

The Future of Fintech Cooperation

How Financial Institutions and Fintechs are working together to drive the next wave of industry innovation.

A report from Kapronasia in collaboration with Ant Financial

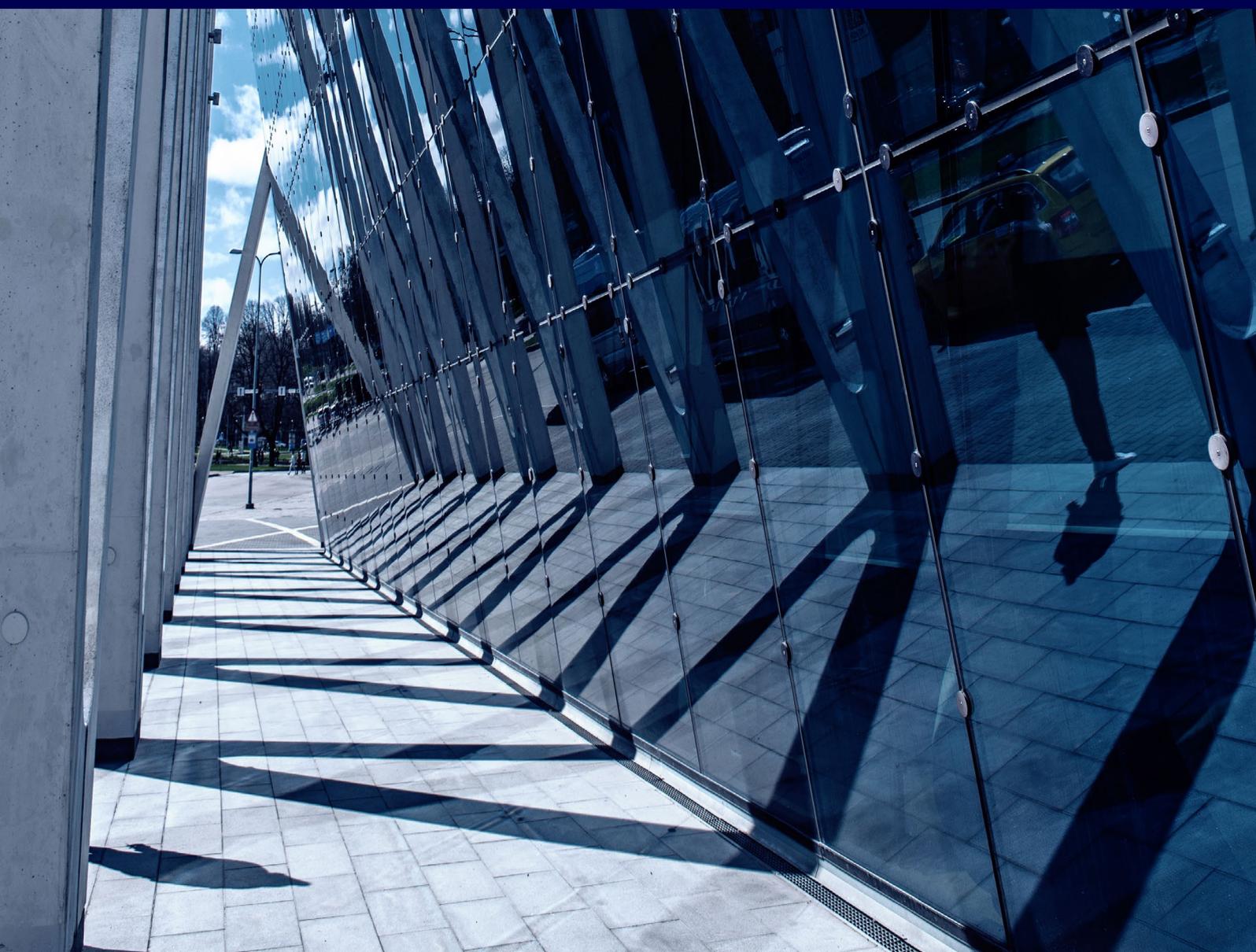


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Methodology

The Future of Fintech Cooperation from Kapronasia produced in collaboration with Ant Financial is based on both primary and secondary research. Secondary research sources include both internal and external public and private databases. Primary research includes interviews with bankers, financial institutions, technology providers and industry experts.

Executive Summary

Today's financial industry is going through rapid change. Fintech companies are combining finance and technology in new and innovative ways to completely redefine existing value chains. These fintechs are launching innovative products and services that promise to disrupt one of the oldest industries in the world, shake up norms that have been in place for decades, and change the business models of everything from payments to lending.

In the early days of fintech, a significant amount of development came from third-party non-financial companies. This sudden disruption left many industry insiders uncertain and worried about the future of the traditional financial industry. Several predicted that fintechs would completely upend the financial sector as we knew it and force existing banks to become industry utilities, or even be rendered obsolete.

In response to the 'rise of fintech,' banks invested heavily. Many set up fintech focused corporate development arms and internal innovation labs. Others ran incubators and hackathons to work more closely with fintech startups. Suddenly banks were hiring for Chief Innovation and Digital Officers, something that would have been unheard of even a few years ago.

Yet despite the enthusiasm and excitement, as they started to grow, many fintechs began to recognize that the banks did indeed provide some critical advantages, including licenses, relationships, trust, and large balance sheets. Banks, for their part, also realized that, despite all the hackathons, they often struggled to match the agility of the fintech firms.

Today's scenario is far from the 'win-lose' scenario that many predicted. Instead, the industry has moved towards a symbiotic relationship where new 'win-win' business models dominate. Increasingly, teamwork and cooperation are the new normal, rather than competition and disruption.

The most remarkable result of this cooperation has been greater agility. By working with fintechs, banks have been able to bring products and services to the market faster and more cost-effectively. Similarly, fintechs have been able to develop new and innovative business models and then work with banks to scale. Customer acquisition costs would crush a digital wealth-manager starting from scratch today in Asia. However, by working with a bank, and leveraging the bank's existing customer base, the fintech could save costs, iterate rapidly, and expand quickly.

