A ROADMAP FOR THE DEVELOPMENT OF APEC'S FINANCIAL MARKET INFRASTRUCTURE

An Undertaking of the

Asia-Pacific Financial Forum (APFF)

TO IMPLEMENT THE **CEBU ACTION PLAN**'S INITIATIVE 3C

THE DEVELOPMENT OF A ROADMAP TO IMPROVE REGIONAL FINANCIAL INFRASTRUCTURE AND ASSIST APEC ECONOMIES DEVELOP THEIR CAPITAL MARKETS

Asia-Pacific Financial Forum
A ROADMAP FOR THE DEVELOPMENT OF APEC'S FINANCIAL MARKET INFRASTRUCTURE

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FOREWORD

The Asia Pacific Financial Forum (APFF) is one of three platforms for collaboration between the public and private sectors established by the Finance Ministers and entrusted to the APEC Business Advisory Council (ABAC) for their management. These three platforms, the other two being the Asia-Pacific Financial Forum (APFIF) and the Asia-Pacific Infrastructure Partnership (APIP), are populated by different but overlapping sets of stakeholders. All of them are involved in advancing various parts of the Cebu Action Plan (CAP).[1] APFF's work on financial market infrastructures (FMIs) is part of a broader initiative geared to accelerating capital market development, which is focused on three important and interrelated objectives – improving market depth and liquidity, promoting cross-border portfolio investment and reducing costs and risks.

Acknowledging that capital market development in the region requires many issues to be addressed, the APFF has taken a results-oriented approach. This involves identifying a few initiatives that could be realistically progressed through public-private sector collaboration within a reasonably short time frame, and that have significant impact on market development. The concrete initiatives currently being progressed are: first, the development of classic or title transfer repo markets; second, assisting jurisdictions in creating and improving the legal and documentation infrastructure required to support over-the-counter (OTC) derivatives markets including close-out netting arrangements, enforceability of collateral rights and implementation of mandatory margining for non-cleared OTC derivatives; and third, supporting the implementation and membership expansion of the Asia Region Funds Passport. The fourth, which APFF initiated in 2016, is the drafting of a roadmap for the development of FMIs in the APEC region.

The APFF is one of the parties that have been assigned by the APEC Finance Ministers under the CAP to draft this roadmap. To initiate this process, the APFF convened in 2017 a series of conference calls, a symposium and a joint session with the ASEAN+3 Bond Market Forum. These activities involved a large group of key stakeholders, which included the ADB, IMF and the World Bank, private sector firms, industry associations and regulators and officials from across the region.

This document, which presents the roadmap for the development of APEC's FMIs, is the outcome of this process. It also includes the report of the series of conference calls, the symposium held in Seoul, Korea on 25 April 2017, subsequent discussions among financial industry experts through its collaborative drafting, as well as the interactive dialogue with regulators and officials at the joint session with the 25th ASEAN+3 Bond Market Forum (ABMF) held in Manila, Philippines on 4 July 2017.

[1] CAP was launched by the APEC Finance Ministers to guide their work over the next 10 years, identifying specific initiatives and deliverables, providing timelines, and assigning tasks to stakeholders. The Plan has four pillars, corresponding to four priority areas identified by Ministers – financial integration, fiscal transparency, financial resilience and infrastructure. CAP incorporates initiatives that have been proposed by the private sector over many years, for which the Ministers gave the private sector the responsibility to take the lead.

A ROADMAP FOR THE DEVELOPMENT OF APEC'S FINANCIAL MARKET INFRASTRUCTURE

EXECUTIVE SUMMARY

Financial Market Infrastructures[2] *or FMIs are the pillars of financial market integrity. During the global financial crisis (GFC) of 2007-2008, they withstood the strains arising from the extreme volatility and volume of transactions. Since then, the importance of FMIs and ensuring their robustness have risen to the forefront of policy and regulatory priorities. This new reality was reflected in the publication of the new Principles for FMIs by the Committee on Payments and Settlement Systems (CPSS) – since renamed Committee on Payments and Market Infrastructures (CPMI) – and the Technical Committee of the International Organization of Securities Commissions (IOSCO) in 2012. Today, FMIs are increasingly taking on new roles as the global regulatory agenda on greater transparency of transactions and greater standardization of financial products moves forward, and stand as a bulwark against market disruptions.*

In 2015, the APEC Finance Ministers called for a roadmap to improve the region's financial market infrastructure (FMIs). This involves creating a regional securities investment ecosystem that can facilitate cross-border investment to deepen capital markets and increase economies of scale. This task was incorporated in the Cebu Action Plan (CAP), the Finance Ministers' multi-year blueprint for financial sector development in APEC. The Asia-Pacific Financial Forum (APFF) was launched by the Ministers in 2013 as a platform for public-private sector collaboration to accelerate the development and integration of financial services in the region. In 2017, the APFF gathered together experts and representatives from leading firms, industry associations, multilateral and academic institutions, and regulators and officials to draft the roadmap.

FMIs serve to facilitate the efficient and cost-effective flow of investment across markets and support financial market stability and integrity. They play important roles in promoting greater financial inclusion, fair and equitable competition and innovation. Historically, FMIs were seen as nodes that accumulated market, liquidity and counterparty risks as they functioned to facilitate transparency and management. Concerns arose that, without appropriate oversight, they can become a significant source of systemic risk, especially during times of market stress. Consequently, they became increasingly subject to regulation[3].

Since the GFC, new complexities and costs have emerged that need to be better understood and managed to achieve higher levels of market sustainability. For example, emerging capital markets struggle with the tension between business case viability and the need for a Central Counterparty (CCP) for nascent derivatives markets. This is deemed necessary to avoid punitive balance sheet costs for banks operating domestically. On top of the new changes, overseas investors continue to deal with existing market access and repatriation documentation that can be streamlined. At the same time, funds continue to use post-trade paper-intensive services while investments are already being conducted at electronic speed. Cybersecurity concerns have also increased to add to this complexity.

[2] Traditional Financial Market Infrastructures (FMIs) encompass a variety of institutions and systems including payment systems that are systemically important, Central Securities Depositories (CSDs), Securities Settlement Systems (SSSs), Central Counterparties (CCPs) and Trade Repositories (TRs). FMIs are central to the clearing and settlement of transactions in the financial markets, the movement of money and securities, and centrally managing the counterparty risks around the world. Issues in Large Value Payment Systems (LVPS) are not included in this report since it could be discussed separately with the currency policy issues in the region.

[3] To help address the threat of systemic shocks and increase the resilience of FMI, CPSS-IOSCO in 2012, released a report entitled *Principles for Financial Market Infrastructures* (24 Principles). The report contained 24 Principles designed to ensure a more robust infrastructure for the global financial markets and allow the infrastructure to better withstand financial shocks. In the subsequent five years since the publication of the CPSS-IOSCO's first report, the global financial system is much stronger and FMI adoption across the global has dramatically increased.

Today, economies have to consider new issues and needs that face FMIs and financial markets. These include transparency through a standardized and common platform for trade reporting and improving the coordinated monitoring of markets through facilitation of cross-border data flows. They include maintaining and broadening access to cross-border money transfer mechanisms that are more transparent and affordable. They also include standardization of market practices, account structures, operational and processing models, and consistent tax treatment of domestic and cross-border transactions. Regulatory clarity and public-private sector collaboration is key to extracting new value from untangling some of these complexities. They are also key to addressing increased fragmentation of markets after the GFC, enhancing market liquidity and depth, facilitating inclusive participation, and reducing the cost of raising funds.

1. THE ROLES OF FINANCIAL MARKET INFRASTRUCTURES IN THE REGION

Looking at today's regulatory environment with respect to FMIs, five key issues stand out. First, the clarity of regulatory goals needs to be improved. Second, the public and private sectors need to engage with each other to find optimal solutions to reach these goals. Third, regulatory approaches need to incorporate considerations of their potential effects on emerging capital markets and their growth. Fourth, high quality collateral must be expanded to include local currency assets to mitigate liquidity and market risks. Fifth, there is a need to evaluate the potential effects of enhanced interconnectedness among markets in the region given significant differences in stages of maturity.

The following are steps that can be taken to address these issues:

Setting out clear, publicly accessible medium-term strategy and regulatory expectations. Cooperation is a fundamental regulatory tool. Working with the industry to identify market and systemic weaknesses helps regulators create a healthy environment for FMIs. It also enables them to appropriately calibrate the extraterritorial implications of domestic regulations and their potential impact on markets. A consultative approach that gives market participants and stakeholders ample time to respond to public consultations on rules and regulations helps avoid cross-border conflicts and unintended consequences.

Supporting the harmonization of issuance rules and enhancing transparency of securities and tax rules. Standardization should not only be considered in technical terms but also in terms of industry expectations. For example, it is important to progress the harmonization of documentation and issuance rules and to enhance transparency of securities and tax rules, including common disclosure language or procedures for cross-border investors. These need to be coordinated with ongoing efforts by the ASEAN+3 Bond Market Forum (ABMF) under the Asian Bond Markets Initiative (ABMI), and experiences should be shared with the wider APEC membership.

Monitoring the extraterritorial effects of post-GFC rules being implemented by developed economies in the region and considering ways to address unintended effects on smaller economies and their capital markets' growth. All jurisdictions must strive to achieve the outcomes that have been internationally agreed to minimize regulatory arbitrage. However, smaller and less developed jurisdictions also need to carefully consider how policies and international best practices being adopted in large and advanced markets will impact their own markets. It is important to balance global consistency with the requirements for local capital markets to grow at their current stage of development. For domestic regulators, understanding this balance is key to successful implementation of global regulatory standards. Implementation must also be undertaken in a way that avoids further fragmentation. Furthermore, it should be noted that domestic CCPs may not necessarily be appropriate for all APEC markets, and uncleared margin should only be promoted for jurisdictions that have good netting and collateral status.

Evaluating the requirements for High Quality Liquid Assets (HQLA) and utilization of local currency assets as acceptable collateral in cross-border trades by financial intermediaries and CCPs. This can be undertaken by convening workshops involving responsible authorities and international organizations. Discussions should focus on how local currency assets could be utilized as part of collateral accepted for cross-border trades between financial intermediaries and CPPs, and how regional financial integration and better hedging markets could enhance liquidity. They will need to identify specific classes of securities where liquidity and eligibility could be expanded, and follow up with advocacy efforts in jurisdictions where this could be undertaken. In this regard, the CSD-RTGS[4] Linkages under Cross-Border Settlement Infrastructure Forum (CSIF) of ABMI is a leading example that can be studied.

Promoting inter-operability among FMIs and participants and evaluating the risks that may arise. Cooperation among FMIs to promote inter-operability across markets are best undertaken in conjunction with careful evaluation of potential systemic risks that may arise from increased interconnectedness of markets at different stages of maturity. This evaluation could also consider the threats these risks may pose, especially to smaller economies, and their policy and regulatory implications. The outcomes of this evaluation can form the basis for the design of proportionate risk mitigation measures that also take into consideration the objective of fostering financial inclusion and efficiency.

2. CORE ELEMENTS OF FINANCIAL MARKET INFRASTRUCTURES

Market participants today are facing a significantly heightened level of post-trade operational running costs and complexity. This has been a consequence of various regulatory requirements that were introduced globally and in individual jurisdictions during the past two decades, in conjunction with the evolution of financial markets. Together with the challenge of dealing with legacy systems, the continuing accumulation of these costs and complexities threatens to become a significant drain on market participants' growth-oriented investments. Alleviating the operational and compliance complexities and reducing these costs will require regulatory attention to specific areas of capital markets that form the core elements of FMIs.

2-1. Securities Markets: Post-Trade Ecosystem

a. **Harnessing public-private sector collaboration to progress regional standardization**. Collaboration between public and private sectors is critical for the success of assessing and progressing the regional standardization of account opening documents. This applies particularly in relation to KYC/AML. This also applies to tax reporting, which both domestic and cross-border securities investors need to complete. Standardization efforts can only have meaningful results if industry-wide implementation occurs at the regional level.

b. **Mobilizing active regulatory and industry support to enable regional reuse and portability of standardized documents**. Regulatory support is essential for effectively enabling the use of third party industry utilities ("documentary industry utilities") in storing, managing and facilitating access to standardized documents by relevant parties. Clear guidelines are important in this process. Exploring the feasibility of the reuse and portability of such documentary information at the regional level and how and when these goals can be achieved requires dialogue between public and private sectors.

2-2. Non-Resident Accounts, Tax, Investor Identification and Transparency

a. **Choosing the account structure that best serves the needs of the market, with the omnibus account structure as the best suited for attracting foreign investment**. Account structure may be omnibus, direct holding under the beneficial owner's name, or a mix of both. The choice of account structure is often determined by macroprudential considerations related to management, cross-border taxation, transparency, and reporting and operational requirements. Different account structures can coexist, and there is no need to change the way local participants operate in their market if it best serves their needs. Those who view attracting foreign investment to the market as a key priority would be wise to choose the omnibus account structure, which is the preferred option for cross-border flows.

[4] Real Time Gross Settlement

Ideally the omnibus account structure should be combined with the nominee concept legal structure to ensure optimal asset protection.

b. **Where capital market development is a priority, considering investors' preference for zero or very low taxes on fixed income instruments or simplified tax schemes.** Examples are applying withholding tax based on a Record Date principle[5] and imposing no capital gains tax based on price differences or a tax calculated on a holding period, since they are unmanageable on a cross-border basis. Investors also prefer to be taxed at source instead of having to refund, which should be limited to corrections post payment. For collection of tax certificates, investors prefer a one-time certificate instead of yearly certificates or a certificate per payment. They also prefer to have no requirement for local notarization of tax certificates or supporting documents.

c. **Striking the right balance between transparency and market efficiency in reporting of investors' information**. Responsible authorities are encouraged to review whether legal frameworks support requests to report investors' information and undertake the necessary legislation if this is not the case. This includes the introduction of requirements for bond prospectuses to facilitate access to investors' information where needed by securities regulators and issuers. However, such a review should also take into account three important considerations. First, the reason for increased transparency should be precisely defined to ensure that the solution addresses needs and minimizes operational friction for the parties involved. Second, the enforceability of the law on collecting investors' information should be ensured to avoid conflicting regulations between the jurisdiction of issuance and the jurisdiction where the investor resides. Third, requesting data that cannot be automatically retrieved from intermediaries' systems or which require interpretation should be avoided.

2-3. Increasing Market Efficiency: Issues Specific to Repo/Lending

Liquid and well-functioning repo and securities lending markets are essential for the efficient allocation and movement of capital and collateral through the financial system. They also play a role in the diversification of risk among different types of market participants across economies.

a. **Enhancing regulatory transparency**. Regulatory transparency is enhanced where there are very clear principles on regulatory expectations on raising capital and investment. This can be achieved by responsible authorities and market participants through such initiatives as the promulgation and promotion of international best practices and formulation of codes of conduct to further develop and improve the market.

b. **Adoption of standard documentation**. It is advisable to review local practices in a market to determine whether contract documents are aligned with international standard documentation such as the Global Master Repurchase Agreement (GMRA) or the Global Master Securities Lending Agreement (GMSLA). Should this not be the case, securities regulators and policy makers could collaborate with market practitioners, industry associations and other relevant stakeholders to promote the use of a standard contract document. This includes how relevant local specific circumstances can be reflected, such as for example in an annex.

c. **Addressing unintended tax and accounting barriers**. Current tax policies and accounting practices need to be reviewed to identify and address unintended barriers. Regular dialogues between responsible authorities and industry representatives through public-private platforms can facilitate such reviews. Platforms where such dialogues can be undertaken include APFF, the ASEAN+3 Bond Market Forum (ABMF), the Asia Securities Industry and Financial Markets Association (ASIFMA), the International Capital Market Association

[5] Record Date principle: Use of a date (instead of a holding period) to determine the eligible bond holders who will receive an interest payment or a distribution

(ICMA) and the Pan-Asian Securities Lending Association (PASLA).

d. **Broadening the types of securities eligible as High-Quality Liquid Assets (HQLAs) to include local currency collateral with very low credit risk**. The growing need for HQLAs in the region calls for collaboration among responsible authorities and international organizations to find solutions. These could include identifying local currency assets with very low credit risk. Such assets include highly rated government bonds and specific classes of securities that can be accepted as collateral in cross-border trades between financial intermediaries and CCPs. Efforts to deepen relevant stakeholders' understanding of how regional financial integration and robust hedging markets help improve liquidity are also important. These could be followed by advocacy efforts in jurisdictions where collateral eligibility could be expanded. In this regard, the CSD-RTGS Linkages under the Cross-Border Settlement Infrastructure Forum (CSIF) of the Asian Bond Markets Initiative can be considered a leading example.

