

China's Long March to a Cashless Future:

Regulatory Responses to DFS Innovation and the Challenges of Rural Distribution

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Executive Summary

China pioneered the large-scale aggregation of financial services into digital platforms hosting a variety of services, marketplaces, and activities. This “platform model” had several years to develop and mature before regulators intervened. Active measures were then taken to bring the platforms and other types of digital financial services (DFS) under a comprehensive regulatory framework. In parallel, the physical distribution network for financial services expanded rapidly into underserved rural areas, thanks to policy initiatives combined with huge investments by the public and private sectors. The result has been a quantum leap in financial inclusion. A robust banking and digital infrastructure played a key role in this outreach effort. Yet, at the same time as cash points have been proliferating, the evolution of DFS is reducing the overall role of cash. China’s trajectory offers lessons for stakeholders in other markets striving to overcome the physical distribution challenges of cash while expanding financial inclusion.

This paper begins by examining the platform models adopted by Alibaba and its competitors in China, focusing on their role in digital finance expansion. We follow this with a review of the regulatory steps taken in response. Next, we analyze the expansion of physical service points – accompanied by enabling policies and regulations – that have extended the banking and payments systems into underserved rural markets. Last, we extract the main lessons of this story.

Platform models

Ant Financial, the financial services affiliate of the e-commerce giant Alibaba (founded 1999), is China’s leader in DFS and the most prominent of the platform providers that aggregate financial services with other offerings. The Ant group includes Alipay, introduced in 2004 as an escrow service to facilitate online payments, and now one of China’s dominant payment service institutions. Ant also houses a range of other financial entities providing micro- and small business loans, money market funds, insurance, investments, and credit rating. Alibaba in 2014 made a big move into underserved markets with its Rural Taobao initiative, a public-private venture involving government at several levels. This began as a program to build rural service centers, followed, first, by the recruitment of young tech-savvy partners to develop the market, and second, by major investment in village e-commerce clusters.

Alibaba and competitors such as Tencent and Baidu integrate financial services into their digital platforms to promote and facilitate core services such as e-commerce (Alibaba), social media (Tencent/WeChat), or search engine (Baidu). The DFS distribution system that has grown up around these platforms is quite distinct from typical mobile money deployments across the globe. Digital platforms came first, then payment services were created as a convenience for customers and as a marketing tool to grow the core online business. The spread of digital access and the development of payments technology (cards, e-wallets, and QR codes) enabled these platforms to expand their customer base relatively unconstrained by the limited availability of physical service points or cash-in/cash-out (CICO) facilities. This development reduces the dependency of financial services on cash.

Regulatory development

Government and regulators took a “wait and see” attitude initially, monitoring the platform experiments while allowing them to proceed with little interference. This approach became more proactive over time – a “test and learn” method.

Once platform-based DFS began to proliferate, the Chinese authorities (starting in 2010) made a series of moves to build up the regulatory framework, the banking infrastructure, and the network of service points (in the latter case with major private sector investors led by Alibaba). One aim of the regulatory changes was to domesticate and de-risk the DFS platforms, bringing them into a licensing and supervision regime. Another focus was to build a broader framework for payment services, enabling

new competitors to enter the market, and establishing safeguards, e.g. for e-money float and customer data. Under the regulations, payment service providers, including Alipay and Tenpay (WeChatPay), are termed “third-party payment providers.” They provide e-wallets that link to clients’ bank accounts and enable transfers on the banking system’s payment and settlement rails. The rules limit a payment institution’s role to small retail transactions.

Chinese policymakers adopted an integrated approach to regulation. Since the platforms – notably Alibaba – had expanded into a range of financial services, PBOC (the central bank) and other relevant agencies in 2016 created a coordinating mechanism to develop consistent rules. PBOC required all payment traffic to flow through the banking system as well as a central public clearing-house. The central bank also established a national credit information system. This appears aimed at widening access to such facilities, and counteracting the risks and competitive effects posed by Ant Financial’s efforts to build up a proprietary system.

Distribution infrastructure

Meanwhile, China put in place the digital and banking infrastructure necessary for rapid DFS expansion. According to estimates in 2017, most villages had only 1% of households connected to broadband, and internet penetration in rural China was 30%, compared to over 60% in urban areas. To address this digital divide, central government set a target of bringing unlimited broadband to 98% of China’s administrative villages by 2020. As of December 2017, China had 772 million internet users, nearly 56% of the population. Over 95% of China’s internet users access the web via a mobile device, and smartphone ownership rose from 39% in 2013 to 71% in 2016. The digital access gap in rural areas has been narrowing.

Further, starting in the early 2000s, government extended state-owned bank services into rural counties and townships, while also opening new licensing windows for private investors to set up rural banks and microcredit institutions. Over this period, China has maintained and in some ways intensified its bank-centric vision of financial services including payments. PBOC policies have supported, and government agencies have actively promoted, the issuance of inexpensive bank accounts and cards to hundreds of millions of rural residents. The upshot is that some 80% of residents across China have bank accounts and/or bank cards – a very different situation from most developing countries. While the banks underperformed in reaching rural populations with infrastructure and services, government undertook a major expansion of agent service points (discussed below).

China’s mobile payment providers have built their solutions on top of banks’ access and connectivity infrastructure. Alibaba and Tencent gain access to this infrastructure because they have bank card authorization in addition to their payment services licenses. Their clients have usually already entered the DFS ecosystem by way of a bank card, mobile app, or online account. Platform customers load funds into their digital wallets through links to their bank accounts. This permits Alipay and Tenpay to “piggyback” on the banks’ customer due diligence procedures.

Agent service points

The platform providers started out with no “agent networks” as these are known elsewhere in the world. Alibaba needed some physical presence to facilitate the sending and receiving of goods, and to assist clients in conducting online trade. The company particularly needed service points in rural areas, where people are less familiar with the internet, fewer have bank accounts or smartphones, and more of them use cash. This meant partnering with government in the Rural Taobao initiative. It is significant that Alibaba group had the business incentive to invest in extending Taobao to some 30,000 villages – villages that were not well served by state-owned financial institutions.

Government has meanwhile pushed to build out the service network. For this, it uses a combination of social policy, pilot projects testing new G2P transfer models, public-private partnerships, and a financial regulatory “sandbox.” These are joint efforts where PBOC cooperates with the major state-owned banks and sector ministries, in coordination with local authorities and providers such as Ant Financial. The pilot programs featured regulations on agent banking. Government works with (and subsidizes) public banks to build out agent service networks, and provides large-scale social transfers via bank card and mobile phone. The sandbox experience led PBOC to issue regulations extending and expanding many of the pilot provisions on agent service points. As with the adoption of payment regulations, the expansion of service points (which are required to be non-exclusive) opens up opportunities for new competitors.

Under the pilot regulations, agents could not open accounts, take deposits, or handle any cash-in transactions. These restrictions no doubt made the distribution system less attractive for the unbanked and less convenient for customers seeking to add e-value and shop online – as well as less sustainable for the agents. The cash-in constraint was not applied uniformly across the board, and was reportedly relaxed by PBOC early in 2019. These changes follow a pattern of policy adjustments over the last several years, in which the scope of agent activities has gradually been widened and PBOC branches have discretion to loosen some restrictions still further. The permitted range of agent activities also reflects China’s policy of tightly linking payment services to the banking system. Cash-ins serve both e-wallets and bank accounts, with transferability between the two making them nearly seamless, if not functionally equivalent.

Data collected by PBOC and the World Bank show the impact of China’s push to increase service points. By the end of 2016, agent-based service points had reached 983,400, representing nearly half of total physical service points. Agent service points are hosted at a variety of sites including post offices, public clinics, and commune offices. Approximately 2% of agent service points were set up by nonbank digital payment providers (e.g., Alipay and Tenpay). For now, many of the new service points (mainly hosted by state institutions) are not active enough to be sustainable – consistent with experience in other countries pushing service expansion in rural areas.

Lessons

A key lesson of this experience is the value of the regulator allowing new experiments outside the legacy banking system to proceed – while monitoring them. These experiments depend on active leadership and innovation by the private sector. Once the new models have gained traction, a coordinated regulatory approach is needed to address such issues as data protection, aggregation of business lines, the payment systems framework, and distribution.

China’s experience also shows that new models combining digital methods with aggregation can push the distribution of financial services quite far. But getting to the “last mile” also requires a parallel expansion of digital infrastructure, access to accounts, service point networks, and regulatory safeguards. In particular, the pursuit of a cashless system must, in the near term, coexist with the rapid increase in service points to bring cash-dependent rural populations into an inclusive financial sector.

A key to success is constructive engagement between public authorities and private enterprises – enterprises that are able to mobilize significant capital to realize the network effects of expansion beyond urban markets. Distinctions that may be clear in other settings – e.g. between public and private sector, or between political and regulatory decisions – are less so in China. Among other things, this feature greatly facilitates coordinated action across administrative and sectoral lines. Yet, aggregation of services, with its concomitant amassing of customer data, continues to pose risks of abuse in relation to competition, manipulation of data, and surveillance by commercial as well as government actors.

The evolution of the world's largest digital finance market is inevitably of interest to all concerned with financial inclusion. China is particularly instructive for its distinctive response to the challenge of extending digital financial services (DFS) to hard-to-reach populations in rural areas.

