

CASE STUDY

APRIL
2017

Social Networks, e-Commerce Platforms, and the Growth of Digital Payment Ecosystems in China: What It Means for Other Countries



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CHINA Case Study

The rapid growth of social networks and e-commerce platforms has transformed the way people communicate and transact around the world. Integrating digital payments into these growing networks and platforms has presented vast opportunities to drive economic opportunity, financial inclusion, transparency, security, and growth. In practically all countries individuals, businesses, and policymakers are recognizing these opportunities and acting on them, but perhaps nowhere more so than in China.

This report examines two of China's most far-reaching applications - WeChat and Alipay - and explores their role in the development of one of the world's largest and most sophisticated digital payments ecosystems. The report illustrates how incorporating digital payments into existing services has unlocked economic opportunities for hundreds of millions of users, including through low-risk savings accounts, new credit assessment and lending services, and by opening up new markets for micro, small, and medium enterprises.

As China's economy is unique, this report has also identified key factors in the successful integration of digital payments into social networks and payment platforms. In this way, the report aims to provide lessons that can be assessed, and where relevant, applied in other markets beyond China. As social networks and e-commerce continue to grow and offer new opportunities as well as risks, the report adds to a body of knowledge about how digital payments can improve lives and strengthen economies in all parts of the world.

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1. EXECUTIVE SUMMARY

As governments and businesses worldwide look to boost financial inclusion and growth, the power of digital payments is becoming increasingly apparent. Notably in poor communities, digital payments are proving to be an effective way to open up new economic opportunities and markets for individuals and small businesses. For people who have been excluded from the formal economy, particularly women, these new opportunities are opening the door to transform their lives. In September 2016, G20 Heads of State and Government recognized this capacity of digital payments to improve lives by endorsing the High-Level Principles of Digital Financial Inclusion (HLPs)¹ at their meeting in Hangzhou, China.²

Putting these principles in practice is a complex task. One approach that has been successfully adopted in China is to bring together key public- and private-sector actors to grow digital payment ecosystems, using existing e-commerce platforms and social networks as their foundation. These electronic payments networks are used by governments, businesses, and consumers to buy and sell physical goods as well as make payments and transfers.³ To help businesses and policymakers in other countries learn from these experiences in China, this report focuses on two major Chinese companies that have built on their existing e-commerce platforms and social networks to drive the uptake and usage of digital payments significantly, and support broader financial inclusion and economic activity:

- Alipay was first launched in 2004 as an internet-based payment service using the e-commerce platform Alibaba and then further developed for mobile with the Alipay application (app) in 2009. By 2016, Alipay was processing 175 million transactions per day, 60% of which were completed through a mobile phone.
- Tencent was founded in 1998 and now provides digital payment options utilizing its two major social apps, QQ and Weixin (WeChat, as it is known in English), which have a combined monthly active user rate of 846 million as of 2016.⁴ QQ is an online communications platform with both chat and email functions. WeChat is similar in some respects to Facebook and WhatsApp. The success of WeChat has been rapid: Since just 2012, active daily users have grown from 195 million to approximately 806 million in 2016, a 43% growth rate.
- In 2015, Alipay had 450 million monthly active users, who each spent US\$2,921 on average.⁵ By comparison, WeChat had 697 million users in 2015, who spent \$568 on average, although in 2016 this figure grew 168%, to \$1,526 per user.⁶

Kaiyu Ma runs a small store selling used clothing on Taobao. She says this is a great way to earn money on the side while she looks after her young daughter. Ma's situation is not unique. At a micro level, digital payment services allow individuals to **improve their own or their family's lives**. At a macro level, digital payment services have the potential to dramatically **improve living standards** for large sections of the population, especially in developing countries, through increased transparency, security, cost savings, and financial inclusion, particularly for women.



- Together these two companies have dominated the digital payments space in China, and have seen dramatic growth in digital payments over the past few years:
- Alipay payments (by value) have risen from less than RMB 0.5 trillion (US\$70 billion) in 2012 to an estimated RMB 11.5 trillion (US\$1.7 trillion) in 2016 – a 23-fold increase in four years.
- WeChat payments (by value) have risen from less than RMB 0.1 trillion (US\$11.6 billion) in 2012 to an estimated RMB 8.5 trillion (US\$1.2 trillion) in 2016 – an 85-fold increase in four years.
- Combined Alipay and WeChat payments (by value) have risen from less than RMB 1 trillion (US\$81 billion) in 2012 to an estimated RMB 20 trillion (US\$2.9 trillion) in 2016 – a 20-fold increase in four years.
- In 2015, non-cash payments accounted for nearly 60% of retail transactions in China. Of all non-cash payments, Alipay and WeChat Pay captured 28% of all retail transaction fees; effectively what would have been nearly US\$20 billion in payments fees on transactions had they been processed on traditional card payment networks.⁷
- Digital payments as a whole have grown rapidly from about 3.5% of all retail transactions in China in 2010, to about 17% in 2015.

All of this took place during a transformative period in China:

- Starting in 2011 and ending in 2015, China's GDP per capita grew 31%, from \$4,971 to \$6,497.⁸
- Access to internet services in China increased from 38 people out of every 100 to 50 in just five years (2011-2015).⁹
- The economy began reorienting itself: Exports fell from 26.5% of GDP in 2011 to 22.1% in 2015, while retail sales grew from 38.6% of GDP to 44.1% over the same time frame.¹⁰

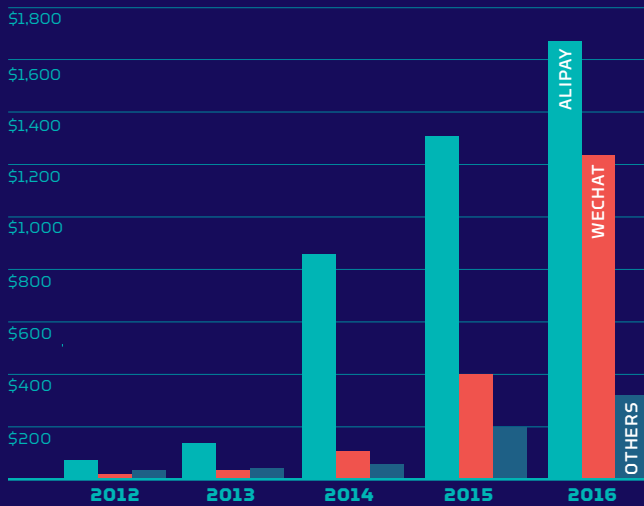
In 2010, nearly 61% of China's retail consumption was still transacted in cash, even as debit card penetration reached about 1.8 cards per person.¹¹ However, the payment landscape is changing rapidly as cards, mobile, and internet payments have grown in importance, with the proportion of retail consumption transacted in cash falling to 40% in 2015.¹² As a point of comparison, in the UK in 2016 cash accounted for 45% of all transactions.¹³

Combined Alipay and WeChat payments (by value) have risen from less than **RMB 1 trillion** (US\$81 billion) in 2012 to an estimated **RMB 20 trillion** (US\$2.9 trillion) in 2016, a

20-fold
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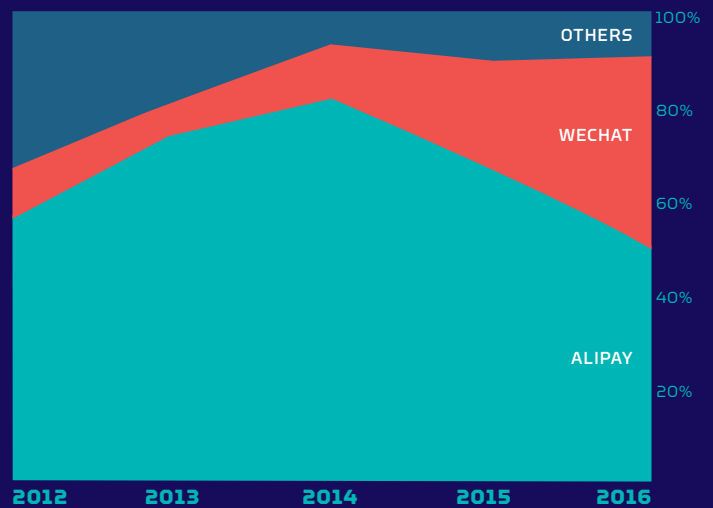
Mobile Payments by Value

Yearly Total Mobile Payments, Billion USD



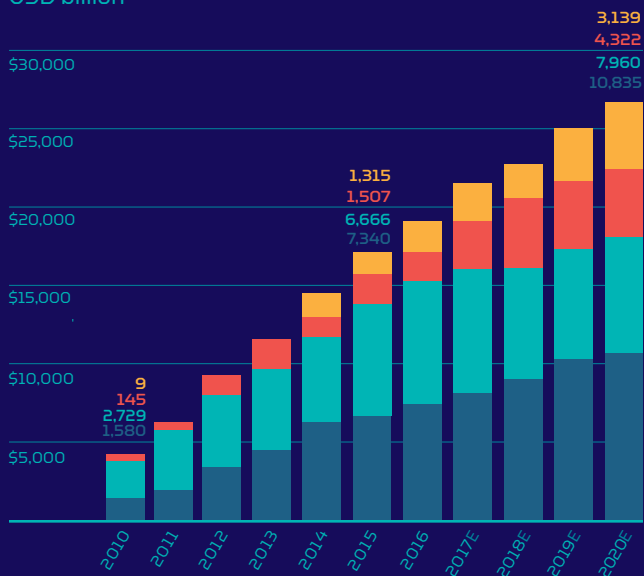
Integration of payments into WeChat has helped Tencent capture mobile payment market share from the market leader Alipay

PSP market share: mobile payments



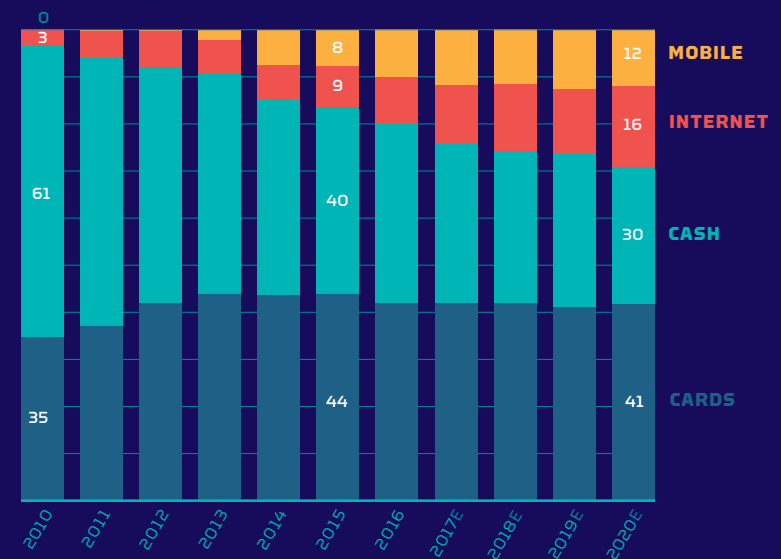
China Retail Consumption Value by Payment Type

USD billion



China Retail Consumption by Payment Type

(% of total payments value)



KEY FINDINGS

Significantly, the growth of digital payments using existing platforms and networks in China has brought with it a much wider range of digital financial services that are both expanding financial inclusion and economic opportunity for individuals, and creating valuable new business models for companies. Key findings of this report include:



New financial services have proven highly popular, delivering benefits to large numbers of people.

Alibaba worked with Tianhong Asset Management and launched the Yu'e bao (meaning "leftover treasure") product, a low-risk money market account similar to a bank savings account. Customers can take the money "left behind" on their digital wallets and invest it on the Yu'e bao product. While these services usually involve small individual amounts, they nonetheless provide benefits that can be helpful particularly for people living on low incomes. The scale of these individual savings products when viewed in aggregate is significant, helping to explain how these products represent new business models that are attracting attention in countries around the world. Yu'e bao has grown from having 0.2 billion RMB (US\$29 million) in assets under management (AUM) in 2013 to more than 810 billion RMB (US\$117 billion), serving more than 152 million customers three years later and making it one of the largest money market funds in the world.



Digital finance has dramatically increased economic activity and e-commerce among merchants and consumers.

