

Jacqueline Loh: E-payments in Asia – regulating innovation and innovative regulation

Keynote address by Ms Jacqueline Loh, Deputy Managing Director of the Monetary Authority of Singapore, at the Central Bank Payments Conference, Singapore, 26 June 2018.

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Jean-Michel Godeffroy, Chairman of the Central Bank Payments Conference

Fellow central bankers and regulators

Ladies and gentlemen

1. Good morning. Welcome to Singapore. Thank you for inviting me to speak at the Central Bank Payments Conference.

2. I understand that this is the second conference since the event started in Amsterdam last year, and the first time that the event is being held in Asia. So let me share with you the perspective from this part of the world.

A E-PAYMENTS ARE FLOURISHING IN ASIA

3. **Until about a decade ago, payments were entirely offered by banks.** We wrote cheques that were issued by banks and deposited cheques into accounts that we held with banks. As electronic or e-payments flourished, we paid for shopping using debit or credit cards that bore various brands, but were ultimately issued by banks. The banks would then find a way of settling payments among themselves through the Automated Clearing House (ACH) (usually run by the banking industry) and the Real Time Gross Settlement (RTGS) system (run by the central bank). For the longest time, the central bank's role was clear: We kept payments safe by keeping banks safe.

4. **In recent years, digital payment solutions such as e-wallets over mobile devices have emerged, and nowhere is this more obvious than in Asia.** From 2015 to 2016, non-cash transactions in developed Asia-Pacific grew by 8.8% while that in Emerging Asia experienced 28.6% growth¹. Digital payments in Asia are forecasted to grow annually at 16.4%² to reach over USD 2.5 trillion per year in 2022. That is almost half of the estimated worldwide total of USD 5.4 trillion.

5. Such services are often offered by non-banks, increasing the number of payments being handled outside the traditional banking system. EY and DBS³ found that payments and remittances were the highest-adopted FinTech services among banking and financial services customers in Asia, reaching 40% in China and 20% in India. In ASEAN, approximately one-third of FinTech companies are in the payments space, and this increases to 54% if you include money-transfer and remittance services⁴.

6. **These innovations did not come about by chance, but rather through a confluence of three factors:**

a. Technology has lowered the barrier to entry to run a standalone payments business, without being a bank.

b. The high penetration of smart phones running apps has made it easier to acquire customers

digitally, without physical places of business; and

c. The boom of online e-commerce has necessitated the creation of solutions to help customers to pay digitally for services that they in turn purchase digitally. As they say, necessity is the mother of all invention, and nowhere else is this more pressing than in Asia, where a high proportion of unbanked population is concentrated. In 2017, the World Bank found that China, India, Indonesia and Bangladesh alone contributed to one-third of the world's unbanked adults⁵.

7 . **This has resulted in a well-trodden path among digital businesses in Asia:** Build a digital business around something non-financial, say ride-hailing, food delivery, groceries or gaming. Then offer your customers a seamless payment experience through an e-wallet, to pay for the things that they buy from you. Let me offer a few examples:

a. In Singapore, Carousell offers an online marketplace for individuals like you and me to sell or buy anything. You take a photo of what you want to sell, the app can recognise items like shoes and suggest an appropriate category, and you post it for sale. They have about 150 million listings today, including cars and property. And they are launching CarouPay to help its customers to pay for all of them.

b. Some of you, like a couple of my colleagues, may have come here this morning using the ride-hailing service, Grab. It is very convenient. You book the ride, the driver arrives, you reach your destination, you thank your driver, and you are on your way. No money needs to be exchanged with the driver. You don't even click "pay". Grab has taken this one step further: They've acquired over 300 merchants so that you can use the Grab wallet to pay for services these merchants offer.

c. But it is China that is leading the way, with e-wallets making up 13% of consumer payments by value, compared to under 1% in markets like India and Indonesia⁶. Alibaba combined mobile e-money with facial recognition in their Hema chain of supermarkets. You walk into the store with your mobile phone, find something you like, scan the QR code to find out more information about it, and in the same app you can order the item, pay for it, and get it delivered in 30 minutes. JD.com does something similar in their staff convenience store at their headquarters: walk in, pick up a snack, walk out.

B. EMERGING ISSUES IN DOMESTIC PAYMENTS

8 . **The clearest benefit for consumers is greater convenience and an explosion of choice in how you want to pay.** You can use the same e-wallet to get a ride to work, then to buy lunch at a café. You can use another e-wallet to order dinner. Merchants too, have more choices today on how they wish to get paid. Just step into any mall, and at many shops you see a range of QR codes representing different e-wallet schemes – some of them catering just to tourists from specific countries.