China pioneered the large-scale aggregation of financial services into digital platforms hosting a variety of services, marketplaces, and activities. This "platform model" had several years to develop and mature before regulators intervened. Active measures were then taken to bring the platforms and other types of DFS under a comprehensive regulatory framework linking the providers tightly to the banking system. In parallel, the physical distribution network for financial services expanded rapidly into underserved rural areas, thanks to policy initiatives combined with huge investments by the public and private sectors. The result has been a quantum leap in financial inclusion. A robust banking and digital infrastructure played a key role in this outreach effort. Yet, at the same time as cash points have been proliferating, the evolution of platforms and DFS services in general is reducing the overall role of cash. China's trajectory offers useful lessons for stakeholders in other markets striving to overcome the physical distribution challenges of cash while expanding financial inclusion.

This paper proceeds as follows. First, we examine the platform models adopted by Alibaba and its competitors in China, focusing on their role in digital finance expansion. We follow this with a review of the regulatory steps taken in response. Next, we analyze the expansion of physical service points – accompanied by enabling policies and regulations – that have extended the banking and payments systems into underserved rural markets. Last, we extract the main lessons of this story, and its possible implications for approaches to financial inclusion in other parts of the world.¹

*******Box 1. Key milestones in China: financial inclusion and physical access²*******

Accounts: Some 80% of residents across China have bank accounts and/or bank cards (i.e. store of value transaction accounts). This rate increased from 64% of overall population in 2011 to 79% of overall – and more than 74% of rural – population in 2014.

Digital payments: Nearly 77% of Chinese were using digital payments by 2017, including 66.5% of rural population. In 2014, 31% of adults reported having used any digital payment method in the past year.

Pilot programs for rural access: China was piloting tailored bank card services as early as 2005 for rural residents and migrants. Pilot programs, sandbox frameworks, and rural financial services outreach guidelines were established from 2010 to 2014. By August 2013, the pilot programs encompassed 500,000 agents.

Service points: Between 2011 and 2016, the number of ATMs in China grew by 275% to 924,000, while POS devices increased more than five-fold to 24.5 million (though faster urban growth meant that the share of rural service points in these totals declined).

Agents: By the end of 2016, agent-based service points had reached nearly one million, representing about half of total physical service points (including branches, ATMs, and agents) and covering more than 90% of administrative villages across China.

¹ An important caveat is in order here. We had *very limited access to primary policy and regulatory documents* in English translation, and therefore have relied heavily on secondary sources.

² Summary of points discussed below (citations omitted here).

It is worth defining up front what is meant by “distribution” in this analysis. Typically, this refers to physical networks including branches, kiosks, and agents that facilitate cash-in/cash-out (CICO) and other transactions at the point of service. This orientation reflects the prevalence of DFS models based on e-money issued by financial institutions and mobile network operators (MNOs). China illustrates a different approach. There, companies such as Alibaba set up digital platforms to aggregate payments and eventually other financial services into a core trading business operating in cyberspace. The physical dimension came in incrementally (and to a large extent separately), beginning with merchandise delivery chains. This experience shows that models combining cashless methods with digital aggregation can push the distribution of financial services quite far. Yet, in the near term anyway, “last mile” delivery to rural customers requires the proliferation of physical service points.

1. Platform-based DFS models

China leads the world in volume of digital payments. Ant Financial, the financial services affiliate of Alibaba Group, has the biggest market share, followed by Tenpay, hosted on the mobile messaging app of competitor Tencent. The two firms processed, respectively, 54% and 37% of mobile payments in China. In addition to generating fees, online and mobile payments supply valuable data that can be used for targeted advertising and credit scoring.³ Here, we look at these platform models – with the main emphasis on Ant/Alibaba – and in the next part consider their regulatory implications. Understanding these models is important from a regulatory perspective because they came first, thriving in a safe space for innovation set aside by the authorities, and then shaping the agenda for regulation.

Alibaba Group

As of mid-2018, Alibaba (founded 1999) was the largest e-commerce provider in China, with 58% of the market. The firm had made a big move into underserved markets in 2014 with its *Rural Taobao initiative*. This public-private venture began as program to build 1,000 county-level Rural Service Centers and 100,000 village-level Centers over three to five years (see Box 2). The program aimed to offer a customer-friendly online bazaar that would replicate the offline experience of shopping. In 2015, Alibaba sought to promote further growth by signing up 100,000 “Rural Taobao Partners,” targeting mainly Internet-savvy young people who had left their home villages to find jobs but wanted to return. These partners would develop Alibaba marketplaces and find wider markets for regional products.

****Box 2. Illustrative outcomes of Rural Taobao*****

Rural Taobao’s results in the first few years include the following:

- 2014: Rural online shoppers increased to 77 million, expanding 40% year-over-year, with rural sellers handling a volume of more than RMB 120 billion (\$19.3 billion), a 300% YOY increase.
- 2016: Rural Taobao operated in 28 provinces of China, in more than 300 counties and 15,000 villages, connecting 25 million rural residents.⁴

³ <https://www.pymnts.com/news/international/2017/ant-financial-tencent-to-bow-to-pboc-clearing-house-order/>
Aug 10, 2017

⁴ <https://www.scmp.com/tech/enterprises/article/2161082/how-alibabas-taobao-solved-trust-problem-china-and-changed-way> Friday, 24 August, 2018; <https://www.alizila.com/e-commerce-gaining-traction-rural-china-2/> (2015); <http://ke.china-embassy.org/eng/zfgx/t1372750.htm> (2016/06/16).

- March 2017: Alibaba’s payment service, Alipay, reached an estimated at 163 million users in rural China.⁵
- 2018: Rural Taobao operated in 1,000 counties covering 30,000 villages⁶

Each village-level service center is operated by a manager (partner) recruited from the local community. Alibaba Group provides the necessary hardware, e-commerce training, technical support, and information about promotional offers on its online marketplaces. Partners are independent contractors. They earn income primarily by charging service fees for facilitating e-commerce orders, helping villagers sell online, and providing related services. Initially, Alibaba mainly sought out local convenience stores as rural service centers. Whereas the original model focused on developing purchasing agents, the emphasis of the Rural Taobao Partners program since 2015 has been on cultivating sellers who can promote regional products elsewhere.⁷ Prospective partners are interviewed and given a written test based on knowledge of Taobao products and services. They are equipped with delivery cars to drop parcels from one station to another, and pay a deposit for other items such as a computer, television and desks, and rent – relatively low in villages.⁸

Alibaba from the start has worked closely with government on rural outreach, particularly its effort to set up “Taobao Villages.” These are communities where at least 10% of households engage in e-commerce or at least 100 online shops have been opened by villagers, and total annual e-commerce volume in the village is at least RMB 10 million (US \$1.5 million). China’s ministries of commerce and finance have allocated \$300 million to 200 rural counties for warehouses, training and other support. According to the manager of Rural Taobao, “when we send in one Alibaba employee, the government deploys 10 people.” Alibaba signed strategic partnership agreements with several local governments to promote rural e-commerce and poverty alleviation. Thus, the Taobao Villages bring together resources from the public and private sectors to serve disadvantaged rural areas (this is also true of agent cash withdrawal points – see below). In this way, many traditional farming communities were gradually transformed into e-commerce clusters with new job opportunities, including both internet-based jobs and logistics-related positions.⁹

Alibaba also had to solve the problem of customer trust. Online transactions were initially difficult to complete because buyers did not know if sellers would actually send the product once they received payment, nor were sellers willing to ship items until they received payment confirmation. *Alipay* was introduced in 2004 as an escrow service that would retain payments until buyers had received their purchases – and then release funds to the seller. Alipay has today evolved to become one of China’s dominant payment service providers. It functions as an e-wallet, and can be linked to debit and credit

⁵ World Bank and PBOC (2018), “Toward Universal Financial Inclusion in China Models, Challenges, and Global Lessons,” p. 54

⁶ <http://blogs.worldbank.org/eastasiapacific/e-commerce-poverty-alleviation-rural-china-grassroots-development-public-private-partnerships>

⁷ OECD 2017 Aid for Trade - Case Study.

⁸ <https://www.malaymail.com/news/money/2018/09/12/alibabas-rural-taobao-could-give-impetus-to-malaysia/1671835>, Sept 12, 2018.

⁹ <https://sampi.co/taobao-villages-china-rural-ecommerce/> Aug. 2017; “E-commerce and Taobao Villages: A Promise for China’s Rural Development?” ANTHONY H. F. LI, No. 2017/3 china perspectives; Ding Ding, et al. “From Ant Financial to Alibaba’s Rural Taobao Strategy – How Fintech Is Transforming Social Inclusion,” www.elsevierdirect.com [undated].

cards issued by most banks or accessed via a mobile app. In late 2014, Alibaba restructured its major digital finance businesses, placing all of them under *Ant Financial Services Group*.¹⁰

One of Ant Financial's goals is to provide rural users with convenient financial services. It developed a "3-1-0" online lending model: after the three-minute application process, the loan is granted in one second, all with zero manual intervention. Through 2017, the 3-1-0 system disbursed 395 billion RMB (roughly US \$60 billion) in loans, with an average loan size of about US \$570. Ant Financial has also developed an online and offline lending model for small businesses, as well as a supply chain finance model for larger farmers and cooperatives.¹¹

Ant Financial is corporate parent to Alipay and several other financial service entities including MYBank, a digital bank specializing in small-business lending, and micro-loan provider Ant Micro. The Ant group also includes Yu'e Bao, a money market fund that can be accessed directly from Alipay, enabling users to invest up to US \$3,000 (for an annual return of about 4%). By 2018, Yu'e Bao had some US \$160 billion under management, making it the world's largest money-market fund. (Since then, however, it has shrunk an estimated 39% from its peak, and is no longer the world's largest.¹²) Another member is Zhao Cai Bao, a B2C third-party financial services platform that sells regulated products such as property insurance, mutual funds, fixed-term deposit products, and bonds.¹³

Ant Financial's credit rating service – Sesame Credit (established in 2015) – generates ratings using massive data from the user's credit history, preferences, contract performance, identity, and personal connections. Sesame Credit is built on Alibaba's e-business data and Ant's internet finance data, and collaborates with public security networks and other partners.¹⁴ It has direct access to data from over 500 million consumers who use Alibaba's e-commerce marketplaces on a monthly basis, as well as payment histories of more than 400 million registered users on its Alipay mobile payment app. This private system of credit information was fully developed before any public, national system came into operation (the central bank eventually set up such a system in 2018 – see below).¹⁵

Other providers

There are a number of DFS competitors to Alibaba Group in China. The leading rival is *Tencent*, (founded 1998) whose instant-messaging app, WeChat, has one billion monthly users. By incorporating functions

¹⁰ <https://www.scmp.com/tech/enterprises/article/2161082/how-alibabas-taobao-solved-trust-problem-china-and-changed-way> Friday, 24 August, 2018; Zhou, W; Arner, DW; Buckley, RP, "Regulation of Digital Financial Services in China: Last Mover or First Mover?" September 2015 . <http://hdl.handle.net/10722/220011> .

