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Fintech Innovation and Regulation in China

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Fintech Innovation and Regulation in China

Fintech is a global phenomenon, but nowhere has it become larger or proven as transformative to the economy and financial system as in China. Financial technology, largely developed by leading consumer technology companies, has turned China in a few short years from a largely cash-based, backward financial system to one with rates of digital finance adoption in excess of many advanced economies.

Individually and in competition with each other, Alibaba, its financial affiliate Ant Group, and their main competitor Tencent built the products and networks that led hundreds of millions of Chinese to ditch cash and place their trust in digital payments, investment, lending, insurance, and more. They built super apps that leveraged their strong user bases, technological capability, and product design skills to create a new model for finance that has proved immensely powerful at home and inspiring for countless imitators abroad. At the same time, the digital financial revolution could not have succeeded without China's government, which created an environment conducive to innovation.

China's experience with fintech is a rich repository of lessons for other countries aiming to modernize their financial services industries with new technologies that can help them "leapfrog" right up to advanced economies. It shows how clever reforms can achieve modernization that is hampered by lack of competition for protected financial incumbents, but also the kind of mechanisms that need to be in place to ensure that space left for financial innovations do not leave too much unregulated. China's loopholes in regulation created serious social problems, like the collapse of online peer-to-peer lending that led to millions of Chinese losing their hard-earned savings in thousands of Ponzi schemes throughout the country. Finally, current policy debates in China around the power of big tech firms, especially when they complement their technology prowess, data advantages, and deep pockets with financial services empires, have relevance to a world increasingly forced to grapple with these issues that are front and center there.

This paper begins with an overview of the history and development of fintech in China, moves on to a discussion of policy issues and how they have evolved since fintech emerged, examines a few case studies of sectors and how they have been regulated, and concludes with an analysis of the current policy debates and recommendations for policymakers, both in China and for other countries to learn from China's experience.

Development

Financial technology (fintech, or digital finance or internet finance) is revolutionizing the financial industry worldwide (Demirguc-Kunt et al. 2018; Gomber et al. 2018). The changes in China are even more astonishing – in almost all aspects of the financial industry at unprecedented scale (Hua and Huang 2021; Dollar and Huang forthcoming). In fact, China is one

of the main digital finance players globally. Compared with the US's advantage in technology and the UK's advantage in business models, China's advantage is mainly in its market size.

Fintech in China began when Tencent, China's largest gaming and social media company, introduced its own digital currency, the Q coin, in 2002. China's retail payment system was then in a rudimentary stage of development, with extremely limited credit card penetration and a lack of interest from brand new card payment network China UnionPay to serve online merchants like Tencent. The virtual currency allowed Tencent customers to make one purchase of Q coins, which could be transacted for multiple digital items, as payments involving the traditional financial system were slow, expensive, and low-tech. The Q coin, however, at least temporarily was a dead end, because it was a payment system limited to the purchase of Tencent's products alone.

Development of China's digital financial industry then started in earnest at the end of 2004 when Alibaba launched the online payment system *Alipay*. Alibaba first established the e-commerce platform *Taobao* in mid-2003. However, online shopping transactions were difficult to close due to lack of proper payment facilities. China UnionPAY, the card payments monopoly, was focused on other initiatives and was not interested in helping then-small online companies accept payments at the time. Having tried cooperation with banks and provision of guarantees, Alibaba decided to create its own individual account payment system, initially modelled on *Paypal*. The common thread in these events was a technology company finding itself forced to develop its own payment system for online business to thrive, overcoming the hurdles introduced by missing infrastructure that the traditional financial system was unable or unwilling to supply. Online payments developed symbiotically with online commerce and services, with the latter generating demand for the former.

The early editions of *Alipay* were designed for desktop computers. While it effectively solved the payment problem for online shoppers, use of *Alipay* was not convenient, evidenced by the fact that most payment transactions took place during breakfast and dinner times on weekdays. In 2010, *Alipay* became a mobile payment service as consumers started to use it on their smart phones.

The year 2013 is widely regarded as the first year of internet finance boom in China. The main event that marked beginning of a new era was launch of online money market fund, *Yu'e Bao*, in June 2013. *Yu'e Bao*, for the first time in history, provide ordinary Chinese an opportunity to invest in an investment fund without minimum investment requirements that previously reserved the best investments for the wealthy. The unexpected shortage during the same month sent Shanghai interbank offered night rate (SHIBOR) to 10 percent on June 20. This fortunate coincidence significantly raised the returns on *Yu'e Bao*'s investments and boosted investors' interest. *Tianhong* Fund, a small investment firm headquartered in Tianjin managing *Yu'e Bao* money market fund, became the largest investment fund in China within one year. This was the first time when industry professionals, officials and the public realized the power of large technology (Bigtech) platform's "long tail" feature. Also in 2013, the online insurance

company, *Zhongan Insurance*, which mainly provided insurances to online shops initially, was established. The social media platform WeChat also launched its mobile payment service, *Tenpay* (or *WeChat Pay*) in August 2013, setting off a competition with Alipay that included a war of subsidies, an important factor getting mobile payments off the ground for offline purchases.

