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<th>TIME</th>
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<tr>
<td>12:30 – 13:00</td>
<td>Registration</td>
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| 13:00 – 13:10| **Opening Remarks**  
- J.C. Parrenas, APFF Coordinator, Nomura Research Institute (NRI)                                                                    |
| 13:10 – 14:40| **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 |
| 14:40 – 15:00| **Coffee break**                                                                                                                            |
| 15:00 – 16:30| **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 |
| 16:30 – 16:45| **Closing**                                                                                                                                  |
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 interoperability, 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 the symposium, APFF is now reaching out to relevant authorities in the region and international regulatory and standard-setting bodies to help develop a roadmap for consideration by APEC Finance Ministers and Finance and Central Bank Deputies.
Speakers Biography
Joint session with Asia Pacific Financial Forum
4 July 2017, Manila Philippines

Dr. Julius Caesar Parreñas
Coordinator, Asia-Pacific Financial Forum (APFF); and
Senior Advisor, Nomura Research Institute Ltd.

Dr. J.C. Parreñas is Senior Advisor at Nomura Research Institute. He coordinates the Advisory Group on APEC Financial System Capacity Building, the Asia-Pacific Financial Forum (APFF), the Asia-Pacific Infrastructure Partnership (APIP) and the Financial Infrastructure Development Network (FIDN). He regularly represents the APEC Business Advisory Council (ABAC) in the APEC Finance Ministers’ Process. From 2014 to August 2016, he was Senior Advisor at Nomura Securities Co., Ltd and Nomura Institute of Capital Markets Research. From 2009 to 2014, he was Advisor on International Affairs of the Bank of Tokyo-Mitsubishi UFJ, Ltd and Senior Advisory Fellow of the Institute for International Monetary Affairs in Tokyo.

From 1998 to 2009, Dr. Parreñas was Senior Advisor to the Chairman of Chinatrust Financial Holding Co., Ltd, Policy Advocacy Coordinator of the Asian Bankers' Association and alternate member of the APEC Business Advisory Council from 2000 to 2009. Previous to this, he served in various positions, among others, as Executive Director of the Center for Research and Communication in Manila, Executive Director of the ASEAN Free Trade Area Advisory Commission under the Office of the President of the Republic of the Philippines, and professor at the University of Asia and the Pacific Graduate School of Economics. He was an advisor and consultant to several international, public and private institutions and major companies from Asia, Europe and America.

He received his Ph.D., magna cum laude, from the Ludwig Maximilian University in Munich, Germany in 1988. He has authored over 100 publications on international finance, economics and trade.

Mr. Ken Katayama
APFF FMI Cross Border Practice Co-Sherpa
Senior Researcher, Nomura Research Institute Ltd.

Mr. Ken Katayama, Staffer, ABAC; Sherpa, APFF; Senior Researcher, Nomura Research Institute, specializes in operational analysis and technology assessment in the securities services industry and market infrastructures. This year, Mr. Katayama is working on APFF Financial Market Infrastructure (FMI) Cross Border Practice work stream to develop a roadmap to improve the region’s FMIs, including the promotion of cross-border portfolio investment through improved FMI connectivity and inter-operability among Asia-Pacific markets. He focuses on key changes in regulatory reform and technological developments to improve liquidity in the market, mitigate systemic risk and reduce operational costs. Mr. Katayama is also a member of the ISO/TC 68/SC4 Japan National Committee for the Japan Securities Dealers Association.
Mr. Boon-Hiong Chan  
APFF FMI CBP Co-Sherpa  
Director, Head of Market Advocacy, APAC Global Transaction Banking  
Deutsche Bank AG Singapore  

Mr. Boon-Hiong Chan leads the Market Advocacy Asia Pacific (APAC) team in Deutsche Bank’s Global Transaction Banking. The team focus on the analysis and advocacy of policies, regulations and market changes related to payments, trade & supply chain finance, securities & fund servicing and digitalisation.  
Previously, Boon has led the regionalization of fund services in Asia and Middle East; and new market entry, legal structure establishment & spin-offs and product development in securities and securitization servicing. He started his banking career in e-payment and trade finance.  
Currently, Boon represents Deutsche Bank in external forums including the APEC’s Asia Pacific Financial Forum and the ASEAN+3 Bond Market Forum; and in industry associations like the Association of Global Custodians Asia Focus Committee and the Bankers’ Association for Trade and Finance Asia Council. Boon has an advance degree in Computation (Artificial Intelligence).  

Mr. Jean-Remi Lopez  
Director, Government Relations, Asia Pacific  
The Depository Trust & Clearing Corporation (DTCC)  

Mr. Jean-Remi Lopez is the Director of Government Relations for Asia Pacific at the Depository Trust & Clearing Corporation (DTCC). His remit includes sharing the company’s expertise with authorities and policymakers, and ensuring that regulatory shifts across the Asia Pacific region are identified and addressed by the firm. Mr. Lopez is also responsible for representing DTCC in its dealings with other regional organizations, such as regulators, central banks and industry associations.  
Based in Hong Kong, Mr. Lopez joined DTCC in July 2012 from FIS’s capital markets group where he led its capital market's post-trade group pre-sales activities for Asia Pacific. Prior to FIS he worked at BNP Paribas Corporate and Investment Bank and at the international division of S.D. Indeval, Mexico’s central securities depository. He holds an MBA from NYU, LSE, and HEC Paris (TRIUM), a master’s from Pantheon-Sorbonne, and several postgraduate qualifications from Harvard, Hong Kong, and Reading universities.
Mr. Gaetan Gosset
Director, Head of Product Management, Asia Pacific

Mr. Gaetan Gosset, Director, heads Euroclear Bank’s Product Management in the Asia-Pacific region. His responsibilities cover the services offered by the international central securities depository, including settlement and custody of fixed-income and equity securities, collateral management and investment fund processing. Based in Hong Kong, Mr. Gosset forms part of the Euroclear Bank’s Asian management team.

Furthermore, Mr. Gosset represents Euroclear in various regional market working groups and committees and is a frequent speaker on subjects such as capital markets, collateral management, cross-border flows, tax and China. Mr. Gosset has over 20 years of experience with Euroclear, half of which was spent in Asia.

Prior to his current role, he managed the account management and client service teams covering all Euroclear Bank clients in the Asia-Pacific region.

Mr. Gosset holds degrees in Marketing and Company Management and in Information Technology from EPHEC (Brussels).

Ms. Jean Chong
Manager, Securities & FX Markets, Asia Pacific, SWIFT

Ms. Jean Chong is Manager with the Securities & FX Markets team in SWIFT. Focusing on ASEAN markets, Jean is responsible for SWIFT’s strategy and product offering for securities market infrastructures and their market participants. Prior to SWIFT, Jean worked for a capital markets regulator in the Asia Pacific region and a multinational professional services firm. Jean is also a member of the Institute of Chartered Accountants in England and Wales (ICAEW).

Ms. Lisa O’Connor
Head of Standards, Asia Pacific, SWIFT

Ms. Lisa O’Connor has 18 years of experience Banking and Financial Technology. She has spent over half of her career in the APAC region.

Based in Hong Kong, Lisa is the Head of Standards for Asia Pacific at SWIFT. She is in charge of a team that spends half of their time advising FMIs on ISO standards and the remaining on market practice groups for the community.

Prior to SWIFT, Lisa was at Standard Chartered Bank in Hong Kong where she was the Head of Securities Service in Hong Kong and Head of Securities Service and Corporate Agency & Trust. At Standard Chartered Bank, Lisa also held a role in Client Coverage in RMB Solutions where she worked with Financial Institutions on China Access products.

Lisa holds a Bachelor of Science degree from Syracuse University and an MBA for Financial Professionals from Manchester Business School. Lisa is active in Irish Funds, Association of Luxembourg Fund Industry and several ASIFMA committees.
The rapid evolution of financial technology (fintech) presents today’s regulators with a critical challenge. New business models, new players entering markets long dominated by traditional financial service providers, and the latter’s embrace of new technologies are impacting regulators’ mission of promoting financial stability, protecting consumers and privacy and maintaining the integrity of financial systems.

However, fintech also brings opportunities. Innovations are helping unbanked individuals and small businesses gain access to finance. New applications are enhancing business processes such as clearing and settlement, compliance, risk management and fund administration. Technologies such as blockchain and artificial intelligence are helping financial service firms improve their efficiency and responsiveness to customer needs. Emerging markets hoping to leapfrog their way to modernization will benefit from these innovations, but must adequately address emerging risks and concerns.