¹¹ <http://www.fao.org/support-to-investment/news/detail/en/c/1069630/> Dec. 2017.

¹² Georgina Lee, "Ant Financial's Yu'e Bao shrinks 39 per cent, loses top spot as world's biggest money market fund, says Fitch Ratings," *South China Morning Post*, September 27, 2019, <https://finance.yahoo.com/news/ant-financials-yue-bao-shrinks-093000861.html>

¹³ "Jack Ma's Online Bank Is Leading a Quiet Revolution in Chinese Lending," Bloomberg, July 29, 2019, <https://fortune.com/2019/07/29/jack-ma-mybank-lending/> ; Gabriel Wildau and Yizhen Jia, "Ant Financial's money market fund shrinks to 2-year low," *The Financial Times*, JANUARY 28, 2019, <https://www.ft.com/content/35bbbef6-20a8-11e9-b126-46fc3ad87c65> ; Alex Moazed, "The World's Largest Fintech Created a P2P Liquidity Market – Really," MAR 22, 2019, <https://www.inc.com/alex-moazed/how-an-investment-platform-lowers-risks-for-banks-novice-investors.html> .

¹⁴ Ding Ding, et al. ; <https://www.forbes.com/sites/ywang/2018/03/28/is-alipay-losing-to-wechat-in-chinas-trillion-dollar-payment-war/#307c0d7a8822> , Mar 28, 2018

¹⁵ "Order from Chaos: What's happening with China's fintech industry?" Wei Wang and David Dollar, Brookings, February 8, 2018. <https://www.brookings.edu/blog/order-from-chaos/2018/02/08/whats-happening-with-chinas-fintech-industry/> ; <https://www.wsj.com/articles/jack-mas-giant-financial-startup-is-shaking-the-chinese-banking-system-1532885367> , July 29, 2018.

such as online shopping and e-payment into the app, where the average user already spends more than an hour texting and reading news daily, the company encouraged users to linger on the platform. By one estimate, 80% of WeChat's users have tried its WeChatPay payment service (provided by Tenpay, the group's licensed payment institution), which now has more active users than Alipay. In 2017, Tencent's nascent lending service *Weilidai* already had more than 100 billion yuan (US \$16 billion) of outstanding loans, according to the company.¹⁶

Baidu operates China's largest internet search engine. In October 2013, Baidu launched its own online wealth management product called *Baifa* – similar to the funds offered by Ant Financial and Tencent. *Baifa*'s investment platform allows customers to make a minimum deposit of RMB 1 and earn interest at higher rates than those offered by Yu'E Bao and *Weilidai*. In addition, Baidu has its own personal loan platform called Baidu Finance, where customers can borrow up to ten times their monthly income with a flexible repayment term up to three years. Loan applications and approvals are all processed online in as little as five minutes.¹⁷

New-generation e-commerce companies include such players as *Pin Duo Duo* (PDD). Founded in 2015, the company's core value proposition is to allow groups to form 'shopping teams' to buy consumer goods in bulk. PDD currently has some 443 million active buyers and 3.6 million active merchants, making it the third-largest e-commerce firm. (But PDD does not offer its own financial services.)

Payment mechanisms

Digital commerce and digital payments go hand-in-hand. Alibaba and Tencent view mobile payments services not as ends in themselves, but as means to bring customers into an in-app universe of bundled services often owned, at least partly, by the providers themselves.¹⁸ In China, online shoppers represent virtually the same proportion of internet users as do digital payment service customers (just over 65% in urban and 47% in rural areas). In the case of Alibaba, village households are learning from one another about how to create small businesses that sell traditional crafts, fresh produce, or small-scale manufactures online. Likewise, WeChat users promote their products or services directly through social media posts or through one of WeChat's business accounts. For buyers and sellers on either end of the transaction, using the mobile wallet associated with the e-commerce channel is essential. Alipay and Tenpay have built merchant networks of 600,000 and 300,000 members respectively.¹⁹

Two payment mechanisms used by Ant Financial and its competitors are helping lessen the customer's dependency on cash.²⁰ The first of these is the quick response (QR) code – essentially a two-dimensional bar code box that enables payment via mobile scanning. The rapid expansion and near-ubiquity of these codes have facilitated wider acceptance of cash-free payments. In China, this development, combined with increasing mass-market access to smartphones, has helped reduce the use of physical cash, leading to simpler and faster purchases. Overall, e-payments now account for 77% of all transactions in China.²¹ QR codes make it easier to increase the size of acceptance networks, reducing costs for both acquirers²²

¹⁶ <https://www.forbes.com/sites/ywang/2018/03/28/is-alipay-losing-to-wechat-in-chinas-trillion-dollar-payment-war/#307c0d7a8822>

¹⁷ Zhou, Arner, and Buckley, September 2015, <http://hdl.handle.net/10722/220011>

¹⁸ BLOG 11 JANUARY 2018, "What Can Mobile Money Make Possible? China Has Many Answers," by Tyler Aveni and Joep Roest <https://www.cgap.org/blog/what-can-mobile-money-make-possible-china-has-many-answers>

¹⁹ "China's Alipay and WeChat Pay: Reaching Rural Users," CGAP Brief Dec. 2017.

²⁰ This despite PBOC regulations keeping a tight link between payments and the banking system, as discussed in the next part.

²¹ BLOG 05 SEPTEMBER 2018, "China's Super Platforms: The Impact Question," <https://www.cgap.org/blog/chinas-super-platforms-impact-question>

²² Entity that receives and processes payments on behalf of the merchant.

and merchants. Dedicated point-of-sale (POS) terminals – a significant expense – are no longer required where the merchant can use a mobile phone or display a QR code printout for scanning by the customer. QR codes also substitute for bank cards, which pose physical distribution challenges in rural areas (i.e. delivering cards and PIN numbers to customers without a formal address). Thus, where the customer has access to a mobile phone, QR codes offer a user experience at least as good as cash, if not better.²³

A second cashless method is issuing e-money, thereby enabling the unbanked to access digital payments. Value can be added directly to the Alipay or Tenpay digital wallet using prepaid phone cards (e.g., a China Mobile refill card), which are available at many convenience stores. Although Alipay takes a 5% fee from the value of the card, this is a useful option for customers without access to bank branches – including many in remote areas. The ability to use a prepaid card to gain access to the digital payments ecosystem increases familiarity with, and confidence in, digital payments – and enhances financial inclusion in the long run.²⁴

2. Regulatory development

Having invented new DFS models based on aggregation, Alibaba and its rivals flourished in a setting of benign non-intervention by regulators. Government and regulators took a “wait and see” attitude initially, monitoring the platform experiments while allowing them to proceed with little interference. Over time, this approach became more proactive – a “test and learn” method. Once platform-based DFS began to proliferate, the Chinese authorities made a series of moves to build up the regulatory framework, the banking infrastructure, and the network of service points.

The last few years have seen increasingly aggressive moves to bring order to this sector. One aim of the regulatory changes was to domesticate and de-risk the DFS platforms, bringing them into a licensing and supervision regime. Another focus was to build a broader framework for payment services, enabling new competitors to enter the market and establishing safeguards. China adopted an integrated approach to regulation. Since the platforms had expanded into a range of financial services, the central bank and other relevant agencies created a coordinating mechanism to develop consistent rules. (See Box 3 for an overview of developments here.)

Here, we look at the basic framework that has been set up to govern payment services, and at the regulations adopted to deal with new risks created by the platforms. Against this backdrop, in Part 3 we review China’s efforts to enable and expand the distribution system.

*****Box 3. Overview of key regulatory steps²⁵*****

The story of China’s regulatory engagement with the online platforms and their DFS offerings falls into the following main phases:

- *Wait and see*: beginning with the founding of Alipay (2004), government and PBOC monitored the platform experiments and determined when and how to intervene.
- *Test and learn*: incremental building of a regulatory framework, rolling out new components as needed, including the nonbank third-party payment provider (TPP) rules (2010), regulations on

²³ BLOG 30 JANUARY 2018, “QR Codes and Financial Inclusion: Reasons for Optimism,” <https://www.cgap.org/blog/qr-codes-and-financial-inclusion-reasons-optimism>

²⁴ Kapron, Zennon and Michelle Meertens 2017, “Social Networks, e-Commerce Platforms, and the Growth of Digital Payment Ecosystems in China: What It Means for Other Countries,” Better than Cash Alliance, p. 55.

²⁵ Summary of points discussed below (citations omitted here).

nonbank online payments (2015), daily limits on smartphone payments (2017), and e-money float protection (2017).