Several other digital financial businesses started before 2013. In 2009, *Alibaba* began to explore possibilities of providing loans to online shops. Initially, it cooperated with the Industrial and Commerce Bank of China (ICBC) by recommending lists of online shops to the ICBC for consideration. Unfortunately, however, the ICBC rejected all of them, as none would meet the bank's standard for bank lending. *Alibaba's* founder Jack Ma criticized the banks' heavy reliance on collateral for making loans to small- and medium-sized enterprises (SMEs) as similar to pawnshop businesses, and decided to go on its own to lend to online shops. Alibaba first launched its online micro credit business in 2010. The early online micro credit was not too different from typical micro credit. The lending decision still relied on traditional information, although a large part of the process took place online. From 2015, *Ant Financial*, the financial service operation separated out from Alibaba, began to explore ways of using big data for credit risk management, the practice now widely recognized as bigtech credit.

Digital financial businesses in China cover almost all parts of the financial industry, from payment to lending, and from insurance to investment. So far, the most successful businesses are mobile payment and bigtech credit. Digital insurance, online investment and central bank digital currency are still in the processes of development.

Today, mobile payment is used in many countries, but breadth and depth of the Chinese service stand way out. The active users of *Alipay* and *Tenpay* are around 1 billion each. The total number of mobile payment transactions are more than four times of banks' payment transactions, although the average value of mobile payment transactions is still much smaller. For most people, daily lives have become cashless. They use mobile payment service to order food delivery, pay for bus fare, buy online goods, book hotel rooms and purchase movie tickets. From 2017, both Alipay and Tenpay rolled out the quick response (QR) code payment system. By printing out the QR code on a piece of paper, any shops or vendors could receive payments from their customers electronically. A study assessing impact of the COVID-19 pandemic on small businesses found that there were a total of 97.8 million offline shops and vendors using QR code payment system.

In many ways, mobile payment system is the foundations of China's digital financial industry. It completes the financial bigtech platform, although most of the financial bigtech platforms are built on existing platforms for e-commerce or social media. In short, the mobile payment platform acquires large numbers of customers and accumulates users' digital footprints. Digital technology embodied in these mobile payment systems allow expansion of business scale, increases in operating efficiency, improvement of user experience, reduction of business costs and mitigation of financial risks. In a way, the mobile payment systems play roles of financial

infrastructure, which lay bases for building new businesses such as bigtech credit, digital insurance and online investment.

Economic analyses show that adoption of mobile payment service could generate significant changes to efficiency, income, jobs and even distribution. For instance, Wang (2020) finds that use of mobile payment could increase the probability of a farmer turning into an informal business owner and could raise his or her income. Apparently, the most important contribution of mobile payment here is not just lifting payment efficiency but linking the farmers to the outside market. Therefore, mobile payment helps to break down the barriers for farmers and serves as a driver of economic integration.

Another very successful Chinese digital financial business is bigtech credit, i.e., lending by virtual banks, not by P2P platforms. The main obstacles for commercial banks to lend to SMEs and low-income households are customer acquisition and risk assessment. Since these potential customers are small in size and scattered in location, it is difficult and costly to locate them and figure out their financial needs. In addition, commercial banks often make credit risk assessment using either historical finance data or fixed assets as collateral, and most SMEs and low-income households have neither. The mobile payment services help solve the first problem – with around one billion users on each platform, customer acquisition is no longer a high hurdle.

At the same time, the virtual banks have created their own credit risk assessment models. *WeBank* started with social media *WeChat* data and then added *Tenpay* information, while *MYbank* started with e-commerce information and also utilized *Alipay* data. *XWBank* established an open online banking system to connect with other existing platforms. A close look at the fintech approach of credit risk assessment using big data and machine learning model, in comparison with the bank approach relying on traditional data and scorecard model, reveals some striking features. One, replacing traditional data with big data or replaying the scorecard model with the machine learning model can significantly improve performance of risk assessment. Two, the most important advantage of the fintech approach, however, is that it is able to cover a very large portion of the customers, who have never served by commercial banks. This is what we mean by inclusive lending. And, three, even when faced with exogenous policy shocks, the relative outperformance of the fintech approach is sustained, if not enhanced, after such shocks (Gambacorta et al. 2019).

The fintech approach works better than the bank approach for at least two reasons. The first is an information advantage. The bank approach relies mainly on financial data, which are accurate and reliable but also quickly outdated. In contrast, the fintech approach relies more on real time data from bigtech platforms. It also uses behaviour data, most of which are proprietary information from bigtech platforms. The behaviour data are often more stable even during shocks. And the second is model advantage. The scorecard model is a linear method. The machine learning model can better capture not only non-linear relations but also interactions among different explanatory variables. In summary, the fintech approach can effectively reduce

the degree of information asymmetry to control the adverse selection problem, i.e., distinguishing “good” borrowers from “bad borrowers”. Real time monitoring could also help reduce the moral hazard problem. In addition, since the borrowers are all parts of the “ecosystems”, bigtech companies can create some kinds of leverage, such as downgrading rating of an online shop, to prevent the borrowers’ bad behaviour.