2-4. Increasing Market Efficiency: Issues specific to Derivatives

Greater transparency in the OTC derivatives markets is a key public policy goal that was codified in the Leaders' Statement of the 2009 Pittsburgh G20 Summit. Much work has already been undertaken to achieve this goal. However, incomplete and inconsistent trade data continue to make it impossible for regulators to obtain a true picture of risk in individual jurisdictions and to aggregate data and risk exposures at the global level. Addressing this challenge will require active cooperation among regulators, market participants and market infrastructure providers.

a. **Generating a shared public commitment to global convergence on harmonized reporting requirements**. This would involve commitment to a review by securities regulators of alignment and consistency of reporting requirements in their jurisdictions, and the undertaking of regulatory reforms wherever necessary to achieve this.

b. **Stronger regulatory endorsement of current data standards and formats already in use**. This would entail jurisdictions' embrace of standards for derivatives reporting and avoidance of introducing unique requirements by those that have yet to issue their rules. In this regard, the following considerations are relevant:
   - Formulating requirements to be as precise and prescriptive as possible will help prevent ambiguity in achieving compliance.
   - It is highly advisable to undertake a robust cost-benefit analysis before introducing any new reporting or disclosure requirement.
   - It is important to raise awareness in the market that, beyond merely satisfying compliance obligations, significant additional benefits can be gained in implementing a reporting regime. These include the ability to enhance the transparency of pricing and being able to utilize data for internal modeling either for counterparty risk or trading strategy purposes. These benefits underscore the need to utilize and/or optimize the current reporting structure rather than requiring additional duplicative reporting standards and formats.

c. **Removing barriers to sharing of information among trade repositories and across borders**. An important step in this direction is a review of whether current regulations hinder the sharing of relevant information across borders, which can be followed by reforms wherever needed.

d. **Increasing the availability of substituted compliance**. Collaboration among regulators and relevant stakeholders leading to the adoption of equivalence decisions (acknowledgement by a jurisdiction that the legal, supervisory and enforcement arrangements in another is equivalent to its own requirements) is highly encouraged. This would allow regulators to defer to each other's regulatory judgement where the intended outcomes are consistent. It will also enable a reporting entity to discharge its multi-jurisdictional reporting obligation for a transaction only once in the most convenient jurisdiction. Regulators with a mandate to access the data for a transaction can obtain it from that single report.

e. **Promoting inter-operability and connectivity among trade repositories**. This could be undertaken by regulators through a review of the level of inter-operability among trade repositories and efforts to promote and incentivize the sharing of relevant data.

f. **Intensifying cross-border regulatory focus on global aggregation mechanisms**. This can be facilitated by cooperation among regulators and other relevant authorities to share lessons learnt as well as to share data. A good first step would be the designation of jurisdictional, regional and global leaders who can spearhead the aggregation effort and the removal of barriers to the sharing of relevant data and information among regulators.

2-5. Fund Services

As more people invest for retirement income and can potentially benefit from the diversity of funds through initiatives like the Asia Region Funds Passport, managing the industry's costs has become critical. Digitalization and automation can help improve cost efficiency and reduce operational risks. However, further steps are needed to address a fragmented international landscape for fund services as well as administrative, operational and regulatory reporting complexities. Other key challenges include vastly disparate practices, the absence of market standards, and a prevalence of proprietary systems across the region.

a. **Establishing highly standardized registration processes for funds among jurisdictions participating in funds passport schemes**. The experience of the ASEAN Collective Investment Scheme (CIS) has shown that securities regulators can be encouraged to undertake this by considering the benefits of streamlined regulations that can be felt by the market. The case of the China-Hong Kong Mutual Recognition of Funds (MRF) has demonstrated that attractiveness of products is key to effective promotion of the funds passport scheme, and that large-scale investments in pilot funds can attract the attention of industry.

b. **Supporting ongoing efforts toward standardization and harmonization**. Harmonization can be achieved in many parts of the business process. These include the usage of the same fund codes and message formats, regulatory and market requirements for information on fund products, account opening forms and KYC processes, among others. Standardizing terminology used between fund markets can help market participants communicate more effectively in undertaking cross-border transactions. Efforts within the Asia Fund Standardization Forum (AFSF) to advance these goals in its member jurisdictions can benefit from stronger support by responsible authorities.

c. **Promoting inter-operability of market infrastructure through regulatory support for the development of fund platforms**. Centralized fund platforms interconnecting domestic markets and streamlining many-to-many communication among diverse players have emerged in response to challenges facing the integration of fund services. Often led by CSDs, they are well-positioned to invest in infrastructure for the entire market, providing a level-playing field for large and small asset management companies, help investors access less globalized markets and create service linkages among multiple markets. Examples are Korea's FundNet, Chinese Taipei's FundClear, Indonesia's S-INVEST and Thailand's FundConnext.

3. DATA MANAGEMENT AND TECHNOLOGY

The rapid development of fintech and emergence of disruptive technologies deserve close attention for their impact on FMIs. Key issues for FMI fintech include e-payments, e-KYC and cybersecurity. Disruptive technologies such as distributed ledger technology and artificial intelligence have considerable potential as tools for improved data access and management and cost reductions, as well as efficiency and inclusion. However, they also carry risks, many of which are yet to be identified as technologies further advance and new business models emerge. In addition, efforts to harness new technologies to create a modern financial market infrastructure that can promote regional integration often face a regionally fragmented and dated ecosystem that requires multi-stakeholder collaboration to modernize.

3-1. FMI Fintech

a. **Establishing best practices for the development and adoption of digital identity solutions linked with e-KYC verification mechanisms**. By giving their support, responsible authorities can help advance efforts, including those in the APFF, to review and analyze digital ID and e-KYC initiatives within and outside APEC. This would help document best practices that could be leveraged in the region. It would aid in identifying possible solutions that are inter-operable at least and harmonized at best for enabling a seamless and instantaneous KYC process to be delivered more efficiently on a broad scale. The study may also explore if there are aspects of AML regulations that require standardization at a regional level to facilitate portability of digital identity and seamless and instantaneous cross-border KYC process. Given the importance of digital identity in facilitating financial markets integration in an increasingly digital environment, the inclusion of digital identity as a standard initiative in the CAP's financial integration pillar may be considered.

b. **Forming a regional multi-stakeholder and multi-sectoral platform to identify key challenges to inter-operability of e-payments within and across economies and develop solutions to address them**. With support from responsible authorities, this platform can diagram the e-payments landscape in the region. This landscape includes, among others, the multitude of players, solutions and risks. It includes divergence between solutions that leverage telephone networks and those leveraging the Internet. It includes divergent standards for mobile-based payments solutions. It also includes differences in how mobile and card-based solutions interact. The platform can seek to develop a set of definitions to help guide policy makers in understanding the landscape. It can develop recommendations on regulatory frameworks to address the varying regulatory and consumer risks arising from the wide variety of e-payment solutions and market conditions across member economies. The platform can be used to create a primer on e-payments in the region. In addition to establishing the payments landscape and providing recommendations on the regulatory framework for policymakers, the platform may also propose concrete mechanisms to achieve the desired state of interoperability in the region - whether through a multilateral payment system framework, shared infrastructure, a regional payments council or a combination of these. The platform may also need to articulate a proposed desired state of interoperability in the region to develop a shared understanding of what needs to be achieved.

c. **Developing dynamic and flexible regulatory frameworks to protect the region against cybersecurity threats**. Through collaboration, responsible authorities and the private sector can create a typology of cybersecurity risks in the fintech ecosystem and undertake research and analysis of emerging cybersecurity threats and solutions. The learnings from this process can be shared across stakeholders at public-private forums. They can serve as basis for best practices that can be adopted by member economies, without regulatory technology mandates wherever possible.

d. **Sharing of information on cybersecurity among responsible authorities in the region**.

3-2. Disruptive Technologies / New FMI-like Entities

a. **Undertaking by FMIs of experiments to contribute to the research and development needed to understand the new technologies, the risks they bring and the challenges to be solved, and to help mature these technologies**. This collaborative experimentation among FMIs, regulators, the financial industry and relevant public sector stakeholders is important for successfully meeting these objectives. It is also important in obtaining the broad support needed once decisions to implement solutions are to be made.

b. **Forging collaboration among regulators and FMIs to agree on harmonized future domestic legal frameworks supporting the adoption of new technologies to ensure cross-border regulatory certainty.** In adopting new technologies, ensuring domestic and cross-border inter-operability of FMIs with legacy systems and processes that are not expected to quickly disappear is a key challenge. Standardization, both at technical and business data level, is needed to meet this challenge. To avoid reinventing the wheel, efforts should focus on leveraging existing reference data standards such as the Legal Entity Identifier (LEI) and International Securities Identification Number (ISIN), as well as business standards such as ISO 20022. Related collaborative open-source initiatives such as the Hyperledger Project can also be utilized. Cybersecurity and new technologies around fraud identification and attack prevention are among other issues to be considered in this collaboration.

Asia-Pacific Financial Forum
A ROADMAP FOR THE DEVELOPMENT OF APEC'S FINANCIAL MARKET INFRASTRUCTURE

I. INTRODUCTION

In 2015, the APEC Finance Ministers called for a roadmap to improve the region's financial market infrastructure (FMIs). This involves creating a regional securities investment ecosystem that can facilitate cross-border investment to deepen capital markets and increase economies of scale. This task was incorporated in the Cebu Action Plan (CAP), the Finance Ministers' multi-year blueprint for financial sector development in APEC. The Asia-Pacific Financial Forum (APFF) was launched by the Ministers in 2013 as a platform for public-private sector collaboration to accelerate the development and integration of financial services in the region. In 2017, the APFF gathered together experts and representatives from leading firms, industry associations, multilateral and academic institutions, and regulators and officials to draft the roadmap.

The process of drafting the roadmap consisted of a series of preparatory conference calls, a symposium and a post-conference dialogue among regulators and industry representatives. The symposium was co-organized by the APEC Business Advisory Council (ABAC) through the APFF's work streams on FMI Cross-Border Practices and FMI Fintech. It was hosted by the Federation of Korean Industries on 25 April 2017 at the FKI Conference Center in Seoul, Korea. Over sixty participants from a wide spectrum of organizations in the region's public and private sectors as well as international institutions, FMIs and academic and research institutions attended the event.

The symposium report was discussed further with regulators and other stakeholders at a joint session with the ASEAN+3 Bond Market Forum (ABMF) hosted by the Asian Development Bank (ADB) on 4 July 2017 at its headquarters in Metro Manila, Philippines. Finally, it was presented to participants and discussed at the APEC Finance and Central Bank Deputies' Meeting hosted by the Treasury of Papua New Guinea on 16 March 2018 in Port Moresby, Papua New Guinea. This roadmap is the outcome of these discussions.

Financial market infrastructures (FMIs) play an important role, beside technology, in connecting financial markets to each other. FMIs encompass a variety of financial intermediaries and service providers. These include central securities depositories (CSDs), securities settlement systems (SSSs), central counterparties (CCPs) and trade repositories (TRs). FMIs are central to the clearing and settlement of transactions in the financial markets, the movement of money and securities, and management of counterparty risks around the world. Payment, clearing and settlement infrastructures have traditionally been viewed as nodes that accumulate various types of risks. Over time, these FMIs became subject to increasing regulation.

The traditional role of most FMIs has been to facilitate the efficient and cost-effective flow of investment across markets. They have also been supporting financial market stability and integrity, and promoting financial inclusion, fair and equitable competition and innovation. FMIs have operated mainly in domestic markets, while financial intermediaries bridged the differences in regulations, market practices and tax issues to enable cross-border portfolio trade. The global financial crisis (GFC) raised awareness of the importance of transparency, risk mitigation measures and robust market infrastructures in mitigating systemic risk when a major market participant defaults.

The dampening impact of the long period of ultra-low-interest rates in developed markets on the growth of emerging markets has increased the importance of FMIs even more. Attention has focused on how to support the growth of these economies while maintaining stability through enhanced efficient functioning of markets. This has meant promoting cross-border portfolio investments and utilizing local currency assets as eligible financial collateral by both FMIs and bilaterally. It meant maintaining and broadening access to cross-border money transfer mechanisms while providing the required transparency in an affordable and meaningful way. It also meant incorporating innovative and potentially disruptive technologies.

Today, FMIs and financial markets face a host of new challenges. These include the challenges of achieving transparency through a standardized and common platform for trade reporting and improving coordinated monitoring of markets with the facilitation of cross-border data flows. They include the challenge of standardizing market practices, account structures, and operational and processing models. They also include the challenge of ensuring consistent tax treatment of domestic and cross-border transactions.

Meeting these challenges would help address the rising costs and growing fragmentation of markets that came in the wake of the GFC. It would help enhance market liquidity and depth, make participation more inclusive, and lessen the cost of raising funds from international capital markets. A roadmap incorporating perspectives from both public and private sectors that identifies and prioritizes issues to be addressed would be a major contribution of the APEC Finance Ministers' Process and the Cebu Action Plan to regional prosperity and integration.

The discussions in the Seoul symposium, together with the preparatory conference calls, reflected broad support across economies, sectors and institutions on both sides of the Pacific for the further development of FMIs in the region. The roadmap was discussed further with regulators from the region's emerging markets at the joint session with the ASEAN+3 Bond Market Forum (ABMF) in Manila on 4 July 2017 and obtained wide concurrence. This document reflects the outcomes of all these discussions.

II. ANALYSES AND RECOMMENDATIONS

1. THE ROLES OF FINANCIAL MARKET INFRASTRUCTURES IN THE REGION

Financial Market Infrastructures (FMIs) are central to the clearing and settlement of transactions in the financial markets, the movement of money and securities, and the management of counterparty risks around the world. FMIs strengthen the markets they serve and promote and enhance financial stability. However, without appropriate oversight they can also become a significant source of systemic risk, especially during times of market stress. To help address the threat of systemic shocks and increase the resilience of FMIs, the Committee on Payments and Settlement Systems (CPSS) – since renamed Committee on Payments and Market Infrastructure (CPMI) – and the Technical Committee of the International Organization of Securities Commissions (IOSCO) released in 2012 a report entitled Principles for financial market infrastructures (24 Principles). The report contained 24 Principles designed to ensure a more robust infrastructure for the global financial markets and allow the infrastructure to better withstand financial shocks. In the subsequent five years since the publication of this first report, the global financial system is much stronger and adoption by FMIs across the globe has dramatically increased.

Financial market participants require an open and competitive infrastructure environment which can deliver best-in-class, reliable and cost-effective services that produce lower risk, faster execution, and transparent data reporting. The question remains how these FMIs, together with financial intermediaries and fund service participants in the APEC region, can best deliver such services. With different products covered, investment strategies employed and a wide variety and caliber of trading, clearing and settlement venues, the future of FMI in the region remains uncertain. Clear consensus exists among market participants and policymakers on the critical importance of central clearing and increased need for transparency. However, a great deal more work remains to be done to achieve the overarching objectives and great promise of robust financial architecture that promotes balanced and sustainable growth in the region.

Cooperation is a fundamental regulatory tool. Working with the industry to identify market and systemic weaknesses helps regulators create a healthy environment for FMIs. It also enables them to appropriately calibrate the extraterritorial implications of domestic regulations and their potential impact on markets. A consultative approach that gives market participants and stakeholders ample time to respond to public consultations on rules and regulations helps avoid cross-border conflicts and unintended consequences.

Relationships should leverage existing multilateral organizations, but in addition to, and not as a replacement for, bilateral relationships. There should be a thorough understanding of the impact which regulatory changes and infrastructure implementation have on the efficiency of a market. It also needs to be acknowledged that the cost of introducing inefficiencies will be avoided by participants wherever possible, sometimes leading to unintended consequences (such as shifting operations away from the jurisdiction or having to compensate investors for the additional operational cost through increased yields of sovereign issues).

Regulatory requirements and frameworks work best when they are well-suited to the market. The over-riding regulatory objective should be to foster stability and trust in the financial markets. Thus, when introducing a new regulation, it is useful to conduct, as appropriate, a cost-benefit analysis to assess its impact on market development and the economy. Using risk-based analysis for adoption of new regulation - how much risk is in the market vs how much regulation is being created to address that risk - could be a useful tool to approach the issue.

FMIs have been under the spotlight after the GFC, as efforts have focused on enhancing financial stability while maintaining the availability of funding channels to support economic growth. While regional cooperation initiatives to promote issuance and liquidity of local currency bonds are underway through standardization and harmonization, G20 regulatory initiatives are having their own impact on market participants in the region. Responsible authorities and private sectors together are encouraged to monitor such effects and review regulations and policy measures to address such issues including a potential scarcity of High Quality Liquid Assets. The implications of increased cross-border connectivity among markets also need to be assessed.

The GFC prompted G20 authorities to bring in a new suite of regulations[6] starting with developed economies in North America, Europe and parts of Asia. Those regulations influence markets and market participants in developing economies through their extraterritorial impact, by compelling those economies to respond by introducing similar sets of regulations in their own markets. APEC economies need to understand the effects of mandatory margining of non-centrally cleared OTC derivatives, the challenges it brings with definitions of eligible collateral and different economies' rules. FMIs are adjusting to facilitate cross-border collateral transfers through linkages.

A question that regulators and policy makers in smaller economies[7] have to deal with is whether their economies should be required to establish local CCPs which accept local currency assets as eligible collateral. This poses challenges due to the relatively low local currency trading volumes, leading to questions of how these CCPs would achieve economies of scale and netting efficiencies, and whether utilizing CCPs outside of their home economies would be more viable.

Some economies outside APEC have established their own CCPs to keep margin (collateral) onshore. This has worked where volumes are sufficient to achieve economies of scale, but in other places it has stimulated the development of offshore non-deliverable markets in response to high clearing fees. In its 2010 OTC Markets and Derivatives Trading in Emerging Markets Report, IOSCO noted that economies with smaller, less developed derivatives markets should consider mandatory OTC margining as an alternative to investing in small-scale onshore clearing infrastructure[8]. Within APEC,

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[6] One of the G20 regulatory initiatives recognizes the issue in lack of transparency in the OTC derivatives market. Hence the pillar of the initiative consists of electronic capture of trades and reporting to a Trade Repository.