9. **The reverse side of that same coin is that as more payments are carried out outside of the banking system, they also start to fall outside of typical central bank oversight like the ACH and RTGS.** As it stands today, the portion of digital payments is still a small fraction of total payments. Even in China, where mobile payments have sky rocketed, the total volume of mobile payment transactions in 2016 stood at CNY 208 trillion⁷, a fraction of the CNY 3600 trillion⁸ processed by China's High-Value Payment System. However, as more payments go through these e-wallets and as more consumer monies are held by non-banks, it is important for us to consider the risks that we typically look out for:

a. As individual e-wallets, how do we keep them safe to use?

b. Collectively, how do we manage risks that e-wallets may pose to the financial system?

c. As a market, how do we ensure that e-payments function smoothly with each other and with the financial system?

10. **Let me run through these three questions**, and share how MAS is addressing these through the proposed Payment Services Bill (PSB) – striking a balance between innovation and sound regulation – as well as industry collaboration. The proposed PSB also follows an activity based framework which calibrates regulation according to the risks that the specific payment activity poses, rather than applying a fixed set of regulations to all payment service providers. While we have expanded the regulatory scope to address emerging risks in payment developments, regulations are also right-sized to the risks posed.

11. **First: As individual e-wallets, how do we keep them safe to use?** When we look at e-wallets, we find that they face very similar risks as digital banking products. Firstly, as online services, both are dependent on technology and face cyber risk – so MAS expects them to manage these technology and cyber risks well. Second, they both hold retail customer monies, so they need to safeguard these monies. The differences however, are that an e-wallet is used for day-to-day payments, and so needs to be very liquid to meet customer demands, and e-wallet issuers don't give loans with the float. So it's important to right-size our regulations to their business model, and not to stifle innovation by loading them with bank-like requirements. Taking these into account, MAS sets out proportionately simple options for e-wallets to safeguard customer monies, for example, holding it as a deposit with a bank. MAS may also prescribe further safeguarding measures in liquid and low-risk assets.

12. **Second: Collectively, how do we manage risks that e-wallets pose to the financial system?** Our role as central banks is to protect the stability of, and confidence in, the financial system. To achieve this, we need to develop regulations that, while addressing key risks, do not obstruct the industry developments. In the case of payments, that key risk is money laundering and terrorist financing (ML/TF), and the balance that we have to strike is to allow new e-wallet businesses to start quickly, but also ensure that ML/TF risks are managed before they get too large. In this context, while KYC continues to be a key requirement, we allowed smaller wallets holding funds of no more than \$1,000 to carry out simplified KYC requirements. This framework is similar to those used in other markets like Hong Kong, India, Australia and the UK.

13. **Finally, as a market, how do we ensure that e-payments function smoothly with each other and the financial system?** Many of us think of smooth functioning as having liquidity providers in capital markets through volatile periods. That is because capital markets are well-oiled systems that interoperate between banks and trading venues, and even among banks. Not so with e-payments.

14. **E-payments have grown quickly because they have been able to develop their own systems quickly – but this has resulted in some fragmentation.** Although the vast array of payment solutions offers more choices to consumers and merchants, too much choice is not always a good thing:

a. Consumers may end up holding three or four different e-wallets in order to get the best deals from each: one for transport, one for shopping, and another to split bills with friends. Those three or four e-wallets may hold smaller amounts of money each, but in sum might add up to more than what he/she would have otherwise held in cash in one physical wallet. He/she needs to top-up each e-wallet separately, because each wallet has a different top-up and refund mechanism.

b. Merchants may proudly display all the schemes that they accept, whether by card or contactless or QR codes. Underneath all that, the merchant needs to deal with different acquirers that send him settlement files in different formats, at different times, and pay him on different days.

c. Between the consumer and merchant, instead of counting cash and change, the payment ordeal could transform into checking which payment instrument is accepted, which card to dip into which terminal, or which QR code to scan.

15. **Fortunately, we have not reached that e-payment nightmare. While competition from many payment providers benefits consumers with lower prices, convenience and more innovative solutions, e-payments still need to interoperate in order for the industry to continue growing.** Let me share three areas where MAS is enhancing interoperability of e-payments, namely point-of-sale terminals, QR codes and regulatory powers.