The impact of fintech has been most strongly felt in well-developed markets, particularly in Europe and North America, where favorable environments for start-ups exist and financial sectors are more diverse. In emerging markets such as those in Asia, the development of fintech has been uneven and concentrated in the areas of payments and credit, particularly marketplace or peer-to-peer (P2P) lending. China accounts for an overwhelming portion of fintech credit in Asia, while payments fintech has developed significantly across a broader range of markets.

Nevertheless, the evolution and growth of fintech in Asian emerging markets continue to accelerate, requiring policy and regulatory responses. In two roundtables convened in 2016 under the auspices of the Asia-Pacific Financial Forum (APFF), policy makers and regulators agreed on the need to establish a regional platform to bring together stakeholders from the public and private sectors to help identify key issues in timely fashion as they arise. These stakeholders would include representatives from fintech startups and major financial institutions, related service providers, associations and experts, government and regulatory agencies and relevant international organizations.

This workshop seeks to respond to this need by bringing these stakeholders together to initiate discussions, starting in areas where significant disruption is already occurring in the region and where regulators are most concerned and are taking early steps toward proactive regulation. A session will also be devoted to regulatory technology (regtech), where solutions in a number of key areas are being developed by industry and being tested or adopted by regulators. Finally, the workshop will provide an opportunity to share experiences in implementing regulatory sandboxes and discuss broader questions related to regulatory approaches and institutional arrangements.

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1 These categories include payments, insurance, planning, lending and crowd funding, block chain, trading and investment, data and analytics and security as described in OICV-IOSCO, IOSCO Research Report on Financial Technologies (Fintech), February 2017., p. 4.

2 Sean Crehan and Nicholas Borst, “Asia’s Fintech Revolution,” Asia Focus (Federal Reserve Bank of San Francisco, February 2017). The convenors of this workshop are grateful to the authors and the Federal Reserve Bank of San Francisco for providing fundamental insights that have aided in designing the structure of this workshop.

3 These were the APFF Roundtable on Financial Innovation: How can we harness innovation to build bigger, robust and inclusive financial markets? (24 February 2016, PayPal Corporate Campus, Silicon Valley, California, USA) and the APFF Roundtable on Financial Innovation: Fintech 2016: Challenges and Opportunities for Asian Industry and Regulators (15 July 2016, Co-organized by ABAC and ASIFMA and Co-hosted by the Hong Kong Monetary Authority, Hong Kong, China).
# AGENDA

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<th>Time</th>
<th>Session</th>
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<tr>
<td>08:30-09:00</td>
<td>Registration and Networking</td>
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<tr>
<td>09:00-09:20</td>
<td>OPENING SESSION</td>
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<tr>
<td></td>
<td><strong>Welcome and Introduction</strong></td>
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<tr>
<td></td>
<td>Mr. Satoru Yamadera, Principal Financial Sector Specialist, Economic</td>
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<td>Research and Regional Cooperation Department (ERCD), Asian Development</td>
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<td>Bank (ADB)</td>
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<td><strong>Opening Address</strong></td>
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<td>Hon. Ephyro Luis B. Amatong, Commissioner, Securities and Exchange</td>
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<td>Commission, Republic of the Philippines</td>
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<td>09:20-10:35</td>
<td>SESSION 1: FINTECH IN ASIA-PACIFIC EMERGING MARKETS: OVERVIEW OF LATEST</td>
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<td>DEVELOPMENTS</td>
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<td>This session will provide overviews on the latest developments in Asia-</td>
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<td>Pacific emerging markets with respect to fintech, as well as on the</td>
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<td>steps that financial regulators and policymakers in these markets</td>
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<td>have been taking in response to the emergence of new technologies and</td>
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<td>business models.</td>
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<td><strong>Moderator:</strong> Dr. Julius Caesar Parreñas, Coordinator, Asia-Pacific</td>
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<td>Financial Forum (APFF); and Senior Advisor, Nomura Research Institute</td>
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<td><strong>Fintech: An Overview of Latest Developments</strong></td>
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<td>Mr. Henri Arslanian, FinTech &amp; RegTech Lead, China/HK and U.S. Liaison,</td>
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<td><strong>An Overview of Policy and Regulatory Responses</strong></td>
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<td>Professor Douglas W. Arner, Kerry Holdings Professor in Law, University</td>
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<td>of Hong Kong</td>
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<td>**Advancing Financial Innovation in Asia: The ASEAN Financial Innovation</td>
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<td>Network (AFIN)**</td>
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<td>Mr. Sopnendu Mohanty, Chief FinTech Officer, Monetary Authority of</td>
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<td>Singapore; and Mr. Ivan Daniel Mortimer-Schutts, Regional Leader for</td>
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<td>Retail Payments and Mobile Banking in East Asia, International Finance</td>
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<td><strong>Open Forum</strong></td>
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<td><strong>Moderator’s Concluding Summary</strong></td>
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<td>10:35-10:50</td>
<td>Coffee Break</td>
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<td>10:50-12:15</td>
<td>SESSION 2: PANEL DISCUSSION – PAYMENTS</td>
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<td>The development of fintech in the payments sector is a major issue across</td>
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<td>various markets in Asia, as non-banks that largely played a supporting</td>
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<td>function vis-à-vis the banking sector in the past are now increasingly</td>
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<td>offering innovative financial services, driven by smart phone</td>
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<td>technology, Asia’s huge market for payments and efforts to leapfrog old</td>
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<td>payment technologies. Many of these new services using mobile phone</td>
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<td>platforms do not alter the underlying structure of the payment system,</td>
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<td>as they continue to operate in conjunction with traditional bank</td>
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<td>accounts and credit or debit cards. However, others that provide</td>
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<td>digital wallets competing with banks and card networks for fee</td>
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<td>revenue or those offering new services such as insurance and</td>
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<td>investment promise to be more disruptive.</td>
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<td>While still at a nascent stage, blockchain technology has the potential</td>
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<td>to provide speedier and more efficient clearing and settlement for</td>
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<td>trade finance, cross-border payment and syndicated lending, and smart</td>
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<td>contracts can fuel automatic payments and transfers. Wider adoption of</td>
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<td>these innovations would have disruptive effects as they replace legacy</td>
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<td>financial infrastructure currently being used, including trusted third</td>
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<td>parties such as clearing houses. The cost of remittances are likely to</td>
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<td>fall if mobile payment services, virtual currencies and pre-paid cards</td>
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<td>succeed in replacing bank-based transfers.</td>
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<td>**Adoption of these new technologies, however, face challenges in terms</td>
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frameworks (including compliance with AML rules), the lack of supporting infrastructure (e.g., availability of payment card readers) and issues intrinsic to the technology (e.g., volatility of virtual currency exchange rates). Asian regulators are responding to these challenges in various ways, undertaking research and conducting experiments. This session will discuss these issues and regulatory responses, particularly with respect to retail payments, blockchain technology for clearing and settlement, and digital currencies.

**Moderator:** Mr. Boon-Hiong Chan, Director and Head of Market Advocacy, APAC Global Transaction Banking, Deutsche Bank AG Singapore

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**Moderator's Opening Remarks**

Mr. Suu Wei Ho, Southeast Asia Government Relations Director, PayPal Inc (E-payment readiness of emerging Asian economies)

Mr. Arvin Singh, Director, New Channels & Asia Pacific FinTech Engagement, Visa (Evolving industry: Unbundling, competition and collaboration between niche fintech firms and existing service providers)

Ms. Pia Bernadette Roman Tayag, Director, Inclusive Finance Advocacy Office and Concurrent Head, Financial Consumer Protection Department, Bangko Sentral ng Pilipinas (Innovative regulatory responses: the Philippine experience)

Ms. Julia Walker, Head of Risk Market Development, Asia Pacific, Thomson Reuters (Developments in fintech: payments and anti-money laundering)

Mr. Shuhei Aoki, Corporate Officer and Executive Strategist, Hitachi, Ltd. (Promoting innovation in the payments sector)

**Open Forum**

**Moderator’s Concluding Summary**

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**SESSION 3: FINTECH CREDIT**

Fintech credit (which includes marketplace or peer-to-peer lending, platform loans that are securitized and invoice trading) emerged to fill the financing needs of many households and small enterprises unable to obtain loans from traditional financial institutions. In Asia, this has mostly taken the form of online platforms that connect borrowers with investors. China has been by far the largest market for fintech lending in Asia, with characteristics that set it apart from other Asian markets, such as the predominance of consumer loans (as opposed to business loans) and retail investors (as opposed to institutional investors).

Despite its growth, however, fintech credit remains a small portion of the total credit market (only 3 percent in the case of China), and banks are expanding their presence by developing their online platforms or investing in start-ups. Regulation has been largely light-touch or negligible, with China among Asian markets having the most detailed focus on risk management, fraud prevention and consumer protection, while dealing with the challenge of a highly fragmented market that is not easily regulated. As fintech credit grows in volume and importance across the region, however, policy makers and regulators will need to step up their responses.