- *Sandboxes*: these were set up to pilot rural distribution (focusing on G2P) via bank card-based cash withdrawal agents and mobile money agents (2011-12), supplemented by guidelines (2014) to improve financial services outreach to the agricultural sector.
- *Integrated framework and oversight*: beginning with the “Rectification” initiative (2016) to develop comprehensive policy on DFS and aggregation, this led to creation of a centralized clearing house (2017), a national credit information and scoring system, and tightened oversight of nonbanks in the wake of an investment scandal (2018).

Enabling framework for nonbank payment services

Rapid development of non-bank electronic payments and P2P lending got underway *before* a regulatory framework was created to address it. In 2010, the People’s Bank of China (PBOC) issued *Rules on the Administration of Payment Services Provided by Non-Financial Institutions*. Under these and later regulations, nonbank payment service providers, including Alipay and Tenpay, are termed “third-party payment providers” (TPPs). They provide e-wallets that link to clients’ bank accounts and enable transfers on the banking system’s payment and settlement rails. The 2010 Rules require these entities to have a fit and proper corporate parent, to institute AML/CFT²⁶ protections, and to hold client funds in bank accounts, among other things. Alipay (in 2011) was among the first non-bank companies to obtain official authorization to operate an online payment system.²⁷

China took a further step to bring platforms and payment services under regulation in 2015, with the *Administrative Measures for the Online Payment Business of Non-Banking Payment Institutions*.²⁸ The Measures limit a payment institution’s role to basic retail transactions, i.e. offering the public “fast and convenient payment services in small and micro-amounts.” Thus, TPPs are not permitted to provide wholesale or large scale payment transactions. They may not open payment accounts for financial institutions or others providing services such as credit, deposits, asset management, guarantees, or foreign exchange. At the same time, payment services must be channeled through the banking system – non-bank systems are not permitted. The segmentation of payments into large/wholesale (handled by banks) and small/retail (handled by PSPs but on banking system rails) helps contain risk while keeping payment regulation proportionate (e.g. not treating payment accounts as banking deposits), and preserving the central role of the banking system.²⁹ The Measures further balance financial inclusion with safety by establishing distinct tiers of nonbank payment accounts. Tiers are based on differentiated customer due diligence (CDD) requirements and transaction limits.³⁰

²⁶ Anti-money laundering and countering the financing of terrorism.

²⁷ Zhou, Arner and Buckley, September 2015 <http://hdl.handle.net/10722/220011>; Lerong Lu, “Decoding Alipay: mobile payments, a cashless society and regulatory challenges,” *Butterworths Journal of International Banking and Financial Law*, Jan 2018; <http://diazreus.com/will-paypal-thrive-in-china-chinas-new-regulation-of-third-party-payment-services/>

²⁸ Announcement No. 43 [2015] of the People’s Bank of China.

²⁹ Hogan Lovells, “China regulates online payment business of non-bank players,” *TMT China Brief*, Winter/Spring 2016; Announcement No. 43 [2015] of the People’s Bank of China.

³⁰ A basic Type I account can be opened remotely, allows for consumption purchases and transfers, and has an entry-level daily transaction limit of RMB 1,000 (US \$150). These account-level restrictions can be adjusted

PBOC has phased in *float protection rules*. Effective January 2019, third-party payment services must hold customer funds in reserve – a change from past practice where these providers could invest customer funds. Unlike banks, the TPPs did not pay interest on the money they held for customers. It is estimated that Alipay and Tencent could lose as much as US \$1 billion in combined annual revenue as a result of the new rule. The float rule, adopted by stages starting in 2017, requires that all prepaid funds received from users must be deposited with the central bank. The aim here is partly to prevent fraud and to protect customers — a response to recent investment scandals — and partly to serve President Xi Jinping's agenda of deleveraging and asserting more control over digital payment companies.³¹

Coordinated approach to new risks

In April 2016, policymakers determined it was time to take on the diversifying risks of the new DFS models in coordinated fashion. The State Council formed the *Special Rectification Leadership Team* together with China's banking, insurance, and securities regulatory commissions, and local governments. Under rules issued as a result of this initiative, all payment institutions are classified into five categories (and a total of 11 grades). PBOC rates each institution based on six indices, i.e. client deposit management, compliance and risk control, consumer rights protection, system safety, AML-CFT, and sustainability. Other regulations were issued on DFS including shadow banking, lending, credit reporting, crowdfunding, and insurance. These steps signaled government's determination to develop a comprehensive, integrated policy to deal with nonbank DFS providers and especially the aggregation of financial intermediation and other services on digital platforms.³²

Chinese regulators decided in 2017 to bring non-bank electronic payments into a centralized clearing house. Until then, money circulating within third-party payment networks evaded the central bank's clearing system for commercial banks and bankcard payments. This prevented financial regulators from fully monitoring and tracking fund movements, adjusting monetary policy accordingly, and accurately assessing risks such as money laundering. In August 2017, PBOC ordered payment companies to operate their businesses via a new government-sponsored clearing house, the *China NetsUnion Clearing Corporation* (NUCC or *Wanglian*). The new arrangement permits no direct connections between TPPs and banks, displacing all transactions handled by payment institutions to the NUCC. PBOC and affiliated institutions control the largest shareholding (35%) in NUCC, followed by Alipay and Tenpay with 10% each.³³

The creation of NUCC/Wanglian appears aimed to enhance market competition through greater interoperability. It serves as the nonbank counterpart to China's bank card network, China UnionPay. Alipay and Tenpay had built their own payment "rails" on bilateral partnerships with dozens of national, provincial and local banks – something that new competitors would find it very difficult to replicate. Contracts with these banks have allowed TPPs in effect to perform clearing and settlement on their own (without PBOC approval). NUCC enables smaller providers to avoid building expensive private networks by giving them access to an advanced, nationally accepted payments system.³⁴ The PBOC order is

depending on provider-level ratings from PBOC. World Bank and PBOC (2018), "Toward Universal Financial Inclusion in China Models, Challenges, and Global Lessons," p.46.

³¹ <https://www.pymnts.com/news/payment-methods/2018/alipay-tencent-new-rule/> ;

<https://asia.nikkei.com/Asia300/Alibaba-and-Tencent-hit-by-China-s-new-mobile-payment-rules>, JULY 04, 2018.

³² "Growing with Pain: Digital Financial Inclusion in China," Chinese Academy of Financial Inclusion (CAFI), 2018.

³³ CAFI, 2018; Lerong Lu, 2018; <https://www.forbes.com/sites/jinshanhong/2017/08/18/how-chinas-central-bank-is-clamping-down-on-the-mobile-payment-industry/#1fd7548250be>, Aug 18, 2017;

<http://www.chinabankingnews.com/2018/04/16/chinas-third-party-payments-providers-severe-direct-ties-bank/>.

³⁴ BLOG 17 APRIL 2018, "Public Clearinghouse Could Shake Up China's Mobile Payment Market," <https://www.cgap.org/blog/public-clearinghouse-could-shake-chinas-mobile-payment-market>

expected to reshape the industry. It requires Tenpay and Alipay to disclose valuable data (heretofore proprietary) to the government and to competitors. While hundreds of millions of Chinese consumers and businesses linked their Alipay or Tenpay (WeChatPay) accounts to their bank accounts, financial institutions did not have access to payment details such as the merchant's name and location. Instead, the bank record showed Alipay or Tenpay as the recipient. This has now changed.³⁵

Scale has endowed the Alibaba group with yet another competitive advantage: exclusive access to the mass of customer data accumulated from its e-commerce websites. Alibaba's handling of over 600 million consumers' personal data remains a controversial issue and a major concern for financial regulators. The State Council's *Administrative Regulation of Credit Investigation Industry* (Order No 631/2013) requires any entities using personal information to get express consent from data subjects on the collection and use of the data. Information must not be used for purposes other than as agreed, and must not be disclosed to third parties without the permission of the data subjects.³⁶

In 2018, PBOC took a further step, creating a *national system of credit information and scoring*. There appear to be two objectives here: 1) extending services to cover the estimated 460 million Chinese who had no formal credit histories, and 2) counteracting the risks and competitive effects posed by proprietary systems such as Ant Financial's Sesame Credit. (Ant and other companies were given temporary permission by PBOC in 2015 to develop personal credit scoring models.) A private sector company, *Baihang*, was established with shareholders including eight fintech/platform companies and the National Internet Finance Association. By April 2019, over 700 financial institutions and companies, mostly online microlenders, had connected to Baihang's credit database – but only three of the eight shareholding companies had agreed to feed their data into Baihang's system. Tencent and Alibaba are refusing to co-operate with the system, and are withholding access to their troves of customer data.³⁷

PBOC also imposed daily *limits on smartphone-based payments* – with the aim of combating fraud. For payments made by scanning a printed QR code displayed by the seller, the daily limit is set at 500 yuan (about US \$75). These are considered riskier than other QR code payments because the codes could be tampered with and money sent to fraudulent accounts. Meanwhile, China has also permitted banks to use QR code scanning to process mobile payments, which allows the banks to seize part of this expanding market.³⁸

Some related steps were taken in 2018 to curb risk and *bring non-bank financial providers under stricter oversight*. This was prompted in part by the exposure of a US \$7.6 billion Ponzi scheme in 2016, followed by the closure of some 900 investment platforms.³⁹ Ant's Yu'e Bao, for example, has been placed under

³⁵ <https://www.forbes.com/sites/jinshanhong/2017/08/18/how-chinas-central-bank-is-clamping-down-on-the-mobile-payment-industry/#1fd7548250be> Aug 18, 2017; <https://www.pymnts.com/news/international/2017/ant-financial-tencent-to-bow-to-pboc-clearing-house-order/> Aug 10, 2017.