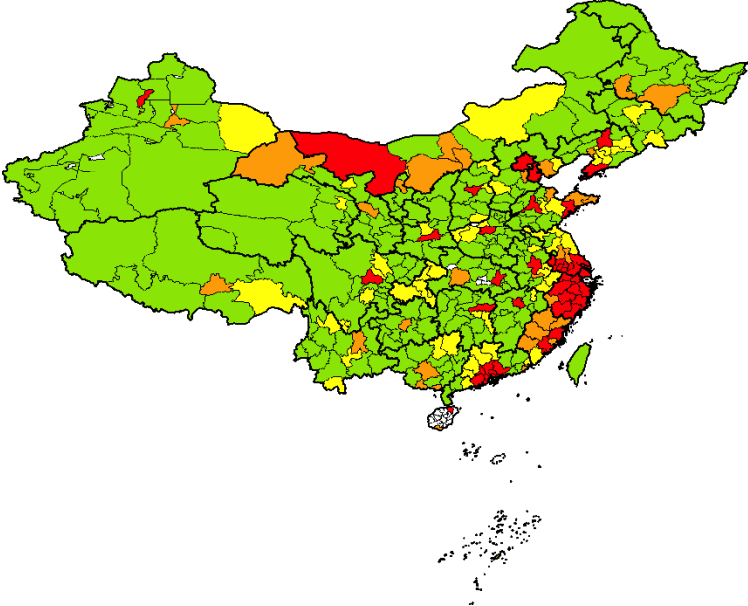
MYbank created the so-called “310 model” of online lending – it takes the customer 3 minutes to apply; the approved loan amount is in the borrower’s account within 1 second; and there is no human interference in this whole process. The processes adopted by *WeBank* and *XWBank* are very similar. This way, they are able to offer millions of online contactless loans to SMEs and low-income households and, at the same, keep the non-performing loan ratios at 1-2 percent.

Online lending by the Chinese virtual banks is a financial revolution, especially in terms of financial inclusion. This experience should be extendable to other institutions in China and other countries. But it is also important to point out that the barrier for conducting this business is also quite high. China’s failing P2P industry offers an example in the opposite direction. In short, financial institutions might be able to replicate what the three Chinese virtual banks are doing if they have access to big data and have the analytical capability. Recently, some major Chinese banks start to make massive investment in setting up their own tech platforms. These banks have enough resources, skills and customers. Whether or not they will be successful depends critically on their ability to build the “big data” – continuous, wide range digital footprints. For most other banks, it might be easier for them to cooperate with fintech companies, including the virtual banks. This is also the direction that Chinese banking regulators are encouraging.

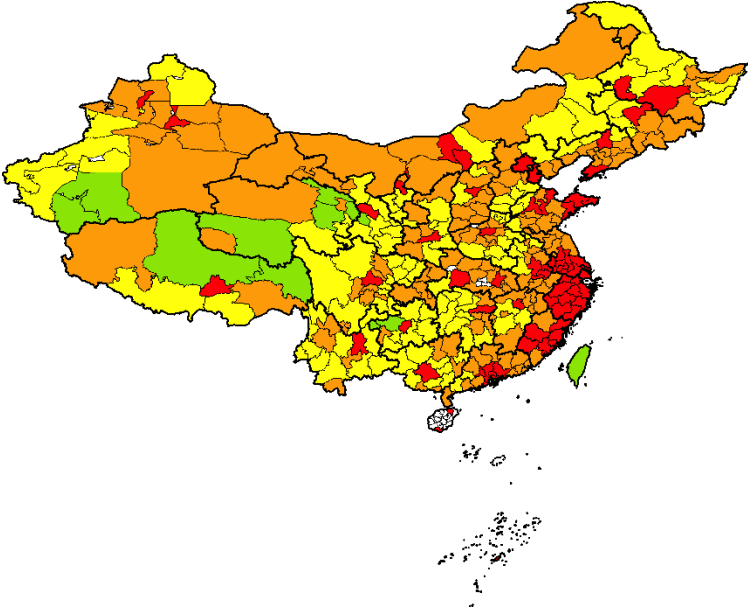
Compared with digital financial businesses in the US and the UK, the Chinese businesses exhibit clear feature of “financial inclusion”. Both mobile payment and bigtech credit provide financial services to individual and enterprises that are normally not covered by traditional financial institutions. This unique quality can be illustrated by the Peking University Digital Financial Inclusion Index of China (DFIIC) (Guo et al, 2019). DFIIC quantifies annual development of digital financial businesses at national, provincial, municipal and county levels as well as for different businesses including mobile payment, online lending, digital insurance, online investment and other digital financial services. The maps below depict relative levels of development of all municipalities in 2011, 2015 and 2020 (Figure 1). In 2011, before the boom of the digital financial industry, there were only a small number of relatively more developed municipalities concentrated in the Southeast of the country. The vast majority of the country was underdeveloped in this area. This picture, however, gradually changed in the following years. In 2020, although the most advanced municipalities in digital finance still concentrated in the Southeast, differences in color across the country narrowed significantly. This implies that the lagging municipalities were rapidly catching up. Today, wherever in the country, as long as one has a smart phone with telecom connection, he or she can enjoy the same kind of online financial services. This is evidence of financial inclusion.