This session will discuss this issue, focusing on the evolution of technology, business models and regulatory responses in the areas of consumer and business fintech credit, and the use of data analytics and algorithms with respect to the development of financial identity.

**Moderator:** Dr. Michael Turner, President and CEO, Policy and Economic Research Council (PERC)

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**Moderator’s Opening Remarks**

Mr. Janos Barberis, Asia Lead, Digital Finance Institute; and Founder and CEO, SuperCharger FinTech Accelerator (Overview of key issues: fintech lending in Asian emerging markets)
SESSION 4: REGTECH

While much attention has been given to the disruptive impact of fintech, technologies are being developed that can promote more effective and efficient attainment of key regulatory objectives and make compliance by regulated institutions with rules and regulations less costly and more aligned with the mission of providing inclusive and responsive financial services to the real economy. Regtech solutions can help address a number of compliance and regulatory issues, including: risk data aggregation; modeling, scenario analysis and forecasting; monitoring payment transactions; identifying clients and legal persons; monitoring internal culture and behavior within regulated institutions; trading in financial markets; and identifying new regulations. Among these solutions are those in areas such as machine learning, robotics, artificial intelligence, cryptography, biometrics, distributed ledger technology, application programming interfaces and shared utility functions and cloud applications.4

This session will discuss a few key state-of-the-art regtech solutions that have been recently developed within the industry and are now being looked at by regulators, early results and responses so far, and the likely shape of future developments.

Moderator: Mr. Michael R.K. Mudd, Managing Partner, Asia Policy Partners LLC

Moderator’s Opening Remarks

Mr. Yoshiaki Wada, Senior Manager, System Planning Development Group BOJ IT Service Division, NTT DATA System Technologies Inc. (Online automated regulatory reporting)

Mr. Patrick Mansfield, Head of Marketing & Operations, Global Player (Solutions to addressing cyber risk in financial services)

Mr. Timothy Choon, Managing Director, FICO Compliance Solutions, Asia Pacific (Use of data for anti-fraud and anti-money laundering)

Open Forum

Moderator’s Concluding Summary

Coffee Break

SESSION 5: REGULATORY FRAMEWORKS AND APPROACHES

Even as fintech continues to evolve from its current early stages of development in the region, regulators are responding by being proactive, especially in the areas of payments and fintech lending, where significant disruption is already occurring. A number of regulators are turning to regulatory sandbox approaches that can support innovation while closely monitoring and managing their impact on consumers and financial stability. The emergence of fintech has also lent greater urgency to finding practical solutions to key issues such as financial identity and the standardization of technology, and how existing regulations can be applied to new non-bank market participants.

Many regulators are revisiting fundamental questions, including whether to move away from regulating types of institutions toward regulating types of activities, how to achieve effective regulation across various institutions responsible for oversight of different financial subsectors

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4 Regtech, as defined by the Institute of International Finance, is “the use of new technologies to solve regulatory and compliance requirements more effectively and efficiently,” Institute of International Finance, Regtech: exploring solutions for regulatory challenges, Washington DC, October 2015.

and technologies, and what regulatory approach can best encourage innovation while enabling adequate risk management. This session will focus on the sharing of experiences and perspectives to contribute useful insights to regulators on how they can respond to the challenge of fintech.

**Moderator:** Mr. John Ott, Partner, Bain & Company, Shanghai

### Moderator’s Opening Remarks

Mr. Satoru Yamadera, Principal Financial Sector Specialist, Economic Research and Regional Cooperation Department (ERCD), Asian Development Bank (ADB) (Financial identification and standardization of technology)

Mr. William Hallatt, Partner, Herbert Smith Freehills, Hong Kong (The perspective from industry – the ASIFMA Fintech Best Practices)

Ms. Lisa O’Connor, Head of Standards, Asia Pacific, SWIFT (ISO 20022/role of global financial messaging standards)

Mr. Janos Barberis, Asia Lead, Digital Finance Institute; and Founder and CEO, SuperCharger FinTech Accelerator

### Open Forum

### Moderator’s Concluding Summary

<table>
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<th>17:25-17:30</th>
<th>CLOSING SESSION</th>
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#### Concluding Remarks

Mr. Satoru Yamadera, Principal Financial Sector Specialist, Economic Research and Regional Cooperation Department (ERCD), Asian Development Bank (ADB)

Dr. Julius Caesar Parreñas, Coordinator, Asia-Pacific Financial Forum (APFF); and Senior Advisor, Nomura Research Institute Ltd.

| 17:30 | End of Workshop |
An Overview of Policy and Regulatory Responses

Douglas W. Arner

Kerry Holdings Professor in Law, University of Hong Kong
Ken Yun Visiting Professor of Law (Spring 2017), Duke University

douglas.erner@hku.hk
The Evolution of FinTech:


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**2.0**
- 1968 - 2008
- ATM
- E-Banking
- Banks

**3.0**
- 2007
- Start-ups
- Reaction
- P2P
- Fintech
- Decentralized

**3.5**
- 2009 - Current
- Reform
- Credit Scoring
- TechFin

**4.0**
- 2018 - Future
- BaaS
- Identity
- Big Data
- AI
- IoT
- Decentralized

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FinTech

Regtech
## Mobile vs banking penetration

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Formally Banked</th>
<th>Mobile Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1.35bn</td>
<td>63%</td>
<td>89%</td>
</tr>
<tr>
<td>India</td>
<td>1.25bn</td>
<td>35%</td>
<td>71%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>29.7m</td>
<td>66%</td>
<td>131%</td>
</tr>
<tr>
<td>Australia</td>
<td>23.1m</td>
<td>99%</td>
<td>107%</td>
</tr>
<tr>
<td>South Korea</td>
<td>50.2m</td>
<td>93%</td>
<td>111%</td>
</tr>
<tr>
<td>Japan</td>
<td>127.3m</td>
<td>96%</td>
<td>115%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>89.7m</td>
<td>21%</td>
<td>131%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>4.47m</td>
<td>99%</td>
<td>106%</td>
</tr>
</tbody>
</table>
Recent FinTech developments primarily prompted by pursuit of financial inclusion and economic development:

“There are two big opportunities in future financial industry. One is online banking, all financial institutions go online; the other one is internet finance, which is purely led by outsiders”

Jack Ma
CEO, Alibaba

From FinTech to TechFin:

Regulatory challenges

New emerging FinTech companies often have limited track records regarding their business (e.g., risk management, liquidity, and profitability) and difficulty identifying their obligations (e.g., applicable regulations or licences).

For regulators, these early-stage companies represent a limited prudential & consumer risk. However, exponential company growth can create “risk blind spots”. Additionally, frequent failures or fraud can impact market or investor confidence.
Options

• Traditional framework: permissive / restrictive, rules / principles, risk-based
• Pre and Post-Crisis environment: innovation and Volcker

• Doing nothing: permissive / restrictive, intentional / unintentional
• Cautious exploration: forebearance / leniency
• Structured experimentation: sandboxes
• Regulatory design: payments, crowdfunding
Comparatively to Fintech, RegTech has been growing very rapidly within the last 12 months raising the necessity to define the topic and its scope of applicability.
Definitions

RegTech (contraction of ‘regulatory’ and ‘technology’): the use of technology to address regulatory and compliance requirements more effectively and efficiently

Examples:

• Electronic KYC
• Fraud monitoring
• Automatic Clearing Registry
RegTech and the Reconceptualisation of Financial Regulation
SSRN: http://ssrn.com/abstract=2847806

RegTech digital disruption is not just about greater efficiency in existing processes but new processes altogether.
Evolution of RegTech

1987 - 2008
RegTech 1.0
- Analysing exchange-based activities
- Quantitative risk management / Basel II

2008 – Present
RegTech 2.0
- 2 stages:
  1. facilitate compliance
  2. improve supervision and regulation

Looking Forward
RegTech 3.0
- From KYC to KYD
- RegTech to reconceptualize finance and financial regulation

The financial system is on the edge of moving from being based on Know-Your-Customer (KYC) principles to a Know-Your-Data (KYD) approach.
## RegTech encompasses industry and regulators

<table>
<thead>
<tr>
<th>Financial institutions and industry</th>
<th>Regulators</th>
<th>Start-ups</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Major drivers of RegTech development</td>
<td>• Lag in regulator adoption relative to private sector</td>
<td>• Incentives to trade off-data for faster market entry</td>
</tr>
<tr>
<td>• Demand efficient tools to deal with regulatory and compliance demands</td>
<td>• Yet need to develop systems to deal with rivers of new data and cybersecurity</td>
<td>• Automation of reporting and compliance more aligned with lean business model</td>
</tr>
<tr>
<td>• Global firms developing centralized risk management</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Regulators in detail

Big Data
- Need to develop IT capabilities and systems to monitor and analyze new regulatory datasets
- Opportunity for collaboration between regulators and academia

Cybersecurity
- Digital transformation of finance industry has made it more vulnerable to attack, theft and fraud
- Data abundance may not create the right incentive for firms to enhance their cybersecurity
- Clear example of how FinTech demands RegTech

Macroprudential policy
- Seeks to use massive amounts of data to identify patterns and reduce severity of financial cycle
- Greatest potential for RegTech
Moving towards a paradigm shift

Over the past 50 years the application of technology within regulation has changed dramatically. The transformative potential of technology will only be fully captured by a **new and different regulatory framework**.