As of September 2016, one provider, Ant Financial, had lent a total of RMB 740 billion (US\$107.3 billion) to over 4.11 million small and micro-enterprises and entrepreneurs.¹⁴ New business models enabling lending to people on low incomes are driving significant new usage of digital payments in a country where 79% of adults have had a bank account at some point, but only 10% of these have ever borrowed in the formal financial system. For example, Huabei or "Just Spend," is a service launched in 2014 which allows shoppers to take out small month-to-month loans. On Single's Day 2016 (a major consumer-focused holiday similar to Valentine's Day), consumers spent a total of RMB 26.8 billion (US\$3.9 billion) using the Huabei service on two major e-commerce platforms.¹⁵



Effective incentives and demonstrable utility are key factors in stimulating initial use and cultivating customer loyalty.

For example, in 2014, Tencent launched its WeChat Red Envelope campaign – a digital version of an old Chinese custom of giving small amounts of money to friends and family in red envelopes during Chinese New Year. In order to receive the red envelopes, the recipient was required to have a WeChat account that was connected to a bank account. Within the first week, more than 8 million people used the service, and the number of new bank accounts connected to WeChat surged by the millions.¹⁶ During Chinese New Year 2017, WeChat users sent each other 46 billion digital red envelopes, an increase of 43% from 2016.¹⁷



New credit scoring services are becoming available which are increasing access to credit, particularly for people on low incomes and small businesses.

One such service – Sesame Credit – is able to assess creditworthiness for over 350 million real-name registered users and 37 million small businesses that buy and sell on Alibaba Group marketplaces. When users sign up for Sesame Credit they agree to allow Ant Financial to use their transaction data to determine their credit score. These credit-scoring services are increasingly being used outside of China in both the public and private sector. For example, a trial program was set up in June 2015 with the Luxembourg Government to allow credit scores to be used in place of bank records in securing a visa for the Schengen travel area in Europe.

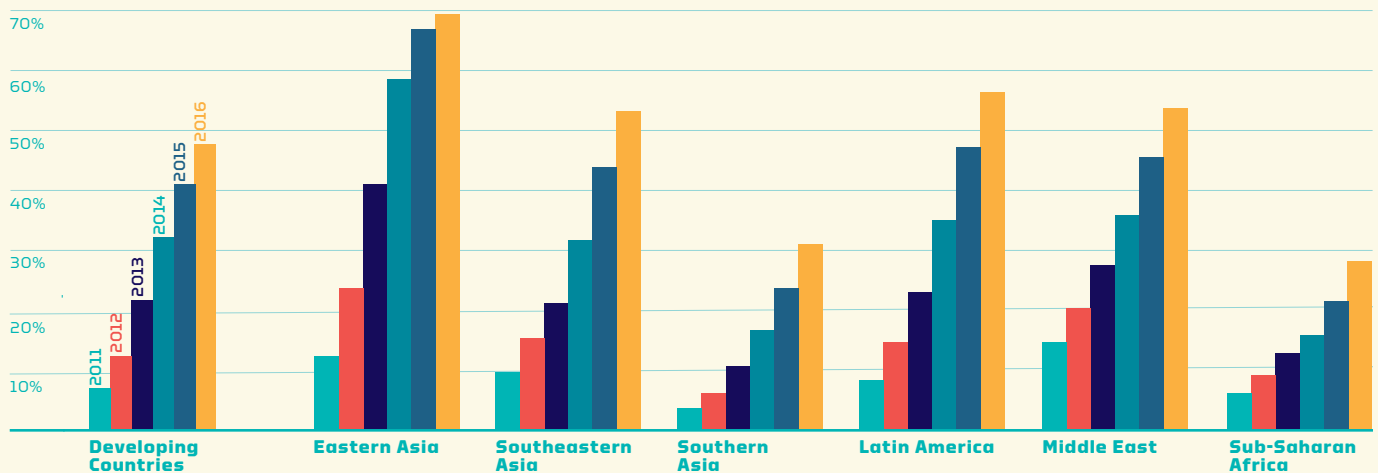


The major digital payments providers are rapidly expanding beyond China, and investing in new financial technology companies.

Users can now use Alipay and WeChat Pay in Thailand, one of the most popular destinations for Chinese tourists, to pay for goods and services in many stores. Alibaba has made a significant investment in India's PayTM¹⁸ and Tencent into India's PayU, two of the largest digital payment providers in India. Tencent has also recently launched a joint-venture initiative in Africa, allowing for payment in South African Rand.

Smartphone Adoption as % of Mobile Connections 2011-2016

GSMA Intelligence



These and other experiences in China show there are clearly vast opportunities that other countries can harness by using existing e-commerce platforms and social networks as a foundation for expanding the digital payments ecosystem. A 2016 report from the McKinsey Global Institute estimated that digital finance could add US\$3.7 trillion to GDP across all emerging economies in aggregate by 2025, a 6% boost above the projected baseline, and create 95 million new jobs.¹⁹ For China, it could mean an additional US\$1.05 trillion (RMB 7.25 trillion), a 4.2% GDP boost above the projected baseline GDP for 2025.²⁰ In China, that shift to digital – which is now well underway – would not have been possible without existing platforms and infrastructure.

Similar preconditions exist elsewhere: 51% of all global mobile connections are now smartphones,²¹ and 34% of the world's population – 2.5 billion people – use social media on their mobile phones.²² Facebook alone has over 1.8 billion subscribers, 80% of whom access the service using their mobile. In several developing countries, mobile has become the dominant form of internet access, and social media platforms are growing rapidly, laying the groundwork for easy payments integration:

- **South Africa** is a market in which smartphone adoption has grown 30% year-on-year from 2012-2016, reaching 30 million smartphones in a country of 55 million people.²³ Although 78% of all internet traffic takes place over mobile channels – one of the highest rates in the world – only 15% of South Africans reported making a purchase on a mobile phone in the preceding month when surveyed in 2016,²⁴ indicating a large opportunity to expand digital payment access. Moreover, although South Africa is WhatsApp's strongest market in terms of penetration with over 10 million users, WeChat had reached 5 million users in 2014 by establishing linkages with Standard Bank and SnapScan, a popular retail payments app.²⁵ Linking more retail points and financial services to these growing networks could enable millions more South Africans to gain access to digital payment channels.

- **Indonesia** was the fastest-growing m-commerce market in the world in 2016, expanding 155% from January 2016 to January 2017.²⁶ Some of this growth may be due to the release in 2015 of BBM Pay's Instant Mobile Payments.²⁷ The popular BBM chat app has over 55 million users in Indonesia, and BBM Pay had previously allowed those users to transfer money just as they would photos or files. The Mobile Payments function allows them to pay for goods and services with participating merchants, and was directly inspired by the ecosystem that WeChat has built in China.²⁸
- Looking regionally, many **South American** markets have the infrastructure necessary to build payment ecosystems similar to those seen in China. 59% of the South American population uses social media, and 52% connect with social media over their mobile phone.²⁹ 75% of the population has access to broadband,³⁰ and 57% of all connections are smartphones, far higher than Africa or South Asia.³¹ Yet the digital payments space remains fractured, and no payments provider has linked their service to these platforms in a significant way, or vice versa. With Facebook, Facebook Messenger, and WhatsApp the dominant platforms in South America (Brazil alone makes up 10% of all Facebook usage globally),³² attention will be focused on whether payments integrated into those networks will emerge as a viable point of entry. Facebook's recent announcement that it has acquired a payment license in Europe points toward eventual integration of payments into one or more of its platforms.³³ Whether this will impact countries in South America, where traditional banks and card companies are well established, remains to be seen.

The purpose of this report is to explain the opportunities presented by social networks and e-commerce platforms to expand digital payments, and in doing so, help other countries use these experiences as a guide and reference in building out inclusive digital payments ecosystems in their own market context. To this end, the report identifies the key factors underpinning China's successes and points out potential pitfalls for governments and businesses seeking to learn from their experience. It also identifies particular use cases that may be readily applicable in other countries, although as always, each market context has its own individual factors that need to be taken into consideration in applying any lessons from China set out in this report.

To help other countries and geographies better understand China's experiences, this report first discusses the background and historical development of payments in China. It then details the development of Alipay and WeChat Pay. In particular, it highlights the steps that were taken to build trust among users and establish scale, and explores how these services are currently using existing e-commerce platforms and social networks as a foundation to build digital payments ecosystems that are increasing access to financial services.

LESSONS LEARNED

For payment providers, e-commerce firms, and social networks:

- **Attracting users by building on existing e-commerce platforms and social networks, using strategic incentives to deepen usage.** For example, Tencent was able to build a widespread digital payment product within an existing service, which helped it gain rapid acceptance. Major payment platforms in China have developed a variety of additional incentives for users, such as vendor promotions and discounts, and creative gamification concepts around popular cultural events.
- **Making platform tools openly available to innovators for seamless integration.** For example, making software development tools, such as application program interfaces (APIs), available can enable third-party vendors and Small and Medium Enterprises (SMEs) to make their own innovative additions to the ecosystem in response to user needs and preferences, thereby organically growing the ecosystem.
- **Enabling universal access for users and businesses by developing ecosystems that function across various platforms.** China's two most popular payment apps are "hardware-agnostic," in that both work across the Android and Apple iOS platforms, which combined, account for 99.3% of smartphone operating systems in urban areas. This has helped to drive uptake and build out a large inclusive digital payments ecosystem. For payment providers, embracing interoperable platforms adds clear value for users and can help to grow a wider network of merchants and acceptance points.

For governments:

- **Developing a supportive regulatory environment that strikes a careful balance between encouraging innovation and managing risk.** In its efforts to strike a balance between these two objectives, China has announced policies to foster domestic development and competition, and support innovation. The G20 High Level principles also recognize the need to support innovation while managing risk and encouraging development of digital financial products and services. In China, the government has taken a "wait and see" approach to regulation which allows for innovation by industry participants within informal limits, under careful supervision by the relevant regulators. As products mature and their implications for users and the ecosystem emerge, the regulators develop the appropriate guidelines and rules to address these implications, protect consumers, and support a more cohesive payments ecosystem. This approach of protecting and fostering domestic players may not be appropriate for every country, and each country should consider their own circumstances, but China does offer an illustrative example of how this strategy can work.

- **Setting public investment priorities that encourage digitization.** This is particularly the case with the vital preconditions of digitization, such as effective infrastructure for internet and mobile telecommunications. In 2016, China had 530 million 4G users. This exceeds the number of 4G users in the United States and Europe combined. China expects to spend RMB 1.2 trillion (US\$1.88 billion) over the next three years to further improve the quality of its broadband connectivity and mobile access.³⁴ This will support the use of mobile smartphones – an important element in digital payments and digital finance usage.

For both businesses and governments:

- **Encouraging public-private partnerships (PPPs) to develop an ID verification system or similar method to identify payers and payees accurately.** Having a widely adopted and secure means of identifying customers is vital to enable secure and transparent payments and improve consumer protection. It is also important in order to advance Know Your Customer (KYC), Anti-Money Laundering (AML), and Combating the Financing of Terrorism (CFT) efforts, and meet international standards in these areas. Governments and payment providers can work together to enhance adoption and use of identification.
- **Incorporating lessons of successful business models in payments over messaging platforms to drive adoption of digital payments in their own markets.** As more examples emerge of companies successfully expanding their payments businesses internationally, there is a growing knowledge base that can reduce the trial-and-error component of building out inclusive digital payment ecosystems, particularly by anticipating key risks that have emerged in other countries, and observing commercial and regulatory approaches that have proven effective. China's tech giants (particularly Tencent and Ant Financial) are rapidly expanding internationally, PayPal continues to grow its global footprint, and companies like Facebook are pushing into international payments, heralding a period of rapid international expansion of payment platforms. As these companies expand, national or regional players can both observe and incorporate their experiences, or partner with them to drive their own transitions to digital payments.

All of these success factors have been integral to developing inclusive digital financial ecosystems in China, and merit consideration by government, businesses, and other stakeholders outside China seeking to develop digital payments and digital payments ecosystems in their own countries. They have also played a part recently – along with many other factors – in the remarkable success in tackling poverty that China has achieved, having reduced the number of people living in poverty from 755 million in 1990 to 25 million in 2013. Clearly this large-scale improvement in the lives of millions of Chinese has many causes, but by expanding the opportunities available to people – particularly those on low incomes – to participate more widely in economic life, digital payments can rightfully claim an important role among them.