[7] Fundamental issues in this region would be what are the systemic issues and priorities, given that OTC derivatives markets may very small in some markets in the region.

[8] However it needs to be carefully examined that uncleared margin should only be promoted for jurisdictions that have good netting and collateral status. Holding margin for uncleared trades in a jurisdiction without effective netting and collateral is prohibitively expensive and works counter to the concept of holding collateral to offset credit risk – firms could

there are widely differing types of markets. While the creation of a regional CCP in APEC has so far not been a subject of discussion, it may become necessary as markets grow. In this regard, it would be advisable to start having regional discussions.

As not all OTC derivative transactions are cleared by CCPs, there is also a role for financial intermediaries in bilaterally managing risk, as well as collateral. Policy makers need to understand the developments on the bilateral front. APEC economies need to identify the issues applicable to both the CCP and the bilateral clearing constructs, including segregated third party custodial accounts to manage counterparty risk. Nevertheless, stages of market development in APEC economies vary greatly. The development of an FMI in any market needs to be considered in line with its stage of development.

a) Standardization and harmonization

One of the key tools to bring efficiency to global markets is undertaking standardization wherever practicable. Standardization should not only be considered in technical terms, where it is perhaps more obvious (such as the utilization of ISO20022 for messaging), but also in terms of industry expectations. For example, harmonizing issuance documents can help both issuers streamline multinational issues and increase investors' appetite to diversify through cross-border investments.

Case Study

Regional financial integration initiatives illustrate how we can prevent fragmentation while maintaining rapid growth in local markets. For instance, the ASEAN+3 Multi-Currency Bond Issuance Framework (AMBIF) is targeting institutional investors such as financial intermediaries. This has necessitated the acceptance of English as the common disclosure language in its templates, adherence to international accounting standards and more flexible regulations. All of these can incentivize more issuers to utilize this platform in obtaining financing from regional markets.

Recommendation 1a: Responsible authorities are encouraged to support the harmonization of issuance rules and to enhance transparency of securities and tax rules, including common disclosure language or procedures for cross-border investors. These need to be coordinated with ongoing efforts by the ASEAN+3 Bond Market Forum (ABMF) under the Asian Bond Markets Initiative (ABMI), and experiences should be shared with the wider APEC membership.

Harmonization can target outcomes as well. For instance, collateral rules can be a powerful alternative to clearing mandates where they are impractical or inefficient. Harmonization can also help drive broader usage of regional assets. For example, regional bonds could be used more broadly as collateral instead of US Treasuries that are currently the preferred tool. In this regard, CSD-RTGS Linkages under the Cross-Border Settlement Infrastructure Forum (CSIF) of the Asian Bond Markets Initiative (ABMI) can be considered as a leading example. Such projects to promote regional issuances should also be supported by central and policy bank practices, where they should, for example, assess the liquidity impact of their collateral practices.

b) Monitoring the effects of G20 regulatory initiatives

Post-GFC regulatory initiatives emerging from the G20 are affecting not only developed economies but also developing economies[9], including those in APEC. For example, although promotion of central clearing is the policy objective of the mandatory margining regime for non-centrally cleared derivatives, some APEC economies lack the economies of scale to establish their own CCPs, and local currency collateral may not be accepted as eligible collateral at international CCPs. This is a particular problem

end up holding gross collateral for the same trade in a jurisdiction in which they may not actually be able to get back their collateral.

[9] The effects of European regulations, such as MiFID II and MiFIR were discussed, as well as how US issues such as substituted compliance come into play for FMIs such as CCPs. However, there are additional issues on recognition of trading venues that may have downstream impacts on CCPs used by those venues.

for jurisdictions whose currencies are not freely tradable or convertible.

Both industry and regulators must acknowledge that, in order to be efficient, infrastructures need to have a combination of scale and competition in comparable services. However, in smaller markets such as those in the region, this might not be achievable, so that some infrastructure services might not be best offered onshore. It must be remembered that the purpose of promoting the use of market infrastructure is not an end in itself, but rather as a risk mitigation tool[10].

Case Study

Mandating the clearing of OTC derivatives or the use of listed derivatives for hedging these transactions can force institutions to accept imperfect hedging, with the consequence of risk being shifted from financial markets to the real economy. Corporate end users could be denied favorable hedge accounting treatment in such circumstances and choose not to hedge as a result.

Infrastructures, such as CCPs, not only require scale and considerable capital, but also significant regulatory oversight, even as implementing regulatory principles remains a challenge. For instance, it remains a challenge to finalize recovery and resolution plans for CCPs[11].

Case Study

Policy makers from some developing APEC economies are considering whether they need to establish CCPs for domestic OTC derivatives in their respective jurisdictions, given that most local market participants are unable to post their local currency-denominated assets to major international derivatives CCPs, usually due to capital account restrictions. Some economies in APEC are G20 members and hence are being asked by international regulatory bodies if and when they intend to introduce central clearing. However, CCPs in smaller economies may find it difficult to achieve economies of scale due to the high cost of establishment, development and maintenance, as well as reduced netting efficiencies in a small local currency market.

Brazil is an example of an emerging market that has the financial depth and breadth to provide all types of hedges to its local banks and corporates that can enable them to compete. Domestic Brazilian CCPs are interlinked and interoperable, so the pricing and netting benefits accrue to users, who are then able to provide hedges at roughly the same price as an international CCP.

Recommendation 1b: Securities regulators and central banks are encouraged to monitor, together with the region's market participants, the extraterritorial effects of post-GFC rules being implemented by developed economies in the region. Ways to address unintended effects on smaller economies and their capital markets' growth need to be considered. All jurisdictions must strive to achieve the outcomes that have been internationally agreed to minimize regulatory arbitrage. However, smaller and less developed jurisdictions also need to carefully consider how policies and international best practices being adopted in large and advanced markets will impact their own markets. It is important to balance global consistency with the requirements for local capital markets to grow at their current stage of development. For domestic regulators, understanding this balance is key to successful implementation of global regulatory standards. Implementation must also be undertaken in a way that avoids further fragmentation. Furthermore, it should be noted that domestic CCPs may not necessarily be appropriate for all APEC markets, and uncleared margin should only be promoted for jurisdictions that have good netting and collateral status.

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[10] How each region interprets and implements the PFMI should be analyzed as well.

[11] Manmohan Singh and Dermot Turing discusses "Central Counterparties Resolution" in IMF Working Paper (WP/18/65) and concluded that "The draft EU Regulation is a valiant legislative attempt to lay more detail around the FSB's outline paper on CCP resolution. The CPMI-IOSCO and FSB to modify their recommendations so that other lawmakers do not assume that a resolution model which works for banks will be suitable for CCPs. It is not too late for action to improve policy on failing CCPs."

c) Measuring the scarcity of High Quality Liquid Assets

Post-GFC regulations and bank prudential rules are forcing financial transactions to be further collateralized. Even if there was to be a tapering of this through quantitative easing or if other measures were introduced to increase the stock of High Quality Liquid Assets (HQLA) available to the market[12], there could still be a scarcity of HQLA collateral to provide enough financing, including in developing markets.

Local currency collateral, including highly rated government bonds with very little credit risk, is often not commonly accepted in international markets due to either market custom or the internal guidelines of key market intermediaries, thus limiting the flow of collateral and liquidity in bond markets.

Recommendation 1c: Economies are encouraged to evaluate the requirements for High Quality Liquid Assets (HQLA) and utilizing local currency assets as acceptable collateral in cross-border trades by financial intermediaries and CCPs. This can be undertaken by convening workshops involving responsible authorities and international organizations. Discussions should focus on how local currency assets could be utilized as part of collateral accepted for cross-border trades between financial intermediaries and CCPs, and how regional financial integration and better hedging markets could enhance liquidity. They will need to identify specific classes of securities where liquidity and eligibility could be expanded, and follow up with advocacy efforts in jurisdictions where this could be undertaken. In this regard, the CSD-RTGS[13] Linkages under Cross-Border Settlement Infrastructure Forum (CSIF) of ABMI is a leading example that can be studied.

d) Infrastructure inter-operability and interconnectedness

Cooperation among market infrastructures, including central banks, is critical to promoting inter-operability among FMIs in the region. Such cooperation among central banks is already becoming a reality in the area of cross-border DvP settlements.

Case Study

To mitigate settlement risk, the Cross-border Settlement Infrastructure Forum (CSIF) is discussing to link central banks and CSDs to create cross-border DvP settlements. While it will consist of a network of bilateral linkages, standardization of technical components will mitigate the risk of becoming a complex network. Such initiatives are leading the way to utilize platforms for local bond markets across the region.

While regional initiatives include access programs and activities to achieve inter-operability of markets, there is also potential for an increase in systemic risk associated with more interconnected markets, which may pose a threat especially in smaller economies[14].

Recommendation 1d: Relevant authorities are encouraged to promote inter-operability among FMIs and participants and evaluate the risks that may arise. Cooperation among FMIs to promote inter-operability across markets are best undertaken in conjunction with careful evaluation of potential systemic risks that may arise from increased interconnectedness of markets at different stages of maturity. This evaluation could also consider the threats these risks may pose, especially to smaller

[12] Potential rise of supply in HQLA from long-term investors including pension funds and insurance companies need to be further examined.

[13] Real Time Gross Settlement

[14] Currently real-time payment systems are developing in many economies. The discussion of connecting such systems can be seen as an effort to reduce FX settlement risk related with the difference in time zone and conversion of local currencies into USD as intermediary even in a case of local currency vs local currency settlement. However, it is also necessary to note that the expansion of the network may create a larger systemic event. In this regard, CSIF is discussing common understanding among the members for cross-border business continuity plan and cybersecurity, which will be observed when establishing the CSD-RTGS Linkages among the CSIF members.

economies, and their policy and regulatory implications. The outcomes of this evaluation can form the basis for the design of proportionate risk mitigation measures that also take into consideration the objective of fostering financial inclusion and efficiency.

2. Core Elements of Financial Market Infrastructures

2-1. Securities Markets: Post-Trade Ecosystem

The securities market post-trade ecosystem is a large one and for purposes of this roadmap, can be defined as including:

(1) financial Market Infrastructures (FMIs); securities central counterparties (CCPs), central securities depositories (CSDs) and payments infrastructure needed for settlement;

(2) securities intermediaries and messaging systems, including custodian banks and broker-dealers; and

(3) fund services participants, including centralized industry fund services platforms, transfer agencies and fund administrators.

Market participants today are facing a significantly heightened level of post-trade operational running costs and complexity. This has been a consequence of various regulatory requirements that were introduced globally and in individual jurisdictions during the past two decades, in conjunction with the evolution of financial markets. Together with the challenge of dealing with legacy systems, the continuing accumulation of these costs and complexities threatens to become a significant drain on market participants' growth-oriented investments. Alleviating the operational and compliance complexities and reducing these costs will require regulatory attention to specific areas of capital markets that form the core elements of FMIs.

Over time, unintended effects could arise if the industry prioritizes the channeling of scarce resources into certain areas and divert attention away from others, which can in turn inhibit markets' development. Unnecessary complexities and costs also act as invisible "behind the border" barriers to cross-border investment activities as well as to financial market integration. They could thus hinder the achievement of economies of scale that would attract more market participation.

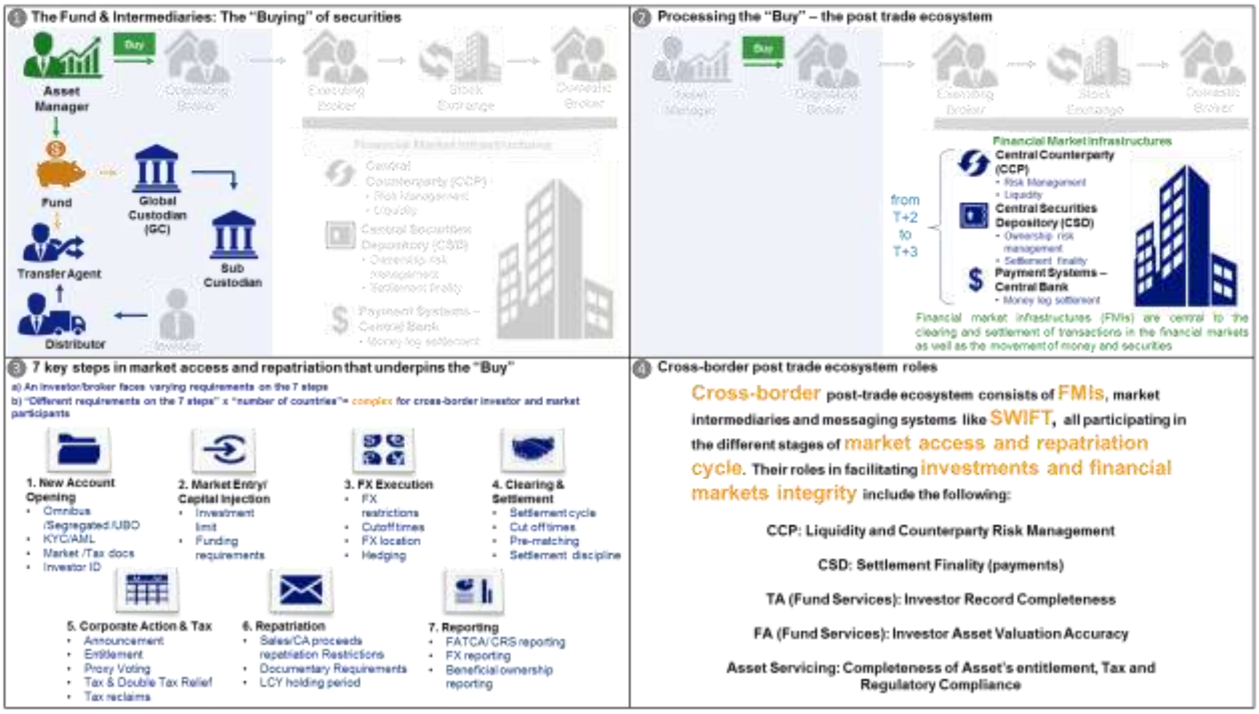
As a starting point, the potential to realize the benefits of cost, compliance and regulatory reporting efficiencies can be found in the region's diverse set of market access and repatriation requirements and their inherent documentary compliance and regulatory reporting activities [see the account opening stage of the market access and repatriation cycle in Diagram 1]. Greater standardization and the use of FMIs as industry utilities have been highlighted as two possible solutions. In the future, technology, in particular *regtech,* may also play a role in the achievement of such efficiency goals. Public-private sector collaboration is critical to generating a shared understanding of regulatory goals that can lead to better approaches toward compliance.

Every financial market will have a set of cross-border market entry and repatriation steps that underpin cross-border investments. The efficiency with which these steps can be undertaken determine the market's overall cost and operational complexity and risk levels, which are of concern to all participants.

This set of cross-border market entry and repatriation steps generally consists of:

- new account opening;
- market entry and capital injection;
- FX execution and hedging;
- clearing and settlement;
- asset servicing or corporate actions and tax;
- repatriation; and
- reporting.

DIAGRAM 1: The Ecosystem of Market Access and Repatriation



Source: Deutsche Bank

A cross-border market participant faces the costs and complexities that are amplified by the actual number of activities, the frequency and extent of changes that affect these activities and the number of markets that he or she is vested in. It is therefore important to review the related post-trade documentary and reporting regulatory requirements, in order to determine which legacy requirements may be phased out and which areas can be streamlined or automated using advanced technology.

Recommendation 2-1:

a. Public-private sector collaboration should be harnessed to progress regional standardization. Collaboration between public and private sectors is critical for the success of assessing and progressing the regional standardization of account opening documents. This applies particularly in relation to KYC/AML. This also applies to tax reporting, which both domestic and cross-border securities investors need to complete. Standardization efforts can only have meaningful results if industry-wide implementation occurs at the regional level.

b. Active regulatory and industry support should be mobilized to enable the regional reuse and portability of standardized documents. Regulatory support is essential for effectively enabling the use of third party industry utilities ("documentary industry utilities") in storing, managing and facilitating access to standardized documents by relevant parties. Clear guidelines are important in this process. Exploring the feasibility of the reuse and portability of such documentary information at the regional level and how and when these goals can be achieved requires dialogue between public and private sectors.

A sequencing of the recommendations would be beneficial for facilitating understanding and building momentum with every step. Recommendations on cross-border securities post-trade ecosystem are related to those on non-resident accounts, tax, investor identification and transparency. The section on fund services is similarly focused on increasing automation to reduce complexity and to support cross-border funds activities.

2-2. Non-Resident Accounts, Tax, Investor Identification and Transparency

Account structure, tax, investor identification and transparency are shaped by each market's historical development and level of maturity. While there is neither absolute truth nor global consensus on this, they are generally considered important for markets' liquidity and stability, which are typically used as measurable benchmarks to assess the efficiency of a particular market. Harmonization is ideally desirable, though not an absolute necessity, as any jurisdiction can unilaterally address any barrier to cross-border transactions. To achieve harmonization while allowing each economy to manage its own priorities at its own pace, safely and at least cost, responsible authorities could review whether legal and tax frameworks support international rules and best practices, and undertake any reform that is needed. This benefits all investors, including domestic ones who become international investors as soon as they invest outside their home market.