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This increased cooperation is even more apparent as finance becomes embedded in all aspects of customers' lives. An excellent example of this is a ride-sharing platform like Didi or Uber: there is a financial payment that happens at the end of the ride, but it typically occurs automatically with very little customer input. 'Embedded finance' has been developing for many years in China, but will be a crucial trend outside of China in 2020 as finance plays an increasingly important, yet decreasingly visible, role in our lives. The financial exchange transaction is part of the transaction, but not the whole transaction. Learning from China's examples, companies like Grab Financial in South East Asia and Nubank in Brazil are combining products, services, and data in innovative platforms that are much more than just mobile wallets.

The rise of embedded finance has also helped fuel the growth of ‘alternative data.’ Although the industry has always understood the importance of data, for many years, ‘big-data’ and ‘data analytics’ were terms that were tossed around frequently, but often represented little more than ideas; it has only been recently that the reality has caught up with the hype. Today, once a technology platform has a user’s consent, it can capture, analyze, and utilize datasets to better understand customer risks, challenges, and come up with insight-driven solutions.

These insights are increasingly coming from non-traditional data sources. Today, anonymized customer footprints, whether retail or commercial, cover everything from food-delivery choices to how promptly we pay our utility bills. By capturing and pulling together alternative data, financial providers can provide much more personalized and practical financial products and services to clients on a level of detail and scale that could have never been accomplished before.

An SME scooter salesperson in Hangzhou who previously was unable to access bank financing suddenly can use an app on his phone to borrow tens of thousands of RMB in working capital for his small business. Historically it would have been expensive for a bank to lend to that business as there would have been very little understanding of the SME’s financial situation and risk profile. However, digital technology has made it easier to understand the needs of customers better, and through close cooperation with fintechs and banks, the SME can access capital, the bank can leverage its deposit base, and the fintech can charge a small fee to facilitate the transaction. Win-win-win.

The primary beneficiary of increased cooperation between fintechs and financial institutions is, of course, the customer. Never have retail and commercial clients around the world had access to as many different choices of financial services providers. Where a few decades ago, the only option to move money cross-border was a traditional bank transfer, today, both retail and commercial participants have access to a myriad of products and services.

In this Future of Fintech Cooperation white paper produced by Kapronasia in conjunction with Ant Financial, we look at the fintech industry today and how we got here. We then explore how cooperation between fintechs and banks is re-defining the industry in China, analyzing the tangible results as well as potential risks. Finally, we project where fintech cooperation models are going, the key technologies to watch out for, and the segments of the market most likely to be impacted.



The Financial Industry Today

The model of modern-day banking can be traced back to 14th century Italy, where agents provided rudimentary lending and guarantor services to merchants. Over the subsequent centuries, the financial industry has developed to be one of the largest sectors in the world.

Despite the size, or rather because of it, the financial industry is also one of the least competitive. Until recently, high barriers to entry have made it very difficult for new companies to enter the market, much less, scale enough to be successful. In China, UK, India, and France, the top five banks in each country control over 50% of the market – an incredible consolidation of business among only a few providers.¹

Incumbent banks often see little need to improve their products or services. In many markets, competition is low, and customer service is measured against other banks, rather than recognized customer service leaders like Amazon.

Although overall China banking customer satisfaction averaged 8.0/10 in 2016 and 2017, there is still a customer service gap to fill for financial institutions.² A survey done by the China Association for Quality shows that millennials still expect more convenient banking services than they are getting today.³

Exacerbating the situation is the fact that most financial institutions, by their fundamental nature, are very capital-intensive businesses. They run extensive physical branch and ATM networks, employ teams of front, middle, and back-office staff, and have significant technology footprints which typically require large upfront and ongoing maintenance costs. Registration cost alone to set up a bank in the United States can be well into the millions of dollars, and maintaining one checking account for a customer can cost US\$250 to US\$400 per year, according to the American Bankers Association.⁴

To maintain profitability, financial institutions must pass a significant amount of that cost on to their customers. A retail customer in the U.S. pays an average of \$163



A Medici family wedding tapestry. The Medicis were one of the first banking families of Italy and at one point, at least half of Florence's population worked for the Medici family in some capacity.

1 CIW, "China online banking dropped by 6.8% in Q2 2017", China Internet Watch, <https://www.chinainternetwatch.com/22608/online-banking-q2-2017/>, Jagoinvestor, "Best bank in India review", <https://www.jagoinvestor.com/2012/10/best-bank-in-india-review.html>

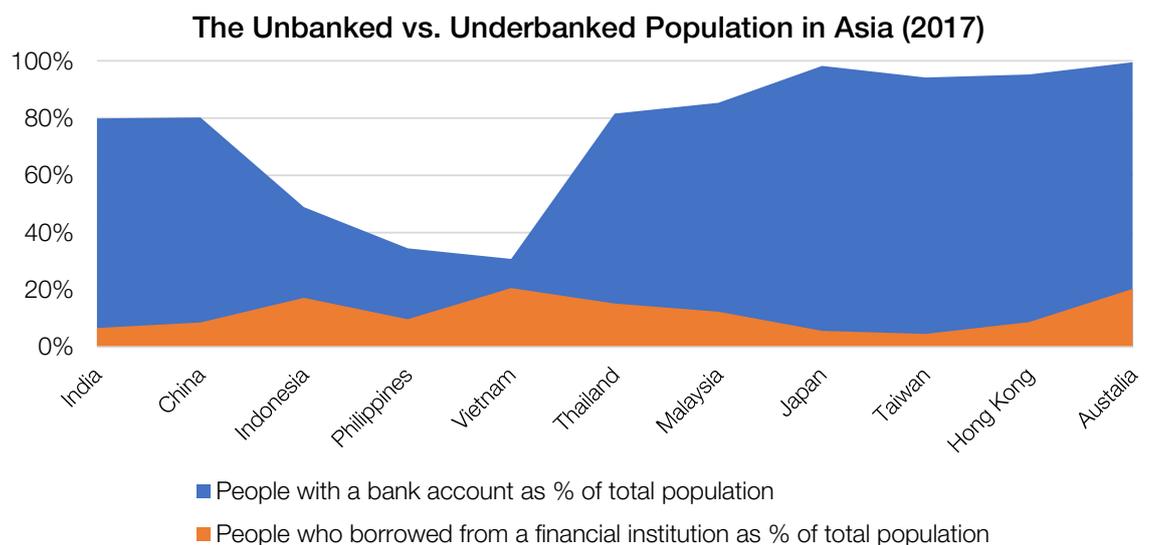
2 J.D.Power, "2017 China retail banking satisfaction study", <https://www.jdpower.com/business/press-releases/2017-china-retail-banking-satisfaction-study-rbss>, J.D.Power, "2016 China retail banking satisfaction study", <https://www.jdpower.com/business/press-releases/2016-china-retail-banking-satisfaction-study>

3 China Association for Quality, "2016 Banking Customer Satisfaction Evaluation Results", <http://www.caq.org.cn/html/zyfw/zlsjzk/6144.html>

4 T Spaid, M Branton, "The Profitability of the Average Checking Account", Bank Director, <https://www.bankdirector.com/index.php/issues/retail/the-profitability-of-the-average-checking-account/>

per year in banking fees.⁵ While these fees have little impact on large multinationals or corporates, they often hit consumers and SMEs hard, many of which remain underbanked or wholly unbanked.