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Digitization as a Recognized Driver of Growth

The capacity of digital finance to drive economic development and financial inclusion is attracting the attention of governments and regulators globally. This is unsurprising considering its potential benefits. A 2016 report from the McKinsey Global Institute estimated that digital finance could add US\$3.7 trillion to global production by 2025, a 6% boost from current levels.³⁵ For China, it could mean an additional US\$1.05 trillion (RMB 7.25 trillion), a 4.2% GDP boost.³⁶

The High-Level Principles of Digital Financial Inclusion (HLPs), developed by the Global Partnership for Financial Inclusion³⁷ and adopted in 2016 by G20 Finance Ministers and Central Bank Governors, emphasize the key role that digital finance plays in promoting and sharing the benefits of an increasingly interconnected and innovative global economy. Digital finance can provide meaningful access to credit and other financial services to key segments of the population who were previously underserved, such as poor people, women, farmers, and owners of small and medium-sized businesses. There is now a global effort underway to increase financial inclusion, particularly for women, and the G20 has recognized the critical importance of its success.³⁸ As this effort proceeds, policymakers around the world are evaluating the experiences of various countries in order to distill any useful practices that may have wider geographic applications. In that spirit, this report focuses on China as a case study and examines the various developments that are taking place in the area of digital payments, their ecosystems, and how they are driving the acceptance and use of digital finance as a means of expanding financial inclusion.

BUILDING INCLUSIVE ECOSYSTEMS TO DRIVE ADOPTION AND USE OF DIGITAL PAYMENTS

Digital payments are economically beneficial for a variety of reasons. They are faster, cheaper, and more efficient than cash or other alternatives. They can be electronically tracked, providing higher levels of transparency and security. Because many digital payments are initiated through mobile phones, they are convenient for people or merchants who may be in remote areas where bank branches may not be available. This also makes it more cost effective for banks and other payment service providers to equip both merchants and their customers with digital payment instruments. Finally, storing value electronically is typically safer than carrying physical cash.

Many payment service providers offer products to users, such as PayPal and Venmo in the United States. These are successful stand-alone payments products. But when digital payments services are embedded within an existing social network or e-commerce platform, they become much more convenient and easy to use, which increases the likelihood of user uptake and ongoing usage. Further, developing robust digital payment ecosystems around those networks and platforms (i.e., financial products, services, and commercial opportunities) can also help to drive uptake and usage, and hence provide pathways to greater financial inclusion.

In China, two good examples of this are Tencent's digital payments product, WeChat Pay, which is embedded in its social network of the same name; and Ant Financial's digital payments product, Alipay, which is closely linked to Alibaba's Taobao and Tmall e-commerce platforms (Ant Financial is a related company of Alibaba, but the relationship is a commercial one; Alibaba does not own Ant Financial or Alipay).

Both companies have created robust ecosystems around their digital payments products. Users can easily initiate a wide variety of transactions directly from their mobile phones, such as buying movie or airline tickets; booking a hotel room; hailing and paying for taxis; ordering and paying for food delivery; shopping for clothes; or paying their utility bills. In addition, users can also access a range of digital financial products and services, such as wealth management, credit scoring, savings and investment, and access to credit, all within that same ecosystem. This makes accessing vital financial services easy and convenient, which increases the likelihood of their use, and serves as a powerful catalyst to accelerate digitization and increase financial inclusion.

Throughout this report, we look at how these ecosystems developed, and lessons that can be gleaned for potential application in other countries.

The Impact of Digital Payments Outside of Major Urban Centers



Kaiyu Ma is a young mother in the city of Ordos in Inner Mongolia, Northern China. She lives far away from the hustle and bustle of China's major cities, but has still managed to find a place in China's growing digital ecosystem, which is continuing to expand further into regional and rural areas of China.

Ma is an active user of digital payment services, and finds them indispensable for many of her daily activities. She uses Alibaba's Taobao and Tmall e-commerce platforms to shop for her 18-month-old daughter, often ordering from merchants located a considerable distance from Ordos and paying with Alipay. Digital payment services are critical not just for the way she shops, but also to the way she earns money every month. A cottage industry consisting of young mothers selling clothing, accessories, shoes, and bags online has sprung up in her city as residents seek new ways of earning additional income.

Ordos was once considered an example of China's "Ghost Cities," a term used to describe those cities constructed to increase economic output in relatively low-populated, underdeveloped sections of the country. The area around Ordos is heavily reliant on coal production, which has been hit hard by the slowdown in China's energy sector. Digital finance has helped these micro and small online merchants thrive, cushioning the economic impact of the energy slowdown.

Ma is part of this group. She runs a small store selling used clothing on Taobao, Alibaba's consumer-to-consumer e-commerce platform. She says this is a great way to earn money on the side while she looks after her young daughter. It allows her to be both a mother and a provider.

Ma's situation is not unique. Every day across China, millions of consumers and businesses use digital payment services for social and commercial uses. At a micro level, digital payment services allow individuals to improve their own or their family's lives. At a macro level, digital payment services have the potential to dramatically improve living standards for large sections of the population, especially in developing countries, through increased transparency, security, cost savings, and financial inclusion, particularly for women.

3. COUNTRY CONTEXT:

CHINA'S TRADITIONAL FINANCIAL SERVICES AND PAYMENT INDUSTRY

China's uptake of digital finance has arguably been faster than that of many other countries and economies. To better understand this transition, and the market characteristics that enabled this dramatic change, it's helpful to look at the role of cash in China, some of the key dynamics of the "traditional" financial industry, and the industry's technology infrastructure.

THE ROLE OF CASH IN CHINA

China's history of physical currency is a long one. The country's first use of cash can be traced back to as early as 770 BC where "coins" in the shape of cowrie shells were used to settle trade. These were replaced around 350 BC by metal coins that had either a round or square hole in the middle to allow them to be strung and carried. But carrying around strings of coins could be quite heavy for merchants, so eventually, by the 7th century AD, China pioneered the first use of paper money.

Until recently, China remained a heavily cash-based society. In 2010, nearly 61% of China's retail consumption was still transacted in cash, even as debit card penetration reached about 1.8 cards per person.³⁹ A number of factors account for this reliance on cash, including high levels of perceived trust and convenience for cash, and habit.⁴⁰ However, the payment landscape is changing rapidly as cards and digital payments have grown in importance, with the proportion of retail consumption transacted in cash falling to 40% in 2015.⁴¹ Compare this to the UK where in 2016, cash accounted for 45% of all transactions.⁴² During that same 2010-2015 period, mobile and internet payments grew from 3% of retail consumption to 17% in China.

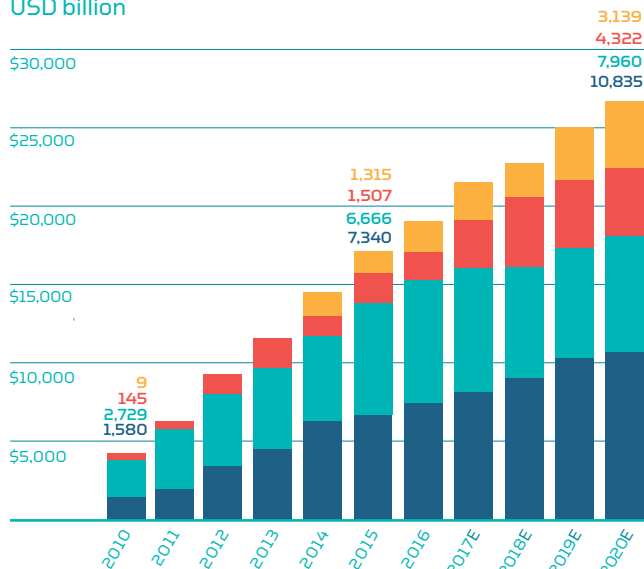
TRADITIONAL BANKING AND PAYMENTS

Since the 1970s, China's financial sector has played a major role in the country's economic development. China's "Big Four" banks⁴³ are predominantly government-owned and serve as an essential tool for the government to allocate resources to public and private sector projects. Initially, because there were only four large banks and interest rates were government-controlled rather than market driven,⁴⁴ industry competition was limited.

There was little incentive to offer new products or services. For example, a wealth management product from the Agricultural Bank of China was very similar to a wealth management product from the Bank of China in terms of conditions and rates. Customer service also suffered from the lack of competition. As recently as two decades ago, something as simple as paying rent involved either filling out several forms and waiting days for the money to be transferred between banks, or physically withdrawing and depositing the funds oneself. Hour-long queues were not uncommon and most retail customers accepted poor service because they had little choice.

China Retail Consumption Value by Payment Type

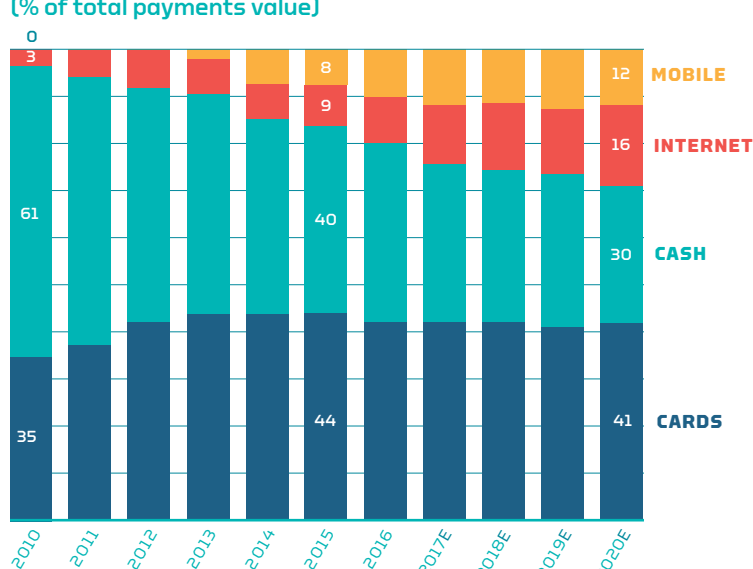
USD billion



Sources: Kapronasia analysis, Euromonitor, National Development Council, World Bank

China Retail Consumption Value by Payment Type

(% of total payments value)



However, shortly after China's accession to the World Trade Organization in 2001, new segments of domestic banks started to appear, including "city commercial" banks like the Bank of Shanghai, and "joint-stock commercial banks" (also known as "shareholding banks"), as well as foreign entrants, such as HSBC and Citi. Although the increased competition pushed Chinese banks to adapt their business models, products, and service offerings, the improvements to the overall customer experience were modest. The competitive size advantages enjoyed by these traditional players created an environment in which innovation and differentiation were not a high priority. Even if the new "traditional" competition pushed the industry forward a small step, it was by no means a giant leap.

Although there remains a lack of competition and product diversity on the commercial side of China's financial industry, the underlying technology is quite robust. Most of China's big banks employ modern core-banking software and many are embracing cloud computing to reduce costs and increase agility. In addition, China has a domestic real-time payments system for both retail and commercial payments and, in 2015, launched the China Interbank Payments System (commonly referred to as CIPS) which supports the renminbi (RMB) as an international currency.

China's retail, non-cash payments market is also quite well developed. China UnionPay is the country's main domestic payment card clearing and settlement system, enabling the use of UnionPay-branded credit or debit cards at the estimated 26.7 million merchants that have electronic point-of-sale devices installed to accept card payments.⁴⁵ Debit card penetration stands at 3.1 cards per person and is increasing. In addition, every new point-of-sale device sold in China must come equipped with Near-Field Communication (NFC) technology to enable mobile payments.