We argue that RegTech:

- Cannot be seen as a mere subset of FinTech – as broader than finance
- Is more than an efficiency tool
- Will play a critical role in the impending paradigm shift in regulation
- Has potential for application in a wide range of contexts, such as environmental compliance, in oyster farming for example.
FinTech requires RegTech

- Digitisation and datafication of compliance, risk management and regulation

- Building a new framework requires a sequenced approach:

  1. Focus on building 21st century *infrastructure* to support market functions
  2. Develop *appropriate regulatory responses* to FinTech innovation
     - Need to apply graduated regulatory requirements to firms based on their level of risk
  3. Consider *regulatory sandboxes* as an opportunity to test new approaches
Case Study: India Stack

**VISION**

**Presence-Less**
Unique digital biometric identity

**Paper-Less**
Electronic documentation protected by digital signature and storage

**Cash-Less**
Single interface to all interconnected payments platform

**Consent**
Consent-enabled data sharing framework

**IMPACT**

1,000% Efficiency Gain for end-to-end account creation:

<table>
<thead>
<tr>
<th></th>
<th>Bank</th>
<th>Prepaid Card Issuer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days</td>
<td>14-30 days</td>
<td>1 – 2 days</td>
</tr>
<tr>
<td>Time</td>
<td>70 – 91 min</td>
<td>6 – 20 min</td>
</tr>
<tr>
<td>Costs (USD)</td>
<td>US$ 5.2 – 8.7</td>
<td>US$ 0.34 – 1.6</td>
</tr>
</tbody>
</table>

Re-aligns economic viability of financial inclusion delivery
Asian fragmentation

Unlike the US and EU markets that are more homogeneous in their composition, the Asian market remains fragmented, limiting the rapid scalability of certain FinTech businesses (eg cross-border payments).
• Information and monitoring – FSB (2017)
• Systems design
• Digitisation
• Datification
Being “technologically neutral” has lead regulators to distance themselves from the necessity to understand new technological innovation.

Creates a knowledge gap in the consequences in the use of new processes & algorithms.
SESSION 2
BSP, Digital Financial Services and Payments: Creating the Enabling Environment

Pia Bernadette Roman Tayag
Bangko Sentral ng Pilipinas

APFF FINANCIAL TECHNOLOGY WORKSHOP
5 July 2017
Asian Development Bank
Payments and Remittances Landscape in the Philippines

- Government: 17M
- Businesses: 603M
- Individuals: 1.9B
- Development Partners: 6M

2.5B payments per month

- 17M monthly payments
- 44% Conditional cash transfers
- 27% Salaries of government employees
- 15% Pensions

119% SIM penetration rate in the Philippines
40% smartphone penetration rate

- 42% of Filipino adults had payment transactions in 2015
- 44% of Filipino adults had remittance transactions in 2015

Most Filipino adults remit through remittance agents, pawnshops and ATMs

Yet only 1% of all payments are electronic

- 48% of B2P Payments are for salaries
- 30% of B2P Payments are loan disbursements

Sources: BSP NBSFI (2015); BTCA (2013); GSMA Intelligence (2016)
Financial Inclusion Scenario

No banks in 596 out of 1,634 cities and municipalities

- 43% of Filipino adults save money but save at home
- 47% of Filipino adults borrow money but borrow from informal sources
- 72%
Fundamental barriers to access: 
culture, geography, cost, infrastructure, information

Requires new solutions and transformative innovations 
Market based solutions to market frictions

Role of Policy Makers and Regulators
- Understand the acceptable points of balance between the risks and returns of financial inclusion
- Balance of policy objectives of inclusion, stability and integrity
- Establish and enabling policy and regulatory environment for financial inclusion
The Promise of Technology

- Reduced **cost**, increased **efficiency**
- Lowers barriers to **customer onboarding and interface**
- Improved **convenience**
- Increased access to a **wide range of financial products and services**
- Greater **transparency**, less leakage
The Promise of Technology for the Philippines

Mobile penetration is high

120% SIM penetration
50% Unique mobile subscription
40% Smartphone penetration
41% Internet users

Ph dubbed as “texting capital of the world” and “social media capital of the world”

Large % of unbanked has a mobile phone, of which:
- 60% keep some form of savings
- 13% borrow from informal providers

BSP’s Initial Approach to New Models

- Allow for market to develop and innovations to take place
- Proceed with flexibility yet with caution
- Understand operating/business models
- Closely monitor developments and related issues
- Use existing regulatory framework and adopt the appropriate regulatory approach
Early evidence in Emoney

- Growth of banks vs. e-money agents:
  - 1851-2015: 10,710
  - 2009-2015: 19,270

- Bank deposit accounts vs. E-money accounts:
  - 2011: Bank deposit accounts: 10, E-money accounts: 5
  - 2012: Bank deposit accounts: 15, E-money accounts: 10
  - 2013: Bank deposit accounts: 20, E-money accounts: 15
  - 2014: Bank deposit accounts: 25, E-money accounts: 20
  - 2015: Bank deposit accounts: 30, E-money accounts: 25

- Number of e-money transactions:
  - 2010: 50
  - 2011: 100
  - 2012: 150
  - 2013: 200
  - 2014: 250
  - 2015: 300

- Amount of e-money transactions:
  - 2010: 1 billion pesos
  - 2011: 2 billion pesos
  - 2012: 3 billion pesos
  - 2013: 4 billion pesos
  - 2014: 5 billion pesos
  - 2015: 6 billion pesos
Delivery Channel Suitability

- Proximity
- Time and cost to access
- Comfort and trust in the channel
- Suitability of requirements
Product Suitability

Design that addresses their needs

Pricing that is affordable

Terms and conditions that can be met

Clear and understandable
Risks in Digital Financial Inclusion

Distinguishing factors
1. New providers and combinations of providers
2. Digital technology
3. Use of agents
4. New products and services and their bundling
5. Profile of financially excluded and underserved

Associated risks
- Operational risk
- Settlement risk
- Liquidity risk
- Credit risk
- Consumer protection issues
- Money laundering / Terrorist financing

BSP: Ecosystem Wide Perspective

- Stability
- Inclusion
- Interoperability and Efficiency
- Safety and Integrity
- Providers
- Customers
- Trust and Consumer Protection

Understand interdependencies and manage unintended consequences
Priority Areas

- Proportionality in policy, regulation, and supervision
- Coordination with other regulators and the private sector
- Ensuring consumer protection
Balancing Objectives - ISIP Approach

Inclusion  Stability

Financial  Protection of Consumers

Integrity

*Developed by the Consultative Group to Assist the Poor (CGAP) as an implementing partner of the G-20 Global Partnership for Financial Inclusion (GPFI) with funding from the UK Department for International Development (DFID)
Some Examples of the Approach

E-money
(test and learn)

Crowdfunding
(monitoring)

Virtual currency
(consumer advisory; monitoring; guidelines)
Recent Policy Issuances

BSP Circular No. 938 (Amendments to Pawnshop Regulations)  
dated 23 December 2016  
and Circular No. 942 (Regulations on Money Service Businesses)  
dated 20 January 2017

• Introduce a network-based approach to supervision

• Introduce the concept of Remittance and Transfer Companies (RTC) which include Remittance Agents, Remittance Platform Providers, and E-money Issuers

• Enhance existing regulations to ensure that pawnshops and RTCs are properly supervised in terms of registration, minimum capital, internal controls, regulatory reports, AML compliance, etc.
Recent Policy Issuances

BSP Circular No. 944 (Guidelines for Virtual Currency Exchanges)
dated 6 February 2017

- Covers entities facilitating the conversion or exchange of any virtual currency (VC) into fiat currency or vice versa (does not cover VC creators)

- Requires VC exchanges to have measures in place to manage ML/FT risks and technology risks, and ensure consumer protection. Basic requirements for RTCs apply to VC exchanges.

- Aligned with the June 2015 Financial Action Task Force (FATF) Guidance for a Risk-Based Approach to VCs
National Retail Payment System

The NRPS is a policy and regulatory framework which aims to establish a safe, efficient, reliable and affordable retail payment system in the country.