³⁶ Zhou, Arner, and Buckley, September 2015 . <http://hdl.handle.net/10722/220011>; Lerong Lu, 2018

³⁷ <https://www.wsj.com/articles/jack-mas-giant-financial-startup-is-shaking-the-chinese-banking-system-1532885367> July 29, 2018; Yuan Yang and Nian Liu, "Alibaba and Tencent refuse to hand loans data to in Beijing," *The Financial Times*, SEPTEMBER 18 2019, <https://www.ft.com/content/93451b98-da12-11e9-8f9b-77216ebe1f17>

³⁸ <https://asia.nikkei.com/Politics/China-caps-store-mobile-payments-at-80> APRIL 03, 2018; <https://www.forbes.com/sites/jinshanhong/2017/08/18/how-chinas-central-bank-is-clamping-down-on-the-mobile-payment-industry/#1fd7548250be> Aug 18, 2017; <https://www.pymnts.com/news/international/2017/ant-financial-tencent-to-bow-to-pboc-clearing-house-order/> Aug 10, 2017.

³⁹ "Order from Chaos: What's happening with China's fintech industry?" Wei Wang and David Dollar, Brookings, Thursday, February 8, 2018. <https://www.brookings.edu/blog/order-from-chaos/2018/02/08/whats-happening-with-chinas-fintech-industry/>

stricter supervision, and has been required to reduce its holdings of high-yield assets.⁴⁰ China adopted the *Guiding Opinions on Strengthening the Management on Investment into Financial Institutions by Nonfinancial Entities* in April 2018. The Opinions set out guidelines for such investments – e.g. Alibaba’s ownership in Ant Financial – by setting standards in such areas as shareholder qualifications, source of funds for investment, and corporate governance.⁴¹ One effect of these rules, it seems, is to make this field less attractive for foreign investment.⁴² Finally, China adopted its first *Electronic Commerce Law*, effective January 2019. China’s became the world’s largest online retail market in 2013, when total sales reached \$314 billion, but has been plagued by shady business practices. The law requires most e-commerce operators to get regulatory approval before selling. New consumer protections are included, e.g. the e-commerce sites face joint liability when fake goods are sold there or deliveries are not timely. Penalties range as high as US \$30 million.⁴³

3. Distribution network

Alibaba and Tencent undertook digital outreach *first*, as part of their core (e-commerce, social media) businesses, and only *then* started providing financial services that were eventually brought under central bank oversight. As those core businesses have grown, so have the linked financial services. Activities are primarily, and increasingly, online – indeed, the companies have gone on to establish digital banks that have *no physical service points* at all. This approach is made possible by China’s extensive digital and banking infrastructure. These trends point in the direction of a cashless future. Yet at the same time, China has been pushing to build a vast network of agent service points in order to extend access to cash-dependent rural populations.

Digital and banking infrastructure

In parallel with its creation of the regulatory framework just discussed, and the rapid expansion of distribution networks to be addressed below, China set up two infrastructure components that have been key to expanding financial access. The first of these is a *highly developed digital ecosystem* that supports social interaction, shopping, and payments entirely online. This was fundamental to the success of platforms such as Alibaba and Tencent.

As of December 2017, China had 772 million internet users – 55.6% of China’s population. Over 95% of China’s internet users access the web via a mobile device. Growing smartphone ownership, which rose from 39% in 2013 to 71% in 2016, spurred the demand for DFS products. In 2016, Chinese consumers spent approximately \$22.8 trillion (RMB 157.55 trillion) through mobile payment platforms, far exceeding the volume of such transactions in the United States (\$112 billion). Over 90% of that sum was spent via Alibaba’s Alipay and Tencent’s Tenpay.⁴⁴ The availability of cheaper smartphones is helping increase digital access and encouraging subscribers to shop online with their handsets. This trend has

⁴⁰ Regulators have also been weighing whether to designate Ant a financial holding company and require it to meet bank-style capital requirements. <https://www.wsj.com/articles/jack-mas-giant-financial-startup-is-shaking-the-chinese-banking-system-1532885367> July 29, 2018.

⁴¹ <https://www.nortonrosefulbright.com/en/knowledge/publications/ec8bbc63/china-now---regulatory-reform-in-the-financial-services-industry>

⁴² Apple Pay, along with Edenred and Sodexo, is among the very few foreign invested companies in possession of a Chinese payment business license. “Accessing China’s Third Party Mobile Payments Market: A Comparison of WeChat and Alipay,” June 3, 2016 Posted by China Briefing (<https://www.china-briefing.com/news/author/china-briefing/>)

⁴³ <https://technode.com/2018/11/13/china-e-commerce-law-2/>

⁴⁴ CGAP Brief Dec. 2017. Wang and Dollar, 2018. <https://www.brookings.edu/blog/order-from-chaos/2018/02/08/whats-happening-with-chinas-fintech-industry/>

made inroads in rural areas – by 2016, about 104 million rural users (about 17% of the rural population) were using mobile payments.⁴⁵

Yet, a “digital divide” poses a continuing obstacle to rural e-commerce. According to estimates in 2017, most villages had only 1% of households connected to broadband, and internet penetration in rural China was 30%, compared to over 60% in urban areas. Many adults who make up the last mile are elderly or live in areas with poor ICT infrastructure and thus remain excluded from the reach of digital finance. Older and poorer rural residents are particularly resistant to participating in the digital economy.⁴⁶

To address this divide, central government set a target of bringing unlimited broadband to 98% of China’s administrative villages by 2020.⁴⁷ Government has also committed to ensuring that improved digital access translates into financial inclusion across China. This is illustrated by the *Guideline on the Promotion of the Healthy Development of Internet Finance*, jointly issued by ten central ministries and commissions in July 2015. The Guideline’s objectives include promoting the development of innovative platforms and types of DFS (while mitigating risks), and encouraging cooperation among digital finance providers to expand financial services to small and medium-sized enterprises (SMEs) and individuals.⁴⁸

The second key structural component is *an extensive banking infrastructure*. China has one of the largest banking service networks in the world, far more extensive than is typical in a developing economy. The banking system covers more than 90 percent of administrative villages, with an average of 1.8 service points each – on a par with many high-income countries.⁴⁹ Some 80% of residents across China have bank accounts and/or bank cards (i.e. store of value transaction accounts). Account ownership rose from 64% to 79% between 2011 and 2014, with the figure for rural residents rising above 74%, close to the national average.⁵⁰

China built out its rural banking system with extensive participation of the central bank and government at all levels. This includes supporting distribution infrastructure such as branches, ATMs, satellite offices/agencies, and roving motorized banking facilities. These distribution points are connected to a wide range of state-owned banking institutions including the Rural Credit Cooperatives (RCCs), the Postal Services Bank of China (PSBC), and the Agricultural Bank of China (ABC) – all of which have widely scattered networks. Distribution points also link to Village and Township Banks and private, for profit Micro Credit Companies (MCCs). PBOC policies have supported, and government agencies have actively promoted, the issuance of inexpensive bank accounts and cards to hundreds of millions of rural residents.⁵¹

The point here is that the banking system is extensive – it has an enormous physical footprint – not that it offers quality in comparison to private institutions. A recent analysis contrasts “China’s remarkably unsophisticated banks” with its well-developed technological infrastructure and soaring demand for financial services. Commercial banks, which are mostly state-owned, have traditionally focused mainly

⁴⁵ <https://sampi.co/taobao-villages-china-rural-ecommerce/> Aug. 2017; World Bank and PBOC (2018).

⁴⁶ CGAP Brief Dec. 2017; <https://sampi.co/taobao-villages-china-rural-ecommerce/> Aug. 2017; World Bank and PBOC (2018).

⁴⁷ CGAP Brief Dec. 2017; WB and PBOC (2018).

⁴⁸ Zhou, Arner, and Buckley, September 2015 . <http://hdl.handle.net/10722/220011>

⁴⁹ World Bank and PBOC (2018), pp. 7, 14, 28-42; <http://blogs.worldbank.org/psd/key-lessons-policymakers-china-s-financial-inclusion-experience>

⁵⁰ CGAP Brief Dec. 2017; World Bank and PBOC (2018), p.15.

⁵¹ Can China’s Ethos of Collaboration Work for Africa?

<https://www.financedigitalafrica.org/blog/2018/09/can-chinas-ethos-of-collaboration-work-for-africa/>

on servicing Chinese state-owned enterprises, neglecting the growing financial needs of SMEs and ordinary Chinese (World Bank data from 2014 showed only 9.6 % of Chinese adults having access to credit from a financial institution).⁵² The scale of market need prompted Beijing to invite foreign banks to serve rural populations that lack access to funding. Reforms were adopted in 2006 to permit private, including foreign, investors to establish rural commercial banks (RCBs), MCCs, and rural mutual funds.⁵³

China's mobile payment providers have built their solutions on top of banks' access and connectivity infrastructure. Alibaba and Tencent can access this infrastructure because they have bank card authorization in addition to their payment services licenses. Thus, their clients have usually already entered the DFS ecosystem by way of a bank card, mobile app, or online account. Platform customers load funds into their digital wallets through links to their bank accounts. As a result, Alipay and WeChat Pay can "piggyback" on banks' existing CDD procedures. A seamless, remote onboarding process is available to (digitally-connected) customers opening new mobile wallets.⁵⁴

Agent service points

Alibaba and Tencent started out with no "agent networks" as these are known elsewhere in the world.⁵⁵ To be sure, Alibaba has always needed some physical service points to facilitate sending and receiving goods, and to assist clients in conducting online trade. Hence, the Taobao service centers. These centers handle small sums of cash for e-commerce clients, mainly in rural areas, who do not have online accounts. But payments on the platform are digital. Alipay also provides cash-out and transfer of funds, and began charging for this in 2016.⁵⁶ For any account-opening and cash-in/cash-out needs, Alibaba and Tencent have relied mainly on the physical infrastructure of the banking system. This approach has worked well in urban areas, but extending services into rural China presented a challenge.

