Balancing the risks and rewards of fintech developments[1]

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Abstract

The entry of fintech and big tech can drive competition in financial services, leading to efficiency gains, but also raises potential financial stability concerns.

This note reviews the financial stability implications for banks and the financial system of fintechs engaging in payment and lending activities. It also explores a more recent fintech-backed innovation – global stablecoins – that could also raise broader implications for the financial system and economy if widely adopted. The note reviews Singapore's approach to managing the risks of fintech and big tech developments and their effects on incumbent banks, including by adopting a risk-based and proactive approach to regulation and surveillance.

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Introduction

As a small open economy and important regional financial centre, Singapore is subject to short-term external real and monetary shocks, increasing the importance of macroeconomic stability and financial resilience. Over a longer-term horizon, the financial system has also had to adapt to technological, competitive and regulatory shifts. In this note, the focus is on structural developments and, in particular on Singapore's approach to fintech, and how MAS balances financial stability considerations while flexibly and robustly embracing the benefits of innovation.

Fintech has transformed the provision of financial services. Its adoption has accelerated in recent years, including in Southeast Asia, where the relatively larger underbanked and unbanked population presents a huge opportunity for fintech firms.

Fintech developments can bring about benefits to society through improved social welfare and economic efficiency. However, studies have shown that the adoption of fintech by incumbent financial institutions alone will not help the full potential benefits of fintech to be realised. Philippon (2017) and Bazot (2013) find that the unit cost of financial intermediation has remained relatively unchanged at 2% over the past century.[2] This is contrary to the expectation that the increased use of technology in finance over time should increase productivity and hence reduce the cost of finance. A possibility is that the benefits accrued have not been passed on to consumers, owing largely to lack of competition within the financial system. Consequently, Philippon suggests that fintech players should be encouraged to enter the finance industry to drive competition and improve its efficiency.

While the entry of new players introduces competition that will cumulatively help to improve the overall quality and reach of financial services, the advent of fintech has raised concerns about potential financial stability implications. This note outlines those risks and also the mitigating actions authorities could adopt to address them. The note focuses on fintechs engaged in the payments and lending businesses as these are major areas of fintech growth, and also on global stablecoins.

Fintech investments and activity are growing, particularly in payments and lending

Global investments in fintech totalled more than US$ 55 billion in 2018,[3] more than double the amount in 2017, with the largest share going to Asia-Pacific companies. Excluding the oversized Series C funding for Ant Financial in 2018, most of the investments in fintech were to firms conducting payment services, followed by lending. Fintechs in other business lines such as insurance and investment

[2] Philippon (2017) and Bazot (2013). Bazot (2013) finds similar unit costs in France, Germany and the United Kingdom.

[3] Accenture (2019).

management received less investment. This trend is mirrored in ASEAN.[4, 5] In Singapore alone, fintech firms raised more than US$ 735 million in the first nine months of 2019, with funds flowing towards more mature firms rather than newer start-ups.[6]

Fintech activity in payments and lending is also flourishing. The global transaction value of digital payments has risen from approximately US$ 3.2 trillion in 2017 to US$ 4.1 trillion in 2019, a 28% increase.[7] This is projected to almost double by 2023. Focusing on Southeast Asia, digital payments currently amount to US$ 600 billion and is expected to grow to US$ 1.1 trillion by 2025, accounting for one of every two dollars spent.[8] In a recent survey of global financial consumers, it was noted that the adoption rate of "Money Transfers and Payments" was just 18% in 2015 and stood at 75% in 2019. "Borrowing", which was only 6% in 2015, stood at 27% in 2019.[9]

These trends suggest that the financial stability implications of fintechs' involvement in the payments and lending functions warrant a close look.

Financial stability implications of fintechs engaging in payments and lending

Competition from fintechs will affect incumbent banks' profitability and resilience

Fintech companies could disintermediate incumbent banks and erode their operating income. This would reduce banks' ability to build capital organically, with implications for their resilience. As incumbent banks are likely to include domestic systemically important banks, any weakening of their resilience would also weaken that of the financial system.

The most immediate impact of increased competition from fintechs for payments and lending will be on incumbent banks' payment fee income and net interest income, which are at risk of erosion due to competition in retail and consumer banking. Fintech companies can potentially reduce banks' fee income through lower payment transaction volumes as consumers switch to purely digital payment channels, away from bank-intermediated and credit card payments. Fee income would also face further compression as banks may look to lower the Merchant Discount Rate (MDR) they charge for card payments so that they can stay competitive.