According to the World Bank, in 2017, 1.7 billion adults around the world had limited access to a formal bank or mobile money account or considered ‘unbanked.’ This number has fallen from 2 billion in 2014, primarily due to the development of digital ecosystems, especially in India and China, but it is still a formidable number.⁶ Financial inclusion is a challenge in not just developing countries in Africa or remote rural areas of Asia, but many larger cities also have a significant ‘underbanked’ population, or effectively individuals that have access to a bank account at a financial institution, but may not be able to access financial products such as lending or savings products. In 2017, according to the World Bank, only 6.6% of Indians and 5.7% of Japanese consumers borrowed from a financial institution. Even in the US, 16% of the population were under-banked in 2018.⁷



Source: World Bank Global Findex 2017, Kapronasia Analysis

⁵ R Barrington, "The latest MoneyRates update on bank fee", Money Rate, <https://www.money-rates.com/research-center/bank-fees/>

⁶ World Bank, "2017 Global Findex", https://globalfindex.worldbank.org/sites/globalfindex/files/chapters/2017%20Findex%20full%20report_chapter2.pdf

⁷ Federal Reserve, Report on the Economic Well-Being of U.S. Households in 2018, <https://www.federalreserve.gov/publications/2019-economic-well-being-of-us-households-in-2018-banking-and-credit.htm>

Beginning of Fintech

Around 2015, the financial industry started bandying about the term ‘fintech.’ A combination of finance and technology, fintech offered the promise of transformative business models supported by the latest technology to create new financial products and services, as well as streamline existing business models to lower cost and increase efficiency.

Technology and the financial industry have had a long history. The first use of computer technology in the financial sector was by Bank of America in 1954.⁸ Since then, information technology has grown to play an outsized role in the financial industry. Each day, zillions of electronic messages are passed between banks, shared service, market infrastructure providers, and various other market participants. Today, speeds are measured in nanoseconds and transactions in hundreds of thousands per second, a far cry from the original Bank of America platform, which processed 12,000 characters per second.

‘Fintech’ goes beyond ‘IT infrastructure’ with the promise of leveraging technology to change the very nature of the financial industry through the creation of new, more cost-effective and accessible channels and platforms to do everything from sending money around the world, to borrowing money for short term funding needs.

From 2015 onwards as the focus on fintech gathered pace and more start-ups launched in the space, governments and third-party organizations became involved, which only increased the excitement. Former bankers who had just survived the financial crisis and technologists looking to create the next unicorn came together to create new companies and industry conferences in 2015 and 2016 were awash with innovation zones and fintechs that promised to change the nature of the industry and disrupt the incumbent financial services providers.

In response, banks hurriedly set up innovation centers, venture capital arms, and hackathons as they scrambled to get ahead of what was expected to be a crushing wave of innovation. Singapore’s DBS bank was one of the first of many banks to hire a Chief Innovation Officer as banks started sounding more like Silicon Valley start-ups than hundred-year-old staid institutions. In total, in just 2018, financial institutions made \$6.4 billion in fintech related investment deals.⁹

Chief executive of DBS, Piyush Gupta, once said: “Banks need to stay competitive in the new era of fintech, especially as digital banks more technologically savvy and nimble.”¹⁰ If they wanted to keep up, banks would need to change.

A Global Perspective

Digital transformation is far from being just a China story. Financial institutions and legislators around the world have been in a competitive rush in recent years to figure out the best way to streamline and direct the future development trajectory of the industry by harnessing technology advancement, but also safeguarding the existing

⁸ Bank of America, “bank of America revolutionizes banking industry”, <https://about.bankofamerica.com/en-us/our-story/bank-of-america-revolutionizes-industry.html#fbid=kXB9XBI36i9>

⁹ A Goel, “Last year, we said banks would buy & invest more in startups – what happened?”, Medici, <https://gomedici.com/we-said-banks-would-buy-invest-more-startups-what-happened/>

¹⁰ Finews.asia, “DBS Chief: banks have not dealt successfully with Fintech”, Finews.asia, <https://www.finews.asia/finance/28102-piyush-gupta-banks-have-not-dealt-successfully-with-fintech>



financial system and consumers. As a result, various approaches have emerged and are currently being deployed and validated.

The European Union is betting on a bank-centric model. An open-banking scenario in the European model implies the emergence of numerous networks of API-enabled relationships between traditional providers and fintechs, where the emerging digital ecosystems back-ends remain dominant and maintained mostly by banks. Arguably this is a good approach to preserve the status quo and interests of current players, but also gives plenty of growth opportunities for new entrants in the fintech space. Realistically, and as certain commentators observe, certain European banks seem to consider open-banking more of a “compliance issue,” than an opportunity to profoundly change the way they do business and meet end clients’ needs.¹¹

Across Asia, another variation has arisen: virtual banking. In this scenario, the emphasis is on licensing technology companies, or technology-company-dominated joint ventures which offer financial services, often without the involvement of an incumbent bank. Technically speaking, in the framework of emerging markets where the existing legacy of traditional providers is not as pronounced as in developed markets, this may prove to be a winning formula. A traditional bank, in its ideal form, is not able to amass or analyse the alternative data sets that have rendered the Chinese Taobao villages a scalable reality and an example working model.

In the USA, leading behemoths such as JPMorgan, Citigroup, and Goldman Sachs have been at the forefront of digital transformation, spending billions of dollars annually in either internal capacity-building efforts or on well-calculated rounds of programmatic M&A or partnerships. Leading US banks were the first banks to start calling themselves technology companies as early as 2017 and with this, immediately started reforming their corporate culture from one where you stop being a bank with an IT department into a financial services giant that runs exclusively on technology. Banks elsewhere around the world have barely been able to scratch the surface of this. JPMorgan’s is spending half of its USD11.5 billion annual IT budget on technological innovation.¹² One can argue that this makes a difference and the results are already on hand.