16. **First, Unified Points of Sale (UPOS) terminals.** Singapore is a highly-carded market, with over 349 payment cards per 100 inhabitants⁹. Many merchants, if they accept e-payments, have a terminal, usually provided by a bank acquirer. Five years ago, we started noticing that some 15% of merchants had more than one terminal. Why? Because different banks were acquiring the same merchant so that they could offer the merchant lower on-us rates for their cards dipped in their own terminals. This was good for merchants, and even for the consumer as the merchants passed on some discounts to them. But there were hidden costs: Cashiers had to be trained on different terminals, customers at self-checkout lanes fumbled with which terminal to dip their card into. So we set out to study the market, see which merchants had more than one POS terminal, prioritise them by the volume and value of transactions that they handled, and worked closely with their acquirers one-by-one to on-board onto a single terminal that can accept all schemes that use chip and contactless near-field communication (NFC). Today, the process is still underway, but you can already see these UPOS terminals deployed in supermarkets, convenience stores and petrol stations – these are merchants that we visit daily, if not weekly. Besides addressing the challenges I mentioned above, this has certainly made the self check-out experience a delight.

17. **Second, Singapore Quick Response (SGQR) code.** Besides chip and contactless NFC payments, many mobile payments are optical via a Quick Response (QR) code. Just as we started to tidy up the POS terminals at merchants, we started to observe a proliferation of payment QR codes as each e-payment company deployed its own QR code sticker at each merchant's cashier. We identified the problem early and immediately formed an industry task force comprising payment schemes and acquirers. Through intensive meetings with industry and users, we co-created the SGQR code. While it is based on the EMVCo's multi-tenanted QR specifications, Singapore is the first and only jurisdiction in the world to develop a set of arrangements by the industry for the industry such that all QR schemes can reside on a single QR code, instead of each scheme deploying its own code with its own scheme only. With SGQR, making a QR payment will be a breeze for the customer as he just looks for a single QR for any scheme the merchant accepts, rather than having to hunt for the right QR sticker for a particular scheme. For mobile or small merchants, SGQR allows easy acceptance of e-payments via a single, streamlined and low-cost sticker. Businesses are also exploring QR payments in bills as the customer can quickly pay his bills through his mobile, while the customer details embedded in the QR in turn enhances business processes.

18. **Third, Interoperability Powers.** With UPOS and SGQR, MAS has been very fortunate in being able to work with willing industry partners. But in future, just as innovative solutions may grow over time, the number of interoperability issues may multiply, and MAS may need the regulatory powers to effectively address the issue of interoperability with many more parties. Hence, in the consultation on the PSB, MAS has proposed innovative powers to require interoperability among payment institutions. Today, we have existing powers to require payment platforms to open access to participants. Looking ahead, we recognised that we needed two more measures: to require participants to use a common platform and to adopt common standards (such as SGQR).

C. GOING CROSS BORDER

19. **As we aim for interoperability and efficiency within our domestic systems, it is equally important to look beyond and to look outwards.** A lot of commerce and e-commerce is carried out across borders today: Cross border e-commerce alone is expected to expand strongly, by approximately 25% annually until 2020, nearly twice the growth rate of domestic e-commerce¹⁰. And just as more people travel and work overseas, and more businesses find ways to deliver goods and services overseas, payments will also need to keep up.

20. **Among Singapore's list of priorities as ASEAN Chair this year is to promote the growth of e-commerce in the region.** Google and Temasek estimated that e-commerce in ASEAN could amount to USD 88 billion in 2025¹¹. Cross border payments that are affordable, secure, and instant, will play an important role in driving e-commerce trade flows and achieving this vision.

21. **Although cross-border linkages offer huge benefits in important areas of the economy such as trade and tourism, implementing them is an up-hill task** because of complexities like different technical interfaces, and legal and regulatory requirements in each jurisdiction. Each country is also in a varying stages of development. But we are making progress:

a. The industry has moved ahead: In March, Singtel announced a partnership with its Thai associate AIS to link their mobile wallets up, to enable 1.5 million visitors between Singapore and Thailand to use their mobile wallets at over 20,000 physical merchant acceptance points in both markets. Singtel plans to expand this to other regional associates later in the year.

b. More broadly, the banking associations of Singapore and Thailand are exploring the possibility of linking their faster payment systems, PayNow in Singapore, and PromptPay in Thailand. If successful, the benefits of instant, low-cost payments for tourists, migrant workers and professionals will also extend to person-to-person payments and even remittances.

c. Earlier this month, when India Prime Minister Narendra Modi visited Singapore, he used his RuPay card issued in India to pay for a Madhubani painting on a NETS terminal.