NRPS Vision: 20% by 2020
Other Relevant Initiatives

- Risk-based KYC
- Cash Agents
- Basic Bank Account
- Enhancements to IT Risk Management
Develop a digital finance ecosystem with the right mix and range of service providers, digital solutions and delivery channels.

Democratize access to a transaction account.
Thank you.

Inclusive Finance Advocacy Office (IFAO)
IFASinfo@bsp.gov.ph
t +632-7087482
OPENING
REMARKS
RegTech

APFF FINANCIAL TECHNOLOGY WORKSHOP
Encouraging Innovation, Promoting Inclusion and Managing Risks
ADB Manila July 5th 2017

Moderator Michael Mudd,
Managing Partner/CEO
Asia Policy Partners LLC
$321 Billion in fines since 2008

Bank Penalties
Global lenders have paid $321 billion in charges since the financial crisis

Source: BCG

There is a Data Storm coming!

- More data been created in the past two years than in the entire previous history of the human race. Every day 2.5 quintillion* bytes of data are created.
- By the year 2020, about 1.7 megabytes of new information will be created every second for every human being on the planet.
- A huge amount of this data passes through banks; Fintech will increase this flow, all of which needs authentication.
- The failures of 2008–9 led to increased oversight and at least a doubling of compliance staff.
- This has led to more FI regulations coming down the line.

*a thousand raised to the power of six (10^18).*
F I regulation is contributing to the storm

- Dodd – Frank alone is 2,300 pages then there is the Financial CHOICE Act...
- The EU GDPR is coming in May 2018.
  - Right to be ‘forgotten’, Data portability, Data breach notification and accountability, and more.
  - Fines of up to 4% of global revenues or €20m.
- KYC/AML still generating regulations.
- FRTB, CRD5, MiFID II, MAR, EMIR; all adding to the list from now through to at least 2019.
- FinTech is generating its own regulations.
- An average of 200 regulatory revisions per day need to be monitored by a global FI.
This session

- Mr. Yoshiaki Wada, Board Member, XBRL International and Senior Manager, NTT Data Corporation. (Online automated regulatory reporting).

- Mr. Patrick Mansfield, Head of Marketing and Operation, Asia, GP Inc. (Addressing cyber risk in financial services).

- Mr. Timothy Choon, Managing Director, FICO Tonbeller Compliance Solutions Asia Pacific. (Use of data for anti-fraud and anti-money laundering).
MR. YOSHIKAI WADA
NTT DATA TECHNOLOGIES INC.
(Online Automated Regulatory Reporting)
Changes in Regulatory Data Demand and Possibility of Technical Breakthrough

July, 2017
Senior Manager of NTT Data System Technologies Inc.
Yoshiaki Wada
Recent Trends in Regulatory Reporting

More detailed, More frequent, More traceable
Challenges in Regulatory Reporting (1)

Changes in data demand

In terms of ...

- Data Granularity
- Reporting/Sampling Frequency
- Data Type
- Data Traceability

Increasing Data Volume & Complexity

Increasing variety of Reports
Challenges in Regulatory Reporting (2)

How to harmonize and make efficient Business and Regulatory Framework?
Technical Issues in Regtech

In the regulatory field, there has been a popular but head-aching issue, such as,

- **Financial Institutions**: How to make reports?
- **Regulators**: How to use reports?

And enhancement of the efficiency in these process is the important mission of “Regtech”.
Technical Issues in Regtech (Reporting Side)

Major Regulatory Reports prepared by Financial Institutions

- **Fundamental Aspect**
  - Traditional Business Report (i.e. B/S, P/L)
    - Already automated and manageable

- **Operational/Business Aspect**
  - Risk Profile Report
    - Transaction Report
    - Technically challenging area

- **Non-Financial Aspect**
  - CSR Report
  - ESG Report
    - Still manually prepared but manageable
Technical Issues in Regtech (Regulatory Side)

Increasing Report Variation

Increasing Data Complexity/Volume

Increasing DB maintenance cost

Leverage off existing platform

Hadoop, RDB, BI, Python/R

Difficulty for flexible and high-speed data search/utilization

Combined use of various kind of Data

Market data, Reported data
ISO20022 Transaction Message

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Receiver</td>
<td>pacs.008 FIToFCustomerCreditTransfer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Header (address target)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The country part of BIC Code (5~6 digits)</td>
</tr>
</tbody>
</table>

Transaction Data

2

3

4

5

6

Ordering customer

DbtrAgt/FinInstId/PstlAdr/Ctry

Regulators

XBRL Transaction Report (summery)

XBRL™

THE BUSINESS REPORTING STANDARD
Technical Case Study (2) Filing Side

Important point here is these data gathering, storing, filtering and formatting into report can be automated, without manual process.
1. Load any Taxonomy and Instance without DB maintenance

2. Combined use with Non-XBRL data

Non-SQL DB

Hyper Cube
[XBRL]

3. Flexible search

[Non-XBRL]

5. Leverage off existing platform

Data Lake

Key-Value

CSV

RDB/BI

Various Source

Hadoop

Hive

HBase
One More Important Aspect ---AI and Big Data (1)

For BIG DATA analytics, AI could be an important solution

An Image of AI based Data Screening to detect improper financial transaction

However, AI is not almighty

Some basic conditions must be fulfilled

Rule Base/Case Info

AI : Deep Learning

BIG DATA

IRregular/Unusual Transaction

Screening

Filtered DATA

Manual Analysis by Expert

Copyright © 2016 NTT DATA Corporation
Important Conditions for AI based data processing

- Well designed Rule Base
- Sufficient volume of Case data
- AI-friendly Data Format

Standardized mark-up language such as XML, XBRL, is an powerful tool for efficient AI processing
Recent regulatory reporting requires more detailed, more frequent and more variety of data.

On the other hand, this causes not only new reporting burden in financial institutions side, but also increasing data handling cost in regulatory side.

However, if the standardized mark-up languages such as XML and XBRL is suitably implemented, efficient and effective reporting data supply chain can be realized.

Combination of XML based messaging in financial transaction and XBRL based regulatory report is an ideal way to realize technical breakthrough for the new generation of financial society.
Thank you for your attention!
MR. PATRICK MANSFIELD
GLOBAL PLAYER
(Solutions to addressing cyber risk in financial services)
GLOBAL PLAYER - Launching the World's First Block Chain Accounting Voucher
Patrick Mansfield
GLOBAL PLAYER
Head of Marketing & Operations Asia

17 years’ experience in the Financial Services Industry
British Passport holder with Permanent Residency in Hong Kong and Singapore

1999: BSc Polymer Materials Science
   - Manchester University, UK

2000: Licensed Securities Representative
   - FSA, UK

2006: HK Securities & Futures Licensing for Securities and Futures Intermediaries
   - HKMA, Hong Kong

2010: ACMA, CGMA
   - Institute of Chartered Management Accountants - CIMA, UK
CLOSING REMARKS
RegTech

APFF FINANCIAL TECHNOLOGY WORKSHOP
Encouraging Innovation, Promoting Inclusion and Managing Risks
ADB Manila July 5th 2017

Moderator Michael Mudd,
Managing Partner/CEO
Asia Policy Partners LLC
RegTech has evolved...

- **RegTech 101**
  - Firms write internal guidelines for their business.
  - HR run training programs for staff.
  - Constant updating as regulations change.
  - Manual reporting to Regulators.
  - Internal Compliance officers enforce it.

- **RegTech 201**
  - Computer Based Training (CBT).
  - Custom driven compliance engines built internally.
  - Constant updating as regulations change.
  - Semi automatic reporting to Regulators.
  - Internal Compliance officers enforce it.

- **RegTech 301**
  - Blending of in house and outsourcing.
  - Custom driven compliance engines using AI Cloud hosted and accessed on demand.
  - Autonomous real time reporting to Regulators.
  - Internal Compliance officers enforce it.
Technology is top of mind in the US and Europe

Source: Emolument.com
The City UK
BLS.gov
singstat.gov.sg
statistics.gov.hk

Market size of bankers concerned by technology

4000000
3000000
2000000
1000000
0

US
UK
Hong Kong
Singapore

Courtesy; Financial Times
The Regulatory Data Storm will not abate anytime soon. Privacy and data governance will increase in importance as ever more data is processed by FI’s. This may be addressed most economically by increased technology adoption, including AI and ML for analytics. Continuous autonomous checking of many types of transactions for compliance is already technically achievable. This will become pervasive. The blockchain will authenticate data integrity. F I’s will outsource this to a trusted provider. This transformation will eventually touch FI’s everywhere.
Thank You!
Michael Mudd

as ia itp olic y@l i ve.co m

APP – technology : policy : consulting.
ASIA SECURITIES INDUSTRY & FINANCIAL MARKETS ASSOCIATION

BEST PRACTICES FOR EFFECTIVE DEVELOPMENT OF FINTECH

Developed with support from an ASIFMA member working group led by Herbert Smith Freehills

7 JULY 2017

WILLIAM HALLATT, PARTNER (HONG KONG), FINANCIAL SERVICES REGULATORY
Changing face of financial services industry

Potential for increased productivity and efficiencies in delivery of financial services

Challenges for regulators to develop balanced regulatory responses

Increasing concerns around data privacy and cybersecurity
Support the development and adoption of responsible, safe and secure Fintech products and services, by facilitating dialogue between Fintech participants, financial institutions and policymakers.