[4] Some 42% of fintech investments in the ASEAN-6 countries flows into payment companies. See UOB et al (2019).

[5] The main business lines conducted by fintechs in ASEAN were payment solutions (33%), loan application or financing (25%), money transfers or remittance (21%) and data analytics (18%). See Ernst and Young (2018).

[6] Aw (2019).

[7] Statista (2019).

[8] Bain et al (2019).

[9] Ernst and Young (2019).

Traditional banks will also likely face increasing costs from fintech competition, as e-wallets or digital banks begin to capture deposits and raise traditional banks' funding costs. As a number of jurisdictions (including Singapore) start to grant digital bank licenses, digital banks may end up taking deposits away from traditional banks by offering better interest rates. Consumers may be amenable to a shift away from traditional banks, with a McKinsey survey[10] indicating that 29% of banked consumers surveyed from Developed Asia[11] and 14% from Emerging Asia[12] were willing to open an account with a fully digital bank. Further, across Asia, 30–60% of these consumers were willing to shift their deposits into accounts with these fully digital banks. In 2017, consumers in Developed Asia were five times more likely to access their bank through a digital platform instead of going into a branch. The same phenomenon is also prevalent in developing Asia, although to a much lesser extent.[13]

The resultant squeeze on banks' net interest income will be twofold, as banks may initially need to lower fees and lending rates to compete, while at the same time they may be forced to offer higher deposit rates to retain their deposit base. Incumbent banks may also increasingly seek funding from less stable sources (eg interbank or wholesale) to maintain their current rates of loan growth. Such a move may end up increasing funding costs and potential liquidity risk.

Aside from the immediate impact on net interest income, the potential disintermediation of incumbent banks may also cause some loss of valuable customer data, information and insights as fewer transactions are processed through their platforms. This could potentially affect banks by (i) reducing the accuracy of customer credit risk assessments, further eroding their income in the future; and (ii) depriving them of insights into consumer behaviour, hindering them in providing more targeted services to their customers.

Some big tech firms already have a large digital footprint with a critical mass of customers that would allow them to pivot more effectively into roles that retail banks used to dominate. The ability to adapt quickly, and sell financial services to their established customer base, allows such big techs to pose a strong challenge to incumbent retail banks when competing in this space.

Fintechs providing credit could increase the procyclicality of credit provision

With the emergence of fintechs providing credit through either direct lending or by matching investors and borrowers through peer-to-peer (P2P) platforms, credit provision could potentially become more procyclical. While banks have exhibited procyclical lending behaviour in the past, there is potentially a higher risk of such lending with fintechs.

Fintechs that lend on their own balance sheets may be less resilient than some banks are today. Fintechs tend to be less diversified in their lending, as they have tended to lend in smaller volumes to individuals and smaller corporates, and are less

[10] McKinsey (2014).

[11] McKinsey's (2014) definition of Developed Asia consists of Hong Kong SAR, Korea and Singapore.

[12] McKinsey's (2014) definition of Developing Asia consists of China, India, Indonesia, Malaysia and Thailand.

[13] McKinsey (2018).

active in lending to larger corporates. Fintechs are also generally smaller in scale than banks, with correspondingly smaller capital reserves.

Fintechs that facilitate lending through P2P platforms may be susceptible to investor sentiment and hence swings in their credit risk appetite – resulting in credit provision that is more procyclical, including a weakening of lending conditions in an upswing and a pullback in credit in times of stress.

These effects are exacerbated for borrowers who were previously unable to obtain funding from traditional sources, and could only borrow from fintechs. Should there be a pullback in fintech lending, these borrowers may be unable to secure alternative funding and would find themselves under liquidity stress, which could subsequently lead to a contraction in the real economy.

The failure of a fintech lender could impact traditional banks collaborating with them

Banks and fintech/big tech companies are increasingly considering whether to collaborate in providing credit, and banks have agreed to specific tie-ups.[14] For example, a widespread model used by fintech lenders is one where the online platforms act as an agent that brings together creditors and borrowers, with banks originating the loans. Earlier this year, Tencent announced a partnership with Bank of Gansu, a commercial bank listed in Hong Kong SAR, where it will establish an online loan management platform with newer marketing tools and an improved risk system. Similarly, in the United States, fintech firm Kabbage has partnered with Celtic Bank to make small business loans, with Kabbage taking over client assessment and loan processing. In both situations, the fintech party is involved in the setup of the risk and lending models while the bank leverages the fintech firm's client base. This means that banks rely on the fintech lender's credit risk analysis. A failure of such fintech partners due to, for example, the unsustainability of their business models could have a negative effect on the banks collaborating with them.