THE RISE OF INTERNET AND MOBILE PHONE USE IN CHINA

Internet and mobile phone usage in China is high. As of January 2016, China had 688 million internet users,⁴⁶ which is more than twice the size of the entire population of the United States. Despite this, the internet penetration rate is just over 50% of the population, as compared to the US rate of 84%.⁴⁷ There is, therefore, good potential for future growth in internet penetration in China. Of these 688 million Chinese internet users, approximately 530 million (77%) used social networking websites and apps.⁴⁸

The popularity of digital social networking in China can be attributed to a number of factors:

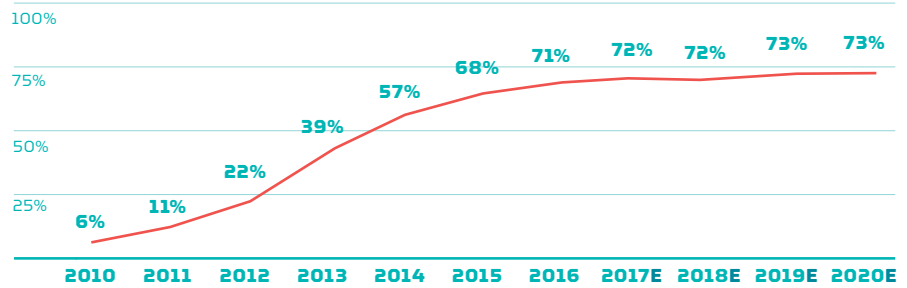
- A large number of **people moving to urban centers** in pursuit of employment in recent times has led to many families being separated geographically. The ability to easily stay in touch via audio/video calls and sharing tools is an effective and convenient solution. This characteristic is one that China may have in common with other geographies that have undergone similar demographic shifts to urban centers.
- **Relatively cheap, full-function smartphones** are widely available in China. There are a number of Chinese manufacturers making these available, resulting in a significant difference in average selling prices, which is at least \$50 less in China than globally (although prices in China have been driven up in recent years due to the popularity of the iPhone, which has a higher average selling price).⁴⁹ This has spurred the adoption of smartphones in China, where penetration is about 20% higher than the global average. Mobile data in China is also cheaper than other countries. For instance, a pay-as-you-go 2 gigabyte data package from China Mobile is 120 RMB (US\$17.40). A similar data package from T-Mobile in the US would cost US\$20.⁵⁰ These smartphones are able to use a 4G telecommunications network that covers 76% of the population. That is comparable to the US where the coverage is 81%.⁵¹
- **China's millennials are particularly active users of mobile phones.** For many of them, their smartphone is their first, and often only, avenue for accessing the internet. Smartphones are cheap and provide easy access. In 2015, only about 49.6% of China's households had a personal computer,⁵² as compared to the United States where computer ownership stood at 87.3%.⁵³ They feel comfortable keeping in touch with each other online. This characteristic is another one that China may have in common with other geographies where mobile penetration is high and computer penetration is low.

In addition to these supporting factors, the country's adoption of digital payments and finance had to overcome one more important obstacle: lack of trust.

China's shift to smartphones happened in the last five years

Smartphone as % of all phones in China

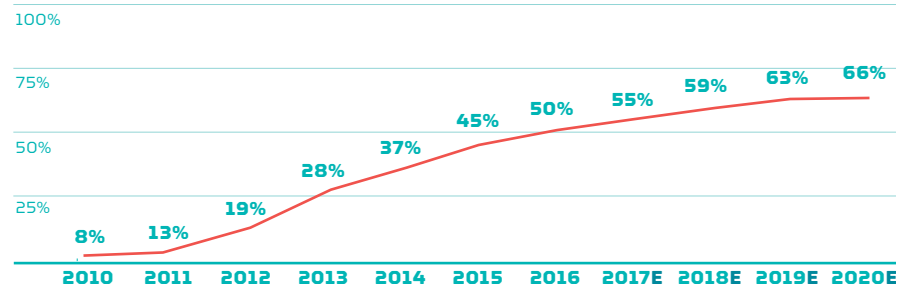
Source: GSMA



Global smartphone penetration lags China

Smartphone as % of all phones globally

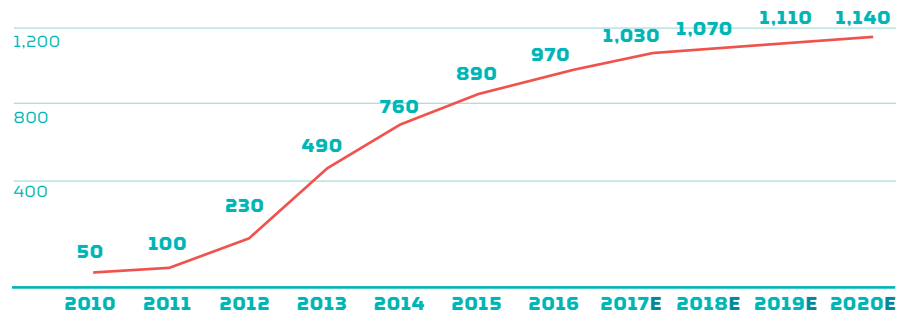
Source: GSMA



Smartphone market grew in the last five years

Smartphone connections globally (millions)

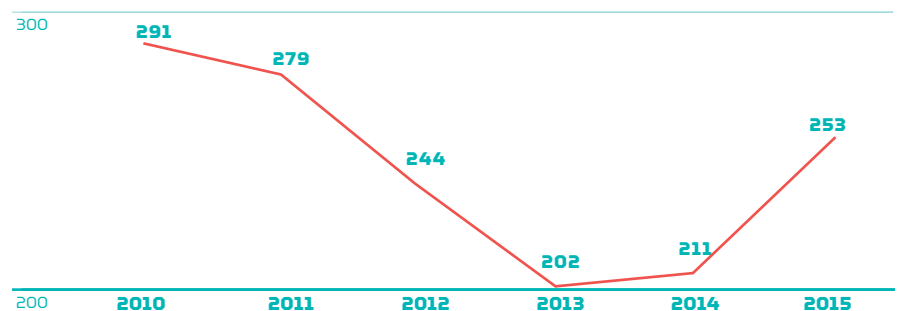
Source: GSMA



Average smartphone price rebounded in 2014 as consumers were ready to spend more on their devices

Average smartphone price globally (USD)

Source: GSMA



4. GOING DIGITAL: CASE STUDIES IN BUILDING TRUST AND ESTABLISHING SCALE

A key factor underpinning any method of transaction involving money is trust. This includes trust in the medium of exchange, the security of the payments mechanism, the counterparty, and the overall regulatory environment to ensure that there are adequate consumer protections and appropriate avenues for recourse if malfeasance or error is claimed to have occurred. Once the issue of trust is addressed, there is still a challenge of achieving scale. Recent history suggests that digital payments can overcome challenges of trust and scale and achieve ubiquity, if offered effectively.

ALIPAY: ESTABLISHING SCALE AND TRUST

Alipay is one of China's largest digital payment services. Alibaba Group's first e-commerce platform, Alibaba.com, was launched in 1998 in Hangzhou, China. The site was originally designed as a business-to-business (B2B) platform to match foreign buyers with Chinese sellers. In 2003, the company launched Taobao, a consumer-to-consumer (C2C) platform, which proved highly successful.

Taobao is a multi-merchant e-commerce platform where individuals or small merchants can set up a storefront and sell products. Alibaba does not actually sell any products directly, but provides the marketplace infrastructure for the merchants on the platform, including the technology, payments, and logistics.

Five years later, in 2008, Alibaba launched Taobao Mall (now known as Tmall), a business-to-consumer (B2C) platform that achieved similar growth and popularity. Tmall is also multi-merchant, but charges higher fees and provides infrastructure and support to merchants handling a significant amount of volume.

The two platforms quickly became China's largest e-commerce sites.

Moving from Cash to Digital in E-commerce

Most of the transactions in the early days of Taobao and Tmall were “cash on delivery” because cash was the more preferred and trusted medium of exchange at the time. The customer would order the product, and then pay the courier when the product was delivered. Although this approach worked, it was not the most efficient. A number of internet payment services were available then, but most were used for paying bills or charging phones and were not designed with e-commerce in mind. A consumer could make a payment online, but there was no recourse if the transaction was fraudulent; the money would have been transferred instantly and there was no built-in chargeback mechanism like those typical in a credit card or PayPal-like transaction today.

As a result, Alibaba decided to create its own payments product, Alipay, in 2004. Using Alipay, users can hold money in a digital wallet that can be filled from any linked debit card, physical prepaid cards, or by receiving money from others in either a P2P or B2C transaction.



The Impact of Social Payments on a Young Millennial

Wang Qi is a 23 year-old hairstylist originally from Chengdu, but he spends a lot of time on the road. Through hard work he has made a name for himself in the extremely competitive Chinese hairdressing market, providing about 15 high-end haircuts per week.

To market himself and grow his business, Wang Qi started using WeChat to cultivate a network of followers, customers, and friends. He uses the WeChat network to share pictures of his clients' haircuts, notify people of where he'll be next, and communicate directly with clients. Through the network reach of WeChat, he started to receive followers and enquiries from new clients in many different cities across China, and he began to travel all over China to serve these new customers. Wang Qi has become very popular and has 5,000 followers on WeChat, which is the most permitted with a non-commercial account.

As he travels, Wang Qi uses WeChat for not just networking, but for payments as well. Wang is often on the road for weeks at a time, which means that after several haircuts, he might be carrying a significant amount of cash on his person. The shift to using digital wallets not only proved practical to accept payments wherever he was providing haircuts, but was safer for him, as he carried less cash.

WeChat is a critical part of Wang Qi's business. However, it is an even more critical part of his life. Wang Qi's father had been previously diagnosed with cancer, but in 2015, his condition took a sudden turn for the worse and he needed immediate hospital treatment. Although Wang Qi charged around RMB 200 (US\$29) for each haircut and had accumulated some savings, the treatment for his father was expensive, and a major part of the payment had to be made up-front, making the treatment unaffordable for Wang Qi and his family.

In an attempt to gather funds, Wang posted a message on his WeChat asking his hundreds of friends and followers for any financial support they were able to provide to help pay for the treatment. Donations quickly poured in. Thanks to the instantaneous nature of WeChat payments, Wang Qi raised nearly 20,000 RMB (US\$2,900) which he used the same day to pay for his father's treatment.

Wang Qi was able to use the social engagement and trust that he had established with his followers on the WeChat network to address a financial need that he had in his life. For a country so large and so geographically diverse, many people rely on social networks for marketing, sales, or even, in the case of Wang Qi, a family emergency.



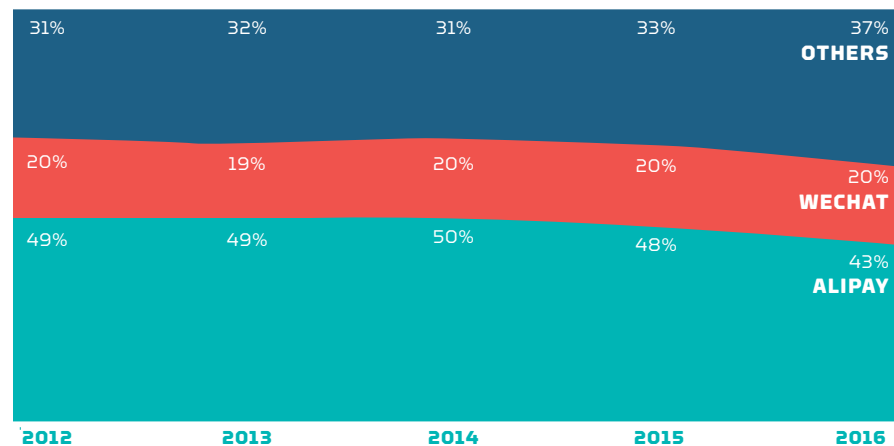
Alibaba then tied Alipay into Taobao, its already well-established e-commerce platform. Buyers on Taobao were given the option of setting up and using Alipay instead of cash during the checkout process, although “cash on delivery” remained an option. This allowed Alipay to instantly reach a large pool of potential users, helping to overcome the challenge of achieving scale. To address the challenge of building trust among users and potential users, Alipay was designed as an escrow system so that the merchant would not be paid until the customer was satisfied with the purchase.

In designing the system this way, and by linking it to its pre-existing e-commerce platform, Alibaba addressed the key payment challenges of trust and scale, giving consumers more confidence to make transactions with vendors that may have been thousands of miles away. The payments service rapidly gained in popularity, and although its market share has dipped slightly, in 2015, Alipay still accounted for nearly 50% of all internet payments in China.