Work with the industry to explore Regtech solutions to create more efficient and effective regulatory supervision and reporting mechanisms.

If required, develop regulatory policies that strike an appropriate balance between innovation, safety, and consumer protection.

Ensure consistent regulatory standards are applied to all market participants.

Ensure inter-agency cooperation to promote consistency nationally across different sectors impacted by Fintech such as banking, securities, insurance and telecommunications.
FINTECH BEST PRACTICES

6. Enhance cross-border cooperation with other regulators to promote use of best practices, recognition agreements and harmonisation of laws and regulatory requirements.

7. Support industry-driven interoperability.

8. Provide a clear framework and guidelines to allow for cross-border transmission of data for processing and storage.


10. Promote cybersecurity and data security in a globally interconnected financial system.
Legal services are provided in Indonesia, in Jakarta, through Herbert Smith Freehills LLP's ("HSF") association with Mercado & Tendai ("MT"). HSF and MT are two independent firms which have a formal association in Indonesia.
Best Practices for Effective Development of Fintech

June 2017

The rapid evolution and development of Fintech is dramatically changing the face of the financial services industry, and offers the potential for increased productivity and efficiencies in the way financial services are delivered. It has also challenged policymakers worldwide as they develop regulatory responses that strike a balance between promoting innovation, maintaining the resiliency of the financial system and ensuring consumers are protected. Further, the explosive emergence of 'big data' and artificial intelligence has amplified concerns around data privacy and cybersecurity.

With these issues in mind, ASIFMA has formulated a set of ten best practices to guide regulators in the Asia region as they seek to support the development of Fintech to better serve consumers, businesses and investors.

Best Practice 1: Support the development and adoption of responsible, safe and secure Fintech products and services, by facilitating dialogue between Fintech participants, financial institutions and policymakers.

Best Practice 2: Work with the industry to explore Regtech solutions to create more efficient and effective regulatory supervision and reporting mechanisms.

Best Practice 3: If required, develop regulatory policies that strike an appropriate balance between innovation, safety, and consumer protection.

Best Practice 4: Ensure consistent regulatory standards are applied to all market participants.

Best Practice 5: Ensure inter-agency cooperation to promote consistency nationally across different sectors impacted by Fintech such as banking, securities, insurance and telecommunications.

Best Practice 6: Enhance cross-border cooperation with other regulators to promote use of best practices, recognition agreements and harmonisation of laws and regulatory requirements.

Best Practice 7: Support industry-driven interoperability.

Best Practice 8: Provide a clear framework and guidelines to allow for cross-border transmission of data for processing and storage.
Best Practice 9: Ensure laws support technological developments.

Best Practice 10: Promote cybersecurity and data security in a globally interconnected financial system.

Introduction

According to market data consolidated by the Board of the International Organisation of Securities Commissions ("IOSCO") in its report on the evolution of FinTech, investors poured US$19 billion into FinTech in 2016, and start-ups continue to proliferate. As noted in IOSCO’s report, FinTech evolution is “taking place in the context of various global trends, including but not limited to the growth of computing power enabling analysis of ever larger data sets, broader accessibility of goods and services, and disintermediation and re-intermediation. These trends in turn are happening against the backdrop of demographic and generational changes”.  

Some of the more notable developments include the emergence of online alternative financing platforms such as Peer-to-Peer ("P2P") lending or equity crowdfunding ("ECF"), aimed at bringing together firms and individuals looking for capital and others that have money to lend, invest or donate.  

Online investment and trading platforms have also evolved significantly, driven by various factors, including changing investor demands and the speed of technological developments. There has also been a rise in the use of robo-advisers providing largely automated portfolio management, strategies and services for investors.  

Distributed ledger technologies ("DLT"), including blockchain technologies and shared ledgers, are also being tested in several countries for a wide variety of financial operations, including the settlement of interbank payments, the verification and reconciling of trade finance invoices, and the execution, enforcement and verification of the performance of contracts. There have also been developments in the field of big data analytics and artificial intelligence, regulatory technologies (Regtech), and cybersecurity and cloud-based technologies.

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2 Ibid, chapter 1.2.

3 Ibid, chapter 2.


5 Ibid, chapter 3.2 (iii).

6 For example, MAS also partnered with a consortium of financial institutions, R3, to develop a research and development centre and a centre of excellence, to create and conduct experiments to inform and encourage the adopt of DLT. One such experiment is a proof-of-concept project to conduct interbank payments using blockchain technology: MAS Press Release, 16 November 2016, [http://www.mas.gov.sg/News-and-Publications/Media- Releases/2016/MAS-experimenting-with-Blockchain-Technology.aspx](http://www.mas.gov.sg/News-and-Publications/Media- Releases/2016/MAS-experimenting-with-Blockchain-Technology.aspx)
To foster the development of Fintech, regulators in Asia have introduced various initiatives. In Hong Kong, the Hong Kong Monetary Authority ("HKMA") and the Securities and Futures Commission have set up a Fintech Facilitation Office, as well as a Fintech Contact Point and a Fintech Advisory Group. There have also been various government initiatives introduced to provide financial support to Fintech start-ups and financial institutions, including the Cyberport incubator, a key platform to support the development of Fintech companies as they pursue innovative approaches to payments or online trading platforms and P2P lending. The HKMA has also commissioned the Applied Science and Technology Research Institute to conduct a detailed study of DLT, pursuant to which a White Paper was issued in November 2016.

Fintech has been primed as a key priority by the Singapore government, and there has been a series of initiatives undertaken by the Monetary Authority of Singapore ("MAS") to nurture the Fintech sector. In addition to setting up a Fintech & Innovation Group within its organisation to develop regulatory policies and development strategies to facilitate the use of innovative technology, the MAS has also established a Fintech office to serve as a “one-stop virtual entity” for Fintech businesses to seek advice on various Fintech and technology-related government grants and schemes. The MAS has also created a Financial Sector Technology & Innovation ("FSTI") scheme to be used for setting up innovation labs, catalysing the development of innovative solutions by financial institutions, and building industry-wide technology infrastructure for the delivery of new and integrated services – FSTI is currently in the process of creating a national Know-Your-Client utility.

Korea has also introduced various initiatives to assist Fintech firms in developing innovative financial services. In January 2016, the Korea Financial Services Commission ("FSC") outlined its Financial Policy Roadmap ("Roadmap") which included the introduction of several technology investment funds. In the Roadmap, the FSC set out their plans to continue policy efforts that will help the crowdfunding system take root as a viable fundraising channel for start-ups and venture companies, and to realign the role of policy banks (such as the Korea Development Bank) to provide loans and state-backed guarantees for start-ups and small medium enterprises in accordance with their growth cycle. The Roadmap also stated that the FSC would continue reforming their financial supervisory practices and regulatory requirements to encourage more private initiatives in the financial sector.

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The Financial Services Agency ("FSA") in Japan has established a Fintech support desk, and a Panel of Experts to promote the development of Fintech start-ups. The FSA has introduced several amendments to its Banking Act to relax rules on investing in financial ventures, which allow banks to buy stakes of up to 100% in non-finance related firms. Japan has also introduced various amendments to its Payment Services Act that implement registration requirements for virtual currencies exchanges, including those based outside of Japan that provide services to customers in Japan.

In Australia, the Australian Securities & Investments Commission ("ASIC") has also created an Innovation Hub to assist Fintech start-ups developing innovative products or services to navigate the Australian regulatory system\(^{11}\). Through the hub, eligible businesses can request to receive informal guidance from ASIC on the licensing process and key regulatory issues that should be considered as firms set up their business. ASIC, through the Innovation Hub, addresses innovation issues with a coordinated approach through its Innovation Hub Taskforces, and meets regularly with international equivalents to discuss innovation developments and policy proposals.

