Advisory Group
Meeting II
PAPER 6-A

Document: AGFSCB 36-020
Draft: **FIRST**
Date: 15 April 2016
Source: AGFSCB Chair
Meeting: Port Moresby, Papua New Guinea

APFF Roundtable on Financial Innovation
How can we harness innovation to build bigger, robust and inclusive financial markets?

24 February 2016
Hosted by PayPal
Corporate Campus, PayPal Headquarters
Town Hall Entrance, 2161 N 1st St., San Jose, CA 95131

CONFERENCE REPORT

Tremendous changes are sweeping today's financial landscape. The growing use of FinTech, which includes mobile money, shared ledger technology[1] (including block chain), big data, artificial intelligence, electronic platforms, advanced analytics and automated processes, among others, is challenging established business models. New players are entering markets long dominated by traditional financial service providers as the latter are now embracing new technologies to help them face the threat of disintermediation.

Innovations such as mobile and agent banking and peer-to-peer lending have already demonstrated the power of technology to help 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 block chain and artificial intelligence have potential applications that could revolutionize financial service firms' efficiency and responsiveness to customer needs.

Policy makers and regulators have begun to respond to these developments, in compliance with mandates to promote financial stability, protect consumers and privacy and maintain the integrity of financial systems. However, for the APEC Leaders' and

---

[1] While the terminology in this space continues to evolve and various publications use "distributed ledger", "shared ledger" and "block chain" interchangeably, this report uses terms based on the following definitions offered by the UK Government Chief Scientific Adviser in the report *Distributed Ledger Technology: beyond block chain* (link: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/492972/gs-16-1-distributed-ledger-technology.pdf):

- **Shared ledger** (the most generic and catch-all term for this type of technology): any database and application shared by an industry or private consortium or that is open to the public.
- **Distributed ledger**: a type of database spread across multiple sites, economies or institutions, where records are added when participants reach a quorum and stored one after the other in a continuous ledger, rather than sorted into blocks.
- **Block chain**: a type of database that takes multiple records and arranges them in a block, where each block is chained to another using a cryptographic signature. Block chains may be ***permissioned*** (participants are pre-selected) or ***unpermissioned*** (open to everyone). Bitcoin is an example of an unpermissioned ledger.

Finance Ministers' aspirations to make financial systems more inclusive, efficient and responsive to the region's vast financing needs to be met, a balanced and coherent approach that maximizes the benefits of innovation while adequately addressing emerging risks and concerns will be required.

To enable stakeholders from private and public sectors to obtain a better understanding of the forces driving changes in the financial industry and the ensuing policy and regulatory challenges, the APEC Business Advisory Council (ABAC) convened an Asia-Pacific Financial Forum Roundtable on Financial Innovation in Silicon Valley. This event, hosted by PayPal at its Corporate Campus in San Jose on 24 February 2016, aimed to pave the way to a commonly shared view of the future and closer collaboration between government and the private sector in harnessing innovation to build bigger, robust and inclusive financial markets in the Asia-Pacific region.

The Landscape of Financial Innovation and its Potential for Promoting Financial Inclusion and Market Efficiency

Traditional financial institutions have long been unable to serve the financing needs of large numbers of businesses and individuals across the developing region. Technological developments have spurred innovations that are being harnessed to serve these needs, first in mobile and agent banking. As the development and convergence of new technologies and improvements in broadband infrastructure accelerated in recent years, a new wave of innovation has started to sweep the financial industry, challenging traditional business models.

One company that provides an example of this innovation is Kabbage, whose Chief Marketing & Revenue Officer, Victoria Treyger, set the scene for the first panel discussion. Established in 2009, it has provided over the last four years more than USD 1.5 billion in funding to over 70,000 small businesses through its automated lending platform. Many traditional lenders still use a long, cumbersome, manual and paperwork-intensive process that requires collateral or credit scores. Kabbage was envisioned to provide a simple and fast way for small businesses and consumers to access capital using their own data that exists online. By leveraging the power of real-time data automation to instantly qualify customers, it is able to streamline the lending process, where the customer can complete a simple online application and receive a loan within minutes. The Kabbage platform for automated loan applications and approval is also now being used by a number of traditional financial institutions to power lending to small business customers.

Other examples discussed at the Roundtable include PayPal, which has created a payments platform that makes it easier and cheaper for households and businesses to make and receive payments, and Xoom, which facilitates international money transfers by absorbing the risk between payment and settlement, effectively reducing transaction times from 4-5 days to just a few seconds, as well as transaction costs.