Jurisdictional authorities should clearly articulate their statutory objectives: asset protection, tax collection and market surveillance prior to engaging in market reforms that touch any of these. This will enable fair assessment of assets by foreign investors, which is particularly relevant for some markets in the region.

a) Account structure

Three dimensions must be considered when looking at the optimal account structure for a market: asset protection, cost and operational efficiency**.** It is also important to keep in mind that multiple account structures can co-exist in the same market for different asset classes and even for the same asset class. Each structure offers different advantages and has limitations. Any account structure can be adopted on a purely domestic basis, while at the same time additional considerations are required on a cross-border basis. The key is to strike the right balance between transparency and operational efficiency, considering that market needs can evolve over time together with the market's level of maturity.

The account structure supports the identification of legal ownership and asset protection attached to securities in case of insolvency of a counterparty, an intermediary or an infrastructure. It is also an important component of the custody chain which influences market participation, risk mitigation and settlement efficiency. This role is magnified on a cross-border basis, where empirical evidence shows that the omnibus account structure, combined with a nominee concept legal structure, is the most effective option from an operational viewpoint and is also the method preferred by international investors in entering a market. Indeed, opening direct accounts at the level of the CSD prevents intermediaries from isolating investors from local complexities.

Case Study

When introducing reforms, they must be reviewed to ensure that they are meeting the intended objectives. For instance, one economy recently introduced the ability to bulk orders. While this is a positive development, it does not fundamentally meet the need to have a 'nominee' or 'omnibus' account structure.

Equities are traded on an exchange with a high concentration on the main liquidity pool. Fixed-income securities are mostly traded OTC and trading takes place on a decentralized basis, hence the custody chain is also decentralized. Korea has introduced the omnibus account for equities in March 2017. China adopted the omnibus account structure for Stock Connect and for Bond Connect.

It is important to remember that fixed income assets do not grant ownership rights, which has significant policy implications in terms of an economy's interest and tax purposes. When information and transparency are required with regard to ownership, disclosure regimes should be preferred over segregated account structures; and authorities should be aware of the difficulty of obtaining qualitative data compared to quantitative data. In most instances, quantitative data can be used for policy and monitoring purposes, while the incremental value of qualitative data for these purposes often does not justify the cost of systematic collection.

In the context of CCPs, regulators may consider the ideal account structure to ensure portability, though the best solution may be to leave the choice to the asset owner.

Recommendation 2-2a: Account structure may be omnibus, direct holding under the beneficial owner's name, or a mix of both. The choice of account structure is often determined by macroprudential considerations related to management, cross-border taxation, transparency, and reporting and operational requirements. Different account structures can coexist, and there is no need to change the way local participants operate in their market if it best serves their needs. Those who view attracting foreign investment to the market as a key priority would be wise to choose the omnibus account structure, which is the preferred option for cross-border flows. Ideally the omnibus account structure should be combined with the nominee concept legal structure to ensure optimal asset protection.

In the spirit of reciprocity, jurisdictions should strive to harmonize fiscal treatment across asset classes. In fiscal matters, simplification should be the driving principle.

b) Tax

While considering the comprehensive statutory framework, it is also important to pay attention to critical tax implications. Most mature markets have chosen not to levy tax on fixed income instruments. However, each jurisdiction's decision whether or not to levy such taxes is based on various considerations. A good rule of thumb in making this decision is to consider the issue both from an economic perspective (for example, whether the tax revenues can be offset by an increase in yield) and from an operational perspective (for example, whether the tax computation and collection processes are operationally efficient, or whether they will negatively affect the liquidity of instruments).

While the economic relevance of the tax can be debated between tax authorities and issuers (in particular their corporate and debt management offices), operational efficiency is a lower hanging fruit. Indeed, investors can request a yield premium to offset an excessive tax rate but will likely not invest or will limit their activity should the operational complexity be too high.

"Zero tax" is the easiest model to operate, but should authorities in a jurisdiction see a need to levy tax on fixed-income instruments, it is important for them to be aware of the additional complexity this entails in a cross-border environment. Typically, taxes requiring computation based on price differences (such as in the case of certain capital gains tax or VAT) or holding period are the most complex to deal with on a cross-border basis. Processes requiring local notarization, original documents, and the use of a local agent are best avoided as they entail heavy costs and added complexity.

Case Studies

- *A Financial Transaction Tax (FTT) implemented in Scandinavia was reversed after capital market liquidity completely dried up. The new FTT being discussed in Europe is facing many hurdles and could pose a threat to collateral management-related transactions which are a major pillar of liquidity.*
- *Japan changed its tax scheme to do away with parallel pools of so-called "clean" and "dirty" JGBs to benefit from merging these two liquidity pools.*
- *China recently confirmed that, for the China Interbank Bond Market (CIBM), there would be no capital gains and no tax at all for government bonds and municipals.*
- *Chinese Taipei simplified the tax scheme for Formosa Bonds in order to attract foreign investors.*
- *In several APEC economies, the liquidity of capital markets suffer because of tax complexities.*

The withholding tax process can be optimized by preferring a "tax at source" principle with a refund to support corrections after the payment date. The second best option is a "quick tax refund" process followed by a "standard refund". The collection of tax certificates to define the tax rate of the investor can also be optimized by preferring a "perpetual" certificate that is valid until a change occurs. The second best option is a recurrent certificate (every x number of years). The least preferred option is a certificate required for each payment. The collection of certificates can be greatly facilitated by the intermediaries in the custody chain so it is advisable to leverage them.

A frequent misgiving is that financial institutions, especially foreign ones, are unwilling to pay taxes. In reality, firms seek to have a tax regime that does not impose a significant operational burden and that is predictable enough to permit accurate pricing of assets.

There is no ideal tax regime, and even imperfect regimes can yield an expected level of income. Simple regimes tend to facilitate fiscal compliance, while complex regimes tend to increase the operational cost of servicing capital market assets. This increased cost is incorporated in the asset valuation, and therefore will increase the interest demanded by investors on domestic issues including sovereign ones. As a consequence, any marginal tax revenue benefit could be erased by the higher yield.

The impact of tax on capital market policies must also be better understood. For example, the focus on beneficial ownership in one economy is driven by the wish to broaden the tax base. However, this has a significant impact on the efficiency of trading. Authorities are encouraged to consider other implementation options provided there is no overwhelming fiscal leakage.

Various observations indicate that beneficial ownership shifts have not been used for tax avoidance. Even under the current regime where double tax agreements vary and investors might benefit from taking advantage of specific agreements by shifting designated owners (i.e., moving a position from one account to another under a preferential tax rate) just before the record date, there is no clear indication that they are in fact doing so.

Due to transaction costs involved and other commercial reasons, shifting beneficial ownership before the record date would be a deliberate action that most investors prefer not to take. These investors stand to benefit from a simpler tax regime. Basing measures on the assumption that deliberate actions will be taken just for tax outcome would not be beneficial to the economy. Under the BEPS action plans, the requirement of substance and other consideration to avoid tax treaty abuse should also limit the applicability of treaty rates even in the case of a shift in beneficial ownership.

Tax authorities may consider a number of measures that can help promote the growth of capital markets. For example, in withdrawing exemptions, they could base data used for assessment on existing data pools, such as the one collected under the OECD Common Reporting Standards. In terms of tax principles, they could avoid imposing transaction taxes. They could use the record date principle instead of holding period calculation methods. In general, it is better to base taxation on operations occurring within the jurisdiction and to avoid subjecting cross-border capital investments that are not actual operations to income tax. Removal of what is effectively a transaction tax should not be seen as a harmful tax practice that results in base erosion and profit shifting.

Recommendation 2-2b: Where capital market development is a priority, authorities should consider investors' preference for zero or very low taxes on fixed income instruments or simplified tax schemes. Examples are applying withholding tax based on a Record Date principle[15] and imposing no capital gains tax based on price differences or a tax calculated on a holding period, since they are unmanageable on a cross-border basis. Investors also prefer to be taxed at source instead of having to refund, which should be limited to corrections post payment. For collection of tax certificates, investors prefer a one-time certificate instead of yearly certificates or a certificate per payment. They also prefer to have no requirement for local notarization of tax certificates or supporting documents.

c) Investor Identification and Transparency

There are multiple reasons why transparency may be desired by issuers, investors, tax authorities and regulators. Such reasons include collection of statistical data, price discovery, KYC and AML purposes, quotas, tax and market surveillance, among others. Different asset classes (e.g., equities, fixed income, investment funds) are traded differently and bear different risks. Equities give an ownership right over a company while bonds only give a mere right to an interest without ownership.

[15] Record Date principle: Use of a date (instead of a holding period) to determine the eligible bond holders who will receive an interest payment or a distribution

Since instruments that are not the same would need to be treated differently, the appropriate transparency level may differ across asset classes.

Transparency can be achieved through multiple means: regulators' bilateral communication, segregation of accounts at CSD level, use of a unique ID at trading level, trade repository or reporting. Each approach has different merits and some are more suited to certain asset classes. For a certain purpose, they can also be combined.

Recommendation 2-2c: Authorities should strike the right balance between transparency and market efficiency in reporting of investors' information. Responsible authorities are encouraged to review whether legal frameworks support requests to report investors' information and undertake the necessary legislation if this is not the case. This includes the introduction of requirements for bond prospectuses to facilitate access to investors' information where needed by securities regulators and issuers. However, such a review should also take into account three important considerations. First, the reason for increased transparency should be precisely defined to ensure that the solution addresses needs and minimizes operational friction for the parties involved. Second, the enforceability of the law on collecting investors' information should be ensured to avoid conflicting regulations between the jurisdiction of issuance and the jurisdiction where the investor resides. Third, requesting data that cannot be automatically retrieved from intermediaries' systems or which require interpretation should be avoided.

2-3. Increasing Market Efficiency: Issues Specific to Repo/Lending

Liquid and well-functioning repo and securities lending markets are essential for the efficient allocation and movement of capital and collateral through the financial system. They also play a role in the diversification of risk among different types of market participants across economies. Many of the issues facing Asia-Pacific repo and securities lending markets are common to international markets. However, the relatively fragmented nature of Asia-Pacific markets and the wide variation in levels of development of domestic markets give rise to additional regional issues and challenges in developing consistent practices. Hence, to promote greater movement of capital and collateral while ensuring risk mitigation, responsible authorities are encouraged to review and promote international best practices and promote adoption of standard documentation. They could also review current policies and practices and consider expansion of local collateral eligibility requirements.

Repo/Lending markets bring to securities markets significant benefits. They allow cost reduction, improve risk management, and promote liquidity. It is important for financial markets and public authorities to understand the benefits of short selling. For example, it allows investors with very long term perspectives to maintain their long positions while controlling risk, and thus heavily influences the appetite for investing in the market.

Market participants have identified several challenges with respect to repo and securities lending markets in the region. Policy at the domestic, regional, and international levels (such as monetary policy, capital account restrictions, or international prudential regulation) can affect the availability and liquidity of collateral, especially in cross-border markets. Collateral eligibility requirements, including those for local-currency collateral, can also affect liquidity in international markets. Short-selling rules and disclosure regimes can impact the markets as well, in both positive and negative ways. Finally, collateral and inventory optimization is a major concern for direct market participants, especially those who need to dynamically manage a range of types of collateral across markets and entities.

Fortunately, both policymakers and market participants continue to pursue various initiatives to further develop and improve the market. These include continued promotion of international best practices, formulation of codes of conduct, and adoption of international documentation such as the Global Master Repurchase Agreement (GMRA) and Global Master Securities Lending Agreement (GMSLA) to provide better transparency to regulators in the region.

a) Regulatory transparency

Regulatory uncertainty increases market risk and legal risk, which makes markets less attractive to investors. It is therefore important for regulators to clearly articulate their regulatory intent, and be consistent in its implementation. While there is certainly benefit in learning from regulatory implementation in other jurisdictions, if there is an intention to reform certain markets this needs to occur before global capital market reforms are finalized. Once these global reforms are completed, significant resistance by financial institutions to additional changes can be expected, thus leaving remaining obstacles to foreign investment unaddressed.

It is important for authorities to ensure that the reforms they introduce are appropriate given the realities in their markets. Currently, for example, only the very large markets in APEC are likely to have the scale to justify the implementation of global standards on financial market infrastructures[16].In addition, it should be noted that some reforms, while intended to apply to all participants, may work for onshore (local) participants but not necessarily for offshore participants.

Recommendation 2-3a: Regulatory transparency is enhanced where there are very clear principles on regulatory expectations on raising capital and investment. This can be achieved by responsible authorities and market participants through such initiatives as the promulgation and promotion of international best practices and formulation of codes of conduct to further develop and improve the market.

b) Adoption of standard documentation

The fragmented situation of repo and securities lending markets in the region is exacerbated by local documentation requirements and standards. While there may be important considerations behind the introduction of some locality in standard contract documents, standard local documentation in many cases end up not containing adequate operational details or credit protection for international participants.

Recommendation 2-3b: It is advisable to review local practices in a market to determine whether contract documents are aligned with international standard documentation such as the Global Master Repurchase Agreement (GMRA) or the Global Master Securities Lending Agreement (GMSLA). Should this not be the case, securities regulators and policy makers could collaborate with market practitioners, industry associations and other relevant stakeholders to promote the use of a standard contract document. This includes how relevant local specific circumstances can be reflected, such as for example in an annex.

c) Tax and accounting

It is important to understand the implications of having manual processes, or of requiring people to be based on the ground. For example, tax complexity and uncertainty can be an obstacle. In some instances, the application of a tax can prevent participation in markets and so reduce rather than generate revenues.

Case Studies

- *The 2014 APFF Interim Report includes an annex that explores in depth the policy and regulatory foundations for an efficient repo market and lays out best practices across the repo trade life cycle. It also looks at the value of having a repo market in the region, its benefits to the real economy and the very complex and technical policy challenges to the functioning of markets. The document developed by ASIFMA, Developing a Repo Best Practice Guide for Asian Markets, is available in the APFF page of the APEC Business Advisory Council website.* [*https://www2.abaconline.org/assets/APFF/APFF%20IR%20Annex%20B%208%201%202014.pdf*](https://www2.abaconline.org/assets/APFF/APFF%20IR%20Annex%20B%208%201%202014.pdf)
- *The ASEAN+3 Bond Market Forum (ABMF) has developed the ASEAN+3 Bond Market Guide, a*

[16] Even though, less developed markets are affected by the changes in the global markets including Basel rules (e.g. Leverage ratio, Liquidity Coverage Ratio, and Net Stable Funding Ratio), and electrification of trading practices (e.g. Automated Request for Quote).

comprehensive report on most bond markets in East and Southeast Asia. It includes an analysis of market infrastructures and information on bond transaction flows. The ASEAN+3 is a platform that enables ABMF to access finance ministries, including tax authorities. [*https://www.adb.org/publications/asean3-bond-market-guide*](https://www.adb.org/publications/asean3-bond-market-guide)

Recommendation 2-3c: Current tax policies and accounting practices need to be reviewed to identify and address unintended barriers. Regular dialogues between responsible authorities and industry representatives through public-private platforms can facilitate such reviews. Platforms where such dialogues can be undertaken include APFF, the ASEAN+3 Bond Market Forum (ABMF), the Asia Securities Industry and Financial Markets Association (ASIFMA), the International Capital Market Association (ICMA) and the Pan-Asian Securities Lending Association (PASLA).

d) Scarcity of HQLA / Expansion of local collateral eligibility requirements

Local currency collateral, including highly rated government bonds with very little credit risk, is not commonly accepted in international and foreign markets due to either market custom or internal guidelines of key market intermediaries. This has unnecessarily prevented improvements to the flow of collateral and liquidity in the region's bond markets. Addressing these barriers to cross-border collateral flows posed by collateral eligibility requirements can have significant impact on markets and liquidity and help attract more market participants.

Recommendation 2-3d: The types of securities eligible as High-Quality Liquid Assets (HQLAs) should be broadened to include local currency collateral with very low credit risk. The growing need for HQLAs in the region calls for collaboration among responsible authorities and international organizations to find solutions. These could include identifying local currency assets with very low credit risk. Such assets include highly rated government bonds and specific classes of securities that can be accepted as collateral in cross-border trades between financial intermediaries and CCPs. Efforts to deepen relevant stakeholders' understanding of how regional financial integration and robust hedging markets help improve liquidity are also important. These could be followed by advocacy efforts in jurisdictions where collateral eligibility can be expanded. In this regard, the CSD-RTGS Linkages under the Cross-Border Settlement Infrastructure Forum (CSIF) of the Asian Bond Markets Initiative can be considered a leading example.

2-4. Increasing Market Efficiency: Issues Specific to Derivatives

Greater transparency in the OTC derivatives markets is a key public policy goal that was codified in the Leaders' Statement of the 2009 Pittsburgh G20 Summit. While much work has already been undertaken to achieve this goal, the question remains as to whether the mountain of data now being generated is helping to improve regulatory transparency in a meaningful way. Currently, despite seeming progress, major challenges remain, including:

- different, costly, duplicative, conflicting and non-standardized reporting requirements across jurisdictions;
- some data requirements that are not clearly defined;
- the limited availability of 'substituted compliance' for reporting that adds to duplication;
- the inability to adopt standardized reporting formats quickly or broadly enough;
- lack of agreement as to how some data reporting requirements should be standardized across jurisdictions;
- limited regulatory endorsement of standards already in use;
- some reporting regimes being 'closed markets' – meaning they have their own trade repositories which do not leverage international standards and mechanisms;
- existence of legal barriers to sharing data and information, both within and across borders;
- trade repositories that have the unenviable task of collecting and standardizing data from multiple sources for multiple jurisdictions having their own unique data architectures, formats and methods of sharing information;
- absence of a facilitator or mechanism to aggregate data from different trade repositories globally;

and
- lack of commitment among stakeholders in the process to drive and achieve consensus in these areas.