Following the United Kingdom’s proposal of its regulatory sandbox regime in November 2015, several countries in Asia, including Singapore, Hong Kong, Indonesia, Malaysia, China and Thailand have followed suit. The regulatory sandboxes introduced are aimed at creating an environment for businesses to test new products within certain parameters, and ultimately facilitate more innovation and competition. By providing a “\textit{safe and conducive space to experiment...where the consequences of failure can be contained}”,\(^ {12}\) regulatory sandboxes have the potential to help society enjoy the benefits of innovative Fintech offerings, while mitigating the risks the public is exposed to. However, we note that there are differences amongst the different sandbox regimes, for example regarding eligibility criteria, permitted timeframe for testing and termination arrangements.

ASIC was the first jurisdiction to release class waivers to allow Fintech businesses to test certain specified services without holding an Australian financial services or credit licence. ASIC’s fintech licensing exemption allows eligible businesses to test specified services for up to 12 months with up to 100 retail clients, provided that they also meet certain consumer protection conditions and notify ASIC before they commence the business.

There have also been different agreements signed between securities regulators to promote cooperation and collaboration on Fintech initiatives. For example, Hong Kong, Singapore, China and Korea have announced the introduction of bilateral “Fintech bridges” with the United Kingdom to help UK firms and investors access the Asian market, and to attract Asian companies to the UK. Singapore has also signed a number of Fintech cooperation agreements with other countries, including Australia, Switzerland, Korea and France. ASIC has also signed Fintech cooperation agreements with a number of other regulators, including the Ontario Securities Commission, and Capital Markets Authority, Kenya. These agreements provide for information sharing, and may also enable each regulator to refer Fintech companies for another regulator's Fintech assistance programmes, and vice versa.

However, there remain a number of challenges confronting the development of Fintech, including cybersecurity risks, difficulties of scale for Fintech companies who have to navigate differing regulatory landscapes, and regulatory uncertainty. To address these challenges, we set out below ten 'best practices' for regulators, to facilitate the development of Fintech.

**The Best Practices**

**Best Practice 1: Support the development and adoption of responsible, safe and secure Fintech products and services, by facilitating dialogue between Fintech participants and financial institutions and policymakers.**

Given the accelerated pace in technological advancement, it is important that regulators regularly engage in cross-sector dialogue with Fintech companies and financial institutions. Such engagement will allow regulators to better understand the industry landscape, including new product and technological developments and trends. Where there has been rapid innovation, for example in relation to the use of automated analytics and algorithms in retail trading and investment, regulators will need to stay ahead of the curve to understand and assess the technology and algorithms driving the trading and advice.\(^\text{13}\)

Regular dialogue will also allow regulators and the industry to identify opportunities and risks at an early stage of product/service development. Where common issues or concerns are identified, parties should work towards finding workable and consistent solutions.

Some Fintech companies are not traditional financial services entities and have not previously been subject to licensing and registration requirements. In other cases, a tailored regulatory framework may not exist for new products or services, such as P2P lending, and Fintech companies must comply with

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existing rules and legislation.\textsuperscript{14} Collaboration and dialogue between regulators and both start-ups and established financial institutions will assist in their understanding of the relevant regulatory requirements and supervisory environment.

We support the steps taken by Asian regulators to better understand new financial technologies and their implications for existing policies, including the following:

- Establishing dedicated Fintech offices, contact points and hubs;
- Establishing 'regulatory sandboxes', where businesses may test products in an environment with certain regulatory flexibilities (albeit for a limited duration); and
- Setting up labs and accelerator programmes to explore whether certain new technologies can assist the regulator itself in better achieving its regulatory objectives.

Regulators may also want to consider steps to improve financial literacy and investor education, given that a lot of the new Fintech products and services are being used by retail (rather than professional or institutional) investors.

**Best Practice 2: Work with the industry to explore Regtech solutions to create more efficient and effective regulatory supervision and reporting mechanisms.**

Regtech has the potential to provide configurable, reliable and cost-effective solutions in the regulatory arena. Examples of areas in compliance that could benefit from Regtech include the gathering and aggregation of data from financial services companies for capital and liquidity reporting, computer modelling and forecasting for stress testing and stress management, "Know Your Customer" ("KYC") procedures and systematic and global checks on anti-money laundering and sanctions. A major advantage offered by Regtech is that it enables the storage and analysis of massive and complicated data, and it has the potential to integrate and simplify compliance monitoring activities.

To take full advantage of Regtech solutions, collaboration and dialogue between regulatory bodies are crucial. Regulators should seek to leverage the experience of other regulators in using new technologies to access and process the increased volume of available data, thereby helping them to achieve their regulatory objectives such as promoting investor protection, market fairness and financial stability. Regulators may also explore new compliance software and surveillance tools, which are being developed to monitor and detect suspicious transactions. It is also important that regulators demonstrate

\textsuperscript{14} Ibid, p. 67.
technological use cases and show how technology can be applied to tackle a specific regulation. By working more closely with start-ups and consulting firms, this will also enable solutions to be certified.

**Best Practice 3: If required, develop regulatory policies that strike an appropriate balance between innovation, safety, and consumer protection.**

The development and deployment of most innovative technologies will not require new regulation. In such cases when an innovation or new business model challenges existing regulatory frameworks and new policies are required, regulators should formulate principles-based guidelines, that allow Fintech players to develop new or improved products/services that meet the needs of consumers whilst at the same time advancing regulatory objectives of investor protection, market fairness and integrity and financial stability. Given that certain technologies are still emerging, it is important that regulation is designed with sufficient flexibility, as opposed to being overly-prescriptive. A one-size-fits-all approach to policy-making is not conducive to technological innovation. Regulating the risk rather than the entity is an important principle. The regulation should reflect whether the activity is low or high risk and the type of entity undertaking the activity should not determine the regulation. In this way, a Fintech firm and an incumbent would be subject to the same regulation for the same activity but the regulation would change depending on the activity undertaken and the risk to the consumer and system.

By way of example, the Securities Commission of Malaysia introduced a regulatory framework for P2P lending in 2016, and in 2015, Malaysia became the first country in the Association of Southeast Asian Nations ("ASEAN") to introduce a regulatory framework for ECF. Platform operations are regulated as recognised market operators and the framework allows the regulator the flexibility to continuously reassess and redefine the regulatory framework to accommodate the introduction of new products and structures.

In Korea, ECF platforms are regulated as intermediaries and subject to less stringent licensing rules, and to lower business conduct and prudential regulation compared to existing intermediaries.\(^{15}\) As described above, several regulators have also established regulatory sandboxes.

It is also critical to ensure that adequate transparency is maintained to keep industry players and consumers informed of regulatory expectations and requirements. For example, in relation to robo-advice, a number of jurisdictions have taken the following steps:

- Provided guidance regarding how they expect the automated advice industry to grow;

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\(^{15}\) Ibid, p. 68.
• Made clarifications regarding how the existing framework applies to automated advice; and
• Issued advice and recommendations on best practices for both providers and consumers of automated advice.\(^{16}\)

In the context of social trading and investing platforms, certain regulators have also issued clarifications and alerts that, among other things, clarify a platform's licensing status and highlight the risks posed by certain types of social trading.\(^{17}\)

Principles should also be tech-neutral in the sense that they should focus on specific activities, instead of the technology itself, so as not to constrain further development or alternative uses of a given technology.

**Best Practice 4: Ensure consistent regulatory standards are applied to all market participants.**

Competition is increasing in the Fintech sector. In 2015, the Economist estimated that there were over 4,000 active Fintech start-ups, and more than a dozen were valued at over $1 billion. McKinsey estimates that new entrants will increasingly battle for customers with incumbents over the next decade, with the top five banking businesses (i.e. consumer finance, mortgages, lending, retail payments, and wealth management) at risk of losing between 20% and 60% of their profits by 2025\(^{18}\). Regulators have a role to play in ensuring a level playing field between existing incumbents and new entrants.

Incumbents and new entrants want to be able to innovate. Firms are working by themselves, in partnership or investing in others. In some markets the regulation on incumbents makes it difficult for them to innovate as easily as new entrants. Both incumbents and new entrants need the regulatory space to explore and test new ideas. Equally, when a product, service, platform or provider touches a consumer or poses a risk to the system then incumbents and new entrants should have the same regulations applied to them.

KYC requirements and Anti-Money Laundering ("AML") requirements are examples of regulation that should be equally applied to incumbents and new entrants. Both are key to protecting the financial system. There may, however, be opportunities to streamline requirements to the benefit of all. In this space, AML/KYC utilities are being explored so that information used by many can be pooled and used by all. Identify verification through national numbers, identification cards or biometrics is also seeking to streamline the process.

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\(^{16}\) Ibid, pp. 35-36.
\(^{17}\) Ibid, p.36.
\(^{18}\) [https://itif.org/publications/2016/10/18/policy-principles-Fintech](https://itif.org/publications/2016/10/18/policy-principles-Fintech)
Privacy and security are two other areas where regulations should be applied equally. Consumers need to have the confidence that their information is being protected by incumbents and new entrants. Only with this confidence will consumers be willing to utilise Fintech innovations. Regulators also need to be assured that privacy and security is being managed well by firms if innovations are going to receive approval.