Figure 1. Peking University Digital Financial Inclusion Index at Municipal Level in 2011, 2015 and 2020

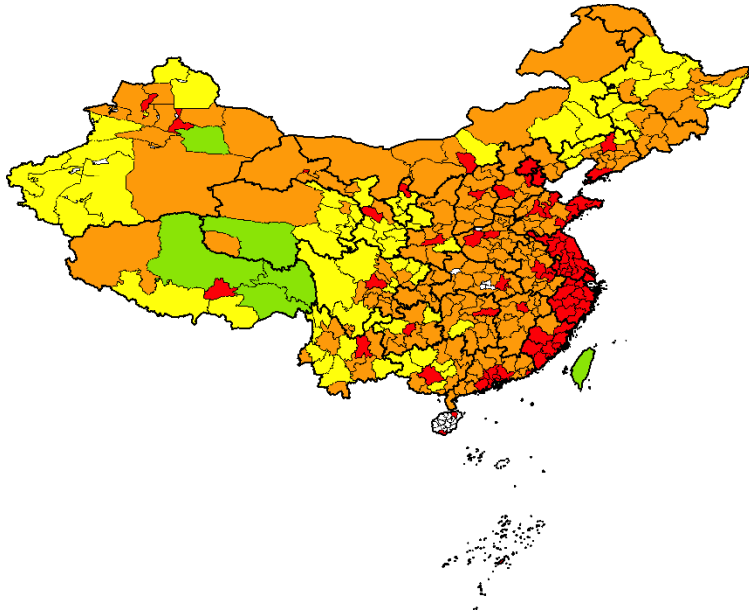
2011



2015



2020



Note: All municipalities are divided into four groups every year according to their levels of digital financial development – the most advanced in red color, the second in orange color, the third in yellow color and the least developed in green color.

Source: Peking University Institute of Digital Finance.

In retrospect, probably three factors contributed to the rapid rise of China's digital financial industry during the past decade or so. The first is the highly repressive financial policy (Huang and Wang 2011; Huang and Ge 2019). The Chinese government maintained relatively extensive interventions in the financial industry, including guidance for lending rates and credit allocation, management of exchange rate and controls of the capital account. The result was that, while China developed a very large financial industry during the past forty years, undersupply of financial services was still quite significant in certain areas, especially in areas of financial inclusion. Development of digital financial businesses, such as mobile payment and bigtech credit, filled the existing gaps. In contrast, mobile payment would probably not grow to comparable scale given already relatively well developed bank card-based payment system (Klein 2019). Second, rapid development of digital technology. It was not an accident that China's digital financial industry grew at a time when smart phones were invented and 3G/4G technologies were adopted. If online financial transactions stay at desktop computers, it would be very difficult to increase their penetration rate. And user experiences would also be quite poor. And, third, the authorities took a relatively friendly approach. This approach facilitated new innovations, which would not be possible under the old regulatory framework. For instance, it is uncommon for internet companies to acquire payment licenses. But without this, there would be no *Alipay* and *Tenpay*. But, of course, "regulatory tolerance" could be a double-sided sword. Insufficient regulation also led to significant financial risks, especially in the P2P sector.

Policy

When China started economic reform in 1978, it only had one financial institution – the People’s Bank of China. In the following four decades, the authorities rebuilt comprehensive financial system with distinctive features: large in asset size, extensive in government intervention and weak in financial regulation (Huang and Ge 2019). Extensive interventions, or high degree of financial repression, were a part of the “gradualist approach” in supporting dual-track liberalization. Allocation of large amount of cheap bank credit to the state-owned enterprises, for instance, was an effectively implicit subsidy. The other side of the repressive financial policies is discrimination against the private enterprises, most of which are SMEs. Such policy distortions made promotion of financial inclusion especially difficult in China.

This was why most policymakers viewed the emerging digital financial industry pretty positively, because it often extended financial services to customers not covered by traditional financial institutions. In most cases, it also increased financial efficiency. The term “internet finance” was written into the Government Work Report, as an important case of innovation, delivered by Premier Li Keqiang at the annual meeting of the National People’s Congress in early 2014.