As a result of these, incomplete and inconsistent trade data continue to make it impossible for regulators to obtain a true picture of risk in individual jurisdictions and to aggregate data and risk exposures at the global level.

Fortunately, with major jurisdictions having largely established their reporting regimes, domestic regulators are now increasingly turning their minds to cross-border efforts to achieve as much regulatory consistency as possible. While all of these issues have solutions, addressing this challenge will require active cooperation among regulators, market participants and market infrastructure providers.

The Roadmap seeks to enable data to be aggregated across jurisdictions, in order for a global data set to be realized for what is in essence a global market. *In order to achieve this goal, a number of critical milestones need to be met***,** including: (a) a shared, public commitment to global convergence on harmonized reporting requirements; (b) stronger regulatory endorsement of current data standards and formats already in use; (c) the removal of barriers to sharing of information among trade repositories and across borders; (d) increased availability of substituted compliance; (e) promotion of inter-operability and connectivity among trade repositories; and (f) intensifying cross-border regulatory focus on global aggregation mechanisms. Details are as follows:

Recommendations 2-4:

a. *Generating a shared public commitment to global convergence on harmonized reporting requirements*. This would involve commitment to a review by securities regulators of alignment and consistency of reporting requirements in their jurisdictions, and the undertaking of regulatory reforms wherever necessary to achieve this.

b. *Stronger regulatory endorsement of current data standards and formats already in use*. This would entail jurisdictions' embrace of standards for derivatives reporting and avoidance of introducing unique requirements by those that have yet to issue their rules. In this regard, the following considerations are relevant:
   - Formulating requirements to be as precise and prescriptive as possible will help prevent ambiguity in achieving compliance.
   - It is highly advisable to undertake a robust cost-benefit analysis before introducing any new reporting or disclosure requirement.
   - It is important to raise awareness in the market that, beyond merely satisfying compliance obligations, significant additional benefits can be gained in implementing a reporting regime. These include the ability to enhance the transparency of pricing and being able to utilize data for internal modeling either for counterparty risk or trading strategy purposes. These benefits underscore the need to utilize and/or optimize the current reporting structure rather than requiring additional duplicative reporting standards and formats.

c. *Removing barriers to sharing of information among trade repositories and across borders*. An important step in this direction is a review of whether current regulations hinder the sharing of relevant information across borders, which can be followed by reforms wherever needed.

d. *Increasing the availability of substituted compliance*. Collaboration among regulators and relevant stakeholders leading to the adoption of equivalence decisions (acknowledgement by a jurisdiction that the legal, supervisory and enforcement arrangements in another is equivalent to its own requirements) is highly encouraged. This would allow regulators to defer to each other's regulatory judgement where the intended outcomes are consistent. It will also enable a reporting entity to discharge its multi-jurisdictional reporting obligation for a transaction only once in the most convenient jurisdiction. Regulators with a mandate to access the data for a transaction can obtain it from that single report.

e. *Promoting inter-operability and connectivity among trade repositories*. This could be undertaken by regulators through a review of the level of inter-operability among trade repositories and efforts to promote and incentivize the sharing of relevant data.

f. *Intensifying cross-border regulatory focus on global aggregation mechanisms*. This can be facilitated by cooperation among regulators and other relevant authorities to share lessons learnt as well as to share data. A good first step would be the designation of jurisdictional, regional and global leaders who can spearhead the aggregation effort and the removal of barriers to the sharing of relevant data and information among regulators.

These objectives cannot be achieved at the level of individual jurisdictions, and require global collaboration, coordination and engagement. The active support and cooperation of a range of stakeholders – regulators, market participants and infrastructure providers – is vitally important to making this a reality. Only through implementing the above measures can the goal of transparency truly be achieved.

2-5. Fund Services

a) Regulatory transparency

As more people invest for retirement income and can potentially benefit from the diversity of funds through initiatives like the Asia Region Funds Passport (ARFP), managing the industry's costs has become critical. In those economies that are currently relying on email and other manual processes, establishing a regulator-supported funds back-office processing utility in the form of a centralized digital network can connect fund industry participants and enable more effective electronic exchange of information. It can improve industry cost efficiency and reduce operational risks to benefit asset managers and their investors. For cross-border fund investments, interoperability among such utilities can facilitate more effective compliance by the industry with regulatory reporting and investor transparency requirements. In addition, barriers to participation in funds passport schemes can be reduced with decreased administrative, operational and regulatory reporting complexities, thus contributing to the investment fund industry's development.

Case Study: Collective investment schemes in Asia

In 2014, the ASEAN Collective Investment Scheme (CIS) funds passport, which includes Thailand, Malaysia, and Singapore, went live. The CIS enables qualified fund managers to offer funds constituted and authorized in their home jurisdiction to retail investors in other member jurisdictions under a streamlined authorization process. In 2015, China and Hong Kong signed the Memorandum of Regulatory Cooperation on Mainland-Hong Kong Mutual Recognition of Funds (MRF), which allows eligible Mainland and Hong Kong funds to be distributed in each other's markets through a streamlined vetting process. In 2016, Australia, Japan, Korea, New Zealand and Thailand signed the Memorandum of Cooperation (MoC) for the Asia Region Funds Passport, an APEC initiative providing a multilaterally agreed framework to facilitate the cross border distribution of managed fund products among member economies.

Recommendation 2-5a: Regulators should establish a highly standardized registration processes for funds among jurisdictions participating in funds passport schemes. The experience of the ASEAN Collective Investment Scheme (CIS) has shown that securities regulators can be encouraged to undertake this by considering the benefits of streamlined regulations that can be felt by the market. The case of the China-Hong Kong Mutual Recognition of Funds (MRF) has demonstrated that attractiveness of products is key to effective promotion of the funds passport scheme, and that large-scale investments in pilot funds can attract the attention of industry.

b) Standardization and harmonization

Standardizing business processes is essential for the automation and efficiency of fund services. Fund services are especially focused on cross-border trading issues. Fund operators, distributors, registrars, administrators, and custodians located in different jurisdictions have to seamlessly connect their lines of services without compromising the product's attractiveness.

Amid the call to better understand different fund services in the region and develop recommendations for standardized practices, the Asia Fund Standardization Forum (AFSF) was established in 2015 as a consultative body of CSDs. However, standardization efforts can only have meaningful impact if industry-wide implementation is encouraged at the regional level, as failure to do so would likely result in the development of multiple standards that are not harmonized.

Case Study: Asia Fund Standardization Forum (AFSF)

The Asia Fund Standardization Forum (AFSF) was proposed in 2014 to help address the fragmentation of Asia's fund market infrastructure, the lack of a common fund platform, and in particular the lack of back-office standards and heavy reliance on manual processing with low levels of automation. Asian CSDs recognized the potential necessity of collaborative roles and efforts to establish back-office standards in the early stage of Asian fund market integration, and agreed to form AFSF in 2015.
https://www.ksd.or.kr/eng/static/EB1510010000.home?menuNo=127

Recommendation 2-5b: Ongoing efforts toward standardization and harmonization should be supported. Harmonization can be achieved in many parts of the business process. These include the usage of the same fund codes and message formats, regulatory and market requirements for information on fund products, account opening forms and KYC processes, among others. Standardizing terminology used between fund markets can help market participants communicate more effectively in undertaking cross-border transactions. Efforts within the Asia Fund Standardization Forum (AFSF) to advance these goals in its member jurisdictions can benefit from stronger support by responsible authorities.

c) Infrastructure inter-operability

Fund services are an integral part of the investment fund business as an infrastructure that supports back-office processing and execution of order. The scope of their services encompasses account ownership management, order routing, trade confirmation, corporate action, fund balance record-keeping, and settlement. Fund services acquire even greater importance when fund markets mature, as the plateauing of revenue growth from the asset management business compels companies to turn their attention to margin protection, efficiency, and speed. Although fund services have been heavily reliant on manual processes, they are moving toward automation and STP, which can promote economies of scale, scalability and inter-operability.

Case Studies: Centralized fund platforms in Asia

Fund platforms are playing a critical role in the growth of pools of investment assets, particularly in Asia. These include such platforms as FundNet in Korea, FundClear in Chinese Taipei, S-INVEST in Indonesia, and FundConnext in Thailand.

- *Korea: FundNet is a centralized digital network developed by Korea Securities Depository (KSD) in 2004, linking every fund market player in Korea. Market players can send trade settlement orders by logging into the FundNet interface, which sends the information to all relevant parties on STP technology without having to rely on manual methods. Vastly improved operational efficiency has driven market development, and daily operating volume for the fund business has jumped 17 times from 2005 to 2016, from 0.14 million to 2.6 million trade messages. The resulting cost savings for the industry due to FundNet is estimated to be USD 67 million per year (KPMG Strategic Consulting Group, Dec.2013).*
- *Thailand: Faced with the challenges of excessive manual processes and an increasingly spaghetti-like network of connections among market players, the Stock Exchange of Thailand (SET) developed a platform called the FundConnext in 2017 to drive industry development. As*

an outcome of close collaboration with the regulator and industry, FundConnext standardizes many aspects of business practices in the Thai fund market, including account opening, KYC, and Net Asset Value (NAV) disclosure, and facilitates the STP messaging between market players.

Despite the need to integrate fund services for cross-border flows, efforts are often hindered by vastly disparate practices, absence of a market standard and prevalence of proprietary systems found across the region. In this regard, the emergence of centralized fund hubs that interconnect the domestic market, streamlining the many-to-many communication between diverse players, is a positive development. As is often the case, CSDs are in a good position to invest in infrastructure projects for the entire market, providing a level-playing field for large asset management companies and SMEs alike. In the longer term, such local platforms can help increase investors' access to less globalized markets and open the door for service linkages across multiple markets, thereby accelerating fund market integration.

Recommendation 2-5c: Regulators should promote inter-operability of market infrastructure by supporting the development of fund platforms. Centralized fund platforms interconnecting domestic markets and streamlining many-to-many communication among diverse players have emerged in response to challenges facing the integration of fund services. Often led by CSDs, they are well-positioned to invest in infrastructure for the entire market, providing a level-playing field for large and small asset management companies, help investors access less globalized markets and create service linkages across multiple markets. Examples are Korea's FundNet, Chinese Taipei's FundClear, Indonesia's S-INVEST and Thailand's FundConnext.

d) Comprehensive statutory understanding

Commercial viability is important when designing financial market infrastructure projects. Where the retail market is involved, continued efforts are needed to educate investors and to provide them with sufficient transparency to make informed decisions.

There also should be provisions for instances where the mechanisms do not work as planned. For example, there must be a clear, well-defined dispute resolution mechanism – which, for example in the cross-border context, might include using an agent. All infrastructure projects should be run with an entrepreneurial spirit

3. DATA MANAGEMENT AND TECHNOLOGY

3-1. Fintech

The rapid development of fintech and emergence of disruptive technologies deserve close attention for their impact on FMIs. Key issues for FMI fintech include e-payments, e-KYC and cybersecurity.

a) Know Your Customer (KYC)

Identity is a key element for participation in the formal financial system. Approximately 1.5 billion people around the world do not have an officially recognized document to prove their identity, and many of them live in emerging markets across APEC. A government-issued ID is often essential for people to bank and transact – but biometrics, mobile phones, and data enable new ways to open up access and participation[17].

Traditional forms of identity provisioning struggle to reach underserved populations, contain clear security vulnerabilities, and cannot be verified remotely. Several governments across APEC and other regions are piloting digital identity programs that would provide a digital identity credential that can be linked to biometrics. These digital ID platforms are scalable, as the information does not require a

[17] A good example is the Aadhaar authentication introduced by India, which allow people to access financial services using a universal biometric digital identity.

physical card or even physical presence to be provisioned and utilized.

Digital IDs can be linked to electronic forms of know-your-customer (e-KYC) verification mechanisms. A secure digital ID application programming interface (API) allows private sector entities to match identity data they have against the government database. This in turn enables a seamless and instantaneous KYC process. These remote instantaneous verification procedures could enable financial services (alongside several other services) to be delivered on a far broader scale and in a more efficient manner to promote inclusive economic development in the APEC region.

Recommendation 3-1a: Economies should establish best practices for the development and adoption of digital identity solutions linked with e-KYC verification mechanisms. By giving their support, responsible authorities can help advance efforts, including those in the APFF, to review and analyze digital ID and e-KYC initiatives within and outside APEC. This would help document best practices that could be leveraged in the region. It would aid in identifying possible solutions that are inter-operable at least and harmonized at best for enabling a seamless and instantaneous KYC process to be delivered more efficiently on a broad scale.

The APEC Business Travel Card could be looked at as an example of a regional identity credential that could be replicated in the Digital ID context

b) E-Payments

Payments form the core of the financial services ecosystem, as most people, regardless of income level, location, and education, engage in payments transactions. Currently, 85 percent of the world's payments transactions occur in cash. In certain parts of Europe, however, more than 85 percent of payments transactions are already done electronically. Electronic payments (e-Payments) help to lower transaction costs, increase transparency, and make transfers of money faster and more efficient. Consequently, APEC member economies would benefit tremendously from further digitalizing cash payments.

Payment card solutions are rapidly proliferating throughout the APEC region. The mobile smart phone is also being leveraged to move APEC economies toward a cashless society. There are over 5 billion mobile devices in the hands of consumers around the world. New electronic payment solutions that leverage the mobile device are being rapidly developed. The inter-operability and regulatory requirements associated with these new solutions is currently a challenge for the APEC ecosystem that APFF can help to address.

A multitude of players are currently introducing solutions for electronic payments including governments, banks, card networks, mobile operators, and pure technology companies. There is a divergence between e-Payments solutions that leverage telephone networks and those that leverage the Internet. There are also divergent standards for payment solutions leveraging the mobile phone itself. Finally, there are differences in how mobile and card based solutions interact. From a regulatory perspective, some e-Payments solutions serve as a pass-through for traditional payment rails. Other payment solutions store value, while still others operate outside of the traditional ecosystem. Each of these solutions pose different regulatory challenges and consumer risks for APEC member economies.

Recommendation 3-1b: APEC should form a regional multi-stakeholder and multi-sectoral platform to identify key challenges to inter-operability of e-payments within and across economies and develop solutions to address them. With support from responsible authorities, this platform can diagram the e-payments landscape in the region. This landscape includes, among others, the multitude of players, solutions and risks. It includes divergence between solutions that leverage telephone networks and those leveraging the Internet. It includes divergent standards for mobile-based payments solutions. It also includes differences in how mobile and card-based solutions interact. The platform can seek to develop a set of definitions to help guide policy makers in understanding the landscape. It can develop recommendations on regulatory frameworks to address the varying regulatory and consumer risks arising from the wide variety of e-payment solutions and market conditions across member economies.

The platform can be used to create a primer on e-payments in the region.

c) Cybersecurity

The digitalization of financial services is coupled with the onset of new cyber-risks. Securing against those risks should be the goal of both the public and private sector in APEC. Issues related to cybersecurity extend beyond fintech. The risks associated with cybersecurity are not well or uniformly understood by policymakers across the APEC region. The solutions to these new risks can be equally challenging to comprehend. Moreover, the role of policy and regulation for APEC member economies in cybersecurity is a tremendous challenge as technology shifts rapidly and fixed regulatory requirements might lead bad actors to attack vulnerabilities that were not within the purview of specific regulation.

The major vulnerability associated with fintech is the multitude of new actors it brings into the financial services ecosystem and the linkages created between these new actors and in some cases their interaction with established financial institutions and systems in APEC. Technologies such as tokenization, however, limit the cyber risks of these new actors by encrypting transactions and only passing along tokens instead of actual financial information. The password is another security vulnerability that has been proliferated by fintech, creating opportunity for cyber-criminals to seek password credentials to take over accounts. At the same time, new fintech solutions such as biometric and multi-factor authentication are helping enhance security by reducing reliance on passwords.

A cybersecurity ecosystem for APEC can only be as strong as its weakest link. For this reason, policymakers in APEC are interested in creating baseline cybersecurity requirements for participants in the fintech ecosystem. The challenge with this approach, however, is that by setting a baseline for cybersecurity, APEC policymakers risk encouraging complacency in the ecosystem. Moreover, setting a baseline for cybersecurity among APEC member economies also risks highlighting for bad actors where the vulnerabilities lie. Policymakers must utilize more dynamic and flexible regulatory frameworks when approaching fintech cybersecurity that will best protect the ecosystem in the APEC region.

Recommendation 3-1c: APEC should develop dynamic and flexible regulatory frameworks to protect the region against cybersecurity threats. Through collaboration, responsible authorities and the private sector can create a typology of cybersecurity risks in the fintech ecosystem and undertake research and analysis of emerging cybersecurity threats and solutions. The learnings from this process can be shared across stakeholders at public-private forums. They can serve as basis for best practices that can be adopted by member economies, without regulatory technology mandates wherever possible.