The initial Alipay service that was launched in 2004 was internet-based. Alipay launched a mobile version of the service through its own Alipay app in 2009. By 2016, Alipay was processing 175 million transactions per day, 60% of which were completed through a mobile phone.⁵⁴

Internet Payment Market Share in China 2012-2016E

Source: Kapronasia Analysis, iResearch, China Internet Watch⁵⁵



TENCENT: DIFFERENT START, SAME CONCLUSION

China's other popular payments service was established by Tencent, founded in Shenzhen in the southern part of China in 1998. Tencent has two major social apps, QQ and Weixin, or WeChat as it is known in English, which had a combined monthly active user rate of 846 million as of Q3 2016.⁵⁶

QQ is an online communications platform with both chat and email functions and remains popular despite the launch of WeChat. WeChat is similar in some respects to Facebook and WhatsApp, two popular social network offerings originating in the United States and launched several years before WeChat. WeChat allows users to chat with contacts one-on-one via messaging, audio, or video, facilitates communication among large groups, and has a functionality called "Moments" that is similar to Facebook's "Timeline." Moments allows subscribers to post images, thoughts, popular news articles, and other material that can be viewed by selected members of the user's contact list. Most of its users spend a considerable amount of time in the app, logging into it multiple times per day to keep up with their friends and to post and review messages, thoughts, and pictures.

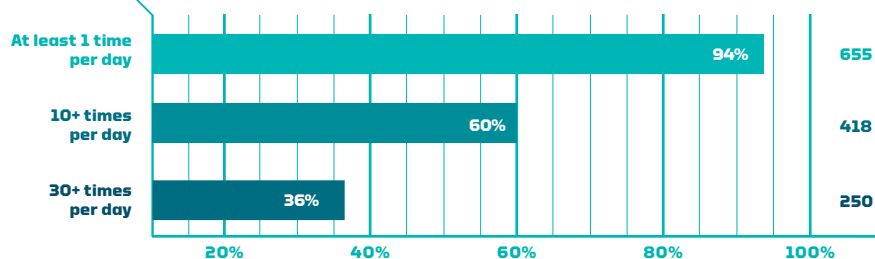
Although Tencent had created one of the largest and most-visited mobile social networks, what has set it apart has been the integration of its payment functionality into the WeChat platform. In 2005, Tencent developed a digital payment app called Tenpay, which was launched nine months after Alipay was released. The Tenpay app allowed users to pay for Tencent's products and services, such as its online gaming and music offerings in QQ, and was also interoperable with a number of e-commerce platforms (with the exception of Taobao or Tmall, the two Alibaba e-commerce properties).

In 2013, Tencent then took the functionality of the Tenpay payment app and integrated it into WeChat. This function became known as "WeChat Pay" and allowed users to open a digital wallet housed within the WeChat app and access a variety of payment solutions. Linking the wallet to a debit card or credit card enabled the user to transfer value over to the WeChat Pay wallet and store it there for later use.

Less obvious at the time was that digital payments had pushed Tencent and Alibaba into the financial industry and created the basis for the much larger business opportunity of using data and offering additional products and services to create one-stop financial service ecosystems, discussed in more detail below.

More than half of WeChat users use the app at least 10 times per day
% of all users, millions of users

Source: Penguin Intelligence Research



5. THE RISE OF DIGITAL PAYMENTS ECOSYSTEMS

USING EXISTING E-COMMERCE PLATFORMS AND SOCIAL NETWORKS AS A FOUNDATION TO ACCELERATE DIGITAL FINANCE

The initial success of Alibaba's and Tencent's payment products was a significant early step in driving digital finance forward in China. But even more significant benefits arose when both companies used the strength of their existing e-commerce platforms and social networks to create robust ecosystems for payments and other digital financial services. These additions have allowed millions of users to gain access to financial services that they did not have before.

INCLUSIVE WEALTH MANAGEMENT

After its digital payments product started to grow, Alipay realized that customers were leaving money in their Alipay wallets. In 2013, liquidity was tight in the banking market, so interbank deposits were in high demand. To capitalize on this, Alibaba worked with Tianhong Asset Management and launched the Yu'e bao (meaning "leftover treasure") product, a low-risk money market account similar to a bank savings account.

The idea was simple: Customers could take the money "left behind" on their digital wallets and invest it on the Yu'e bao product, which at the time was paying between 6-7% interest annually. Consumers could invest in the Yu'e bao product, earn interest daily, but still have the freedom to withdraw their funds at any time. This was a significant change from the rules of the typical time-bound deposit products offered by banks, where penalties are incurred for the early withdrawal of previously committed funds. Although it may seem that Alipay is acting as a fund manager in providing this product, from the regulatory perspective Alipay is treated as a distribution service while Tianhong is treated as the fund manager, making it easier for Alipay to provide the product.

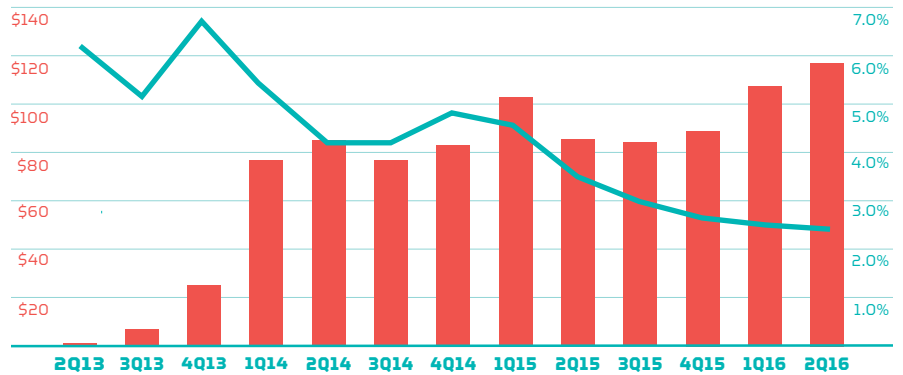
The Yu'e bao product idea became highly popular, with customers valuing the ease with which they could shop online, pay bills, and easily and flexibly invest their savings. Yu'e bao grew from having 0.2 billion RMB (US\$29 million) in assets under management (AUM) in the second quarter of 2013 to more than 810 billion RMB (US\$117 billion; serving more than 152 million customers) three years later. Consumers can also use funds on Yu'e bao to complete e-commerce transactions directly. On November 11th, 2016, known as "Singles' Day" and also the biggest online shopping day of the year, 11% of all Alipay transactions were made using Yu'e bao.⁵⁷ All of this has made Tianhong Asset Management one of the largest money market funds in the world.

AUM and Return Rate of Yu'E Bao

Source: publicly reported data from Ant Financial

ASSETS UNDER MANAGEMENT (BILLION USD)

SEVEN-DAY ANNUALIZED RETURN RATE



In January 2014, about seven months after Yu'e bao was launched, Tencent launched a nearly identical product called Licaotong. Within one year, the Licaotong product had over 10 million users and AUM had reached RMB 100 billion (US\$14.5 billion).

Prior to these two offerings, wealth management products (WMPs) in China were only available to those with significant assets. For instance, a typical WMP required a minimum investment of RMB 10,000 (US\$1,450), out of reach for many of China's consumers. Yu'e bao and Licaotong, however, need a minimum investment of only one RMB. This helped to "democratize" wealth management, making it more inclusive and accessible for more sections of the population. Indeed, China's banks have followed suit and now have a range of WMPs that can be purchased for as little as one RMB.

DISCOVERING CREDIT

One of the challenges in China's financial industry has been a lack of accurate and complete credit information. According to World Bank estimates, although 79% of China's adults have had a bank account at some point, only 10% of these have ever borrowed in the formal financial system,⁵⁸ which means that there is little information available on potential borrowers' credit histories. In addition, China only established a nationwide commercial credit database in 2005 and a consumer credit database in 2006.⁵⁹ As a result, as of 2015, the PBOC had data on 880 million people, about two-thirds of the total population, but only maintained credit histories on 380 million people, less than one-third of the adult population. In comparison, 89% of Americans have a credit score.⁶⁰

This situation has made it difficult for lenders to assess credit risk and make lending decisions for either retail or commercial lending, a problem further exacerbated by the fact that China's government has so far been reluctant to allow international credit reporting companies to set up their businesses in China.

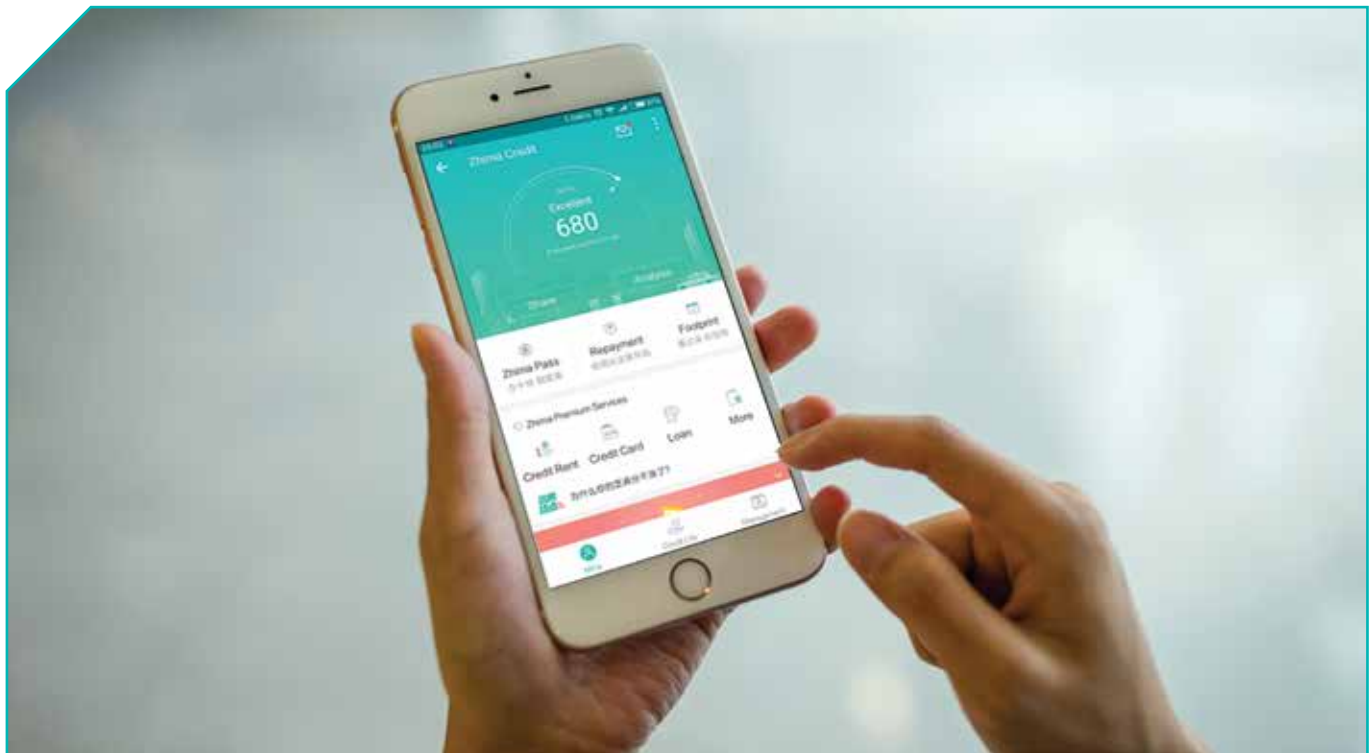
In January 2015, the People's Bank of China (PBOC) selected eight technology companies to set up consumer credit scoring businesses. One of the companies was Alibaba's affiliate, Ant Financial. Shortly after that, Ant Financial launched its Sesame Credit product, which now has 190 million users.⁶¹

Sesame Credit assesses user creditworthiness through five metrics: the credit history of the user, financial behavior, contractual capacity, identity, and their social network. The service also looks at consistency and preferences in their history for shopping, money transfer, and wealth management. They are able to tap into over 350 million real-name registered users and 37 million small businesses that buy and sell on Alibaba Group marketplaces, including Taobao Marketplace and Tmall.com and reportedly use over 100 million data sources.⁶²

When users sign up for Sesame Credit they agree to terms and conditions that allow Ant Financial to use their transaction data to assess their credit in order to determine their credit score, as well as share with Ant Financial's partners. For instance, a program was set up in June 2015 with the Luxembourg Government to allow Sesame Credit scores to be used in place of bank records in securing a visa for the Schengen travel area in Europe. Also, third-party non-bank financial companies like China's many peer-to-peer (P2P) lending companies are not allowed to access the PBOC's credit databases, so many have chosen to integrate Sesame Credit into their credit rating systems. At the Hangzhou train station, if your credit score is above 600, you can even borrow an umbrella.