An important part of the policy push was the CBRC’s move to issue virtual bank licenses as a part of efforts to open more private-owned banks. Virtually all banks in China and all of the largest ones were state-owned, and adding private sector players could help inject a degree of competition that forced them to update their service offerings and modernize. The first virtual bank, *WeBank*, which is affiliated with *Tenpay*’s parent company *Tencent*, opened for business at the end of 2014, and the second virtual bank, *MYbank*, which is affiliated with *Ant Group*, started operation in early 2015.

In August 2015, the PBC, together with nine other government departments published the first guidelines for promoting healthy development of internet finance.¹ It clearly stated a division of labor in regulation: the PBC for internet payment, the CBRC for online lending and online trust, the China Securities Regulatory Commission (CSRC) for crowd funding and online investment, and the China Insurance Regulatory Commission (CIRC, later merged with CBRC in 2018) for digital insurance. It also set rules for consumer protection, data safety, information disclosure, anti-money laundering, and more.

Regulatory Actions

As fintech grew, so did pressure for regulation, but China was slow in bringing about regulation to the digital financial industry, not only because of its generally positive outlook on financial innovation. From 1992, China gradually developed an industry-segregated, institution-focused financial regulatory system. The basic working rule is that whoever issued the license to the institution should be responsible for regulating it. But the exact consequences of this system for different businesses are also different. First, while it took about six years for *Alipay* to obtain its

¹ See the original document in Chinese: http://www.cac.gov.cn/2015-08/03/c_1116067807.htm

third-party payment license, the PBC maintained close dialogue with *Alipay* and continuous monitoring of its business. So there was no significant regulatory vacuum. The first rules were issued in 2010, five years after *Alipay*'s emergence, and the first batch of licenses were issued in 2011. Thus, payments had a clearly assigned responsible regulator in place as well as ground rules before the 2013 boom.

Second, the story for online lending was somewhat different. Most bigtech lenders obtained micro credit licenses. For instance, *Ali Micro Credit* obtained its license in Chongqing. However, such locally issued micro credit licenses were only for operating businesses with the local areas. But the businesses of all bigtech lenders are nationwide. So there were large gaps between the granted licenses and the actual businesses.

Third, some of the new digital financial businesses stayed unregulated. Peer-to-peer (P2P) lending business is a good example. Because the business was defined as an information intermediary, it wasn't immediately clear which regulator should be responsible for it. The first P2P firm, *PPDai.com*, was established in 2007, but the China Banking Regulatory Commission (CBRC) did not publish any regulatory rules until mid-2016. The initial draft published in December 2015 designated the local governments' Financial Work Offices to be responsible for regulation of the P2P industry. After receiving objections from some experts, the revised tentative management rules identified both the CBRC and local government Financial Work Offices to take joint responsibilities. This was still unsatisfactory because, one, most local Financial Work Offices do not have the regulatory capabilities; and, two, the actual businesses of P2P firms all went way beyond the local areas.

Yet, problems in the fintech market, primarily in P2P, were so acute by late 2015 that the government shifted the political guidance to regulators away from the full speed ahead approach that led the industry to get so large so quickly. In March 2016, Premier Li Keqiang changed the policy focus for fintech from "promotion" to "regulation," and the next month, a so-called "rectification" campaign for internet finance began that covered just about every sector of fintech, from payments to lending. Fintech was no longer a fledgling upstart, but an important component of the financial system that needed proper regulation to function well. Chinese authorities' campaign, considering the scale and breadth of fintech penetration, touched on all major themes on regulators' minds globally, from financial stability and "too big to fail" to consumer protection and competition concerns raised when powerful technology companies enter financial services. They provide unique insight into the issues fintech development raises and how authorities can handle—and in some cases mishandle—them.

Payments

As big tech mobile payments grew to systemic importance, underpinning not only online commerce but also most day to day payments for in person goods and services from urban Chinese, authorities were uneasy with the way that online payment companies operated. Their proprietary network of accounts in each bank allowed them to in effect offer interbank transfers, in which funds would flow between, for example, *Alipay*'s accounts at each of the

major banks. The banks, however, would not see the purpose of the payments or the identities of the clients on the other side of the transfer. PBOC governor Yi Gang once characterized this setup as wrongdoing that “acted like a second central bank.” Central banks tend to want interbank payment systems to be more directly monitored and backstopped to ensure the robustness of payment systems, minimizing risks to financial stability that would ensue if large scale payments have to deal with counterparty risks (Committee on Payment and Settlement Systems 2003).

One way the PBC gained more direct oversight and control over online payments was a change in early 2019 requiring online payment companies to place client funds (float) entrusted to them in special accounts at the central bank to ensure those funds are not embezzled or invested in risky assets. While the purpose of this move was to ensure safety of funds, it immediately stripped billions of revenues from these service providers.

The PBC also created a company called NetsUnion to handle transfers between online payment companies and between those companies and banks. NetsUnion enables the PBC to more closely monitor the flow of funds, but it also plays a role to level the competitive playing field, standardizing fees and making it easier for financial institutions to support more payment companies than the two dominant players. The next frontier of PBOC action is the introduction of its eCNY central bank digital currency, now in advanced trials across the country. eCNY, a digital fiat currency that all merchants in China must accept as payment, can be seen as a public option that will both collaborate and compete with digital wallets and payment mechanisms of Alipay and WeChat Pay. If a user makes a payment with the Alipay wallet, but selects eCNY, for example, Alipay may have to comply with restrictions on how the data generated from that transaction can be used, for example for credit scoring or cross-selling purposes.