Recommendation 3-1d: Responsible authorities should share among each other information on cybersecurity.

3-2. Disruptive Technologies / new FMI-like entities

Disruptive technologies such as distributed ledger technology and artificial intelligence have considerable potential as tools for improved data access and management and cost reductions, as well as efficiency and inclusion. They provide tremendous opportunities for financial market infrastructures and market participants to operate more efficiently, better service public and private sectors, and increase and simplify access to financial data and products.

However, they also carry risks, such as for example:

- technological and operational risks due to lack of maturity of technologies and business models;
- fragmentation risks due to a lack of technical and data standardization for mainstream and cross-border usage;
- cybersecurity and data confidentiality risks; and
- legal risks arising from existing regulatory uncertainty around use of technologies, especially for cross-border activities, and the legal protections that are available (particularly in a consumer

context).

Other risks are yet to be identified as technologies further advance and new business models emerge. In addition, efforts to harness new technologies to create a modern financial market infrastructure that can promote regional integration often face a regionally fragmented and dated ecosystem that requires multi-stakeholder collaboration to modernize.

Recommendation 3-2a: FMIs should undertake experiments to contribute to the research and development needed to understand the new technologies, the risks they bring and the challenges to be solved, and to help mature these technologies. This collaborative experimentation among FMIs, regulators, the financial industry and relevant public sector stakeholders is important for successfully meeting these objectives. It is also important in obtaining the broad support needed once decisions to implement solutions are to be made.

Recommendation 3-2b: Regulators and FMIs should forge collaboration among them to agree on harmonized future domestic legal frameworks supporting the adoption of new technologies to ensure cross-border regulatory certainty. In adopting new technologies, ensuring domestic and cross-border inter-operability of FMIs with legacy systems and processes that are not expected to quickly disappear is a key challenge. Standardization, both at technical and business data level, is needed to meet this challenge. To avoid reinventing the wheel, efforts should focus on leveraging existing reference data standards such as the Legal Entity Identifier (LEI) and International Securities Identification Number (ISIN), as well as business standards such as ISO 20022. Related collaborative open-source initiatives such as the Hyperledger Project can also be utilized. Cybersecurity and new technologies around fraud identification and attack prevention are among other issues to be considered in this collaboration.

III. CONCLUDING SUMMARY

Financial Market Infrastructures or FMIs are the pillars of financial market integrity. During the global financial crisis (GFC) of 2007-2008, they withstood the strains arising from the extreme volatility and volume of transactions. Since then, the importance of FMIs and ensuring their robustness have risen to the forefront of policy and regulatory priorities. This new reality was reflected in the publication of the new Principles for FMIs by the Committee on Payments and Settlement Systems (CPSS) – since then renamed Committee on Payments and Market Infrastructure (CPMI) – and the Technical Committee of the International Organization of Securities Commissions (IOSCO) in 2012. Today, FMIs are increasingly taking on new roles as the global regulatory agenda on greater transparency of transactions and greater standardization of financial products moves forward, and stand as a bulwark against market disruptions.

Such an expansion of FMIs' roles is a response to new and rising complexities and costs, which need to be better understood and managed for markets to have higher levels of sustainability. For example, emerging capital markets struggle with the tension between business case viability and the need for a Central Counterparty (CCP) for nascent derivatives markets. This is deemed necessary to avoid punitive balance sheet costs for banks operating domestically. On top of the new changes, overseas investors continue to deal with existing market access and repatriation documentation that can be streamlined. At the same time, funds continue to use post-trade paper-intensive services while investments are already being conducted at electronic speed. Cybersecurity concerns have also increased to add to this complexity.

Today, economies need to consider new issues and needs that face FMIs and financial markets. These include transparency through a standardized and common platform for trade reporting and improving the coordinated monitoring of markets through facilitation of cross-border data flows. They include maintaining and broadening access to cross-border money transfer mechanisms that are more transparent and affordable. They also include standardization of market practices, account structures, operational and processing models, and consistent tax treatment of domestic and cross-border transactions. Regulatory clarity and private-public sector collaboration is key to extracting new value from untangling some of these complexities.

As reported by the Asian Development Bank's Asian Economic Integration Report 2016, "[it] is essential to follow an FMI development strategy that is both tailored to the AEC [ASEAN Economic Community] and draws from global best practices. There is no one-size-fits-all approach for regional FMI development. While Europe primarily chose a top-down approach to financial market integration, this is not necessarily right for the AEC. Thus, existing multilateral initiatives should be intensified to provide a policy environment that is both enabling and prudent for the public and private sector to foster a balanced regional FMI development path".

While this was written with reference to ASEAN, it remains equally applicable to the rest of the Asia-Pacific. The potential benefits and goals of such collaboration would be to streamline unnecessary costs and fragmentation of markets, to enhance market liquidity, to achieve economies of scale, to provide an inclusive platform for economies and participants, to facilitate financing and investment, and to reduce the cost of funding from international capital markets.

ATTACHMENTS

ATTACHMENTS

Attachment A: List of APFF FMI Cross Border Practice Roadmap Core (large) Group Institutions and Participants

Institution (abbreviation)	Name	Title	Tele-conferences & emails	Seoul Symposium	Joint session with ABMF
Asian Development Bank (ADB)	Jae-Hyun Choi	CSIF Consultant	X	X	X
	Taiji Inui	ABMF Consultant			X
	Shigehito Inukai	ABMF Consultant			X
	Kosintr Puongsophol	Financial Sector Specialist	X		
	Matthias Schmidt	Custody Business Specialist (Consultant)			X
	Satoru Yamadera	Director, Principal Financial Sector Specialist , Office of the Director General, Sustainable Development & Climate Change Department	X	Panelist	X
Asia Facilitators	Robert Edwards	Managing Director		X	
Asia Securities Industry & Financial Market Association (ASIFMA)	Ashley Lee	Manager, Policy and Regulatory Affairs	X		
Autoriti Monetari Brunei Darussalam	Shaw Fhen Lim	Senior Manager, Payment & Settlement Systems Unit			X
	Md Kamrizan Antin	Manager, Payment & Settlement Systems Unit			X
Australian APEC Study Centre	Ken Waller	Director		X	
Australian Securities and Investments Commission (ASIC)	Rhonda Luo	Senior Specialist, Market Infrastructure		Panelist (Skype)	
Bain & Company Southeast Asia	Thomas Olsen	Partner		Panelist	
Banchile Inversiones	Hernán Arellano Salas	Gerente General (CEO)	X		
	José Antonio Díaz	Gerente de Inversiones (head of equities)	X		
Banco de Chile	Francisco Garces	Member of the Board		X	
Bangko Sentral ng Pilipinas	Bella Santos	Director, Payments and Settlements Office			X
	Remedios Macapinlac	Payments and Settlements Office			X
	Eleanor Turaray	Deputy Director, Payment and Settlement Systems Dept.			X
Bankers Association of the Philippines	Cesar O. Virtusio	Managing Director			X
	Pinky Padronia	Senior Associate Director			X
Bank of Japan	Megumi Takei	Deputy Director, Payment and Settlement Systems Dept.			X
Bank of Indonesia	Jultarda Hutagalung	Senior Analyst/Assistant Director, Payment System Management Department			X
	Noviati	Assistant Director, Payments System Policy & Oversight Dept			X
The Bank of Korea	Nayeon Park	Manager, Payment and Settlement Systems Department			X
	Jaeho Yoon	Manager, Payment and Settlement Systems Department		Panelist	
The Bank of Lao PDR	Sengouthai Dalat	Officer, Lao Securities Commission Office			X
	Sengthavong Luanglath	Head Division, Information Technology			X
	Nakhonsy Manodham	Deputy Secretary General, Lao Securities Commission Office			X
Bank of New York Mellon	Eric Ching	Director, Asset Servicing			X
	Hyeng Kyun Kim	Vice President		X	
	Rebecca Terner Lentchner	Co-Sherpa of APFF FMI, Head of Government Relations APAC, BNY Mellon	Co-Sherpa	Moderator	
	Tony Smith	Head of Collateral Management, Asia Pacific		X	
The Bank of Tokyo-Mitsubishi UFJ, Ltd.	Hiroaki Okumura	Chief Manager, Transaction Services Division			X
Bloomberg	Pablo Casaux	Latin America (ex-Brazil) Head of Market Structure Strategy, Head of Government, Institutional, Capital Markets and Strategic Relations, Capital Markets Structure Development and Regulatory Strategist	X		
	Claus Kwon	Head of Market Structures & Strategy and Contributions	X	X	
	Sudipto Lahiry	Manager, Core Product			X
	Rosanna Tejano	Branch Manager, Sales (Philippines)			X
Bolsa de Santiago	Juan Andrés Camus	Chairman, Santiago Stock Exchange	X		
	Nicolás Almazán	Chief Planning and Development Officer	X		
Bolsa de Valores de Colombia	Estefania Molina Ungar	Advisor to the CEO	X		
Bureau of the Treasury (Philippines)	Ma. Nanette Diaz	Director III, Liability Management Service			
	Tyrone Val Brotarlo	Attorney V, Law and Litigation Division – Legal Service			X
	Alvin Esmade	Special Investigator III, Securities and Documentation Division, Legal Service			X
	Harvey Juico	Legal Officer I, Securities and Documentation Division, Legal Service			X
	Kathleene Joyce Ramirez	Legal Officer I, Securities and Documentation Division, Legal Service			X
	Philsaint Bantang	Legal Officer I, Securities and Documentation Division, Legal Service			X
	Dennis Madrigal	Attorney V, Law and Litigation Division – Legal Service			X
	Gemmalyn Oaferina-Aguanta	Special Investigator III, Law and Litigation Division – Legal Service			X
	Anastacio Jeramieh John R. Caoayan IV	Legal Officer I, Complaints and Investigation Division – Legal Service			X
	Van Hudson J. Valiente	Legal Officer I, Complaints and Investigation Division – Legal Service			X
	Kamae Romorosa	Technical Assistant, Legal Service			X
The Central Bank of Russia	Vladimir Shapovalov	Head of expert group in financial markets development department		Panelist	

Institution (abbreviation)	Name	Title	Tele-conferences & emails	Seoul Symposium	Joint session with ABMF
China Central Depository & Clearing Co., Ltd. (CCDC)	Shixuan Gao	Business Manager, ChinaBond Pricing Center			X
	Tianhui Gao	Business Manager, CCDC Collateral Management Service Center			X
	Chen Li	Specialist, Technical Planning Department			X
Citibank	Catherine Simmons	Managing, Director, Head Asia Pacific Government Affairs		Panelist (Skype)	
	Tiffin Tanseco	Senior Vice President/Product Head, Markets & Securities Services			X
	Cheeping YAP	Head of Custody and Fund Services, Asia Pacific		Panelist	
	Laura Winwood	Government Affairs, Asia Pacific	X		X
Clearstream Banking S.A	Victor Ng	Vice President, Relationship Management (North Asia)			X
Credit Guarantee and Investment Facility	Munho Choi	Senior Investment Specialist, Deal Operations Department			X
	Dong Woo Rhee	Chief Financial Officer, Treasury and Financial Control Department			X
	Gene Soon Park	General Counsel & Board Secretary, Legal Department			X
	Jaclyn Tan	Senior Legal Officer, Legal Department			X
	Jackie Bang	Internal Audit			X
	William Rhee	Senior Legal Specialist, Legal Department			X
	Annlyn Wong	Risk Management Officer, Risk Management Department			X
	Guillermo Pablo III	Risk Management Specialist, Risk Management Department			X
	Sophia Baesa	Senior Risk Management Officer, Risk Management Department			X
	Paula Arjonillo	Risk Management Specialist, Risk Management Department			X
	Aarne Dimanlig	Chief Risk Officer, Risk Management Department			X
Department of Finance (Philippines)	Aaron Ang	Economist, International Finance Group			X
	Al Rillon	Economist, International Finance Group			X
	Cheryl Caballes	Economist, International Finance Group			X
	Ferdinand Ortilla	Economist, International Finance Group			X
	Herminio Runas Jr.	Director, International Finance Group			X
Deutsche Bank AG	Sang-Joon Park	Head of Investor Services, Seoul		Panelist	
	Boon-Hiong Chan	Co-Sherpa of APFF FMI, Director, Head of Market Advocacy APAC, MENA, Deutsche Bank	Co-Sherpa	Moderator	X
	Cherine Yeo	Assistant Vice President, Market Advocacy APAC, MENA	X		
Deloitte Tohmatsu	Taketoshi Mori	Senior Manager, Advisory			X
	Daisuke Kuwabara	Partner, Advisory			X
The Depository Trust & Clearing Corporation (DTCC)	Nellie Dagdag	Managing Director, Global Industry Relations, Sales & Solution Delivery (Philippines)			X
	Jean-Remi Lopez	Director of Government Relations for Asia Pacific	X	Symposium Rapporteur	X
	Oliver Williams	Executive Director, Head of Product and Change Management, Asia Pacific, DTCC DerivServ		Panelist	
	Evelyn Valdez	Industry Relations Specialist, Sales & Solution Delivery			X
	Paul Marchant	Regional Product Manager, Product Management			X
	Nigel Gnoh	Business Development Manager, Business Development			X
	John Elmer Portugal	Business Development Executive, Sales			X
EquiChain	Hugh Madden	CTO		Panelist (Skype)	
Ernst & Young Solutions	Amy Ang	Partner, Financial Services Tax	X	Panelist	
Euroclear	Gaetan Gosset	Director, Head of Product Management Asia Pacific	X	Moderator	X
Federation of Korean Industries	Chi-Sung EOM	Deputy Secretary General, Head of International Cooperation Department		Host and Presenter	
Financial Services Agency	Tai Terada	Deputy Director		Presenter and Panelist	
Financial Supervisory Service (FSS) (Korea)	Hyung-joon Yoon	Lead Manager, Corporate Disclosure System Office/Securities Issue System Team			X
Fundacion Chilena del Pacifico	Loreto Leyton	Directora Ejecutiva	X		
Global Financial Markets Association (GFMA)	Paul Hadzewycz	Senior Associate	X		
The Hong Kong-APEC Trade Policy Study Group Limited	Kristine Yang	Consultant			X
Hong Kong Exchanges and Clearing Limited (HKEx)	Kevin Rideout	Managing Director, Market Development Division		Panelist	
	Bernie Kennedy	Senior Business Advisor, COO Office		Panelist	
Hong Kong Monetary Authority (HKMA)	Clarence Hui	Senior Manager, Financial Infrastructure Department			X
HSBC	Soon Hyok An	Senior Vice President, Head of Trustee		X	
	Kyung Hee Yu	Senior Vice President, Head of Direct Custody,		X	
Hunter Powell Investments	Tenby Powell	Member, ABAC (New Zealand) Director; Hunter Powell Investments		X	
International Capital Market Association (ICMA)	Mushtaq Kapasi	Chief Representative, Asia-Pacific	X	Moderator	
International Finance Corporation	Matthew Gamser	CEO, SME Finance Forum		Panelist	
	Griselda Santos	Senior Financial Sector Specialist, Finance and Markets			X
International Monetary Fund (IMF)	Manmohan Singh	Senior Financial Economist		Panelist (Skype)	
International Swaps and Derivatives Association (ISDA)	Keith Noyes	Regional Director, Asia Pacific	X	Panelist	
	Rishi Kapoor	Director, Policy, Asia-Pacific	X	Moderator	
	Hyelin Han	represent ISDA for Regulatory Perspectives (FMI)	X		
Iron Duke Partners	Phil O'Reilly	Managing Director		X	