Sesame Credit can also play a constructive role in terms of financial inclusion in China. One of the biggest challenges for financial institutions is lending in second- or third-tier cities.⁶³ Firms like Sesame Credit, as they provide reliable credit scoring services, could potentially help lenders to provide credit to people who otherwise may be ineligible.

In July 2016, Sesame Credit launched a similar credit checking and rating system for SMEs called "Ling'Zhi" – which means "Smart Sesame" in Chinese. The system is designed to better assess the credit of SMEs and potentially open up new funding channels for a segment of the market that has been, until recently, starved of bank credit.



LENDING

Before launching Sesame Credit, Alibaba had been lending out small amounts of money to merchants on the Taobao and Tmall platforms since 2010. Because Taobao and Tmall work on the escrow model, being able to borrow small amounts to cover short-term financing needs is useful for a merchant who would otherwise potentially need to wait up to two weeks to receive payment for a product they have already shipped.

In addition to lending to companies, Ant Financial started lending to individual consumers through a service called Huabei or “Just Spend” in December 2014. Tied into the Taobao and Tmall e-commerce platforms, shoppers are able to take out month-to-month loans of up to RMB 30,000 (US\$4,300) and are expected to pay back the loans one month after receiving the product. The option to use Huabei to pay for purchases is available at check-out and advertised throughout the site. On Single’s Day 2016, Taobao and Tmall consumers spent a total of RMB 26.8 billion (US\$3.9 billion) using the Huabei platform.⁶⁴

In many cases, Alibaba was lending its own money as part of its lending arm, which is now part of Ant Financial. In 2016, Ant Financial even went so far as to underwrite its consumer lending by selling asset-backed securities (ABS) against the loans. Institutional investors were able to purchase the ABS through Chongqing Alibaba Small Loan, which provided the underlying loans themselves.⁶⁵ Effectively, people were “investing in Singles’ Day” and Ant Financial was able to tap a large source of funding for its loans.

SOCIAL FINANCE

Tencent has also made significant strides in developing a wide range of products to build out its payments ecosystem and boost usage rates. Early on, it recognized that merely incorporating payments functionality into a social network was not enough to boost usage (a challenge western social networks like Facebook are grappling with). It realized that effective incentives and demonstrable utility are needed to stimulate initial use and cultivate customer loyalty.

WeChat Uses Social Networks to Drive Payment Usage

WeChat approached these challenges creatively. In 2014, Tencent rolled out its WeChat Red Envelope campaign in 2014 – a digital version of an age-old Chinese custom of giving small amounts of money to friends and family in red envelopes during Chinese New Year.

Using digital payments to send monetary gifts was not a new concept. However, WeChat gamified the tradition by allowing users to select a set of recipients and an overall amount of monetary value. A computer then divided the money randomly among the group and “Lucky Envelopes” was born. However, in order to receive the “lucky money,” the recipient was required to have a WeChat account that was connected to a bank account, which many did not have, at least initially. The effect on user uptake was

immediate. Within the first week, more than 8 million people used the service and the number of new bank accounts connected to WeChat surged by the millions.⁶⁶ WeChat users sent RMB 400 million (US\$58 million) in electronic “Lucky Envelopes” over the week-long holiday.⁶⁷

In order to further entice users, WeChat subsidizes (as does Alipay) much of its payments functionality, making it free to transfer money into the app and to make payments from within it. Initially it was also free to transfer money out of the app, but now both WeChat and Alipay charge 0.1% of the amount withdrawn, although this is generally less than the fee for a similar interbank transfer.⁶⁸ This creates an incentive for users to keep funds within the WeChat or Alipay payment ecosystem.

The ability to make payments easily and cheaply to friends, network, or anyone else who uses the WeChat network and who has enabled payments can be very useful, especially for people dependent on remittances from family members who may be in distant locations, a lesson that could have much broader applicability in other countries and markets.

Creating an Ecosystem

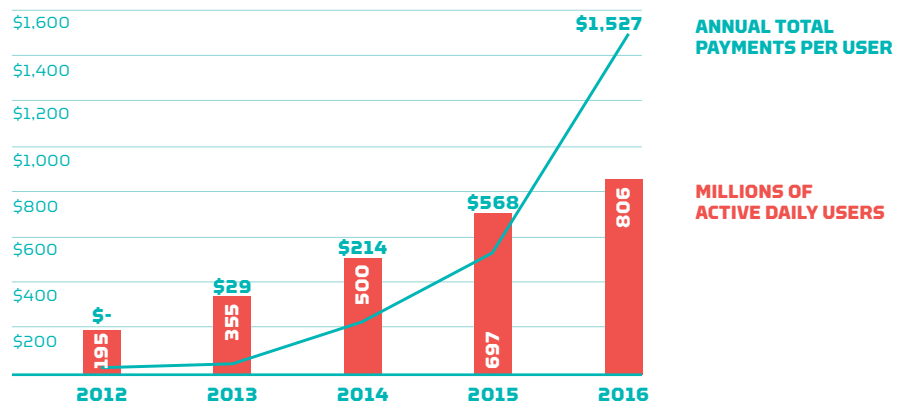
Tencent continued to broaden its appeal to consumers by introducing new services embedded within WeChat. Users can buy movie or airline tickets, book hotel rooms, or access city services in order to pay a utility bill or request service. They can also hail and pay for a taxi, order and pay for food delivery, or shop and pay for clothes. Tencent established relationships with vendors and merchants, several of which offered promotions for the use of WeChat at their physical stores.

More recently, Tencent has been further growing its footprint through international expansion. The company recently established a partnership with Western Union allowing cross-border remittances to be sent inexpensively via the mobile app to over 200 countries. It is now common for many small firms to first launch on WeChat, without the expense and delay of building a traditional website and e-commerce backend, because Tencent makes it relatively easy for them to either establish direct sales with a selective network or easily set up a virtual storefront, market their products, and accept payments from day one.

WeChat APIs: An App within an App

Recently, WeChat also released development tools called application programming interfaces, or “APIs,” that allow startups to build sub-apps especially for use within the WeChat app. Previously, if a developer created a mobile app, they would need to have an iOS version for iPhones and an Android version for Android phones. Using Tencent’s APIs would mean that the underlying mobile operating system would not matter as the entire app would be contained within WeChat itself.

Use of WeChat for payments has grown faster than the usage of the platform itself
US\$ and millions of active daily users



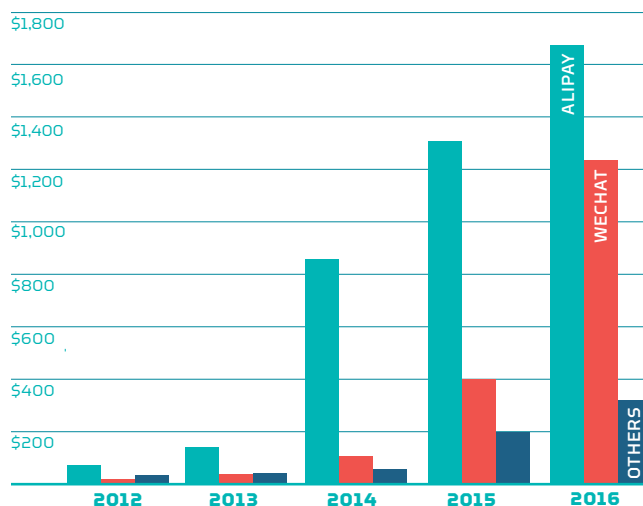
Alipay Tries Its Hand at Social

In 2014, Alibaba's Alipay held 82.3% of the Chinese market for digital payments. At that time, WeChat Pay controlled only 10.6% of the market.⁶⁹ By 2016, however, these numbers had shifted significantly: Alipay's market share had fallen to 68.4% and WeChat Pay's market share had risen⁷⁰ to 20.6%. The popularity of WeChat Pay's growing payments ecosystem, utilizing its existing social network, has been allowing it to rapidly encroach on Alipay's market share.

Recognizing the inroads that Tencent was making by utilizing chat and social, Alipay has made a number of modifications to its own product, including incorporating some features that are similar to those available in WeChat.

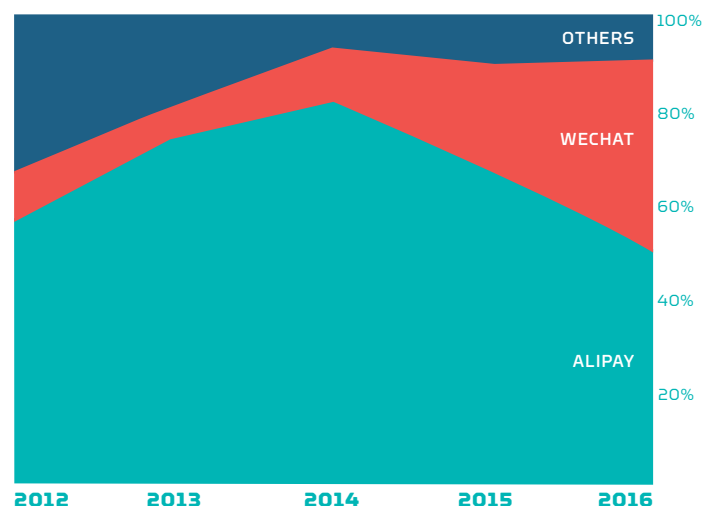
Mobile Payments by Value

Yearly total mobile payments, billion USD



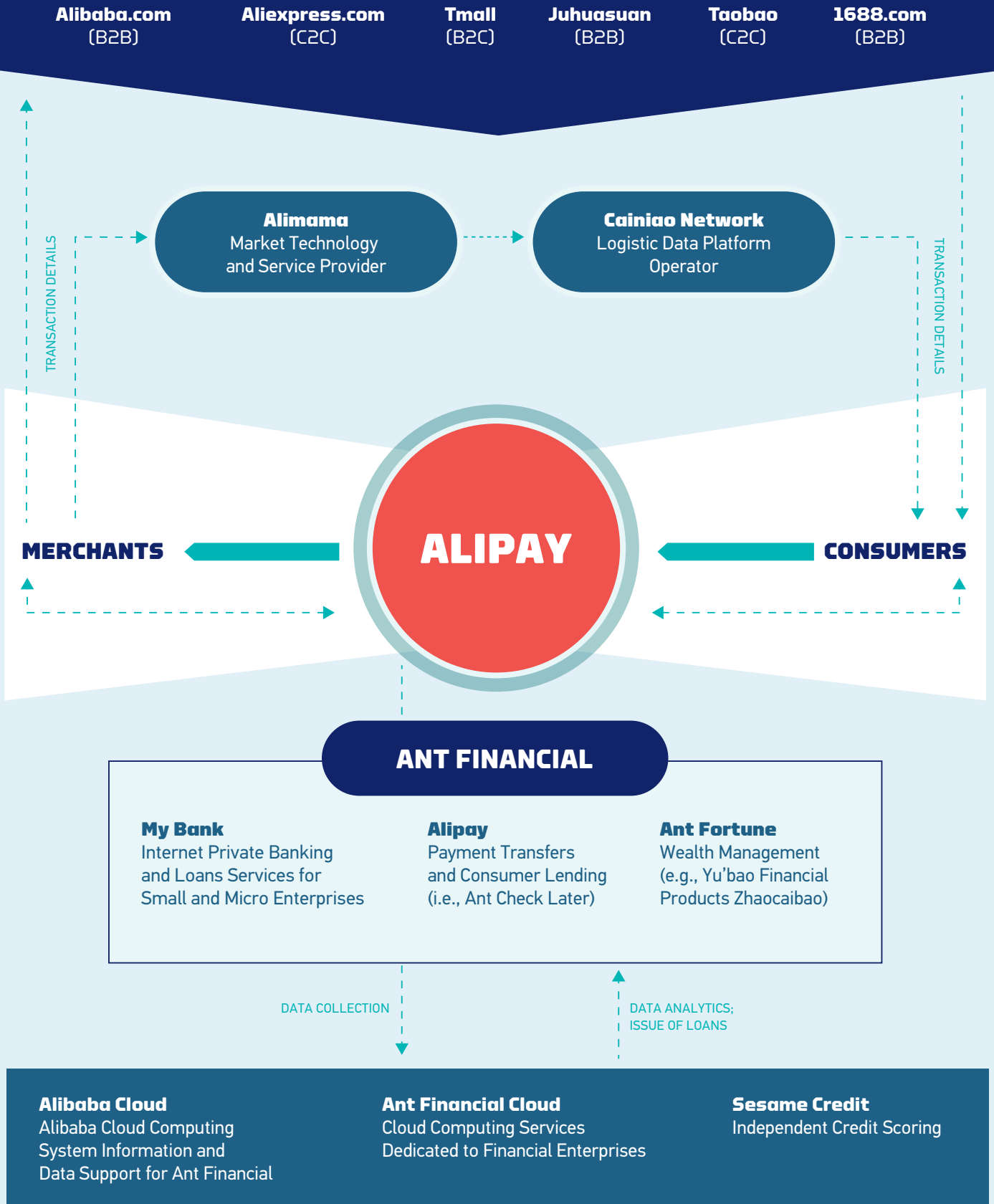
Integration of payments into WeChat has helped Tencent capture mobile payment market share from the market leader Alipay