The FinTech landscape, however, is a very large and complex one that is affecting financial services across payments, insurance, deposit-taking, lending, capital raising, investment management and financial market infrastructure. It also represents an extensive digital realm where traditional financial institutions, start-ups, e-commerce, ICT companies, market infrastructure players, investors, accelerators, incubators, and consumers intersect with each other.

The development of FinTech is being driven by front-end technologies (e.g., open application programming interface or API, mobile money), front-end financial services (e.g., peer-to-peer or P2P lending), back-end technologies (e.g., block chain, big data and predictive analytics, artificial intelligence, identity management and advanced fraud and security) and back-end financial services (e.g., faster payments, alternative underwriting). These have created disruptions in various parts of the financial sector. Examples include:

- *Lending*: emergence of new non-bank lenders, rise of marketplace lending; merchant advances; supply chain and internet finance; enhanced credit underwriting and decisioning; integrated platforms for consumer financial empowerment.
- *Fund/asset transfers and payments*: rise of electronic (mobile, cards) payments for the unbanked; faster payments initiatives; rise of virtual commerce globally; advanced fraud and security methods; potential of block chain/distributed ledger technology; and rise of P2P and cross-border transfer platforms.
- *Insurance*: rise of insurance for the unbanked through mobile access; use of new technologies to drive down operational costs; ecosystem partnerships and new business models; enhanced analytics for better risk decisioning.

The currently predominant FinTech firms are still powered by technologies that have already been around for some time. These include digital platforms and applications, use of wider data sets to customize financial services and products (including locational, personal consumption, payment and income data), and algorithms that enable rapid interpretation of data and more efficient transactions. While newer technologies, such as distributed ledger technology and block chain (the most well-known example of which is Bitcoin, which offers to substitute for fiat currency) and artificial intelligence, are attracting much attention due to the huge potential for disruption, their commercialization is still limited and involves a relatively very low volume of financial transactions.

There is also very wide variation in levels of penetration of the financial services market by FinTech companies at present. While some firms like PayPal have become significant players, other companies, particularly in the lending space, still account for very small portions of the market compared to incumbents. The payments area has been where FinTech has had its earliest impact, with the development of e-commerce being the catalyst for start-up firms developing new solutions for online payments. Take-up has been strong in some parts of Asia (e.g., China), where e-commerce underpins many economic activities.

In terms of growth, however, lending start-ups have received the most investment in recent years, followed by those in payments. Investments in block chain/distributed ledger technology are still much lower, but are growing at a very rapid pace. FinTech is also undergoing rapid evolution, as exemplified by payment platforms now moving toward lending products. For example, PayPal is now offering working capital credit for small businesses and small personal and consumer loans for their customers.

FinTech presents enormous opportunities to promote financial inclusion, especially in emerging Asia and Latin America, which continue to host a significant portion of the world's unbanked population (these make up 69% of the population in the Philippines, 64% in Indonesia, 22% in Thailand and 21% in China), not to mention those who are underbanked. Moving from paper-based transactions to retail and G2P payments, e-commerce, cross-border remittances and SME collections to digital payments, for example, is estimated to result in as much as USD 400 billion in annual benefits.

At the same time, the introduction of new technologies into financial services is now raising some questions related to regulatory issues. These include consumer protection, particularly in the case of new service providers; identity management; data management and data protection with respect to the use of big data and algorithms; network and system stability and cyber security and cyber risk. Regulatory approaches across the region are varied and continue to evolve. Nevertheless, regulators are being encouraged to take a light regulatory touch for new FinTech start-ups to support innovation.

Building a Robust Enabling Ecosystem for Inclusive Financial Innovation

Technologies are emerging that enable financial market players to respond more effectively to regulatory requirements. Participants discussed the incorporation of regulatory requirements into technology protocols that is promoting the automation of the regulatory process, the evolution of regulatory models and how industry, policy makers and all relevant regulators can collaborate to build a robust and coherent ecosystem for inclusive financial innovation.