Implications of global stablecoins

A more recent fintech-backed innovation – global stablecoins (GSC) – could also have broader implications for the financial system and economy if widely adopted. Apart from being able to disintermediate financial institutions, as with some other fintech developments, GSCs also give rise to specific risks. These relate to both financial stability and monetary policy-related issues.

Widely used global stablecoins could disintermediate the existing financial system

A widely used GSC could add to disintermediation pressure on the core financial system. If confidence in GSCs as a store of value increases, users could be increasingly

[14] This could be because a bank may not have the expertise (for instance in making credit assessments from alternative data sources) or where the fintech may not wish to take on the regulatory burden associated with lending.

comfortable holding large balances in stablecoin wallets, reducing the deposit base for banks. This could potentially induce banks to turn to less stable and more expensive funding sources, exacerbating their maturity mismatch risk.

As balances in GSC wallets or issuers grow, issuers may begin lending from their balance sheets to manage their float, which could not only have a procyclical effect leading to extreme boom and bust cycles from excess credit creation, but might erode lending standards.

Fiat-currency backed global stablecoins could lead to destabilising capital flows

Where fiat-currency assets back the GSC, new and potentially destabilising capital flows could arise. Stablecoin-related capital inflows (outflows) would be driven purely by the demand for the token itself. This might exert appreciation (depreciation) pressures on the underlying currencies without regard to the economies' position in the business cycle. Correspondingly, exchange rates could turn from being a shock absorber into a propagator of shocks. This could complicate domestic monetary policy-making by central banks.

These effects on credit, asset prices and exchange rates could be exacerbated if a widely used GSC becomes a vehicle currency for international financial transactions. By providing increased access to near-frictionless money across borders for all investors, including retail, a stablecoin might induce short-term, volatile capital flow movements.

Global stablecoins could reduce the efficacy of monetary policy

If GSCs were to displace the use of central bank-issued money and bank liabilities (the two forms of money over which central banks have the most direct control), monetary policy would be challenged. While volatile currencies clearly risk being displaced by stablecoins, stable currencies could face a similar risk. Households and businesses could be incentivised to use a GSC if its underlying technological platform could provide a cheap and efficient means of payment and transfers (both within and across borders). In addition, network effects and the digitalisation of all aspects of economic life could result in a GSC becoming the preferred means of exchange in its own extensive ecosystem within an economy.

Balancing the tension between encouraging innovation and managing risk of fintechs

Authorities need to tread a fine line in terms of ensuring that financial stability risks from fintech developments are addressed, yet simultaneously ensuring that innovation is not being stifled. This section outlines several approaches that MAS has adopted in responding to these fintech developments.

Risk-based and agile regulatory approach

A risk-based approach, where regulatory requirements are commensurate with the risks of the business activities, aims to consciously balance risk mitigation with an innovative environment.

For example, the Singapore Payment Services Act (PSA)[15] applies to entities conducting various payments services, and is designed to enable MAS to "right-size" regulations. It applies proportionate regulatory measures to each type of payment service provider, depending on the scale of their activities and the risks they pose. The PSA has three classes of license, with entities in each class regulated differently according to the risks posed by the services provided. The regulatory requirements become proportionately stricter as these risks increase.

Given the rapidity of developments in the fintech landscape, it is also important that regulations are designed to be applied in a manner that promptly responds to changes in risks. The PSA has adopted a modular approach to enable MAS to respond nimbly to fast-changing payment solutions and business models, by tailoring regulatory oversight to the type of payments service provided.

Level playing field that is open to sustainable competition

Allowing for competition will spur greater innovation in financial services, while a level regulatory playing field will guard against financial stability risks.

A recent example is MAS' plans to issue up to five new digital bank licenses. MAS' approach is to set prudent baseline requirements to mitigate the risk of untested business models, and contain costs to the financial system in the event of a failure. Applicants for the license need to demonstrate that they have a sustainable digital banking business model, so that competition is not value-destructive or at the expense of long-term financial stability. By adopting a phased approach to digital banks' permissible activities, innovation is facilitated while reducing the risks for retail depositors. In time, successful digital banks in Singapore can also complement the incumbent local banks in anchoring domestic financial stability.