Rural conditions called for an expanded presence. In the case of Alibaba, this meant partnering with government in the Rural Taobao initiative. Alibaba adjusted the digital processes used in urban areas to allow some face-to-face support in rural areas, where people are less familiar with the internet, have fewer bank accounts or smartphones, and use more cash. Local government was a catalyst in the introduction of e-commerce at the village level. Village leaders lobbied province-level administrations to approve e-commerce trainings funded by the state. The e-commerce training led to village entrepreneurs setting up their own Taobao or WeChat shops, or becoming specialized e-commerce agents.⁵⁷ These service points primarily serve farming communities, which continue to depend heavily on cash. Linking these communities to e-commerce opportunities depends on providing some CICO services, and the Taobao shops typically do so. An example is given in Box 4.

*******Box 4. Taobao and CICO for farmers*******

An agricultural marketing company set up a network of vegetable collection agents in rural villages, serving over 250,000 farmers. The company is a Taobao partner and sells the collected produce on the Taobao platform. With the company's support, agents often pay cash to farmers who receive e-payments for their produce. Although most of the farmers have bank accounts or e-wallets, many are

⁵² <https://www.brookings.edu/blog/order-from-chaos/2018/02/08/whats-happening-with-chinas-fintech-industry/>

⁵³ Shrader and Duflos CGAP Working Paper March 2014, p. 31.

⁵⁴ www.financedigitalafrica.org/blog/2018/09/can-chinas-ethos-of-collaboration-work-for-africa/; BLOG 11 JANUARY 2018, <https://www.cgap.org/blog/what-can-mobile-money-make-possible-china-has-many-answers>

⁵⁵ <https://www.financedigitalafrica.org/blog/2018/09/can-chinas-ethos-of-collaboration-work-for-africa/>

⁵⁶ http://www.chinadaily.com.cn/business/tech/2016-10/12/content_27034665.htm; Ding Ding, et al.

www.elsevierdirect.com [undated].

⁵⁷ CGAP interviews.

unable to use e-money directly and need to cash out. At other times, the farmers may need to cash in, e.g. when buying seed or fertilizer on Taobao. The company eventually partnered with one of the state-owned banks, which created an app that processes CICO requests and transactions on customer bank accounts and e-wallets, and facilitates agent liquidity balancing.⁵⁸

More broadly, China began a push to expand branchless service points more than a decade ago, since much of the population was still not being reached. These efforts intensified around 2010 with major programs to set up “cash withdrawal service points” or “agent-based service points.” The service points are highly restricted in terms of activities and amounts.⁵⁹

A core driver here is government’s need to distribute transfer payments and subsidies in rural areas. China was piloting tailored bank card services as early as 2005 for rural residents and migrants in selected provinces through the RCCs.⁶⁰ Subsidy recipients living in remote areas historically had limited access to basic financial services, requiring an expensive and inefficient distribution system of cash payments. It was to address this problem that PBOC launched its pilot program in 2010 to test agent-based cash withdrawal services for rural residents, using debit cards linked to bank accounts. The subsidies usually come in small amounts at high frequency. To simplify the transactions and reduce costs, PBOC and relevant departments encourage local governments to provide subsidies to financial service providers for installing POS terminals.⁶¹ PBOC issued regulatory guidance on service points (see below) in the context of these rural transfer programs.

Regulation of agent service points

Government’s distribution push featured pilot projects using the “regulatory sandbox” method of adopting rules on a limited trial basis. PBOC’s 2011 *Notice on Promoting Bankcard Withdrawal Services for Rural Residents* established the policy objective of scaling up agent-based service points for cash withdrawal to cover nearly all rural towns in China. The notice prohibited these service points from accepting deposits and stipulated a daily cash withdrawal limit of RMB 1,000 (US \$150) per card (and a cap of RMB 10,000 per annum). The rules also limited agent fees.⁶² Through its 2012 *Guidance on the Pilot Program of Mobile Money Service in Rural Areas*, PBOC aimed to foster mobile payments, also using agents. A key objective of this pilot was to facilitate the transfer of subsidies and government transfers to rural households, and as of August 2013 it encompassed 500,000 agents.⁶³

Both pilots authorized the following transactions: bank transfers, account top-ups, balance inquiries, remittances, tax/bill payment, cash out of subsidies, and petty cash withdrawal. The pilot regulations also spelled out agent eligibility. Possible agents include agriculture organizations (e.g., agriculture supply cooperatives), MNO and post office outlets, convenience stores, supermarkets, and service outlets “permitted by other regulatory bodies.”⁶⁴ Under the pilot regulations, agents were *not allowed* to open accounts, take deposits, or handle any *cash-in transactions*.

⁵⁸ CGAP interviews.

⁵⁹ http://www.chinadaily.com.cn/business/tech/2016-10/12/content_27034665.htm; Ding Ding, et al. www.elsevierdirect.com [undated].

⁶⁰ PBOC (2008), “Tailored Bank Card Service For Migrant Rural Workers Expanded to 14 Provinces and Municipalities.”

⁶¹ World Bank and PBOC (2018), pp. 28-30.

⁶² A translation of the Notice was not available – but see discussion of 2014 fee cap below.

⁶³ Shrader, Leesa and Eric Duflos, “China: A New Paradigm in Branchless Banking?” CGAP Working Paper March 2014, pp. 24-5; World Bank and PBOC (2018), pp. 7, 14, 28-42.

⁶⁴ Shrader and Duflos CGAP Working Paper March 2014, pp. 24-5.

Further, in 2014 PBOC issued Guidelines to improve rural financial services outreach to the agricultural sector.⁶⁵ The Guidelines widen the scope of agent services, encouraging provision of cash remittance (over the counter), electronic bank transfer remittance, and utility payment services. The Guidelines urge PSBC, the RCCs, and others to increase service points and offer services tailored to populations in need, particularly rural migrant workers. Service points should be located in villages or townships that lack financial institution outlets. PBOC offices should cooperate with other relevant departments to develop new methods of payment, to ensure that bank cards and service points can serve a variety of institutions non-exclusively,⁶⁶ and to see that the system addresses the needs of agriculture. The Guidelines also set agent transaction limits and promote careful oversight of service points by the responsible financial institutions (further details are given in Box 5).

******Box 5. PBOC Guidelines on service points*******

The 2014 Guidelines set transaction and fee limits, while placing other aspects of agent behavior under the responsibility of the principal within general parameters.

Ceilings:

Transactions are capped at RMB 2,000 (US \$300) but PBOC offices above the local level may adjust the ceilings in light of business development, risk control capacity, and other factors. For the bankcard services targeted to rural migrant workers (PBOC 2011), cash withdrawals should not exceed 20,000 RMB (US \$3,000) per card per day.⁶⁷ Cash withdrawal fees are set at 0.5% of the amount, with a floor of 1 RMB and a ceiling of 20 RMB. Principals (banks and acquiring institutions) must post their fee scales on the premises of the service points. They are not permitted to charge fees on balance enquiries, nor on the first cash withdrawal from each bank card or the first cash withdrawal each month.

Oversight by principals:

The Guidelines require banking institutions to set and monitor transaction ceilings for each agent in accordance with a risk-management plan, and report to district PBOC branch offices. Additionally:

- Principals should strengthen internal control and oversight of branch offices and service points.
- The acquiring institution should provide necessary funding to the service points, strengthen security and cash management capacity, and strengthen risk awareness.
- Principals should train their agents, inspect them on a regular basis, and establish complaints-handling and disciplinary mechanisms.
- Branch offices of PBOC should examine the operational performance and risk profile of the service agencies regularly, report any problems in a timely way, and cooperate with the authorities on risk management and crime prevention.

The restriction on cash-ins, mentioned above, no doubt made the distribution system much less attractive for the unbanked, less sustainable for the agents, and less convenient for customers seeking to add e-value and shop online. The cash-in constraint was not applied uniformly across the board, and

⁶⁵ Guidelines of the PBOC on Comprehensively Promoting Improvement of Rural Payment Service Environment, PBOC Document [2014] No. 235.

⁶⁶ By mid- 2015, all card-issuing banks and relevant acquiring institutions were required to launch cross-bank payment business through their service points.