Last, and sitting at a most advanced stage of the digital transformation trajectory, is China. Technically speaking, what the rest of the world is currently hypothesizing on, planning, or may be sandboxing about, China had already implemented and scaled nationwide by late 2016. Today, embedded finance, mobile first, seamless consumer experience, instant payments, alternative delivery channels, and ever-expanding and tighter collaboration between leading technology companies and incumbent financial institutions are the rule, not the exception. And given the scale of rapid adoption and massive deployment of new solutions in machine learning, blockchain, and most importantly, the balanced interplay between new and traditional players in the ecosystem, one can argue that where the world is heading to be 3-5 years from now, is the point where China is standing today.

¹¹ T. McLaughlin, Open Banking – looking beyond regulatory compliance, The Paypers, <https://thepayers.com/expert-opinion/open-banking-looking-beyond-regulatory-compliance/779719>

¹² JPMorgan Chase splits tech spend between maintenance, innovation <https://www.ciodive.com/news/jpmorgan-chase-splits-tech-spend-between-maintenance-innovation/553236/>

Us vs. Them or Us with Them: the Great Re-bundling



Citigroup is one of the world's oldest financial giants. The bank has been heavily involved in fintech in different ways. Ramneek Gupta, the Managing Director and Co-head of Global Venture Investing at Citi Ventures, has seen a steady evolution of bank-fintech cooperation over his ten years at Citi. That the bank has structured its approach to fintech helps avoid disruption.

Ramneek described the current stage of market development starting around 2016 when many fintech start-ups recognized that they needed a sustainable business model as funding was getting tighter and existing investors more demanding. Banks also realized they were equipped to handle the "great unbundling," thanks to their massive balance sheets, depth of experience, and trust of customers.

The confluence of these factors led to the current "re-bundling" era. Banks and fintechs each have their respective strengths and weaknesses. Working together is a win-win for all parties, including customers. For Citi, this 're-bundling' involves driving existing business, staying abreast of what lies ahead, and finding the right partners.

Driving an innovation agenda requires "the maturity to say that there are things that we can do and things that we can't," according to Ramneek. Determining which areas of the banks and which businesses to focus on, especially in a bank as large as Citi, can be challenging. Although Citi is often seen as a leader in fintech, coordination in such a large organization can be challenging. Often to reach "being at the right place and right time," it takes a portfolio of different efforts to drive an innovation agenda.

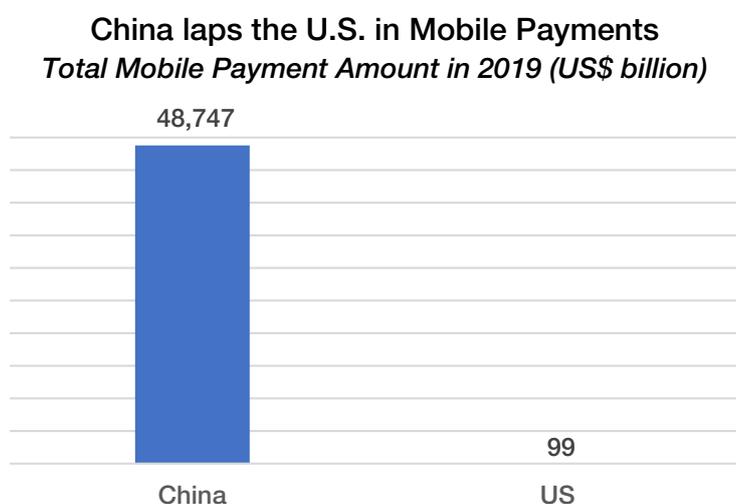
China Fintech

Although fintech is a global discussion, it is a Chinese reality. By any measure, whether transaction volume, valuations, or assets under management, fintech is impacting China more than any other country in the world.

Fintech in China started with payments: when China's e-commerce industry was in its infancy, most transactions were completed through cash on delivery, which presented a challenge of trust and limited the growth of the market. While there were solutions in the market, most were designed for P2P payment and non-reputable. This meant that if there were a problem with the transaction, it would be impossible to reverse any payment or handle any dispute directly.

Alibaba launched the Alipay platform in 2004, which addressed the issue of trust through an escrow system. The concept worked, and Alipay grew to become one of the top-ranked apps worldwide by monthly active users and jump-started the development of fintech in China.¹³ Other online payment platforms appeared, including Tenpay from Tencent, which was launched in 2005, and then was followed by Tencent's WeChat Pay in 2013.

The original Alipay platform moved from the computer to the phone and then to QR payment in the store, followed shortly after by WeChat Pay. Digital payments grew rapidly in China to an estimated US\$49 trillion market in 2019, about 493 times that of the US (US\$99 billion), mainly due to third-party payment players.¹⁴



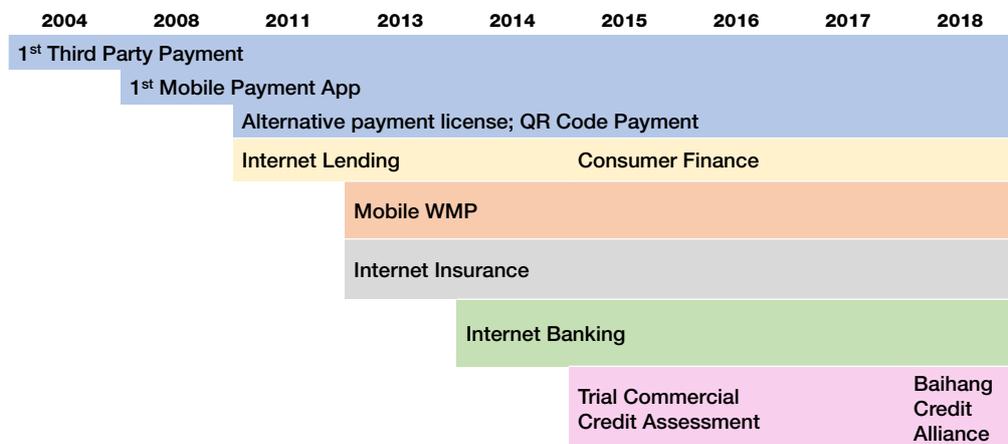
Source: People's Bank of China, eMarketer, Kapronasia Analysis

As China's mobile payment platforms developed, new financial products were layered on top, and suddenly finance was much more accessible to hundreds of millions of Chinese consumers and businesses. Setting up an offline or online merchant account was merely a matter of a few forms and clicks. Investing in wealth management products used to involve a long wait at the bank, but could now be done in a few seconds. Individuals or SMEs who may have struggled to obtain a loan from a traditional institution, were now able to do so with relative ease through one of China's large fintechs.