Technology companies filled a gap in China’s financial infrastructure with their online payments tools, but Alipay and WeChat pay quickly became essential financial infrastructure for China. Thus, the government decided these should be regulated and controlled more like a utility, with more government oversight and also what looks to be more downward pressure on fees through the e-cny.

Peer-to-Peer Lending

Online Peer-to-Peer (P2P) lending was once among the most promising business models to emerge from fintech, especially around the time of the Lending Club IPO in 2015. China’s P2P lending sector was the largest in the world by orders of magnitude, driven on by insatiable demand for good returns from Chinese investors, unfulfilled demand for credit from consumers and businesses, and a regulatory environment that initially imposed no meaningful restrictions or compliance burdens on P2P lending platforms. The P2P bubble and its destructive bursting in 2018 is a stark reminder of the dangers involved in letting new financial technology get too large before imposing at regulation and monitoring to ensure the market develops in a healthy way.

Unfortunately, many fraudulent and incompetent firms took advantage of the regulatory space to start underground banks behind a façade of fintech innovation, and many became quite large before they failed. For example, Ezubao managed to attract \$7.6 billion from 900,000 investors when authorities shut it down as a Ponzi scheme, much of which was embezzled away to spend on villas and luxury shopping. Under pressure to promise low risk and high returns, many online lenders engaged in maturity transformation and provided guarantees for investors, which turned out to be empty promises once the platforms faced many redemptions and failed without any recourse for investors. The challenge then was what to do about this sector, which peaked at about 1.3 trillion RMB in outstanding loans and funded many businesses banks would not, but which was also rife with problems.

The fundamental problem, once the 2015 guidelines put the CBRC in charge of P2P policy, was that the rules of sufficient strictness to be politically acceptable, essentially turning financial intermediaries to tech companies dealing only in data, were too far away from the current industry practice. As a result, regulators repeatedly extended the deadlines for compliance. They rightly judged that strict immediate implementation would have led to a run on many platforms which could lead to a messy chain reaction of failures that risked undermining both the industry and overall financial stability. Yet, the delays often only meant that inevitable collapses were much larger in terms of money lost and investors affected, leading to large protests from investors that blamed the state for their losses or hoped to put pressure on regulators to arrange bailouts that were not forthcoming in most cases. In the end, attempts to regulate the sector were abandoned, and the last P2P lending platforms were closed in 2020, leaving behind millions of investors who lost billions of RMB.

Cryptocurrency and ICOs

Regulatory action on cryptocurrencies, in contrast to the relatively slow regulation in other fields, has been swift. Other areas of fintech took much longer to regulate because they could be seen as helping achieve government objectives. Cryptocurrencies, on the other hand, worked against these objectives by allowing Chinese to access speculative assets that also enabled them to sidestep capital controls and other methods of supervision (including for money laundering and tax evasion), and they did not pose a plausible benefit to the real economy in the short term. In addition, the PBOC feared that widespread use of Bitcoin, a currency outside the control of any state, would erode China's monetary sovereignty and monetary policy independence.

Thus, China acted more decisively than any other country in its regulation of this area, starting with a December 2013 order that forbade financial institutions from handling cryptocurrencies and ensuring it would not catch on among merchants as a means of payment. Authorities did, however, allow exchanges to continue to help Chinese buy and sell cryptocurrencies, as long as it was clear that investment was at one's own risk. ICO's however, spooked authorities already dealing with so many Ponzi schemes from P2P, so this time they nipped the issue in the bud, banning ICOs in China and ordering those already completed to return their funds to investors.

At the same time, the PBOC and other regulators saw opportunity in the technology that underlies Bitcoin and other digital currencies. They started serious research in 2014 to find ways to adapt those technologies without crossing the red line of losing control. When applied to the central bank's plan for CBDC, in fact, digital currency technology could in fact increase the government's capacity to monitor and control financial transactions. China now is the most advanced major economy in terms of launching a central bank digital currency, showing that its public sector can be at the cutting edge of financial innovation as well.

Financial Holding Companies

One of the thorniest regulatory issues is how to properly regulate institutions like Ant Financial, but also other financial conglomerates that operate in many different areas of finance. Each piece of their business, like wealth management, lending, and insurance, would be regulated by a different government body, but none would have the whole picture of the institution's risk profile and the flows of both capital and data that flow between these subsidiaries. Regulatory arbitrage could result, as well as serious incidents of conflicts of interest, like Baoshang Bank's major shareholder raiding the institution with related-party loans, whose near failure as a result led to serious disturbances in the interbank market.