22. **In order to address the challenges of cross-border linkages, central banks need to promote the adoption of common international standards and work with industry partners** on all sides in order to ease future integration efforts and pave the way for further partnerships.

D. CENTRAL BANK DIGITAL CURRENCIES (CBDC)

23. **As we talk about cross-border linkages, it would be remiss of me not to touch on Central Bank Digital Currencies (CBDC).** Benoît Cœuré, our next distinguished keynote speaker, and I, as co-chairs of the BIS' CPML and Markets Committee (MC) respectively, jointly issued a report entitled "Central Bank Digital Currencies"¹². Many of you would already have read it. In it, we distinguished between two types of CBDC: wholesale CBDC that is limited to selected financial institutions, and general purpose currency for use by the public. The report highlighted the potential benefits in wholesale CBDC for more efficient and secure wholesale payment systems, although more exploration will be required to fully understand these benefits.

24. **MAS started on our wholesale CBDC journey two years ago** when we introduced a digital token representing the Singapore dollar on distributed ledger technology (DLT) to settle interbank debts. Last year, we delved deeper into the problem of decentralised netting while preserving privacy, and demonstrated that these could be solved in the three major DLT platforms Corda, Hyperledger Fabric and Quorum.

25. **This year, MAS, Bank of Canada and Bank of England embarked on a project to explore how wholesale CBDC, underpinned by DLT, can be used to address the**

inefficiency that correspondent banking faces. It will identify pain points that commercial banks experience when making standalone cross-border payments, or payments as part of trade financing, securities services and foreign exchange. The project also looks at resolving settlement issues between commercial banks, and settlement of reserve between a central bank and a commercial bank. After these use cases are developed, a technical proof-of-concept will be conducted, building on the success of Jasper and Ubin, which are the DLT platforms from the Bank of Canada and the MAS respectively. If successful, this will provide alternatives for cheaper, safer and faster cross border transactions.

26. **Benoit and my respective committees took a hard look at general purpose CBDC, – and there are many implications** - including cost of bank funding, credit provision, and financial stability with the risk of deposits possibly taking flight to central banks during stress periods. These are issues that will have to be addressed should a central bank be deliberating on issuing digital currencies to its wider population. The CPMI and MC study is a reminder that even as we push the boundaries of payments and aim to utilise the latest technologies, central banks need to carefully assess each change and the larger impact to financial stability as well as monetary policy, before jumping on the bandwagon.

E. CONCLUSION

27. **These are some of the issues that central bankers are grappling with in Asia, and how Singapore thinks about regulating this innovative area of payments through innovative regulation.** With the fast-paced and global nature of changes, cooperation and dialogue between central banks are more crucial than ever before. I am glad to see many familiar faces from various central banks here today. The conference today is a useful forum for us to continue our dialogue, share important perspectives and keep tabs on the latest developments.

28. Thank you, and I wish all participants here today a fruitful two days ahead.

¹ 1 Capgemini, *World Payments Report 2017 (Developed/Mature APAC includes Australia, Japan, Singapore, and South Korea. Emerging Asia includes China, Hong Kong, India, Malaysia, Thailand, Indonesia, Philippines, Taiwan, Pakistan, Sri Lanka, and Bangladesh.)*

² 4 EY, *ASEAN FinTech Census, 2018*

³ 2 Statista, *Digital Payments Highlights, CAGR 2018 – 2022, 19 June 2018*

⁴ 3 EY and DBS, *The Rise of Fintech in China, 2016*

⁵ 5 World Bank, *Global Findex database, globalfindex.worldbank.org, 2017*

⁶ 6 Oliver Wyman, *Winner-takes-all in battle for e-wallet supremacy, 2018*

⁷ 7 ResearchAndMarkets.com, *Global and China Mobile Payment Industry Report, 2018*

⁸ 8 BIS.org, *Statistics on payment, clearing and settlement systems in the CPMI countries, 2016*

⁹ 9 Global Data, *Payment Card Analytics*

¹⁰ 10 DHL, *The 21st Century Spice Trade, 2017*

¹¹ 11 e-conomy SEA: *Unlocking the \$200 Billion digital opportunity in Southeast Asia, 2016.*

¹² 12 BIS, *Central Bank Digital Currencies, 2018*