¹³ App Annie, The State of Mobile 2019 Report, <https://www.appannie.com/en/insights/market-data/the-state-of-mobile-2019/>

¹⁴The PBOC, eMarketer, Kapronasia Analysis

The Evolution of China's Fintech Ecosystem, Starting with Payments



Source: Kapronasia Analysis

China's new digital finance ecosystem has also made solutions much more scalable. As digital platforms have no physical outlets, they can focus specifically on digital distribution, which makes reaching all of China's population easier and cheaper. A loan through Ant Financial's digital-only MYbank costs about 2.3 RMB to make, which are primarily technology-related costs, while initiating a loan through a traditional bank can cost upwards of 2,000 RMB once you factor in human resources.¹⁵

These digital platforms mostly make finance an 'anywhere, anytime' proposition. As there is no need for a bank branch, even an individual or an SME in a rural community, far away from a bank branch, can be financially included through their phone.

¹⁵ Expert interview with Mybank; Hangzhou Daily, https://hzdaily.hangzhou.com.cn/dskb/2018/06/22/article_detail_2_20180622A125.html



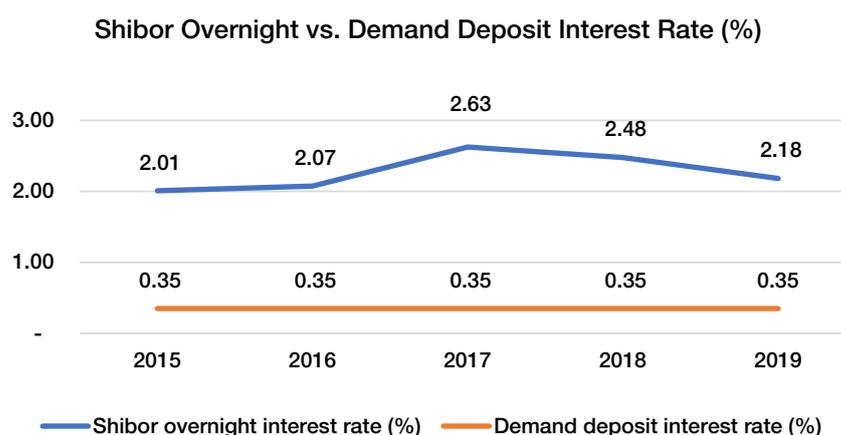
Challenges Leading to Cooperation

As China's fintechs grew, one of the biggest obstacles for the traditional financial industry to compete on was distribution. Creating a wealth management product like Ant Financial's Ant Fortune was not a problem, and was something that many banks did indeed do, but getting that product in front of hundreds of millions of investors across the country proved challenging. Customer understanding was also tricky. As many asset management products were sold through offline channels such as bank branches, most asset management companies had very little insight into why someone was buying a product. Without that insight, it was nearly impossible to improve on existing products, and many retail investors were stuck in simple low-return bank deposit products.

Also, although China's banks have a massive 228,348 branch network, their footprint still does not cover 225 million of China's adult population, leaving some individuals and SMEs completely unbanked.¹⁶ According to a report from the World Bank, 14% of China's SMEs have access to loans, while this number is 27% in G20 countries.¹⁷ Credit assessment in China is also in an early stage of development, so being able to lend to individuals and SMEs is challenging. Outside of 1st and 2nd tier cities, a significant amount of SME lending is through informal networks, and people, in general, are very new to credit so that they may have a limited credit history. Similar to many SMEs in China, and globally, access to lending can be limited by a 'thin-file' credit history and risk-averse banks.

Despite their rapid growth, China's large fintechs were also facing challenges. As assets under management, loan books, and payment volumes grew, the stability of the financial industry became increasingly important.

Further, fintech's cost of capital tends to be higher as they do not have access to the sources of capital that a bank would. Internet banks would need to borrow from the inter-bank market, while traditional banks could just take deposits at a low rate. From 2015 to 2019, the Shanghai overnight Inter-bank borrowing interest rate was at least 5~8 times of average interest rate of demand deposits.



Source: The PBOC, Shanghai Interbank Offered Rate

¹⁶ The CBRC, 2018, <http://xukezheng.cbrc.gov.cn/licence/>, World Bank, "2017 Global Findex", https://globalfindex.worldbank.org/sites/globalfindex/files/chapters/2017%20Findex%20full%20report_chapter2.pdf

¹⁷ World Bank, "Toward Universal Financial Inclusion in China", 2018 <https://openknowledge.worldbank.org/bitstream/handle/10986/29336/FinancialInclusionChinaP158554.pdf?sequence=9>

Green shoots of cooperation

One of the earliest examples of this cooperation was when Ant Financial opened the wealth management platform Ant Fortune in 2015. Ant Fortune allows financial institutions to list their products and services on the platform. By leveraging the distribution capabilities of the fintechs and the wealth management products of the traditional players, investors had access to a broader range of products and services than they otherwise would have had, and institutions were reaching more investors than they ever did before.

Traditional banks also brought significant experience and customer trust to the table. China's big-5 banks were some of the first companies that were set up as a result of the reform and opening-up in the late 1970s.¹⁸ That longevity has meant that China's banks are some of the most trusted companies in China. Further, the banks' industry experience helps with fraud prevention and data protection.

Finally, and potentially most importantly, financial institutions bring large balance sheets to the table. By the end of Q3 2019, China's current big-6 banks sat on deposits of over US\$13 trillion.¹⁹ Although many fintechs had been gathering deposits, they struggled to match the scale of the traditional institutions, and still struggled with a high cost of capital.

Conversely, China's fintechs also brought a lot to the table for the financial institutions.