Institution (abbreviation)	Name	Title	Tele-conferences & emails	Seoul Symposium	Joint session with ABMF
Japan Exchange Group (JPX)	Hitoshi Izumi	Head Global Strategy & Communications, Global Strategy	X		
	Andrew Wong	Manager	X		
	Koji Ito	Senior Officer, New Listings, Tokyo Stock Exchange, Inc. (SF1 Chair)			X
	Michiaki Shinohara	General Manager, New Listings, Tokyo Stock Exchange, Inc.			X
Japan Securities Depository Center, Incorporated	Yuji Sato	Senior Manager, Corporate Strategy Department			X
John Hopkins SAIS	Beth Smits	Doctoral Candidate	Co-Sherpa	Moderator	
JP Morgan Chase Bank N.A	Masayuki Tagai	Managing Director, Global Market Infrastructures	X		X
Korea Exchange (KRX)	Seo Yeon Park	Deputy Manager		X	
Korea Financial Investment Association (KOFIA)	Dongchul Shin	Director		X	
	Sung Yang	International Advisor		X	
	Seo Hee (Hanni) Kang	Manager		X	
Korea Securities Depository (KSD)	Kwansig Yoon	Director, Fund Business Department		X	
	Seung-Kwon Lee	Team Head, Global Business Department			X
	JH Park	Team Head, Fund Business Department		X	
	Jong Hyung Lee	(SF2 Chair) Director, Global Business Department			X
	You Na Im	Senior Manager, Fund Business Department		X	
	Sunny Chung	Assistant Manager, Fund Planning Team, Fund Business Dept.,	X	Moderator and MC	
Malaysia Digital Economy Corporation (MDEC)	Hao Yang Siew	Fintech Division			X
Melbourne Law School	Andrew Godwin	Associate Professor; Director of Transactional Law; Director of Studies for the Graduate Program in Banking and Finance Law; Associate Director of the Asian Law Centre,		Panelist	
Metropolita Bank and Trust Company	Ferdinand Antonio Tansingco	Head, Financial Markets Sector and Treasurer			X
Ministry of Economy & Finance (Cambodia)	Vannak Chou	Deputy Director General, General Dept of Financial Industry			X
	Lida No	Head of Financial Sector Integration Div., Financial Markets & Institution Dept			X
Ministry of Finance Republic of Indonesia, Fiscal Policy Agency	Budi Arif	Head of Subdivision for Banking and Financing, Center for Financial Sector Policy, Fiscal Policy Agency		X	
	Vincentius Krisna Juli Wicaksono			X	
	Gandy Setiawan	Deputy Director, ASEAN Economic and Finance Cooperation Division			X
	Sepriza Triasanditya	Desk Manager for Non Finance Forum of ASEAN and Partners, ASEAN Economic and Finance Cooperation Division			X
Ministry of Finance, Japan	Daisuke Kasai	Section Chief, Regional Financial Cooperation Division, International Bureau			X
	Yuji Shimode	Officer, Regional Financial Cooperation Division			X
Ministry of Finance, Lao PDR	Chanpasith Sengphaathith	Deputy Director of Division, International Economic Integration			X
	Zamountry Dalaphone	Technical Official, International Economic Integration			X
Ministry of Strategy and Finance (Korea)	Yongjun Lee	Deputy Director, Financial Cooperation Team			X
Mizuho Bank, Ltd.	Koji Kawase	Senior Manager, Global Products Coordination Department			X
National Bank of Cambodia	Dara Chea	Chief Section, Payment System Department			X
	Sarat Ouk	Director, Payment System Department			X
New Zealand International Business Forum/ABAC NZ	Stephanie Honey	Associate Director		X	
Nomura Research Institute (NRI)	Hiroyuki Suzuki	Chair, APFF; Member, ABAC (Japan) Vice Chairman, NRI		APFF Chair	
	Julius Caesar Parreñas	APFF Coordinator; Senior Advisor	APFF Coordinator	X	X
	Ken Katayama	Co-Sherpa of APFF FMI; Senior Researcher, NRI	Co-Sherpa	Presenter and Moderator	Session Chair
Nomura Research Institute Singapore, Manila Branch	Soleil Corpuz	Senior Business Analyst, Consulting Division			X
	Rose Ferrer	Consultant, Consulting Division			X
NTT DATA Corporation	Masao Oumi	Senior Manager, Business Strategy Dept., Financial Segment			X
NTT DATA Institute of Management Consulting	Masahiro Nishihara	Senior Manager, Financial Business Planning Consulting			X
NTT DATA SYSTEM TECHNOLOGIES Inc.	Reiko MATSUMOTO	Application Engineer, System Planning Development Group / BOJ IT Services Division			X
	Naotaka SHIBASAKI	Senior Manager, System Planning Development Group / BOJ IT Services Division			X
	Yoshiaki Wada	Senior Manager, BOJ IT Services Division			X
	Daisuke YACHI	Manager, System Planning Development Group / BOJ IT Services Division			X
O-bank	Graham Wang	Assistant Vice President		X	
	Willy Hsieh	Associate		X	

Institution (abbreviation)	Name	Title	Tele-conferences & emails	Seoul Symposium	Joint session with ABMF
The Pan Asia Securities Lending Association (PASLA)	Stuart Jones	Chairman, PASLA; Executive Director, Morgan Stanley		Panelist	
	Paul Solway	Managing Director	X		
PayPal	David Katz	Sherpa of APFF FMI Fintech; Deputy Head of Global Government Relations & Head of Asia Pacific Government Relations, PayPal	Sherpa for FMI Fintech	Presenter and Moderator	
PDS Group	Cesar Crisol	President & CEO			X
	Antonino Nakpil	President & COO			X
	Ma. Theresa Ravalo	President & COO, Philippine Depository & Trust Corp / Phil Securities & Settlement Corp			X
	Eleanor Rivera	Head of Market Regulatory Services			X
PT Kustodian Sentral Efek Indonesia (KSEI)	Aditya Kresna Priambudi	Head of Project Management Unit, Project Management			X
	Mohammad Awaluddin	Head of Account Management Unit, Account Management			X
Public Debt Management Office (Thailand)	Puttipong Kanna	Economist, Bond Market Development Bureau, International Bond Market Policy Division			X
	Sriarpa Phoomiwatthana	Senior Economist, Bond Market Development Bureau, International Bond Market Policy Division			X
	Oraporn Thomya	Director Of International Bond Market Policy Division, Bond Market Development Bureau, International Bond Market Policy Division			X
Securities and Exchange Commission of Cambodia	Sambath Chhun	Deputy Director General			X
	Rady Mok	Head of Division, Research, Training, Securities Market Development, and IR Department			X
Securities and Exchange Commission (SEC) (Philippines)	Ephyro Luis AMATONG	Commissioner			X
	Vicente Gracianio Felizmentio, Jr.	Director, Markets & Securities Regulation Dept			X
	Erwin Edward Mendinueto	Chief Counsel, Markets & Securities Regulation Dept			X
	Allysa Ayochok	SEC Examiner III, Markets & Securities Regulation Dept - Investments Products & Services Div.			X
	Krizia Pauline Felice Ferrer	SEC Examiner III, Markets & Securities Regulation Dept - Investments Products & Services Div.			X
	Rosamund Faye Melig	Securities Specialist I, Markets & Securities Regulation Dept - Markets & Intermediaries Div			X
	Melanie Garcia	Accounting Specialist, Markets & Securities Regulation Dept - Markets & Intermediaries Div			X
Securities and Exchange Commission (Thailand)	Kruaonn Tontyaporn	Assistant Director, Bond Department			X
Standard Chartered Bank Singapore	John Pilott	Global Head of Regulatory Operations, Financial Markets		Panelist	
The Stock Exchange of Thailand	Kitti Sutthiatthasil	Senior Vice President		Panelist	
SME Finance	Hye Ji Kim	Research Officer		X	
Sumitomo Mitsui Banking Corporation	Hiroshi Kawagoe	General Manager, Transaction Business Planning Dept.			X
SuperCharger & HKU University	Jano Barberis	Founder of Supercharger / PhD Candidate at HKU Law School, Law			X
SWIFT	Alexandre Kech	Head of Securities & FX Markets	X	Moderator	
	Jean Chong	Manager, Securities & FX Markets			X
	Lisa O'Connor	Head of Standards, APAC (APAC Standards)			X
	Simona Catanescu	Account Director, ASEAN			X
ABAC APFF -Sycip Gorres Velayo & Co. (SGV & Co.)/ Ernst and Young Manila	Christian Lauron	Partner, Financial Services - Advisory			X
	Christian Chua	Senior Director, Financial Services - Advisory			X
	Veronica Arce	Senior Director, Financial Services			X
	Vicky Lee-Salas	Partner, Financial Services Head (Financial Services)			X
Thai Bankers' Association	Kobsak Dungdee	Secretary General			X
The Thai Bond Market Association	Ariya Tiranaprakij	Senior Executive Vice President, Bond Market Operation			X
Thailand Securities Depository Co., Ltd	Pataravasee Suvarnsorn	Executive Vice President - Head of Market Operations Division			X
	Praphaphan Tharapiwattananon	Vice President-Head of Depository Department			X
Thomson Reuters	Daniel Warelis	Government and Regulatory Affairs			X
Visa (Philippines)	Dan Wolbert	Senior Director, Philippines Country Team			X
	StuartTomlinson	Country Manager, Philippines Country Team			X
Visa (Korea)	Kevin Kyungil Cheong	Senior Director		X	
Visa (Singapore)	Arvin SINGH	Director, New Channels (Digital Products)			X
			34	60	135

Seoul Symposium Host/Supporting Institutions

Institution (abbreviation)	Name	Title
Federation of Korean Industries	Chul Han "Alex" Park	Head of Global Economy Team
	Jong-Chan Park	Manager, Global Economy Team
International Marketing Partners	Hyujung Song	President
	Shinhye Hwang	Senior Director

Attachment B: Records of Conference Calls and Meetings

Date	Type	Participants	Issues discussed
29th September 2016	Tele-conferenece	Co-Sherpas	Reviewed past discussions and confirmed target (symposium, roadmap)
7th October 2016	Tele-conferenece	Co-Sherpas	Agreed on sharing the industry contacts
18th October 2016	Tele-conferenece	Co-Sherpas	Discussed focus topics
25th October 2016	Tele-conferenece	Co-Sherpas	Discussed focus topics
2nd November 2016	Tele-conferenece	Co-Sherpas	Discussed focus topics
25th November 2016	Tele-conferenece	Co-Sherpas	Discussed annual work schedule
December 2016	Teleconferences and visits	ADB, BOJ, Euroclear, FSA, ICMA, IMF, Jasdec, JPX, JSDA, PASLA, Japanese Bankers' Association	Inquired joining the initiative
15th December 2016	Tele-conferenece	Core group members	Discussed format of the symposium, high-level thoughts, and task sharing
11th January 2017	Tele-conferenece	Core group members	Discussed roles, key messages, groupings, format of the symposium.
17th January 2017	Tele-conferenece	Santiago Stock Ex	Explained the initiative, discussed the challenges of MILA
18th January 2017	Tele-conferenece	Bloomberg	Explained the initiative, discussed the challenges of Latin American markets
24th January 2017	Tele-conferenece	Banchile Inversiones	Explained the initiative, discussed the challenges of Latin American markets
February 2017	Teleconference and visits	Ernst and Young, FSA, HKEx, JPX, SGX	Inquired joining the initiative
8th February 2017	Tele-conferenece	Core group members	Discussed draft agenda, introduction from participants from Latin America
2nd March 2017	Tele-conferenece	Core group members	Discussed problem statement, symposium format, speakers, logistics
28th March 2017	Tele-conferenece	Core group members	Discussed working draft, storyline of sessions at the symposium
11th April 2017	Tele-conferenece	Core group members	Discussed following up officials, Korean institutions, Initial draft roadmap
25th April 2017	Symposium	Speakers, Guests	Whole day sessions discussing from regulatory issues to technology
26th April 2017	Meeting	Section leaders	Discussed revising the roadmap, preparing further communications with officials incl. ABMF members
26/29 May 2017	Tele-conferenece	Section leaders	Discussed the recommendations to be reflected to the roadmap
14/23 June 2017	Visits	JSDA, BOJ	Discussed the recommendations and their backgrouds/reasons
4th July 2017	Conference	Section leaders, ASEAN+3 Bond Market Forum members	Discussed the recommendations and their backgrouds/reasons

Attachment C: Program of the FMI Symposium, 25 April 2017, Seoul, Korea

Asia-Pacific Financial Forum Symposium
DEVELOPING APEC'S FINANCIAL MARKET INFRASTRUCTURE

25 April 2017
Diamond Room, Federation of Korean Industries Conference Center
Seoul, Korea

Organized by
APEC Business Advisory Council

Hosted by
Federation of Korean Industries

Co-Sponsors

07:45-08:15	Registration and Networking
08:15-08:45	**OPENING SESSION**
5 mins	***Welcome address*** Mr. Chi-Sung EOM, Deputy Secretary General, Head of International Cooperation Department, Federation of Korean Industries
10 mins	***Opening remarks*** Mr. Hiroyuki Suzuki, Chair, Asia-Pacific Financial Forum; Member, ABAC Japan; and Vice Chairman, Members of the Board, Nomura Research Institute, Ltd.
15 mins	***Keynote speech*** TBD, Korean Government
08:45-10:15	**SESSION A: THE ROLES OF FINANCIAL MARKET INFRASTRUCTURES IN THE REGION AND REGULATORY PERSPECTIVES**
08:45-09:30	**SESSION A-1: PERSPECTIVES FROM REGULATORS** ➢ To establish FMI's key roles in (i) facilitating cost-effective and efficient investments (ii) supporting financial market stability and integrity and (iii) facilitating financial inclusion, fair and equitable competition and innovation. ➢ Contributions to the growth the regions' economy. ➢ What are the countries, regulators and FMI priorities re: FMI 2017+? ➢ How are the goals associated with above (i), (ii) and (iii) being achieved today? ➢ What are the challenges that regulators and public sector face and attempt to balance?
45 mins	***Panel discussion*** Moderator: Ms. Rebecca Terner Lentchner, Co-Sherpa of APFF FMI Head of Government Relations APAC, BNY Mellon Panelists: ■ Mr. Vladimir Shapovalov, Head of Expert Group in Financial Markets Development Department, The Central Bank of the Russia ■ Mr. Kevin Rideout, Managing Director, Market Development Division, Hong Kong Exchanges and Clearing Limited (HKEX)

- Mr. Keith Noyes, Regional Director, Asia-Pacific, International Swaps and Derivatives Association, Inc. (ISDA)

09:30-10:15	**SESSION A-2: PERSPECTIVES FROM INTERNATIONAL ORGANIZATIONS** **- FINANCIAL CRISIS, RISK MITIGATION, EFFICIENCY AND REGIONAL COOPERATION -** ➢ Regional Financial Integration ➢ G20 regulatory reform and APEC ➢ Local CCP for OTC derivatives transactions ➢ Financial Intermediaries and the role of market infrastructure
45 mins	***Panel discussion*** Moderator: Mr. Ken Katayama, Co-Sherpa of APFF FMIs Senior Researcher, Nomura Research Institute (NRI) Panelists: ■ Mr. Satoru Yamadera, Principal Financial Sector Specialist, Sustainable Development and Climate Change Department, Asian Development Bank (ADB) ■ Mr. Manmohan Singh, Senior Financial Economist, International Monetary Fund (IMF), (joining via audio line) ■ Mr. Keith Noyes, Regional Director, Asia-Pacific, International Swaps and Derivatives Association, Inc. (ISDA)
10:15-10:35	Coffee Break
10:35-14:50	**SESSION B: FINANCIAL MARKET INFRASTRUCTURES: PROCESS AND INSTRUMENTS**
10:35-11:35	**SESSION B-1: SECURITIES MARKETS: POST-TRADE ECOSYSTEM** <potential topics to be shortlisted> ➢ Changing roles of FMIs and the new relationships with market participants and regulators ➢ Post-trade and its roles in the financial sector - what are the changes? ➢ Fintech and technology impacts on FMIs - what, how and where? Are regulatory responses sufficient so far? ➢ Cross-border efficiency and market integration - what are the dismantled barriers and what are the new barriers? ➢ Main regulatory drivers that have shaped FMI/post-trade ecosystem - what are the new complexities to alleviate? ➢ What are the areas of potential policy and regulatory adjustments that can catalyse certain positive benefits further / encourage certain innovations? ➢ What can make this region/Asia/ASEAN capital markets less attractive to investors and domestic capital market activities? ➢ What are some near-term actionable items that can make the region's capital markets more attractive and/or more resilient that regulators and policy makers can support? E.g. tech re-use, greater automation, etc?
60 mins	***Panel discussion*** Moderator: Mr. Boon-Hiong Chan, Co-Sherpa of APFF FMI, Director, Head of Market Advocacy, APAC, GTB, Deutsche Bank AG Singapore Panelists: ■ Mr. Satoru Yamadera, Principal Financial Sector Specialist, Sustainable Development and Climate Change Department, Asian Development Bank (ADB) ■ Mr. Kitti Sutthiatthasil, Senior Vice President, Head of Strategy Department, The Stock Exchange of Thailand ■ Ms. Bernie Kennedy, Senior Business Advisor, COO Office, Hong Kong Exchanges and Clearing Limited (HKEX) ■ Mr. Rob Edwards, Managing Director, Asia Facilitators Ltd.
11:35-12:15	**SESSION B-2: NON-RESIDENT ACCOUNTS, TAX, INVESTOR IDENTIFICATION AND TRANSPARENCY** ➢ Holding structure – legal and operational

	➢ Insolvency and asset protection ➢ Transparency mechanisms ➢ Key tax issue that inhibits cross-border flow
40 mins	***Panel discussion*** Moderator: Mr. Gaetan Gosset, Director and Head of Product Management, Asia-Pacific, Euroclear Panelists: ■ Sang-Joon Park, Head of Investor Services Korea, Deutsche Bank ■ Ms. Amy Ang, Partner, Financial Services Tax, Ernst & Young Solutions LLP EY ASEAN and Singapore Leader, Financial Services Tax
12:15-13:15	Lunch
13:15-13:55	**SESSION B-3: INCREASING MARKET EFFICIENCY: ISSUES SPECIFIC TO REPO/LENDING** ➢ Liquid and deep capital markets, with repo/lending functioning well help diversify risk among types of market participants across economies. ➢ Collateral and Monetary policy / capital controls ➢ Collateral in Financial Plumbing- Transparency & short-reporting? Observed need for harmonization of coordinated consistent best practices (Roadmap to have local currency securities as high quality eligible collaterals.) ➢ Effect of international prudential regulation (e.g., Basel) on Asian repo market development and liquidity ➢ Repo documentation in Asia? benefits/drawbacks/feasibility of international standards
40 mins	***Panel discussion*** Moderator: Mr. Mushtaq Kapasi, Chief Representative, Asia-Pacific, International Capital Market Association (ICMA) Panelists: ■ Mr. Stuart Jones, Chairman, The Pan Asia Securities Lending Association (PASLA); Executive Director, Morgan Stanley ■ Ms. Rebecca Terner Lentchner, Co-Sherpa of APFF FMI, Head of Government Relations APAC, BNY Mellon
13:55-14:35	**SESSION B-4: INCREASING MARKET EFFICIENCY: ISSUES SPECIFIC TO DERIVATIVES** ➢ Liquid and deep capital markets, with derivatives functioning well help diversify risk among types of market participants across economies. ➢ Ways to standardize market practices, harmonize reporting standards and inter-operability among TRs. ➢ Harmonization of reporting requirements across jurisdictions ➢ Greater regulatory endorsement of existing standards already in use ➢ Increased availability of substituted compliance ➢ Greater cross-border regulatory focus on global aggregation mechanisms ➢ Connectivity between TRs and alignment of data standards and formats ➢ What are the Derivatives FMI blueprint and next steps?
40 mins	***Panel discussion*** Moderator: Mr. Rishi Kapoor, Director, Policy, Asia Pacific, International Swaps and Derivatives Association, Inc. (ISDA) Panelists: ■ Ms. Rhonda Luo, Senior Specialist, Market Infrastructure, Australian Securities and Investments Commission (ASIC) (joining via audio line) ■ Mr. John Pilott, Global Head of Regulatory Operations, Financial Markets, Standard Chartered Bank Singapore ■ Mr. Oliver Williams, Executive Director, Head of Product and Change Management, Asia Pacific, DTCC DerivServ