The primary solution currently under development is the financial holding company (FHC) regime, which will require certain firms with multiple financial licenses to submit to more scrutiny, and capital requirements, at the group level, including more supervision of related party transactions across the group. What this regime will look like in practice remains uncertain, but it is a step in the right direction, not that far from the United States' longstanding practice of supervising firms that own banks and other financial firms at the group level. Ant Group is included in the pilot program for the financial holding company regime, and Tencent has reportedly been ordered to organize its financial affiliates under the FHC regime as well.

Current Policy Issues

In October 2021, Ant Group was about to complete what would have been the world's largest IPO, a sign of Chinese fintech's emergence on the world stage that would value it on par with giants like JP Morgan Chase. Yet, Chinese authorities scrapped the deal just before it was to launch, delaying the IPO indefinitely, and instead have subjected Ant Group to a so-called "rectification" plan to solve "serious problems." The reversal has largely been attributed to a controversial speech Jack Ma, Alibaba co-founder and Ant Group's controller, made in front of senior regulators and policymakers in late October 2020, in which he criticized regulators for what he viewed as excessive and outdated regulations that jeopardized financial innovation and the future of China's financial system. His bold remarks, coming at a sensitive time usually called the "quiet period" just before the IPO sparked anger from regulators and fear that Ma hoped to use his public influence to water down regulations and take more risks. Authorities thus acted to ensure they could get his empire, and big tech/fintech more broadly under proper control.

The rectification plan regulators demanded of Ant include five areas where the firm has agreed to change its practices due to regulator demands (PBC 2021).

1. Uncompetitive behavior in payments, including linking credit and payments together on their platforms
2. Breaking the information monopoly, including somewhat paradoxically better protecting privacy and ensuring that other firms can have more access to their proprietary data, including through establishing a licensed credit reporting company
3. Placing all financial businesses in a financial holding company under PBC oversight
4. Improved compliance with prudential regulatory requirements
5. Handling liquidity risks, including shrinking the balances at Yu'E Bao, which was once the world's largest money market fund

At the same time, the new CBIRC also continuously revised rules governing cooperation between tech companies and banks. For instance, it now requires that banks rely entirely on their own credit risk assessment, even if they collaborate with tech companies in customer acquisition and big data analysis. This ensures that banks will not be buying loans originated by big tech/fintech firms like Ant Group solely based on the tech company's risk assessment, and also helps tilt the playing field back in favor of banks. Instead, big tech firms are being encouraged to create more independent credit reporting agencies that leverage the big tech firms' and other data for credit assessments. They also hope to reduce potential conflicts of interest, like that to lower lending standards to make more online sales for an e-commerce affiliate, raise revenue from loan origination fees, or reward loyal customers of one super app with better scores.

One of the major themes the PBOC underscores now is competition, and the potentially distortive effect that big tech's dominance of consumer finance can have on competition in many different markets. Initially, big tech firms seemed like the key to adding competition from banks with strong incumbent advantages, but senior regulators like former PBOC governor Zhou Xiaochuan, the architect of many of the pro-fintech policies in the 2000's and 2010's, said in a November 2019 speech that the competition issue did not turn out as he hoped. Big tech firms tend to charge very little to even negative prices upon entering a market to build a large network, and their unparalleled variety of service offerings allows them to use revenue from one market to subsidize loss-making activities in another. Network effects tend to create a winner-take-all or winner-take-most market structure in which smaller players are unable to compete with the giants and their 1 billion or more users.

At this point, regulators clearly want to remake the fintech market to make it more competitive, but it is not clear exactly how they hope the market will look, and what extent of direct state intervention will be required to move from today's fintech duopoly to a more balanced ecosystem. For example, much of the innovation has come from big tech firms that created super apps combining numerous financial services with social media, travel, ride-hailing, shopping, and more. One could reasonably assume that the demand to de-link payments from credit could require the breakup of super apps into smaller pieces, requiring users for example to leave Alipay to go to a specialized lending app to apply for a loan, instead of easily defaulting to Huabei credit as a payment option, but this step is not inevitable. Instead,

for example, authorities could mandate a more level playing field when selecting payment options in digital wallets, allowing customers to compare credit offerings not only from Ant, but also from banks and other fintech firms.

One contradiction authorities will need to grapple with is the trade-off between privacy and competition. Forcing Tencent and Alibaba to open up their walled gardens of data and financial flows may allow more firms to compete and encourage innovation, but such openness comes at the cost of allowing sensitive data to leave protected areas, where they can then be abused and resold if the party accessing the data does not have the proper controls. Attempts in the past to centralize private firm credit data in public institutions have failed, and it is not clear that the government taking over this function of mediating data access will work well.

Yet, overall, these actions are either long overdue or in the right direction. Lax regulation of the digital financial industry in the past boosted innovation in this area. But it also caused a lot of risks and loopholes in the system. Financial transactions, whether digital or not, should be regulated by the same rules. While the shock of IPO suspension was quite drastic, these actions being undertaken by the regulators should be helpful to support healthy development of the digital financial industry over time.