Firstly, China's fintechs started from scratch, which meant that their technology platforms tend to be more agile and built for purpose. Banks around the world are often saddled with legacy technology that makes it very difficult for them to innovate or adapt quickly. Having agility built-in to the technology platform means that the technology providers can rapidly bring new products to market and save cost.

Secondly, this technology flexibility is often matched by organizational flexibility. Technology companies globally have embraced agile technology and corporate strategies to ensure that the firms' teams are as adaptable as the underlying technology platform itself. Indeed, in the matter of forming efficient technical teams, banks have found that technology companies and startups attract and train many data and technical talents with their agile organization structure.

Finally, the digital distribution channel of the fintechs was designed from Day One to reach the most inclusive possible user base. Although there are some areas of the country where smartphone penetration is not particularly high, and a bank branch might be a more suitable way to reach customers, the phone has become the device of choice for hundreds of millions of Chinese consumers and the most efficient way to market and sell financial products.

To help understand the implications of this cooperation, it is worth looking at a few examples of where it is working.

¹⁸ Big-5 banks: Industry and Commercial Bank of China, China Construction Bank, Agricultural Bank of China, Bank of China, Bank of Communication

¹⁹ Quarterly report from New Big-6 banks; Postal Savings Bank of China was added to the big-bank list in 2018. The CBRC, List of legal representatives of financial institutions, as of December 2018 http://www.cbrc.gov.cn/govView_D63FDEEA25C44D089BC1DB5BA70B10CA.html

Refining the Focus: Case Studies of Fintech Cooperation

As outlined above, fintech reduces friction in financial services in at least two ways: through developing new products and services and improving the efficiency of existing ones. Financial cloud platforms, blockchain-based cross-border remittances, and risk control systems for small and micro businesses are just a few key areas we are already witnessing fintech making a significant impact.

Driving agility through financial cloud

One of the critical questions for any bank that is looking to either set up a new technology platform or improve an existing is whether to build the platform or buy it. There are pros and cons to both approaches, but one of the biggest challenges in both cases is typically legacy infrastructure. Banks will often have decades of technology development based on legacy software and hardware, which creates an incredibly inflexible platform that adds cost and limits the ability of the bank to react quickly and adapt to new market opportunities and challenges.

Over the past decade, we have also seen a dramatic uptake in the adoption of cloud computing within financial services. Still, although these cloud platforms helped lower hardware costs, they did little to bring down the overall cost of core systems. It was not until more recently, after the introduction of the concept of Banking as a Service, has the impact been more revolutionary.

Under the Banking as a Service model, all the typical technology solutions and core-system components that a bank would need are provided as a service hosted on the cloud. For example, should a bank require a risk management solution, the bank would only need to subscribe to that service from their cloud provider, rather than having to invest heavily in new systems.

Bank of Nanjing, set up in 1996, is one of China's joint-stock commercial banks. To expand their business and respond more effectively to client demands, the bank started online consumer finance operations in 2016. Before launching such consumer finance products, the bank had fewer than 200,000 offline loan contracts in its core-banking system. In one year, the number increased to 5 million.



Highlights of Xin Cloud+:

- **5 month development**
- **1 second / transaction**
- **3.9M new clients in 8 months**
- **1M transactions / day**
- **90% savings in account management costs**

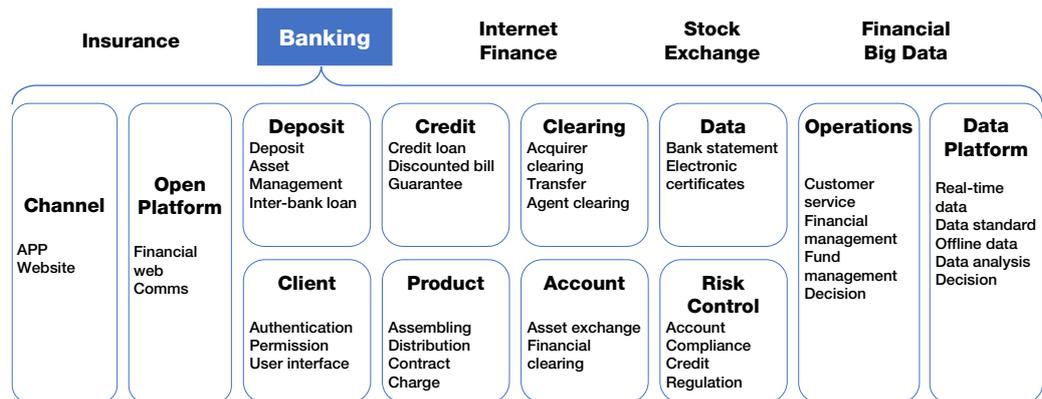
They quickly found that their existing core banking system was unable to scale up to meet the technology demand, the Bank of Nanjing introduced Ant Financial's distributed architecture SOFASStack and distributed database OceanBase in 2017, using them to build up a new core banking system called Xin Cloud+ Internet Finance platform.

The development and deployment of the system took around five months, a comparatively short time versus the time taken for other core system upgrades. Since then, the bank has moved its asset management, insurance, lending, and payments products to the new platform, and Xin Cloud has since become the primary core banking system for the Bank of Nanjing, processing over 1 million transactions per day. After their successful migration to the cloud, the

Bank of Nanjing also started offering the platform to SME banks without the internal technology budgets or expertise to implement such a system. By the end of 2018, the cumulative loans under management on the Xin Cloud+ platform exceeded RMB82 billion.

"With the development of technologies such as cloud computing and artificial intelligence, mainstream commercial banks at home and abroad are actively pursuing digital banking practices. It is unstoppable for banks to embrace the digital trend."