14:35-14:50	**SESSION B-5: UPDATE ON THE ASIA REGION FUNDS PASSPORT (ARFP)** ➢ Brief update on ARFP Joint Committee's discussion ➢ Q&A with the floor
15 mins	***Presentation and Q&A*** Moderator: Ms. Sunny Chung, Assistant Manager, Fund Planning Team, Fund Business Dept., Korea Securities Depository (KSD) Speaker: ■ Tai Terada, Deputy Director for International Financial Markets, Office of International Affairs, Financial Services Agency Japan
14:50-15:30	**SESSION B-6: FUND SERVICES** ➢ Definition – Fund services ➢ Synergies between fund investment, fund passports, and fund services ➢ Importance of fund services ➢ Scope of fund processing operations and different models ➢ Emergence of centralized fund platforms in Asia ➢ Standardization efforts and the focus on fund data ➢ Fund Services blueprint next steps
40 mins	***Panel discussion*** Moderator: Ms. Sunny Chung, Assistant Manager, Fund Planning Team, Fund Business Dept., Korea Securities Depository (KSD) Panelists: ■ Mr. Tai Terada, Deputy Director for International Financial Markets, Office of International Affairs, Financial Services Agency Japan ■ Mr. Kitti Sutthiatthasil, Senior Vice President, Head of Strategy Department, The Stock Exchange of Thailand ■ Mr. Cheeping Yap, Managing Director, Custody and Fund Services Head, Asia, Citibank, N.A.
15:30-15:45	Coffee Break
15:45-17:35	**SESSION C: DATA MANAGEMENT AND TECHNOLOGY**
15:45-16:00	**SESSION C-1: DATA MANAGEMENT, TECHNOLOGY AND CYBERSECURITY – AN OVERVIEW** ➢ What are the processes that can change in the future and what are the new risks/costs? ➢ What are the re-usable technology components in FMI such that investment $ can be released for new technology investment areas like cybersecurity
15 mins	***Presentation*** Speaker: ■ Mr. Ken Katayama, Co-Sherpa of APFF FMI, Senior Researcher, Nomura Research Institute (NRI)
16:00-16:15	**SESSION C-2: E-PAYMENTS BRIEF** ➢ E-Payments have a major impact by lowering transaction costs, increasing transparency, and making transfers of money faster and more efficient. ➢ E-Payments can be a driver of economic growth – study of six APEC economies showed 1% increase in online sales resulted in 0.175 increase in GDP. ➢ Government has a big role to play in enabling regulatory regime and as a user of e-payment for government services to drive adoption. ➢ E-Payment increases transparency of economic activity, reducing prospects for corruption, 'black money' and increase in tax revenue. ➢ Where are we now? The current challenges to solve, does bitcoin-like token or sovereign digital currency have a role to play in reducing transaction costs and promoting regional economic integration? ➢ What are the future directions for e-payments?
15 mins	***Presentation***

Speaker:

- Mr. David Katz, Sherpa of APFF FMI Fintech, Deputy Head of Global Government Relations and Head of Asia Pacific Government Relations, PayPal Inc.

16:15-16:55 **SESSION C-3: E-PAYMENTS PANEL DISCUSSION**

- How can cross-border remittance effectively comply with investor asset protection, KYC/AML and restricted currency regulations? The compliance challenges to a regional cross-border investor
- What are the advances in Instant Payment infrastructure and the future of central bank settlement?
- Is there a role for a "crypto-token" for more effective XB trading in a diverse FX region?
- What are the prospects/rationale for APEC central banks to consider adopting distributed ledger technology to issue sovereign crypto currency?
- How should regulators consider balancing benefits of greater transparency of e-payments with expectations for protection privacy?
- What are the risks regulators should be thinking about and how might they approach managing them?
- What are the trends in this space, the new stakeholders in a digitalized financial market ecosystem and how can the region better coordinate and work together?
- What are the key activities for a regional payments FMI blueprint?

40 mins ***Panel discussion***

Moderator: Mr. David Katz, Sherpa of APFF FMI Fintech, Deputy Head of Global Government Relations and Head of Asia Pacific Government Relations, PayPal Inc.

Panelists:

- Mr. Matthew Gamser, CEO, SME Finance Forum, International Finance Corporation
- Mr. Thomas Olsen, Partner, Bain & Company Southeast Asia
- Ms. Catherine Simmons, Managing Director, Head, Asia Pacific Government Affairs, Citibank, N.A.

16:55-17:35 **SESSION C-4: FMI DATA, CYBERSECURITY AND DISRUPTIVE TECHNOLOGIES**

- Exploring the level of collaboration on standardization of the technological layer (R3, Hyperledger Project, IPL) and of the business layer (leveraging of data and business ISO standards)
- Current application of DLT/Blockchain
- Technical management, deterrence, enforcement and recovery. Update on cybersecurity threats to FMIs and cross-border aspects to consider.
- Does the region risk silos of encryptions, encryption complexity, laws/regulations and a new area of complexity (across countries, in different applications/interfaces, etc.)?
- Promotion of LEI for entities and support creating good national personal ID of developing economies.
- What are the trends in this space, the new stakeholders in a digitalized financial market ecosystem and how can the region better coordinate and work together?
- Domestic implementation real story use case: ASX, MAS. Description, what can we learn from these POC or prototype implementations, likely outcome.
- Cross-border implementation real story use cases: ECB pan-European securities Issuance, SWIFT Nostro Account reconciliation, DTCC?
- Inter-operability and standardizations (technical and business layer)

40 mins ***Panel discussion***

Moderator: Mr. Alexandre Kech, Head of Securities & FX Markets, APAC SWIFT

Panelists:

- Mr. Jaeho Yoon, Manager, Payment and Settlement Systems Department, The Bank of Korea
- Professor Andrew Godwin, Associate Professor; Director of Transactional Law; Director of Studies for the Graduate Program in Banking and Finance Law; Associate Director of the Asian Law Centre, Melbourne Law School, University of Melbourne
- Mr. Hugh Madden, CTO of EquiChain (joining via audio line)
- Mr. Jean-Remi Lopez, Director of Government Relations, Asia Pacific, The Depository

Trust & Clearing Corporation (DTCC)

17:35-17:45	**SESSION D: CONCLUSIONS AND NEXT STEPS**	
10 mins	■	Mr. Ken Katayama, Senior Researcher, Nomura Research Institute (NRI)
17:45	End of Symposium	

18:00-20:00	**NETWORKING COCKTAIL RECEPTION** **Venue: FKI Conference Center foyer**

APFF FMI Work Stream Core Group
Post-Conference Special Meeting

26 April 2017
Emerald Room, Federation of Korean Industries Conference Center
Seoul, Korea

07:45-07:55 ***Opening remarks***
- Dr. J.C. Parreñas, APFF Coordinator and Senior Advisor, Nomura Research Institute (NRI)

07:55-08:05 ***Recap of the Symposium***
- Mr. Boon-Hiong Chan, Director and Head of Market Advocacy, Asia-Pacific, Middle East and North Africa, Deutsche Bank AG
- Mr. Ken Katayama, Senior Researcher, Nomura Research Institute (NRI)

08:05-08:25 ***Review of Discussions: Regulatory Perspectives***
- Session Moderators (10 minutes each)

08:25-08:55 ***Review of Discussions: Process and Instruments***
- Session Moderators (5 minutes each)

08:55-09:15 ***Review of Discussions: Data Management and Technology***
- Session Moderators (5 minutes each)

09:15-09:40 ***Next Steps to Finalize Roadmap***
- Identification of issues to discuss in July ABMF session
- Logistical considerations

09:40-09:45 ***Closing remarks***
- Mr. Hiroyuki Suzuki, Chair, Asia-Pacific Financial Forum; Member, ABAC Japan; and Vice Chairman, Members of the Board, Nomura Research Institute, Ltd.

09:45 **End of Meeting**

Some of the conference materials could be downloaded from ABAC Web site:

https://www2.abaconline.org/page-content/22613667/content

Attachment D: Program of the Joint Session with ABMF, 4 July 2017, Manila, Philippines

<table>
<tr><th colspan="2">Sub-Forum 2 Joint session with Asia Pacific Financial Forum</th></tr>
<tr><th>TIME</th><th>PROGRAM</th></tr>
<tr><td>12:30 – 13:00</td><td>Registration</td></tr>
<tr><td>13:00 – 13:10</td><td>Opening Remarks
- J.C. Parrenas, APFF Coordinator, Nomura Research Institute (NRI)</td></tr>
<tr><td>13:10 – 14:40</td><td>Discussion on the proposal of a roadmap for improving the region’s FMI by Asia Pacific Financial Forum (APFF)
- APFF FMI Cross Border Practice Co-Sherpa Ken Katayama, NRI
Participants from the Seoul Symposium can be called on to provide more information:
- Boon-Hiong Chan, APFF FMI CBP Co-Sherpa, Deutsche Bank
- Jean-Remi Lopez, Symposium Panelist and Rapporteur, DTCC
- Gaetan Gosset, Moderator (Account structure and tax), Euroclear
- Jean Chong, Lisa O’Connor, representing Alexandre Kech, Moderator (Disruptive technologies), SWIFT
1. Introduction
- The objectives and structure of the APFF FMI initiative
- The structure of the roadmap
- Brief summary of the Symposium in Seoul
2. Draft recommendations
- Perspectives from International Organizations
- Securities Post Trade Ecosystem
- Non-resident Accounts and tax
Discussion on the key messages to be included in the report to APEC Finance Ministers Process
- Feedback from ABMF members and guests</td></tr>
<tr><td>14:40 – 15:00</td><td>Coffee break</td></tr>
<tr><td>15:00 – 16:30</td><td>Discussion on the proposal of a roadmap for improving the region’s FMI by Asia Pacific Financial Forum (APFF)
3. Draft recommendations
- Increasing Market Efficiency: Repo/Lending and Derivatives
- Fund Services
- FMI Fintech and Disruptive Technologies
Discussion on the key messages to be included in the report to APEC Finance Ministers Process
- Feedback from ABMF members and guests</td></tr>
<tr><td>16:30 – 16:45</td><td>Closing</td></tr>
</table>

Attachment E: List of Abbreviations

ABAC	APEC Business Advisory Council
ABMF	ASEAN+3 Bond Market Forum
ADB	Asian Development Bank
AFSF	Asian Fund Standardization Forum
AML	Anti-Money Laundering
APEC	Asia-Pacific Economic Cooperation
APFF	Asia-Pacific Financial Forum
API	Application Programming Interface
APIP	Asia-Pacific Infrastructure Partnership
ARFP	Asia Region Funds Passport
ASEAN	Association of South East Asian Nations
Asifma	Asia Securities Industry & Financial Markets Association
BOJ	Bank of Japan
CAP	Cebu Action Plan
CCP	Central Counterparty
CIBM	China Interbank Bond Market
CIS	Collective Investment Scheme
CPMI	Committee on Payments and Market Infrastructures
CPSS	Committee on Payment and Settlement Systems
CSD	Central Securities Depository
CSIF	Cross-border Settlement Infrastructure Forum
FKI	Federation of Korean Industries
FMI	Financial Market Infrastructure
FSA	Financial Services Agency, The Japanese Government
FTT	Financial Transaction Tax
FX	Foreign Exchange
G20	Group of 20
GFC	Global Financial Crisis
GMRA	Global Master Repurchase Agreement
GMSLA	Global Master Securities Lending Agreement
HKEx	Hong Kong Exchanges and Clearing Limited
HQLA	High Quality Liquid Assets
ICMA	International Capital Market Association
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
ISIN	International Securities Identification Number
ISO	International Organization for Standardization

ISDA	International Swaps and Derivatives Association
JGB	Japanese Government Bond
JPX	Japan Exchange Group, Inc.
JSDA	Japan Securities Dealers Association
KYC	Know Your Customer
MiFID	Markets in Financial Instruments Directive
MiFIR	Regulation on Markets in Financial Instruments
MRF	Mutual Recognition for Funds
OECD	Organisation for Economic Cooperation and Development
OTC	Over the Counter
PASLA	Pan Asia Securities Lending Association
PFMI	Principles for Financial Market Infrastructures
RTGS	Real Time Gross Settlement
TR	Trade Repository
SGX	Singapore Exchange Ltd.
SSS	Securities Settlement System
STP	Straight Through Processing

About the Asia-Pacific Financial Forum (APFF)

The Asia-Pacific Financial Forum (APFF) is a platform for public-private collaboration to accelerate the development of robust and integrated financial markets in the APEC region.

The APFF responds to the need for active collaboration among policy makers, regulators and experts from industry and international and academic organizations to address key issues. These include expanding access to finance for micro-, small and medium enterprises and households in emerging markets; facilitating trade and supply chain finance; creating deep, liquid and integrated capital markets; expanding the region's institutional investor base and its capacity to finance infrastructure and other long-term projects; strengthening financial resilience; and harnessing innovation to build inclusive and efficient financial markets.

The APEC Business Advisory Council (ABAC) proposed the APFF's establishment to the APEC Finance Ministers, who launched the Forum at their 2013 annual meeting in Bali. APFF is one of the three policy initiatives under the APEC Finance Ministers' Process whose management was entrusted by the Ministers to ABAC, together with the Asia-Pacific Forum on Financial Inclusion and the Asia-Pacific Infrastructure Partnership (APIP).

Over 300 experts and senior representatives from more than 150 institutions collaborate in the APFF's undertakings. These institutions include financial services firms (global and regional commercial and investment banks, asset management companies, insurers, pension funds, Fintech firms), legal, accounting and related services firms, business and investor information service providers, international financial industry associations, finance, trade and justice ministries, regulatory authorities, multilateral development banks, international organizations and academic and research institutions.

The work of APFF covers key areas of financial markets that are critical to the development of the region's economy and financial services:

- Credit infrastructure (legal, regulatory and institutional ecosystems for credit information sharing, secured transactions and receivables/warehouse financing)
- Trade and supply chain finance (regulations, technological and innovative solutions to working capital access)
- Insurance and retirement income (retirement income market, infrastructure and capital market investment environment for insurers and pension funds, regulation and accounting standards, disaster risk financing and insurance, micro-insurance)
- Capital markets (repo and derivatives markets, information for capital market investors, regional funds passporting)
- Financial market infrastructure (ecosystem for cross-border portfolio investment, cybersecurity, know-your-customer rules, electronic payments)

In addition, APFF provides a platform for continuous dialogue between industry and the public sector with the involvement of subject matter experts from academic and research institutions and international organizations in areas such as the international financial architecture and financial technology (Fintech).

Link to APFF page: https://www2.abaconline.org//page-content/22613276/Asia-Pacific%20Financial%20Forum

About APFF's Work on Financial Market Infrastructure

Facilitating flows of capital across the region's markets is a key factor for economic growth in the region. The APFF's work on financial market infrastructure and cross-border practices seeks to address the most significant obstacles to cross-border investment flows related to the connectivity platform and standards used in financial market infrastructure (FMI). The central objective is to promote cross-border portfolio investment flows through the development of market practices, standards and platforms that improve the inter-operability, liquidity and connectivity of domestic and cross-border financial markets, and reduce systemic risks.

In 2015, the APEC Finance Ministers incorporated in their Cebu Action Plan (CAP) the development of a roadmap to improve regional financial infrastructure in APEC to help promote capital market depth and liquidity. The CAP calls on economies to participate in APFF workshops and dialogues on capital market development, including the creation of a regional securities investment ecosystem to promote cross-border investment in capital markets.

To advance this work, ABAC invited key industry stakeholders and experts to join the APFF FMI Work Stream. Those who have committed to participate in this process now include representatives of leading global and regional financial institutions, asset management firms, financial technology firms, international brokers and custodians, financial industry associations, stock exchanges, multilateral development institutions, academic and research bodies and information service providers. Through a series of conference calls, meetings, a symposium and a dialogue held in 2017, these stakeholders collaborated together with relevant authorities in the region and international regulatory and standard-setting bodies to develop the Roadmap for the Development of APEC's Financial Market Infrastructure.