu LLC.
THANK YOU

END OF SF2 MEETING