PSP market share: mobile payments



ALIBABA'S ECOSYSTEM

Alibaba and Ant Financial have created an entire financial and technology ecosystem that leverages synergies between all of their products and helps provide users with access to a wide variety of both financial and non-financial products and services.



Alipay Wallet



The Alipay wallet puts some of the most frequently used payment functions near the top of the screen. Here, a user can scan another person or merchant's QR code, show their own QR code or access location-based shopping services

Pay mobile phone bills

Wealth management service including Yu'eBao

Transfer money to other contacts

Purchase movie tickets online

Red envelope, a Chinese tradition, sending cash to someone or a group of people as gifts

Pay Utility bills such as gas, etc.

Didi, the Chinese equivalent of Uber, internet taxi service

Contacts

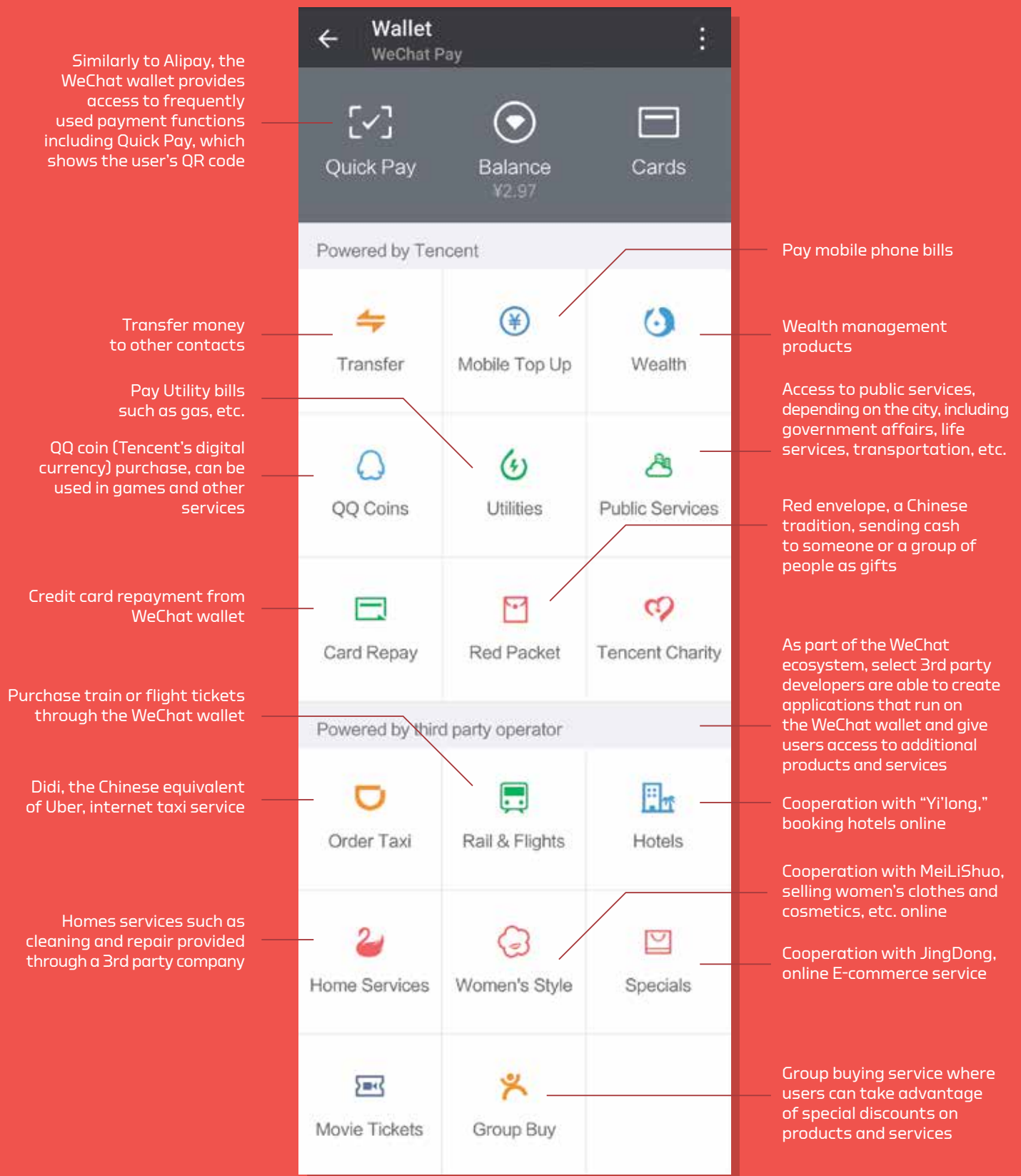
Charity services, requiring users to accomplish tasks, after certain level the charity will plant trees as rewards

Provides an overview of some of the key technologies and projects Ant Financial is working on

Lottery

Wealth management products

WeChat Wallet



For instance, Alipay has added the ability to create online communities with expanded social networking functions including “Record my life,” which is similar to WeChat’s Moments or Facebook’s Timeline. In effect, it is now pushing its wallet to become more like a social networking app with payments functionality.

Several apps in developed economies have also incorporated functionality similar to the innovations in the WeChat network. For instance, WhatsApp has introduced voice and video calls and Facebook has introduced a payments function. What remains to be seen is whether these other global services can also duplicate the creation of a comprehensive ecosystem to boost and maintain their usage.

Comparison of Key Mobile Functionalities

	LAUNCHED	VOICE CALLS	VIDEO CALLS	PAYMENTS	MONTHLY ACTIVE USERS (MILLIONS 2015)	MOBILE PAYMENTS PROCESSED (USD BILLIONS 2015)
WeChat	January 2011	July 2012	July 2012	August 2013	697	396
PayPal	1998	None	None	1998	179	50 (est.)
Alipay	2004	None	None	2004	450	1,316
WhatsApp	2009	April 2015	November 2016	None	1,000	Not Applicable
Facebook Messenger	August 2011	April 2013	April 2015	March 2015	1,000	Not Available

THE ROLE OF POLICY AND REGULATION

The regulatory environment is an important determinant of the amount of innovation and experimentation that takes place in a market. This is particularly relevant for the progress of digital finance and payments in China, where the government has been generally positive about the potential of digital finance to drive economic activity and financial inclusion, among other benefits. This has been reflected in the government’s statements, approach, and the way in which it has fostered competition and regulated market access.

Domestic Policy

China’s government established the Internet Plus Action Plan that recognized the importance of the internet to China’s continued economic development and called for improving the country’s core information infrastructure and expanding connectivity to rural areas.⁷¹ Additionally, the Plan for Advancing Inclusive Finance Development (2016–2020)⁷² set forth a five-year plan to advance the provision of financial services to “small and micro businesses, peasants, urban low-income groups, impoverished groups, the disabled, the aged, and other special groups.”⁷³

The government has urged the various regulators with supervisory authority for the financial services market to “accelerate development of finance based on the internet and telecommunications technology as part of the Internet Plus plan, aimed at better supporting real economic growth,” while reducing risk to the financial system.⁷⁴ The cumulative effect of these pronouncements has helped create a supportive policy environment that encourages innovative approaches to traditional finance.

A “Wait and See” Regulatory Approach

In addition to the policy support, China has taken a very pragmatic “wait and see” regulatory approach for many new innovations in the financial industry. Deng Xiaoping, one of China’s former leaders, and widely considered to be the key force behind China’s “Reform and Opening” period, famously said one must “cross the river by feeling the stones.” Arguably, this is the approach that China has taken with respect to encouraging and regulating innovations in the area of digital finance. It has been initially permissive, has waited to see how the market and its practices developed, and then has taken steps to address any emerging issues with respect to risk and consumer protection.

A good example of this was the initial approach that the PBOC took with payments. Companies operating in any segment of the payments market, including mobile payments, online, phone, prepaid cards, credit cards, and even television payments, received quite substantial latitude to develop their business models in the early 2000s. Alipay was launched in 2004, Tenpay in 2005 along with a number of other large and small payment startups. Although the PBOC never explicitly said how these companies could operate or what their boundaries were, it implicitly allowed the businesses to continue their development.

The payments market grew and by 2010, the non-cash payments market represented 39%, or RMB 11.9 trillion (US\$1.7 trillion) of China’s RMB 30.8 trillion (US\$4.5 trillion) total retail consumption.⁷⁵ It was at this point that the PBOC started to put some parameters around payment company operations.⁷⁶ In 2011, the PBOC required all third-party payment providers to apply for a payment service provider business license. 270 of the companies, including Alipay and Tenpay, were granted a payments license over the next few years.

As a result of this “wait and see” regulatory approach, companies have been able to innovate until they or the industry hit a certain scale before the government set limits on their business operations. The government’s intention seems to have been supportive and indeed, most of the payments companies that were originally licensed by the PBOC are still operating today and had their licenses renewed in 2015. However, more recently, this “wait and see” approach has been evolving as regulators have become more active in addressing emerging issues around risk and fraud as the size of the digital finance sector grows.

Balancing Innovation and Risk

As in most markets, China's regulators face the constant challenge of trying to balance innovation with controlling risk. For instance, on December 28, 2015, the PBOC released new "Administrative Measures for Internet Payment Services of Non-banking Payment Institutions."⁷⁷ These measures were put in place to increase compliance with general know-your-customer (KYC), anti-money-laundering (AML), and counter-terrorism financing (CTF) rules, and to enhance consumer protections through real-name checks before opening an online payment account for a customer. The regulations also set limits on the value of individual transactions, as well as monthly caps on payment activity to enhance consumer protection, and emphasized having adequate security measures in place to protect the private information of users.

When the licenses initially granted in 2011 came up for renewal in 2016, the PBOC took a cautious and selective approach to granting extensions, declaring a moratorium on all new license approvals, narrowing the scope of permissible operations for several licensees, and initially granting extensions to only 27 firms.⁷⁸ The PBOC has also revoked three of the payments licenses that it originally granted for violations and fraud.⁷⁹

Most recently, in its effort to derisk and reduce fraud, the PBOC announced its plans to prohibit non-bank payment providers from making use of client funds, an activity typically associated with banks. Accordingly, payment providers will have to hold all of their customer funds in specially appointed, and central bank approved, escrow accounts at commercial banks.⁸⁰

China's P2P lending industry is another example of the challenge of trying to balance innovation and control risk. P2P lending in China was a RMB 22.9 billion (US\$3.3 billion) industry in 2012 and has since grown to nearly RMB 1.5 trillion (US\$220 billion) today.⁸¹ There were some well publicized instances of fraud in 2014 and 2015. In 2016, the regulators released a set of prudential regulations to address these issues and make the market safer for consumers, including limiting the amount that can be borrowed and clarifying the oversight responsibility among the various agencies.⁸² Some may argue that they waited too long to watch how the market developed before acting because, had the new regulations been in place before, some of those industry challenges may have been avoided. This example highlights one of the potential downsides to the "wait and see" approach when an industry is experiencing rapid expansion and growth.