Another example is in the area of cyber risk, where MAS requires all MAS-licensed fintech firms to abide by the same high cyber security standards that are expected of the current FIs. Cyber risk management is particularly pertinent in the fintech space as the increased adoption of technology could give rise to increased cyber attack surface areas, potentially making FIs and fintech companies more prone to cyber-related vulnerabilities. All regulated FIs are expected to perform comprehensive risk assessments and ensure that there are sufficient risk-mitigating controls to protect systems and outsourcing arrangements with fintech companies. MAS regularly updates the technology risk management requirements and guidance issued to FIs to ensure that they remain relevant to the heightened risks that can be posed by fintech adoption.

[15] Refer to Annex A for more details of PSA.

Adopting a proactive approach in reviewing the appropriateness of our regulatory perimeter

Given the fast pace of fintech developments, a framework that encompasses the regular surveillance of these developments and an assessment of potential risks could help authorities to take an informed and proactive stance in addressing potential regulatory gaps. This may require a reliance on less conventional data and information sources for more effective surveillance and analysis of risks. For example, MAS has adopted novel techniques and data sources to overcome the scarcity of traditional data in our crypto asset monitoring framework, to assess potential emerging financial stability risks. As a proof of concept,[16] MAS utilised a clustering algorithm to find 10,000 Bitcoin wallet addresses that were controlled by a major wallet provider and broker dealer in Singapore. This allowed for a better monitoring of that particular entity. Similarly, blockchain-level clustering techniques can be used to monitor the magnitude and potential drivers of cross-border flows. This can be done by analysing bitcoin transfers between entities in different jurisdictions.

There needs to be a good understanding of potential risks, and an assessment of whether certain risks need to be addressed immediately. Correspondingly, regulation should be applied where the risk posed by the new fintech activity is material, such as in the PSA mentioned above.

Providing guidance on newer applications of technology

Some guidance would also be useful to help build a progressive and trusted environment for the use of newer technologies within the financial sector. For example, MAS has worked closely with a group of senior industry partners to develop a set of principles to promote fairness, ethics, accountability and transparency (FEAT) in the use of Artificial Intelligence and Data Analytics (AIDA) in finance.[17] The FEAT principles provide guidance to firms offering financial products and services on the responsible use of AI and data analytics, to strengthen internal governance around the management and use of data. MAS is also working with financial industry partners to create a framework, known as Veritas, for FIs to evaluate their AIDA-driven solutions against the FEAT principles.[18] Proper governance around the use of AIDA is critical to fostering trust and confidence in AIDA-driven decisions and financial services.

Global coordination in regulatory approaches

Where the regulatory principles described above can be applied by individual jurisdictions, some of the financial stability implications of these fintech developments would be of a global nature (eg GSCs). For such cases, there would be a need for a global, coordinated approach, so as to minimise regulatory arbitrage and increase the efficacy of risk mitigation.

16 MAS (2018a).

17 MAS (2018b).

18 MAS (2019).

Facilitating innovation in incumbent banks to mitigate the impact of fintech competition

While incumbent banks have an incentive to innovate to withstand competition from fintechs, regulatory authorities can provide conditions to facilitate this, and thus reduce the financial stability impact arising from competition to incumbent banks.

An example is the streamlining of the requirements in MAS' anti-commingling framework, which imposes limits and prohibitions on banks conducting certain non-financial businesses, to safeguard the banks from contagion risk from these non-financial businesses. These were streamlined to make it easier for banks to conduct or invest in permissible non-financial businesses that are related or complementary to their core financial businesses, and allow banks to broaden their ability to provide a fuller suite of services to their customers. For example, the revised rules will better facilitate banks that wish to operate, or collaborate with, online platforms matching buyers and sellers of customer goods or services.

At the same time, MAS also addressed associated risks through, for instance, requiring banks to have commensurate risk management and governance arrangements as well as tightening the aggregate size limit for banks' non-financial businesses.

In Singapore, the incumbent banks have invested heavily in making massive digital platforms to entice their customers to continue to maintain their banking relationships. In some cases, they have established partnerships with fintechs to harness capabilities of new technology and deliver more customised solutions. As an example, United Overseas Bank (UOB) has partnered with Personetics to use artificial intelligence to identify individual transaction demands, allowing UOB to provide customers with real-time and personalised financial guidance.