Ali Financial Cloud Solutions



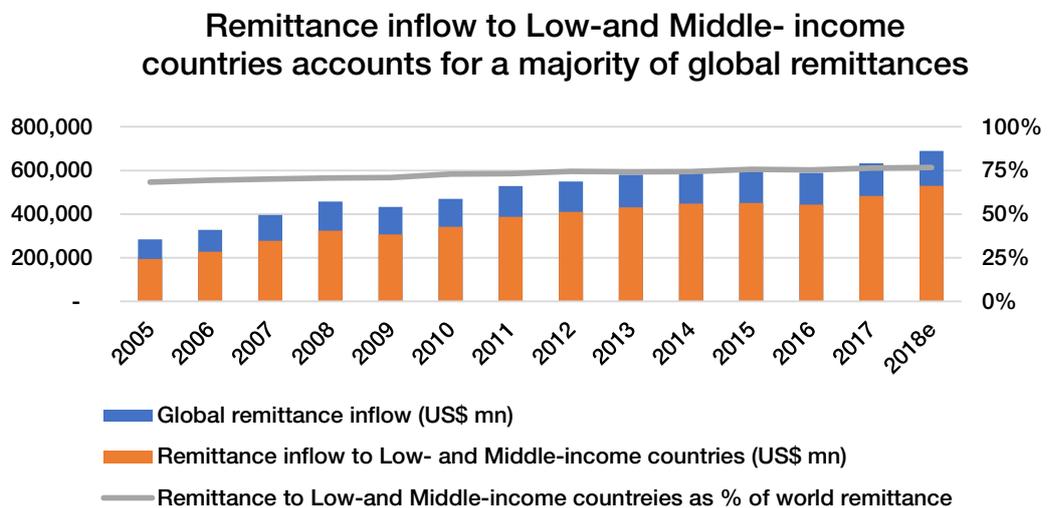
Real-time secure payment and remittance service

Countries across Asia Pacific, such as Australia, Malaysia, and Hong Kong, have all witnessed a renaissance in real-time domestic payments over the last few years as national payment infrastructures have been upgraded to handle real-time payments. The launch of these new payment infrastructures not only reduced payment costs, but they also increased efficiency and transparency of domestic payments.

Despite these advances in domestic payments, cross-border payments still face significant challenges. Transferring money through a bank requires both the sender and receiver to have bank accounts. Consumers that use physical money transfer operator (MTO) outlets may only need cash, but often have to pay more for the service. Sending money online is another option, and some financial technology companies have attempted to use technology to lower the cost.

Even so, all the current cross-border payment methods are limited by time or location restrictions. Organizations have cut-off times each day for payment transactions, impacting both the sender and recipient. Transferring through an MTO is faster and often operates 24 hours per day, but still requires at least one working day on average to complete the payment.

These challenges are exacerbated by the fact that the bulk of global remittances flow into low-and middle-income countries, where individuals tend to be more price and service sensitive. Many of them have chosen to send payments by mail or manual delivery. According to the World Bank's estimation, about half of global remittances are currently completed that way.²⁰



Source: World Bank

²⁰ World Bank, "Global Economic Prospects", http://documents.worldbank.org/curated/en/507301468142196936/841401968_200510327112047/additional/343200GEP02006.pdf

Given those circumstances, how can financial institutions improve payment efficiency? There are many trials taking place globally to improve cross-border remittances. For example, SWIFT succeeded in testing a new instant cross-border payment system that sent money from a Chinese account to an Australian account in 18 seconds on their GPI Instant platform. The Singaporean and Thai governments

"Before blockchain, cross-border remittance was like a relay race – you had to go through a transparent, step-by-step process over some time. Blockchain enables these segmented procedures to happen in parallel with its distributed ledger and smart contract technology, which improves efficiency, transparency, and security."

are linking their national real-time payment infrastructure PayNow and PromptPay, allowing citizens in the two countries to be able to conduct financial transfers using just their mobile phone number or QR codes.²¹

Blockchain technology provides another potential solution to address some of the cross-border payment challenges. Indeed, this was the initially proposed use-case for Bitcoin when it was first created.

In 2018, Standard Chartered, together with AlipayHK and GCash, launched a blockchain-based cross-border remittance product for the Hong Kong–Philippines corridor. The new solution leveraged both blockchain and Alipay's payment expertise to provide a more efficient, transparent, and secure solution. Establishing such a solution typically requires significant time and resources. Still, thanks to the smooth cooperation of all the entities involved, this blockchain remittance corridor was developed in only three months. It is now being adopted by Pakistan's Telenor Microfinance Bank, to provide real-time money transfers between Pakistan and Malaysia.



Highlights of Blockchain Remittance jointly provided by Standard Chartered, Alipay HK and GCash:

- **Seconds to complete transfer**
- **7*24 mobile available**
- **Lower fees and better exchange rates than traditional providers**

²¹ C Chanjaroen, "Singapore, Thailand weigh E-payment alliance in digital push", Bloomberg, <https://www.bloomberg.com/news/articles/2017-10-04/singapore-thailand-discuss-e-payment-alliance-for-digital-push>

Making the impossible possible – small and micro-lending

Lending is one of the core businesses of a bank and an important driver of consumer and commercial spending and investment. Financial institutions traditionally need ten steps to complete one loan. Not only does this make for a long, tedious process, but it also a manually intensive one.

Under such a model, the cost of risk control for dealing with new or thin-file borrowers is very high. The high cost of dealing with these borrowers has made China's financial institutions hesitant to serve the segment, and banks have become very selective as to whom they lend to. As of April 2019, 993 million people were recorded in the PBOC system, and only 540 million of them have credit records robust enough to lend against, accounting for only 38% of China's 1.39 billion population.²² 3.5 million SMEs have received loan support as recorded in the same system, representing less than 9% of national SMEs. The others do not have any credit record at financial institutions, making it very challenging for them to apply for loans. This, in turn, leaves consumers and SMEs with very few options for meeting their needs through traditional finance, often forcing them to turn to unofficial channels charging much higher interest.

Fintech changes the situation. By capturing more data points and leveraging technology to analyze it, the industry can better identify a user's creditworthiness and thus lend more appropriately and profitably. In the case of individuals and companies without a credit history, their spending and fund transfer records can serve as indicators of credit-worthiness.

The agriculture sector has traditionally been an underserved segment of the market in China. In 2017, the Bank of Guilin approached Ant Financial for help in starting a new business for 25 million farmers in Guangxi province. That year, the two partners kicked off a project to improve financial services to the agricultural community, under the close watch of senior management from both companies. Ant Financial brought to the table its expertise and customer insight from previous rural e-commerce work.



For instance: a farmer from a small village of Guilin may not have a banking record, but he might have a history of buying or selling goods on Taobao. The farmer could authorize Ant Financial to analyze his historical data to assess his credit-worthiness and use this as a basis for a credit assessment to get financial services using industry risk control models that Ant Financial's credit business had developed. Even though farmers do not behave the same, they often share similar habits and lifestyles, which creates some similarities in business behavior and potential credit assessment.