An example of a company active in this space is Redkite Financial Markets, which is a leading independent markets surveillance solutions provider for the global financial services sector. Redkite Chairman John Edge gave a presentation to open the second panel discussion. Its on-demand, private cloud-based solution, Redkite Surveillance, enables financial risk and compliance officers to monitor their firm's trading activity in real-time, enabling firms to demonstrate to corporate governance boards that their risk management and compliance systems are running on the same real-time standard as front-office trading systems, and respond to financial markets regulators' (such as the European Securities and Markets Authority's and the US Commodity Futures Trading Commission's) call for real-time oversight of electronic trading strategies and high-frequency trading systems.

Beyond this, however, is the broader question of how policies and regulations should respond to the rapid development of FinTech. As innovation gives rise to a new ecosystem of financial institutions, services and market infrastructure, policies and regulations will also need to evolve. In addition to striving toward the critical regulatory goals of financial stability, cyber security, data privacy, consumer protection and the fight against crime and terrorism, they will also need to promote a coherent policy and regulatory environment that allows the financial sector to support broader goals, including financial inclusion, continued innovation and the growth of trade and investment across the region.

In particular, FinTech raises a number of key issues for government and regulatory agencies.

- Digital data and advanced systems need to be managed by highly-trained professionals backed up by reliable IT infrastructure. This requires introduction of advanced IT education and investment in IT and basic infrastructure.

- Data collected needs to be effectively utilized by businesses to enhance competitiveness and efficiency while ensuring privacy of individuals. Data can help firms better meet customer needs as well as improve their management and growth through better analysis of performance against targets. This needs to be balanced by protection of personal information, which is a key concern for citizens, governments and firms. However, where the balance between data access and privacy protection lies may be perceived differently in emerging markets, where a large portion of the population are financially excluded, compared to advanced markets, where the majority of the population have access to formal financial services.

- Data needs to be secured against fraud, criminal activity and natural disasters in an increasingly complex and interconnected world. There is a need to strengthen digital systems against fraud, cyberattacks by domestic and international criminal actors, and natural disasters. Regarding natural disasters, banks are diversifying risks through establishment of offshore back up centers.

- Cross-border data transfer for processing and storage leads to discussions about onshore versus offshore activities. Benefits of data transfer include enabling round-the-clock provision of service, early release of cutting-edge products, cost reduction and greater efficiency. Security would require the establishment of highly-protected and well-staffed and equipped data centers. Harmonization of data definitions would also be needed to enable accurate interpretation across markets.

- A level regulatory playing field is needed for both incumbents and new entrants to manage risks across the system and equalize costs. One way to promote this is by rethinking current regulatory approaches that focus on institutions rather than functions and considering the regulation of a product or service in the same way regardless of provider. It is also important to encourage firms to innovate and assist products and services being brought to market through light touch regulation with intervention whenever it becomes necessary to achieve broader regulatory goals.

- Regulators need to focus on means of permitting automation of processes that are currently manual in order to lower costs sufficiently and permit wider financial inclusion.

As financial services move more rapidly into the digital space and cybercrime evolves from methods like phishing that target human risk factors to complex malware coded to exploit gaps in technology and process, more areas of vulnerability will emerge, from client access applications and communication tools to technology partnerships. Collaboration between regulators and industry is key to increasing awareness of cyber security, reducing financial and reputational damage and serving clients. Firms are currently approaching this on three fronts.

- The first is through partnerships within the FinTech ecosystem to collaborate, perform due diligence and provide transparency to ensure visibility and control of the end-to-end chain of product and service offerings.

- The second is through technology, controls and training and awareness within the firm to protect the confidentiality, integrity and availability of client data and its information assets.
- The third is providing technical advisory, training and tools to enable customers to better protect themselves.

The advent of FinTech has also spurred many governments to consider ways of promoting innovations within their jurisdictions to facilitate the development of their financial services sector. Several entities in the region, such as the governments of Hong Kong and Singapore, the Hong Kong Exchanges and Clearing and a number of private firms have undertaken concrete initiatives in this direction. Various studies have been undertaken to identify key elements of an enabling ecosystem. A KPMG study ("Unlocking the potential: The FinTech opportunity for Sydney," October 2014), for example, outlines the following as the most important enablers in developing a strong FinTech ecosystem:

- available and accessible early stage funding for FinTech start-ups and a strong pipeline of opportunities for investors/VC funds;
- depth of financial services and technology talent and close proximity of these talent pools to each other (in city locations);
- a robust financial services industry, with a vibrant technology start-up community with mentoring, networking and high visibility;
- government commitment and regulatory support for the FinTech sector specifically, and technology start-ups generally; and
- business backing for a FinTech hub, with high levels of collaboration and a strong culture of knowledge-sharing and entrepreneurship.