Incumbent banks have also built digital banks in overseas markets, leveraging a lower-cost operating model to quickly acquire new customers. In these markets, they are acting as fintech disruptors, but doing so with an established regional brand name. DBS launched digibank in 2016 in India, acquiring over 2.5 million customers in its initial two years of operations as India's first mobile-only bank. The bank has also recently replicated its digibank strategy in Indonesia, launching in Q3 of 2017. DBS was ranked by Euromoney as the world's best digital bank in July 2018, a first for any Asian bank.

They have also adopted more customer-focused approaches, integrating financial choices with traditionally non-financial needs. For instance, Oversea-Chinese Banking Corporation (OCBC) launched a platform in 2018 that focused on the end-to-end needs of mothers-to-be and young mothers and, at the point of launch, had over 600 listings of goods and services. The bank has also launched a programme for people aged 55 years and over, to provide a one-stop solution for financial advice, insurance products and lifestyle options.

Conclusion

Fintech developments and innovations have already benefited many users through improved efficiency, greater financial inclusion, and improved customer experience. These gains stand to increase as existing technologies mature or new technologies arise. However, they could bring about new financial stability risks, which will require timely monitoring and addressing. Financial stability implications that cut across borders will need international cooperation in order to be effectively addressed. Appropriately designed approaches that monitor and address these risks, while not second-guessing innovation, will be key in ensuring that fintech can develop sustainably for the benefit of people and society.

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Annex A

Payment Services Act (PSA)

Aim of PSA

The Act aims to provide regulatory certainty and establish consumer safeguards while not impeding the innovation and growth of payment services and fintech in Singapore. The PSA is a combination and update of the 2006 Payment Systems (Oversight) Act and the 1979 Money-Changing and Remittance Business Act. Specifically, it aims to mitigate four key risks, namely (1) loss of customer monies; (2) money laundering and terrorism financing; (3) fragmentation and lack of interoperability across payment solutions; and (4) technology risks including cyber risks.

Approach of PSA

The PSA includes two regulatory frameworks: a designation regime and a licensing regime. The first regime gives the MAS power to designate payment systems in instances where that system is widely used in Singapore or when the system impacts on the operations of other payment systems. It allows MAS to act to protect and encourage efficiency and competition within the payment space. The second regime is the licensing regime that allows MAS to regulate a wide range of payment services in particular tailoring oversight to the type of service provided. These services can be grouped into seven types, namely, (1) account issuance; (2) domestic money transfers; (3) cross-border money transfer; (4) merchant acquisition; (5) e-money issuance; (6) digital payment token dealing and exchange; and (7) money-changing.

Mitigating key risks

There are four key risks that are common across many payment services: (1) loss of customer monies; (2) money laundering or terrorism financing risks (ML/TF); (3) fragmentation and lack of interoperability across payment solutions; and (4) technology risks, including cyber risks.

The act requires major payment institutions to safeguard customer monies from loss through an institution's insolvency using an (i) undertaking or guarantee by any bank in Singapore or a similar prescribed financial institution to be fully liable to the customer for such monies; (ii) a deposit in a trust account; or (iii) any other manner approved by MAS. To avoid placing such onerous requirements on all licensees, this requirement is only required for major payment institutions with other licensees just required to make a declaration to the customer.

On the risk of payment services being used for ML/TF, MAS conducted a consultation in June 2019 with industry partners and outlined a number of rules in two different Notices through the MAS Act, PSN01 and PSN02, which created a number of tiers of control depending on the license held.

On the risk of fragmentation of e-payment solutions, MAS has persuaded the industry to undertake various measures to ensure that the solutions are ultimately interoperable within an open architecture. The Act gives MAS formal powers to ensure interoperability of payment solutions in the interest of customers and market development. For example, a designated payment system operator or major payment

institution must allow third parties to access any payment system it operates, and the access regime imposed must be fair and not discriminatory.

To address technology risks, the Act grants MAS the power to impose technology risk management requirements, including cyber security risk management requirements, on all licensees. MAS will require that payment service providers ensure that there is adequate risk governance and implementation of adequate controls, particularly in the area of user authentication, data loss protection and cyber attack prevention and detection.