For its part, the Bank of Guilin provided an understanding of local culture and its network with Guilin's villagers. Ant Financial leveraged the bank's marketing resources and staff to help reduce consumers' doubts about the application process and technology.

²² The PBOC, Credit Reference Center, <http://www.pbccrc.org.cn/zxzx/jgyhfw/201906/ec959d42443e4d3aac111e0a14b43822.shtml>

Throughout the project, Ant Financial played a critical role in the loan issuance checks and after loan follow-ups. Both parties had worked in conjunction to design a loan application process tailored to suit the lifestyle habits and likes of Guilin's villagers. By crunching data records of these villagers, Ant Financial helped improve the risk control model the bank was initially using for these borrowers. The farmers the bank served could also submit loan requests and repay their loan on the Ant Financial app, saving them a trip to the bank and the time spent waiting in line. Ant Financial would send out reminders to borrowers to assist them with planning out their repayment schedule. At the end of the cooperation, the non-performing ratio (NPL) of such a loan product was smaller than 1%, lower than the Bank of Guilin's average NPL, which was around 1.5% in the past four years.

This cooperation between Ant Financial and the Bank of Guilin illustrates the synergies between financial institutions and fintechs. Acquiring customers and controlling risk are two essential and often conflicting requirements for financial institutions. This can be improved using fintech. Fintech helps reduce costs and eliminate the information asymmetry, allowing financial institutions to serve more clients from underbanked segments and meet their financing demands. Furthermore, big data analysis can summarize overall customer needs and lead to better and more targeted product recommendations and improving service efficiencies, even in specific market segments like agriculture, when individual credit histories are not known.

Highlights of Micro Lending jointly provided by Guilin Bank and Alipay:

- **3 minutes to fill an online application form**
- **1 second to issue the loan**
- **0 Bank staff involved**
- **2.3 RMB cost / transaction**
- **<1% NPL**

MYbank's "310" lending model supports SMEs to survive and thrive



Ms. Fan YANG, from Sichuan province, has been selling vegetables in Hangzhou, Zhejiang province for four years. She uses Alipay's QR code to collect her customers' payments and has accumulated a line of credit. She chose to use MYbank's "Sell More, Borrow More" lending product, which utilizes AI technology to determine the appropriate credit based on Ms. YANG's payment collection history. Now her line of credit exceeds tens of thousands of yuan. This has enabled Ms. YANG to apply for a MYbank business loan which she has used to hire two employees, upscale her business operations and come up with plans to open a new fruit shop.



Concerns and Challenges

Years of providing consistent and reliable services have created a level of trust in banks, which has become a key differentiator for financial institutions. Protecting that trust is critical, and one of the prime considerations when a bank works with any partner. This leads to a few concerns for banks when they work with fintechs:

Firstly, as many of the fintech solutions in the market over the past few years are relatively new, the track record and stability of these systems is one of the primary concerns of big banks. If a system fails, there is, of course, financial risk, but reputational risk as well.

Secondly, customers expect 24x7 banking services, and therefore any downtime can be disastrous. Banks have decades of infrastructure built up, which provides a high-level of resiliency. Fintechs need to be able to match that uptime and continuity. This also includes having measures and technology in place to prevent hacking and fraud.

Thirdly, collaboration between fintechs and banks is still new. From a technology perspective, many existing legacy systems need to be adapted and updated to work with external newer platforms. From an organizational perspective, it will take time to find the right partnership models that help facilitate and foster cooperation between fintechs and banks.

Finally, protecting client and bank data is also becoming another critical concern for banks. Foreign and domestic firms are held to the same requirements when it comes to better understanding the clients and ensuring user privacy and data security are protected with the highest possible standards.



Conclusions

Historically China's banks often opted to 'go it alone' by developing their internal technology platforms and systems, but we are seeing see the industry shift, as financial institutions and technology firms realize there is more to be gained through cooperation than competition. The country is, in many ways, a case-study for what to expect internationally.

It can be a difficult decision for financial institutions to change their business model that has been running for years or to start working with new sets of partners, but in the rapidly evolving global financial industry, banks need to lower cost, improve efficiency, expand their business, and drive customer satisfaction, often something that be challenging for banks on their own.

In China, although many of the large banks have already started on their modernization journey, there is a vast swath of banks that have yet to start. Today in China, 4,090 of 4,588 financial institutions are rural financial institutions that are a critical source of financial services for millions of consumers and SMEs, but often lack the technical expertise and infrastructure to be able to scale their businesses.

A recent research report from China's Internet Finance Association of Small- and Medium-sized Banks (IFAB) shows that over 61% of small and medium banks would like to upgrade and rebuild their IT infrastructure, but for many, investing significant capital in technology upgrades that may take years to show results is not possible.

For these banks, cooperating with fintechs is even more critical as they provide the most effective and fastest option for financial institutions to cover unbanked groups and improve transaction efficiency. The firms will increasingly support banks to develop new core banking systems to cope with the rapidly changing environment.

We are also only at the start of what may be possible from fintech globally. As we have seen in the past decade, platforms, mobile, and data are just a few of the elements that are changing the way that people and companies bank. The 'perfect storm' of friction, regulation, market demand and technology development has helped fintech in China be the most significant fintech industry of the world, and indeed, fintech cooperation is no exception. We have seen the industry shift from one of confrontation to one of collaboration in the span of only a couple of years, a trend that is echoing throughout the global financial industry.

Globally, the rise of Open and API banking is also causing a shift in how banks globally work with fintechs. Whether through regulations, as is the case in Europe with PSD2, or a general market shift, such as in Singapore, creating APIs and opening up banking products and services to 3rd parties is increasingly becoming the norm. Similar to fintech cooperation as a whole, many thought that APIs would turn banks into utility providers – the reality is anything, but much like the examples we provided above, cooperation is accomplishing much more than competition ever did.



Ant Financial Services Group, officially established in October 2014, is an innovative technology provider that aims to bring inclusive financial services to the world. Headquartered in Hangzhou, China, we are the operator of Alipay, an online payment service launched in 2004 which has since evolved into the world's largest payment and lifestyle platform.

As a member of the Alibaba digital economy, Ant Financial is working hand in hand with Alibaba Group to make it easy to do business anywhere across the world. Through our innovative technologies, Ant Financial is committed to helping global consumers and small-and-micro enterprises gain access to inclusive financial services that are secure, green, and sustainable, creating greater value for society and bringing equal opportunities to the world.

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