⁶⁷ This provision seems to be worded not as a fixed limit but as a guideline.

was reportedly relaxed by PBOC early in 2019. Thus, while Taobao agents have apparently provided limited CICO services for years, CGAP researchers recently found that these transactions (e.g. cash-ins to top up client e-wallets) are becoming more routine and widespread. At the same time, PBOC reinforced the requirement that each e-wallet must be tied to a bank account.⁶⁸ These changes follow a pattern of policy adjustments over the last several years, in which the scope of agent activities has gradually been widened and PBOC branches have been given discretion to loosen some restrictions still further.⁶⁹

The scope of agent service point transactions also reflects China's policy of tightly linking payment services to the banking system. As a result, cash-ins serve both e-wallets and bank accounts, with transferability between the two making them nearly seamless, if not functionally equivalent. E-wallets in China are basically mobile applications with payment functionality linking bank accounts to specific payment opportunities such as e-commerce.⁷⁰ Third-party payment providers such as Alipay and Tenpay sustain this linkage – these firms have TPP licenses with special “bank card acquirer” privileges, enabling them to accept bank cards for payments, CICO, and wallet top-up.⁷¹

Results of the distribution push

Data collected by PBOC and the World Bank show the impact of China's push to increase service points. By the end of 2016, agent-based service points had reached 983,400, representing nearly half of total physical service points (including branches, ATMs, and agents) and covering more than 90% of administrative villages across China.⁷² Between 2011 and 2016, the number of ATMs grew 275% to 924,000, while POS devices increased more than five-fold to 24.5 million (though faster urban growth meant that the share of rural service points in these totals declined).⁷³

Agent service points are hosted at a variety of sites including post offices, public clinics, and commune offices. Some provinces have encouraged resource sharing between agent-based service points and e-commerce outlets in rural areas. Approximately 2% of agent service points were set up by nonbank digital payment providers (e.g., Alipay and Tenpay). These appear to include at least some of the Rural Taobao service centers, which primarily facilitate e-commerce sales but can be upgraded to act as agent-based service points for payments and other financial services.⁷⁴ (Further detail is given in Box 6.)

*******Box 6. Data on distribution results *******

China's distribution push over the last decade has yielded such outcomes as the following.

*Agent service point activity flows as of 2016*⁷⁵

- **Payments:** 495 million transactions totaling RMB 424.78 billion (US \$63.72 billion), representing growth rates of 14% and 6% (year-on-year), respectively.
- **Cash withdrawals:** 52% of transactions of overall transactions (30% of transaction value), averaging RMB 493 (US \$74) per withdrawal.
- **Transfers and remittances:** 27% of transactions (68% of value), averaging RMB 2,131 (US \$320).

⁶⁸ CGAP interviews, June 2019.

⁶⁹ World Bank and PBOC (2018), pp. 28-29.

⁷⁰ Shrader and Duflos 2014, p. 25.

⁷¹ World Bank and PBOC (2018), pp. 7, 30.

⁷² More precisely, median density of agents is 88 per 100,000 population, according to official figures, as compared to a total of 183 per 100,000 for all physical access points. World Bank and PBOC (2018), p. 14.

⁷³ World Bank and PBOC (2018) p 27.

⁷⁴ World Bank and PBOC (2018), pp. 7, 14, 28-42; <http://blogs.worldbank.org/psd/key-lessons-policymakers-china-s-financial-inclusion-experience>

⁷⁵ World Bank and PBOC (2018), pp. 14, 28-30.

- **Accounts and cards issued by banking institutions (2006-2016):** accounts increased from 2 billion to 8.3 billion; debit cards rose from 1.1 billion to 5.7 billion.

G2P transfers

- **Disbursements to beneficiaries (2010 to 2013):** RMB 1.78 trillion (US \$265 billion) disbursed to recipient accounts and bankcards in 76 billion transfers. Figures include special cash withdrawal programs for migrant workers and farmers, rural insurance, and subsidies for rural households.
- **Rural distribution network (2010 to 2013):** Over 70,000 financial institutions and branches connected to PBOC’s payment and settlement systems. Farmers withdrew funds from over 670,000 service outlets.
- **Rural bank cards and terminals (as of end 2012):** 1.35 billion bank cards issued; 4.17 million bank card terminals in operation.⁷⁶
- **Benefits provided to rural areas (2017):** State medical insurance provided to nearly 900 million people; annual subsidy of 600 RMB (US \$ 90) sent to all rural families; about 40% of all households and 68% of rural households reported having received subsidy or grant payments.⁷⁷

Concrete examples of the distribution push are provided by two state-owned banks, PSBC and ABC. PSBC began deploying agent-based service points in 2010. Postal bank agents can offer savings deposits, insurance, and investment products in addition to cash withdrawal. Selected agents are usually affiliated with merchants or stores. Business operation and risk prevention trainings are required, and PSBC conducts onsite and offsite monitoring of agents. In 2013, PSBC’s 108,700 service points covered nearly all administrative villages across China, and handled over 6 million transactions amounting to almost RMB 1.5 billion (US \$245 million).⁷⁸ The bank had more than 893 million accounts, and issued over 400 million debit cards largely to students, self-employed entrepreneurs, migrant workers, and pensioners. ABC has branches and sub-branches in every province. As of 2012, ABC had issued more than 500 million cards and initiated a wide range of partnerships with insurers and other players in areas where it has no outlets, including agent banking pilots with PBOC.⁷⁹

As in many countries with large agent networks, service points in China (especially those in rural areas) often have *low levels of activity*. For example, in the case cited above, PSBC service points handled only an average of about 55 transactions per year – little more than one per week. Research in 2017 found that a cluster of rural districts in Zhejiang province had 2,800 service points, of which 20% had 0 to 2 transactions per month and 14% had 3 to 30. This suggests that the rapid expansion of the agent network did not address the closely linked issues of consumer demand and agent sustainability. A number of demand-side causes for the low level of traffic could be cited – e.g. consumers moving to online channels and declining population in rural areas. There is also evidence that rural clients prefer passbooks and bank branches to bank cards and mobile phones.⁸⁰

⁷⁶ <http://www.pbc.gov.cn/en/3688110/3688172/3713039/index.html> ; PBOC Annual Report 2012, pp. 87-9.

⁷⁷ World Bank and PBOC (2018), pp. 28-30.

⁷⁸ Sparreboom, Pete and Eric Duflos, “Financial Inclusion in the People’s Republic of China: An analysis of existing research and public data,” CGAP and the Working Group on Inclusive Finance in China, China Papers on Inclusiveness No. 7 August 2012. BLOG 13 MAY 2014 Postal Savings Bank of China: Inclusive Finance in Rural China <https://www.cgap.org/blog/postal-savings-bank-china-inclusive-finance-rural-china>

⁷⁹ Shrader and Duflos 2014, p. 31.

⁸⁰ Shrader and Duflos 2014, pp. 44-5. World Bank and PBOC (2018), pp. 14, 30.

Supply-side constraints are at least as daunting. First, financial sector authorities (and consequently providers as well) have traditionally viewed expanding service point coverage to all villages as a social responsibility rather than as a strategic, market-based decision. The Rural Taobao initiative is distinctive in this regard, being a public-private partnership requiring significant strategic commitment and investment by the Alibaba group.⁸¹ For other providers, in contrast, state ownership and state support – rather than a strong business case – appear to drive rural outreach. Second, balancing interoperability and investment incentives poses a policy challenge. PBOC has developed the financial infrastructure for interbank clearing in rural areas and urged acquirers to accept debit cards issued by other institutions. But this goes against acquirers’ incentives to retain exclusive service points as they develop their market share, and can cause them to delay installing equipment if it means sharing the service points. Third, agents in China have limited functionality. At the same time, agent service fees are capped by regulation, which often means that agents cannot cover operational costs by relying mainly on cash withdrawal services. Thus, expanding agent functionality would strengthen the viability of the business model. But this would require a change in PBOC’s conservative approach to controlling the risks of financial services outreach.⁸²

While the data on agent activity levels do not distinguish public from private sector agents, government-provided service points are clearly predominant.⁸³ It seems likely that agents serving private sector providers such as Ant are more active and viable on average than public sector service points, especially given the scope of aggregated services on offer at the private sector agent – but any definitive finding here awaits further research. In any case, a low level of rural agent activity is consistent with experience in other parts of the world, and indeed China’s figures compare favorably with global baselines.⁸⁴

Platform providers have a commercial incentive to keep their users’ money digital and to reduce cash-outs. According to PBOC, 66.5% of people in rural areas were already using digital payments by 2017, compared to 76.9% in the country as a whole. (In contrast, a World Bank/PBOC study stated that 31% of adults reported in 2014 having used any digital payment method in the past year). A 2018 report (Worldpay) found that almost two-thirds of online sales and more than one third of payments in stores were being made through leading mobile wallet operators including Alipay and WeChat Pay. This is consistent with the overall transition away from cash, but at odds with the need to meet the cash needs of ordinary citizens, especially in rural zones. It also tends to marginalize older, less tech-savvy spenders and the less well-off. Recognizing the widespread need for ready cash, PBOC in 2018 urged sales outlets and service providers not to discriminate against those wanting to pay in cash: "Cash has been rejected for some consumers...This damages the legal status of the yuan, and hurts consumers' rights to choose payment methods."⁸⁵

⁸¹ <http://blogs.worldbank.org/eastasiapacific/e-commerce-poverty-alleviation-rural-china-grassroots-development-public-private-partnerships>

⁸² World Bank and PBOC (2018), pp. 14, 30.

⁸³ Shrader and Duflos 2014, pp. 44-5. World Bank and PBOC (2018), pp. 14, 30.

⁸⁴ An estimated 57% of all mobile money agents globally have less than one transaction per month, per GSMA data. Hernandez, Emilio and Chrissy Martin, "How E-Commerce Is Transforming the Idea of the Rural Agent," CGAP Blog March 26, 2019, <https://www.cgap.org/blog/how-e-commerce-transforming-idea-rural-agent>.

⁸⁵ Harvey Morris, "China's march to be the world's first cashless society: China Daily contributor," *THE STRAITS TIMES*, APR 8, 2019, <https://www.straitstimes.com/asia/east-asia/chinas-march-to-be-the-worlds-first-cashless-society-china-daily-contributor>; World Bank and PBOC (2018), p. 17.