Lessons from China's Experience and Recommendations

For other economies hoping to unleash a fintech revolution to quickly upgrade their financial system, China's success provides many lessons. Firstly, flexible regulatory regimes are crucial in the early years of financial innovation to allow experimentation. Secondly, high level political support is important to ensure that powerful incumbents are not able to squash the innovative players before they could become a competitive threat. Thirdly, even with flexible regulation, responsibility for regulating a new market must be clearly delineated at the outset to ensure the market does not grow out of control and become a sort of hot potato no one wants to touch and take ownership of the inevitably messy cleanup.

Fourth, big tech firms are some of the best candidates to drive the adoption of digital finance and upgrading, including by helping banks upgrade their technical systems, but authorities need to be on guard to intervene and ensure competition remains robust, not tending to winner-takes-all or distorting markets with subsidies and predatory pricing. Tycoons that control financial and non-financial empires may be useful in breaking monopolies of connected incumbents, but if they gain too much influence they may be able to block sensible regulation necessary to have a level playing field and an acceptable amount of risk and concentration in fintech players. Chinese policymakers have been forced to grapple with these issues with more urgency than other jurisdictions due to the penetration of big tech in finance, and other countries would benefit from paying attention to China's ongoing efforts in this space as they contemplate how to respond to Facebook's newly launching digital currency and other tech giants' financial offerings proliferating around the world.

For Chinese authorities, we recommend largely continuing the same path, retaining flexibility with sensible regulation that steps up commensurately with the size and complexity of the fintech sector. First, a shift from more pure entity-based regulation to a mix that includes activity-based regulation would be helpful in breaking down silos that still enable regulatory arbitrage and can also result in confusion or excessive regulation when there are overlapping authorities. Financial holding company regulation would be a crucial part of the entity based regulation for the most important and interconnected entities. Secondly, authorities should ensure that the FHC regime does not prove too detrimental to innovation, for example requiring supervised firms to get regulatory approval for each new product (e.g. should not turn into micromanagement of these firms).

Third, trying to centralize data in government or state-owned firm repositories instead of in the tech giants is not likely to work well to develop a functioning market. China's government has a good record of enabling innovation by private sector players through its regulatory role, but the state itself and firms it owns do not have a strong track record on innovation or developing complex markets directly. Two recent examples include Baihang Credit, which attempted to bring together credit data from fintech and big tech lenders but was unable to gain the cooperation of enough players, and even more importantly is UnionPay, with a state-granted monopoly on card payments but which was unable in decades to achieve what Alipay and Tencent Pay achieved in a few years in terms of digitizing payments and facilitating online commerce.

Alternatives to state-run institutions could include regulatory policy that expand access to the big tech platforms to third parties through APIs and allow individuals to export data on them to other parties in some standardized format. Existing thrusts of competition policy, for example forcing big tech firms to limit anticompetitive exclusivity agreements, are better ways to increase competition and open up walled gardens than taking over the data in the hands of the state.

Fourth, while recognizing that walled gardens and privacy are key issues, erecting walls on data flows between parts big fintech players or splitting up super apps into pieces is likely to generate inefficiency and deadweight losses. The secret to China's fintech success, especially in expanding access to relatively low-cost credit for consumers and small companies, is the real time data and monitoring enabled by the real time access to large bodies of data on borrowers connected across silos.

Instead of broad-based barriers that could cause deadweight losses by reducing financial access and potentially increasing defaults through lower quality underwriting, the focus should be on improving consumers' and businesses' control over how their data is used. For example, those who do not need credit could choose to reduce the amount of data shared across fintech platforms at a more granular level but reactivate sharing if they are applying for a loan. Such a

move would be consistent with the overall thrust of China's privacy and data protection rules, including the newly passed Personal Information Protection Law, which give consumers more say as to how their data is used and reduce firms' ability to collect user data not clearly necessary for a direct business purpose.

Conclusion

China's success not only developing fintech but using fintech to both modernize and force its broader financial system to become more competitive is an impressive achievement. Fintech has helped its tech sector grow, expanded credit access to hundreds of millions of people, provided better investment options, and made life more convenient for digitally active Chinese people. At the same time, despite some issues (especially in P2P), authorities should be given credit for effectively managing the perilous transition from very loosely regulated fintech sector to a more effectively regulated one, including taking strong action on the most connected firms that in the past were able to block regulations against their interests. This twin achievement, helping it get off the ground and ensuring orderly future development, is worth referencing and learning from not only in developing economies and emerging markets, but also in advanced ones where rules may be too strict or inflexible for fintech to thrive.

Chinese authorities have, out of necessity, faced urgent regulatory issues, from competition to data protection, that all global authorities will face as finance continues to digitize and big tech firms enter finance in deeper ways. As they do so, they would benefit greatly from watching how the latest round of rules affects risk, consumer protection, growth, and innovation in China's fintech sector, learning from both the mistakes and success of the pioneer in uncharted territory.

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