The potential of FinTech to drive inclusive growth is huge, but technological innovations can also magnify the potential for damage to the economy and financial systems. This increases the burden on regulators to keep pace with the innovations in the market, which will enable them to make regulations more effective in enhancing stability and enabling innovation and growth, and to strike the right balance between adapting to the local contexts across different markets and developing a regulatory model that can be applicable in many markets and thus able to contain compliance costs and provide seamless scale.

These factors are driving the need for new models of business partnerships, including between regulators and industry. The challenge in developing regulatory tool sets for these new models is that it is difficult to expect regulators to be able to model and forecast developments and trajectories, while we are still in the early stages of FinTech development and the private sector is still learning what works. The lack of coherent and well thought-out regulatory responses to FinTech may expose financial systems to significant risks. One approach to addressing this issue is the use of "sandboxes," establishing areas where experimentation can occur and regulators and policy makers can participate or freely observe and better understand new technologies and business models, thus reducing the risks of curtailing innovation through premature regulation.

In addition, there is the possibility of a few successful players becoming too dominant as finance and technology come together to reach more deeply into all aspects of the economy and society and underpin growth and social development. In this case, we may face a new digital divide, where the gap between those who are able to participate in this market and those who are unable to do so could grow very quickly and which could be more subtle and different in nature from previous dichotomies of haves against have-nots. Preventing this from occurring will need to involve not just updated regulatory frameworks, but also consumer education and protection as well.

Most importantly, proportional and more flexible regulatory approaches will be needed to enable strong growth and continued innovation. This could take the form of recognizing fundamental areas where benchmark standards for such areas as privacy, security and AML may be required, and regulating these more strictly and aligned across the region, while employing light-touch (e.g., “watch and wait”) regulatory approaches in areas where risks of systemic damage are low, in order to enable more cross-border trade. Key enabling factors for this would include the valuation of data (including understanding the importance of open data and the potential for self-sovereign data), the need for data categorization; and the fundamental importance of measurements and frameworks for measuring digital trade and FinTech.

In the context of APEC’s mission to promote open trade and investment and quality growth across the region, collaboration across jurisdictions and between public and private sectors in addressing these challenges is important. Within APEC itself, various fora are conducting discussions and initiatives that are relevant. In addition to the Finance Ministers’ Process and the Senior Officials’ Meeting, the Ad Hoc Steering Group on the Internet Economy (AHSGIE) and the Electronic Commerce Steering Group (ECSG) will need to be involved.

In this regard, there are ongoing initiatives within APEC that can be used to assist economies in adopting the Internet Economy agenda. In achieving this, the AHSGIE is planning to develop a framework to facilitate the growth of the Internet Economy based on the agreed principles of equivalence and enabling platforms. Telecommunications and financial regulators can also start discussions on how FinTech will affect emerging policy and future regulations. ABAC, through its working groups collaborating with the Finance and Economics Working Group and the APFF, can play an active part in this process.

Way Forward and Next Steps

The foregoing discussions underscored the importance of creating a regional platform to bring together stakeholders from the public and private sectors to address in close collaboration with each other key issues arising from the development of FinTech. These stakeholders should include representatives from the industry (FinTech startups and major financial institutions, related service providers, associations and experts), public sector (government and regulatory agencies, relevant APEC fora) and major international organizations. In collaboration with interested partners, ABAC will convene this coming July in Hong Kong another APFF Roundtable on Financial Innovation. Based on the conclusions of the two Roundtables and collaborative discussions with other working groups, ABAC will formulate recommendations to APEC on structures and processes to help member economies harness financial innovation to build bigger, robust and inclusive financial markets.

ANNEX
Roundtable Agenda

13:00 - 13:15 **OPENING SESSION**

Welcome and opening remarks

Mr. Ben Adams, Vice President of Legal, Global Head of Legal and Regulatory Affairs for Sales, Marketing, Corporate Strategy, Business Development and M&A, PayPal

Mr. Hiroyuki Suzuki, Chair, ABAC Finance and Economics Working Group; Chair Asia-Pacific Financial Forum; and Director and Board Member, Nomura Holdings, Inc.