4. Lessons

China's experience is impressive in terms of the scale and pace of change, but also in many ways idiosyncratic. It highlights several critical needs at the level of policy and regulation, which China faced with varying degrees of success. These include:

- Coordination by private and public sectors to encourage DFS innovation and experimentation, and to extend distribution systems.
- Integrated approaches to regulation, ensuring consistent, arm's length treatment of platforms aggregating financial and other services.
- Accommodating cash, and ensuring rural access to cash distribution points, while moving toward a cash-free system.
- Addressing new risks of anti-competitive behavior arising from aggregation, and risks of privacy breaches and (private and public) surveillance due to control of mass customer data.

There are lessons here for policymakers elsewhere.

Experimentation and regulatory development

A key lesson of this experience is the value of the regulator taking a hands-off approach, allowing new experiments outside the legacy banking system to proceed unhindered but carefully monitored. These experiments depend on active leadership and innovation by the private sector. The case of China illustrates how the rise of disruptive firms such as Alibaba, and especially their entry into the financial services market, triggers a life-cycle of regulatory and policy development. Once the new models have gained traction, a coordinated regulatory approach is needed to manage the risks of the new DFS models. Regulatory development is needed to open up the market to new competitors and to rationalize the payment systems framework.

The process ordinarily applied to payments licenses is unlikely to be sufficient unless coordinated regulations are in place to account for the platforms' other activities. In China, government matched the high level of aggregation in Alibaba and others with its own form of integration across regulators, ministries, and levels of state administration. In other countries as well, coordination across government is likely to be critical in addressing specific problems thrown up by aggregation, such as monopoly power, governance of financial institutions, data protection, and regulatory arbitrage.

China's sequence of regulatory development has some similarities with other countries, especially where controlled experimentation takes place in a regulatory sandbox. Yet China is in some ways unique. Government's ability to monitor, coordinate, and support financial sector activity makes formal regulation less necessary. Distinctions that may be clear in other settings – e.g. between public and private sector, between political and regulatory decisions – are less so in China. This feature greatly facilitates coordinated action across administrative and sectoral lines, but also raises concerns about party influence on regulatory decisions as well as data protection and surveillance (see Box 7 below). Policymakers in China have pursued a "rectification" of rules governing DFS – taking an integrated approach to design a coherent framework while substituting arm's length regulation for less formal, hands-on state intervention. This represents an incremental shift toward the regulatory formality and transparency that has proven vital for safe, competitive markets elsewhere.

In light of the conservative, state-dominated nature of China's financial system, it seems all the more surprising that businesses such as Alibaba and Tencent could launch – and succeed with – their

disruptive models of digital platform-based DFS. The central lesson for other countries looking at China's experience relates to this interplay of stability and change. Legacy banking systems and regulatory frameworks often constrain progress, upholding a stable equilibrium. A key breakthrough is for the regulator to take a hands-off approach while allowing new experiments outside the circle of entrenched incumbents. One question that naturally arises is why China did not concentrate its efforts on the licensing of MNOs as e-money issuers, a strategy that has revolutionized finance in other developing areas and Africa in particular. The answer (though perhaps unsatisfying) appears to be that the platform innovations, combined with already extensive digital and banking infrastructure, made for a better solution in the circumstances.

Access points

The China case illustrates a distinctive approach to developing distribution networks. Alibaba and its peers pursued a digital-first approach, linking payments and eventually other financial services to a core sales business in cyberspace. The physical dimension came in alongside, with the delivery of e-commerce goods, and then the establishment of service centers and agents handling cash-out and (eventually) other transactions. The experience of Alibaba and Tencent shows that new models using digital-only methods can push the distribution of financial services quite far. But getting to the "last mile" also requires a parallel expansion of digital infrastructure, access to accounts, service point networks, and regulatory safeguards. In particular, the pursuit of a cashless system must, in the near term, coexist with the rapid increase in service points to bring cash-dependent rural populations into an inclusive financial sector. A key to success here is constructive engagement between public authorities and private enterprises – enterprises that can mobilize significant capital to realize the network effects of expansion beyond saturated urban markets.

The build-out of the physical, digital, and regulatory infrastructure for distribution has taken a form that reflects China's specific political and economic systems. The distribution system expanded as part of a state-party drive for financial inclusion that worked primarily through the core public sector financial institutions (ABC, PSBC, and the network of RCCs), with private sector institutions (MCCs, RCBs, Rural Taobao Centers⁸⁶) providing added outreach. Policy initiatives pushed the rapid growth of service points. This involved pilot projects combining massive social transfer payments, directives to expand branch and agent networks, and a regulatory sandbox to test a regime of agent banking rules.

This impressive effort has still not addressed a few key issues. One is the sustainability of agent service points – a problem illustrated by the low level of activity among many rural agents (though consistent with experience elsewhere, especially in the developing world). A second issue is the distribution system's heavy dependence on internet and smartphone access, which continue to be available only to a minority (albeit growing) of rural residents. A third problem is supervision of the thousands of distribution points. China's approach relies heavily on restricting agents' activities, leveraging existing rural infrastructure (e.g. state financial institutions, post offices, local government facilities, Taobao agents) for distribution, and preserving the dominant role of the banking system. This approach facilitates public oversight, but at a cost.

New risks linked to data and aggregation

Certain risks are inherent to the platform model, e.g. those arising from data handling and aggregation of business lines. DFS providers such as Ant Financial reside on digital platforms, relying on masses of data to target customers and using available internet connections to link to those customers. Data – its collection, manipulation, and monetization – is the heart of the business model. At least until PBOC

⁸⁶ Many MCCs and RCBs are themselves Taobao agents.

established a central clearing house and credit information system, the platforms' exclusive ownership of customer data greatly enhanced their market power. Government aims to curtail this power but is facing resistance. Regulatory initiatives in the last several years have brought greater discipline and public oversight. Data issues that have been prominent elsewhere are also likely to intrude, such as discriminatory algorithms, and the risk of security breaches. But government's omnipresence and control in cyberspace may make these risks less severe in China – while giving rise to other concerns (see Box 7).

*******Box 7. Social credit and surveillance concerns*******

Leading platforms' amassing of financial and personal data on customers has prompted fears of intrusive corporate surveillance. Beyond this is the prospect of governmental surveillance. China is experimenting with a "social credit system" that processes personal data and issues scores to citizens, businesses, and social organizations based on their activities. The scores are published in order to foster good behavior by "providing the trustworthy with benefits and disciplining the untrustworthy." In over 40 Chinese cities, local governments have instituted mandatory pilot social credit systems. Those on the "trustworthy" (red) list might get a reduced tax bill, while the "untrustworthy" (e.g. those who fail to pay taxes or follow traffic rules) might have their government welfare benefits reduced or be barred from public sector employment. A nationwide system could be up and running in the next several years. Tencent and Alibaba apparently have been enlisted by PBOC to participate in the social credit system, raising the issue of third-party data security.⁸⁷

Further, government and PBOC have designed a state-issued electronic currency. The new currency would resemble cryptocurrencies but be controlled and managed by the central government – giving it sweeping new powers to fight crime, manage the economy, and track how citizens spend their money. Currently, many transactions on the Chinese platforms move exclusively between digital wallets. This forces government to go through the platforms' privately owned parent companies (e.g., Ant Financial, Tencent), if it wants to track and scrutinize those activities. The new cybercurrency would sidestep this problem.⁸⁸

Aggregation is key to the platform model. Among the risks it entails is the tendency to blur roles and responsibilities. Some financial products, such as loans obtained through Ant Financial, are (or were) in fact provided by traditional financial institutions using Sesame Credit on the Alibaba/Ant platform. Here, Ant Financial has served as both a credit bureau and a wholesaler of bank credit. At the same time, Ant offers its own retail products, from payments to money market investments. The risks arising from Ant's extension of its market power across multiple product lines as well as credit reporting prompted PBOC to intervene.

Aggregation sharpens issues of competition, conflict of interest (being both the platform and a seller on the platform), and abusive practice. This heightens risk to consumers and potentially the financial

⁸⁷ NICHOLAS LOUBERE, "China's Internet Finance Boom and Tyrannies of Inclusion," *China Perspectives*, No. 2017 / 4; Genia Kostka, "What do people in China think about 'social credit' monitoring?" *The Washington Post*, March 21, 2019, <https://www.washingtonpost.com/politics/2019/03/21/what-do-people-china-think-about-social-credit-monitoring/>

⁸⁸ Raymond Zhong, "China's Cryptocurrency Plan Has a Powerful Partner: Big Brother," *The New York Times*, Oct. 18, 2019, <https://www.nytimes.com/2019/10/18/technology/china-cryptocurrency-facebook-libra.html?action=click&module=Well&pgtype=Homepage§ion=T...>

system. One response by regulators elsewhere has been to restrict vertical integration where this creates opportunities for anti-competitive behavior.⁸⁹

Many countries (including China) place limits on cross-ownership between financial companies and firms in other industries, a constraint that has often arisen in the context of mobile money. Separating corporate structures can address this issue in some cases, but in others the permitted ownership ceiling may be too low to allow for the providers' desired level of coordination and control. If for no other reason, such restrictions can be justified by the need to have financial institutions – especially large ones accepting funds from the public – managed in the interest of sound finance rather than serving to profit another firm in a different industry.

⁸⁹ EU regulators, for example, have sanctioned Microsoft and Google for such practices. Similarly, regulators in the U.S. and EU are investigating possible abuses by Amazon, including allegations that Amazon is manipulating its platform algorithm to favor its own products. Dana Mattioli, "Amazon Changed Search Algorithm in Ways That Boost Its Own Products," *The Wall Street Journal*, Sept. 16, 2019, https://www.wsj.com/articles/amazon-changed-search-algorithm-in-ways-that-boost-its-own-products-11568645345?mod=hp_lead_pos4