**Best Practice 5: Ensure inter-agency cooperation to promote consistency nationally across different sectors impacted by Fintech such as banking, securities, insurance and telecommunications.**

We encourage local regulators to formulate a protocol for cross-agency communication to ensure that a clear, consistent and coordinated approach is adopted towards Fintech companies and initiatives. For example, Insurtech companies may have to obtain licences and regulatory approvals from more than one regulator, and different regulators may apply different standards and approaches towards Fintech. As many products and services are delivered via the internet or mobile devices, the telecommunications regulator can also have a role in Fintech regulation. It is important that all relevant regulators are consulted in the development of policies that impact technology and that regulations are consistent nationally across different sectors. In addition, laws and regulations need to be consistent. Overarching information technology laws can, for example, have unintended and broad impacts on banking regulation. This can limit the ability of banking regulators to formulate policy that supports Fintech and other innovations.

Providing a uniform approach will better assist Fintech start-ups with developing their strategies and navigating the regulatory landscape, and regulators, government agencies and ministries can also benefit from sharing experiences and know-how. For example, the MAS has set up a Fintech Office that looks at reviewing, aligning and enhancing Fintech-related funding schemes across government agencies, and also proposing cross-agency strategies, policies and schemes in industry infrastructure, talent development and manpower requirements, and business competitiveness. Hong Kong has also created a cross-regulatory collaboration group established at the level of the Financial Services and Treasury Bureau. Representatives of the Fintech offices of Hong Kong’s three regulatory bodies are part of this collaboration group. Similarly, in Japan, a new Working Group of the Financial System Council, which is the advisory body of the Financial Services Agency, has been formed.
Best Practice 6: Enhance cross-border cooperation with other regulators to promote use of best practices, recognition agreements and harmonisation of laws and regulatory requirements.

Fintech transcends jurisdictional borders, and therefore cross-border cooperation amongst regulators is critical. As there are no overall international standards, best practices should be shared so regulators can learn from others. Recognition agreements can also allow Fintech firms to more easily cross borders to pursue opportunities. The agreement between the MAS and the UK Financial Conduct Authority and another agreement between Australia and Singapore allows for recognition. International harmonisation of laws and regulatory requirements would be ideal where possible. This may need to begin sector by sector, such as banking, securities and insurance. Regulators can make use of existing cross-border cooperation channels, or establish new formal collaborative initiatives. Regulators do, and should continue to, enter into memorandums of understanding with a view to sharing information around regulatory implications and technology developments.

We support regulators' efforts to provide flexible regulation and policies but there is the risk that divergent regulatory approaches may emerge. We therefore consider that any new policies aimed at Fintech innovation should be harmonised with policies in other jurisdictions to mitigate the risk of regulatory arbitrage and/or conflicting rules that stifle the development of innovative products and services. In this regard, we note that most Asian countries, as well as Australia, are signatories to the IOSCO Multilateral Memorandum of Understanding, which gives commitment among over 100 securities regulators to provide each other with mutual assistance and cooperation, and there may be potential to leverage on existing channels for the sharing of information.

Best Practice 7: Support industry-driven interoperability.

Financial services companies will generally implement technological changes in parallel with legacy systems, rather than overhauling their entire infrastructures. Regulators should support interoperability among the systems of all current market participants, which will lead to lower compliance costs and minimise potential disruption to the market.\(^{19}\) Data standardisation and harmonised definitions could allow financial regulators to make efficiency improvements by allowing for the sharing of information amongst market participants.

For example, the International Technical Committee for Blockchain Standards ("ISO/TC 307") is currently working on developing international standards to support the roll-out of blockchain technology, as led by

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Standards Australia. The committee includes a cross section of industry experts, consumer associations, along with government and non-government representatives, who will be looking at the standardisation of blockchains and DLT to support interoperability and data interchange among users, applications and systems. Various study group streams, including smart contracts, identity and use cases, have also been created.

Best Practice 8: Provide a clear framework and guidelines to allow for cross-border transmission of data for processing and storage.

Digital data is core to Fintech and that data needs to be able to continue to cross borders for processing and storage. Firms use global and regional data centres and private and public clouds to process and store data. This is done to utilise efficiencies, reduce costs and allow for 24 hour processing. In addition, information is better protected through the concentration of highly-skilled and hard to find experts in high-tech facilities in low risk locations. Business continuity is also better assured if information is stored and processed in different locations as facilities and personnel can provide back-up during natural disasters.

Some countries would like to see data kept on-shore believing that it better protects privacy and security and allows for greater accessibility. This is not the case. Multiple entry points enhance rather than reduce the risk of data breaches. Accessibility to data can also be achieved in agreed timeframes if the data is offshore particularly if linked to a licence to operate. Allowing firms to utilise regional and global data centres as well as the cloud provides particular benefits to smaller firms and supports innovation. Smaller firms are able to access technology and innovations that would otherwise be out of their reach given the costs of investment and maintenance.

Best Practice 9: Ensure laws support technological developments.

We recommend that governments review and update laws to ensure they allow for technological innovations to be introduced. Electronic signatures are, for example, often not accepted which limits the ability of firms to offer products digitally and means clients need to come to a physical location. Some regulations also hinder the electronic distribution of certain products, limiting the ability of firms to utilise digital distribution channels. Sometimes financial advice needs to be done face-to-face which works against a technological solution such as internet or mobile based conversations.

Identity verification also poses challenges. If customers are required to bring physical identity documents into a location it slows down processes. National identity numbers or cards, as adopted by India,
allow for digital verification and more rapid digitisation. Voice biometrics can also be used to verify the identity of individuals.

Best Practice 10: Promote cybersecurity and data security in a globally interconnected financial system.

The future of Fintech and cybersecurity are also interlocked, as the advancements in Fintech have brought about new cybersecurity and data security risks. For many regulators and market participants, strengthening cybersecurity is one of their top priorities in their Fintech agenda. In order to help market participants navigate cybersecurity challenges and raise awareness of cybersecurity risks, several Asian market regulators such as Hong Kong, Singapore, India and Malaysia have developed, or are in the process of developing, cybersecurity frameworks and guidelines. The MAS has also established an Asia Pacific Regional Intelligence Centre\textsuperscript{20} to encourage the sharing of cybersecurity information among financial firms in the region, so as to mitigate threats. There have also been advancements in cybersecurity innovation, with various accelerator programs focusing on cybersecurity areas like fraud detection, cloud security, and encryption.

Regulators should continue their efforts to develop and adopt internationally accepted cybersecurity standards to minimise cybersecurity risks. Ensuring that cybersecurity regulations, for example in relation to data encryption standards, are harmonised will also assist international financial services firms who have to comply with potentially conflicting rules and regulations in multiple markets. Regulators should also continue to focus on regulatory cooperation and the sharing of cyber threat intelligence, so as to assist the financial industry in better monitoring cybersecurity threats as they evolve and develop.

Conclusion

The rapid development of Fintech has not only led to vast opportunities for the financial services sector, but has also heralded a new spectrum of possible regulatory risks. To harness the full potential of Fintech, regulators should collaborate with stakeholders to support innovation. At the same time, a balance needs to be struck between developing the Fintech sector and maintaining adequate and proper safeguards against the possible risks brought about by Fintech in order to ensure the protection of consumers and the integrity of financial markets as a whole.

We hope that these best practices serve as a guide to assist regulators in thinking about, engaging with and assessing the Fintech ecosystem, in order to develop pragmatic and innovative cross-sector engagement for the betterment of the Fintech industry. Similarly, industry and other stakeholders will be able to refer to these best practices to understand how they can collaborate with regulators to orient products and services towards broader objectives that benefit consumers, markets and the economy.
About ASIFMA

ASIFMA is an independent, regional trade association with over 100 member firms comprising a diverse range of leading financial institutions from both the buy and sell side, including banks, asset managers, law firms and market infrastructure service providers. Together, we harness the shared interests of the financial industry to promote the development of liquid, deep and broad capital markets in Asia. ASIFMA advocates stable, innovative and competitive Asian capital markets that are necessary to support the region’s economic growth. We drive consensus, advocate solutions and effect change around key issues through the collective strength and clarity of one industry voice. Our many initiatives include consultations with regulators and exchanges, development of uniform industry standards, advocacy for enhanced markets through policy papers, and lowering the cost of doing business in the region. Through the GFMA alliance with SIFMA in the United States and AFME in Europe, ASIFMA also provides insights on global best practices and standards to benefit the region.

More information about ASIFMA can be found at: www.asifma.org.