13:15 - 15:00 **SESSION ONE: Financial innovation and its potential for promoting financial inclusion and market efficiency**

Various factors have conspired to render many traditional financial institutions unable to serve the financing needs of large numbers of businesses and individuals across the region. Technological developments began to spur innovations that were harnessed to serve these needs, first in mobile and agent banking. As the development and convergence of new technologies accelerated in recent years, a new wave of innovation has started to sweep the financial industry, challenging traditional business models. This session seeks to provide guidance for future public-private policy collaboration by generating a snapshot of this rapidly evolving landscape, its implications for the financial sector's role in the broader real economy, and the directions in which this process is heading.

Moderator: *Dr. Julius Caesar Parreñas, APFF Coordinator and Senior Advisor, Nomura*

Rapporteur: *Ms. Amy Auster, Executive Director, Australian Centre for Financial Studies*

The Cutting Edge of FinTech: Kabbage

Ms. Victoria Treyger, Revenue Officer & Chief MarketingKabbage, Inc.

Presentation: Overview of the financial innovation landscape

Ms. Menekse Gencer, Payments Leader, PwC FinTech Practice

Panel discussion (5 minute initial responses each to moderator questions and additional responses to follow up questions):

Mr. Hu Liang, Senior Vice President; Emerging Technologies Center, State Street (Focus: blockchain technology)

Mr. Michael Gardner, Managing Director and Head, Innovation Center, BNY Mellon (Focus: payments)

Mr. Karim Gillani, Director, Strategic Initiatives and Growth for Remittances, Xoom/PayPal (Focus: P2P platforms/access to finance)

Mr. Narciso Campos, Assistant Secretary and Head of Banking, Savings and Securities, Ministry of Finance and Public Credit, Mexico

Follow-up questions by the Moderator to Panelists and panelist

discussions
Open forum
Summary of discussions by the Rapporteur
Summary and concluding comments by Moderator

15:00 - 15:20 **Coffee break**

15:20 – 17:20 **SESSION TWO: Building a robust enabling ecosystem for inclusive financial innovation**

As innovation gives rise to a new ecosystem of financial institutions, services and market infrastructure, policies and regulations will also need to evolve . In addition to ensuring that critical regulatory goals such as financial stability, cyber security, data privacy, consumer protection and the fight against crime and terrorism will continue to be met, they will also need to promote a coherent policy and regulatory environment that allows the financial sector to support broader goals, including financial inclusion, continued innovation and the growth of trade and investment across the region.

At the same time, technologies are emerging that regulators can leverage to more efficiently acquire data, use real-time information and incorporate algorithms and analytics in carrying out their mission. This session will discuss the incorporation of regulatory requirements into technology protocols that is promoting the automation of the regulatory process, the evolution of regulatory models and how industry, policy makers and all relevant regulators can collaborate to build a robust and coherent ecosystem for inclusive financial innovation.

Moderator: *Dr. Richard Cantor, Chief Risk Officer; Moody's Corporation and Chief Credit Officer, Moody's Investors Service*
Rapporteur: *Dr. Peter Lovelock, Director, TRPC*

The Cutting Edge of RegTech: Redkite Financial Markets
Mr. John Edge, Chairman, Identity Economy Holdings

Presentation: Overview of regulatory issues surrounding financial innovation
Mr. Andres Wolberg-Stok, Director, Citi FinTech

Panel discussion (5 minute initial responses each to moderator questions and additional responses to follow up questions):
Dr. Matthew Gamser, CEO, SME Finance Forum IFC (Focus: Balancing financial inclusion with regulatory objectives)
Mr. Gerald Tsai, Director of Applications and Enforcement, Federal Reserve Bank of San Francisco, (Focus: TBC)
Mr. Graham Warner, Head of Product Development Americas, Global Transaction Banking, Deutsche Bank (Focus: cybersecurity)
Ms. Karen Gifford, Special Advisor for Global Regulatory Affairs, Ripple Labs (Focus: data privacy)

Dr. Bing Xiao, Senior Vice President, Wells Fargo (Focus: consumer protection)
Ms. Nur Sulyna Abdullah, Chair, APEC Ad Hoc Steering Group on the Internet Economy (Focus: work of APEC)

Follow-up questions by the Moderator to Panelists and panelist discussions
Open forum
Summary of discussions by the Rapporteur
Concluding comments by the Moderator

17:20 – 17:30	**CLOSING SESSION** Concluding remarks by Dr. Alan Bollard, Executive Director, APEC Secretariat
17:30	**End of Roundtable**