Fostering Competition and Governing Market Access

The amount of innovation and experimentation that takes place in the market is also greatly influenced by the level of competition that exists and the way that market access is governed. Although regulations have helped many domestic payment providers, they have not always been as helpful for foreign firms. For instance, for many years foreign payments operators were not allowed to provide domestic clearing services for RMB-denominated bank card transactions in China.

In 2012, the World Trade Organization ruled that this policy violated China's membership obligations.⁸³ Although it took several years, the PBOC finally announced in June of 2016 that foreign companies meeting a specific list of requirements could receive a license to clear RMB cards domestically. This means companies like Visa and MasterCard may be able to launch domestic RMB-clearing businesses.⁸⁴ It is unclear, however, how long the approval process will take.

Restrictions on access do not all have to be formalized by regulation. They can be achieved through the effects of informal actions, policies, and rules. For example, although not blocked by regulation, China's "Great Firewall" prevents mainland internet users from accessing certain foreign websites such as Google, Twitter, YouTube, and Facebook. This has created an easier playing field for certain products and services of local companies, such as Baidu's search engine, by reducing their competition from foreign rivals.

It has been asserted that having a closed market reduces competition and innovation. In general, this is true. However, in China's case, the impact of not having the benefit of experienced foreign companies participating in the market was muted by the sheer size of the domestic market and the level of local competition that existed. That environment produced companies at the forefront of innovation, many features of which foreign companies are now striving to emulate.

Even without market access restrictions, the Chinese market has proven to be an extremely challenging one for foreign firms for a number of reasons, including local preferences, cultural considerations, as well as business strategy challenges. For example, Uber, a car hailing service company from the United States that invested millions of dollars striving to compete in the Chinese market, recently sold off its China business to its domestic rival, Didi Chuxing. The obstacles to success that Uber faced in China did not seem to come from any specific regulation or law, but rather challenging market conditions.⁸⁵ But decisions about what types of services to provide to customers can often be influenced by the prospects of being able to compete successfully against domestic market leaders that have already garnered considerable market share.

China's regulatory environment demonstrates the benefits of having supportive policies in place and adopting a "wait and see" regulatory approach that carefully balances innovation with active risk management. Although allowing open market access is optimal, in China's case, depriving the market of the benefits of foreign participation did not overly burden the successful development of innovative new products due to the size of China's domestic market and existing competition allowed by regulators. These latter characteristics are particularly prevalent in China, however, and it is not clear whether similar outcomes would result by imposing such protectionist measures in a smaller economy.

A Brief on Quick Response (QR) Codes

Although mobile payments have existed in China since 2009, the mobile payment industry faced many of the same teething challenges in China that it faced elsewhere around the world: poor device interoperability, conflicting technology standards, and unclear customer / data ownership. By 2010, all three of China's telecommunication companies (China Mobile, China Telecom, and China Unicom) were pursuing mobile payment pilots.

One of the three, China Mobile, partnered with China UnionPay to create "Union Mobile Pay," a payment system designed to work across the China UnionPay network with phones on the China Mobile network using NFC technology. Despite an industry agreement over standards for NFC (near-field communications) technology reached in December 2012 that should have opened the market, NFC mobile payment usage is still limited.

In early 2010, a wave of quick-response of "QR" code startups emerged in China. A QR code consists of black squares of varying sizes and positions arranged in a square grid on a white background. The code can be read by an imaging device such as a phone camera or a simple hand scanner.

Inspired by the popularity of QR codes in Japan and South Korea, these startups offered solutions for location check-in, item identification and tracking, and social marketing. QR codes also started appearing on advertisements on public transport in big cities, and in stores and restaurants. By scanning a QR code, a user could join a virtual queue, access group-buying deals, marketing campaigns, or add a new contact on social media.

Although Alipay and Tenpay were making inroads in online payments, they had yet to break into proximity offline payments because of the monopolistic control of China UnionPay and the mobile operators, but QR codes offered a viable solution. QR codes were secure, easy to use, and were already familiar to customers.

Yet, the one key advantage is that they were hardware independent. To get UnionPay or a handset manufacturer to embed an Alipay technology would have been incredibly difficult and costly, as would attempting to penetrate the NFC payments market. However, with an app-based QR code, Alipay and Tencent only needed consumers to download the app to their smartphone to gain access to the payment functionality.



Alipay was actually the first to use QR codes for payments when it launched QR payment in December 2011. WeChat followed in September 2012 with QR codes for both exchanging contact details and for payment. By May 2016, Alipay QR code payment acceptance reached 600,000 brick-and-mortar merchants across China. Each has their own set of QR codes that users can scan with their phone and pay, or by using 'quick-pay' functionality, a user can display a dynamic (changes every 30 seconds) QR code to a merchant who scans the code with a device to complete the transaction.

QR-code based mobile payments seem to have caught on in China for a number of reasons:

- **Platform agnostic** - Both the Alipay and WeChat pay app work across the Android and Apple iOS platforms, which account for 99.3% of China's smartphone market in urban areas.
- **Easy to use** - Users unlock their phone and click on an icon to show an auto-refreshing QR code that can be scanned by the merchant.
- **Inexpensive** - Users make transactions for free and receive points that can be exchanged for gifts or credit. On average, merchants pay 0.6% to process digital payment transactions through WeChat Pay or Alipay.
- **Ubiquitous** - Over 600,000 merchants accept Alipay payments. On a promotional day where WeChat charged no merchant fees for using its network, 700,000 accepted WeChat Pay in China.

6. THE BUSINESS OF DIGITAL PAYMENT ECOSYSTEMS

Although the initial objective of the Alipay service was primarily to facilitate trust in e-commerce transactions and grow Alibaba's e-commerce business, the push into digital finance has created an entirely new business model for Ant Financial and Tencent. Through fees on payment processing and wealth management, these companies are gaining significant revenue from digital payments.

In 2015, Alipay and WeChat Pay captured 28% of all merchant POS fees; effectively what would have been nearly US\$20 billion in payments fees on transactions had they been processed on traditional card payment networks.⁸⁷ Add payment revenue to the estimated revenue from financial and lending product distribution and it rapidly becomes clear why China's tech giants have staked their claims in the digital finance space as Tencent and Alipay's combined digital finance related revenue topped US\$13 billion in 2015.

A Benefit for the Ecosystem

Although the digital payment products appear to be driving significant amounts of revenue, if not actually profitable, the goal from the start from both Tencent and Ant Financial was to build their own ecosystems.⁸⁷

Tencent, for example, has indicated in the past that the company didn't anticipate WeChat Pay becoming a profitable business due to merchant subsidies and other costs, but that the real benefit from payments would come from enabling the rest of the Tencent ecosystem. With the variety of investments that Tencent has in everything from gaming companies, to an Uber-like car booking app,⁸⁸ it is not difficult to see potential synergies.

Comparison of 2015 Digital Finance Revenue

(US\$ million, estimated)

	PAYMENT FEES FROM TOTAL PAYMENTS PROCESSED	FEES FROM TOTAL FINANCIAL PRODUCTS DISTRIBUTED	FEES FROM SMALL AND MICRO LOANS DISBURSED	TOTAL DIGITAL FINANCE REVENUE
Tencent	\$2,503	\$16	\$1,101	\$3,620
Alipay	\$7,450	\$221	\$2,058	\$9,730

Sources: Kapronasia Analysis, Credit Suisse, iResearch

* Baidu's market share in both payments and lending is negligible

Better Insight through Self-built Infrastructure

China's largest digital payment providers are also unique in that they run on their own infrastructure. Rather than using the traditional UnionPay payment network for payments or using externally developed software products, Ant Financial and Tencent have created their own backend infrastructure. This was despite a very robust domestic payment infrastructure already existing in China. By creating and hosting their own technology, the tech giants have been able to use transaction data for other products and services, as well as ensure product innovation has remained under their control. This appears to have been an effective approach, considering the Alipay system can process 86,000 transactions per second, whereas VisaNet, the online processing network from Visa, can process 65,000.⁸⁹

This means that when a consumer, for example, purchases a wealth management product from Ant Financial's Zhaocaibao wealth management platform, the transaction does not cross the UnionPay or bank payment network, but rather the funds are transferred on the Alipay network and are accounted for on Ant Financial's backend banking systems.

The decision by Ant Financial and Tencent to use their own infrastructure has resulted in a US\$20 billion decrease in fees for UnionPay and the banks. Although the size of the loss is large, the bigger challenge for these organizations in the future is the loss of data. For example, when a wealth management transaction is made through Zhaocaibao, the only information that a bank or UnionPay sees is that a debit was made to a bank account. Beyond that information, a bank or UnionPay would not have visibility into the destination of the funds, or any subsequent transaction.

In the future, customer insight derived from financial transactions similar to the above will become increasingly critical for providing "situational finance": the right product at the right time to the right person. Ant Financial and Tencent will be well positioned to take advantage of this with the amount of transactional and consumer information that they have collected, while banks risk losing customer relationships and cross-selling opportunities.

Increasingly, that data is also fueling the large providers' ecosystems. If WeChat is able to see that someone is buying a box of chocolates, a dozen roses, and a box of breath mints from the store, it may be able to conclude that they are going to have a date where they might need to buy movie tickets or would need to book a car, both of which could be accomplished within the WeChat app and using WeChat payments.

RESPONSE OF TRADITIONAL FINANCE

Although financial technology (“fintech”) has been around for decades, it has only been over the past few years that an uptake and interest in “fintech” has been evident. Fintech typically refers to any technological innovation in the financial industry that threatens to disrupt existing ways of doing business. Digital payments, digital wealth management, P2P lending and digital insurance could all be considered fintech.

As many of these new innovations, including those detailed in this report, compete with existing banking products and services, it is no surprise that banks globally have shown increased interest in, and responses to, fintech. These responses typically fall into one of three categories:

- Setting up either **jointly or solely led fintech programs** (i.e., Hackathons / incubators / accelerators) designed to drive innovation. Banks typically play a collaborative role with other banks, fintech companies, or external organizations and provide mentorship, program sponsorship, and branding confidence in exchange for access to the fintech network, as well as visibility into the latest trends. If they run the programs on their own, they also gain first mover advantage for any new ideas. As an example, Standard Chartered was the main partner of Hong Kong’s first SuperCharger innovation program.
- Some banks set up **internal innovation structures** through either venture funds, teams, or internal innovation groups. These are typically separate entities within a group that are mandated with investment funds, research tools, or proprietary technology for developing innovative solutions. DBS, Southeast Asia’s largest bank, has launched a fintech innovation facility, while Santander, Citi, and many others have corporate development arms that invest in fintech firms.
- There is a certain subset of banks that have **no fintech focus**.

Globally there are a number of banks that are seen as market leaders in the fintech space. DBS has a full-time Chief Innovation Officer⁹⁰ and recently opened a dedicated innovation center.⁹¹ Santander, a Spanish bank, launched a US\$100 million fintech fund “to get closer to the wave of disruptive innovation in the fintech space.”⁹² Citi Fintech was set up in November 2015 and is staffed by employees hired from Amazon, PayPal, and other external tech companies.⁹³

The Ping An Group is one of the traditional financial industry players in China that has taken a significant interest in China’s fintech landscape. First, Ping An invested in, and is a 43% owner of, Lufax, the largest P2P lender and digital financial product distributor in China. Secondly, they have co-invested with Ant Financial in Zhong An, China’s first digital-only

insurer. Finally, Ping An has embraced blockchain technology by being the first Chinese member of the R3, a fintech consortium of banks and service providers cooperatively exploring the potential uses of blockchain technology.⁹⁴

These banks have all taken a very active approach in addressing the threat and opportunity of fintech. However, with the exception of Ping An and a few others, the response of banks in China has been modest.

FINANCIAL INCLUSION

Clearly, beyond the attraction of being able to pay for mobile games, shop, or buy group-buying deals online, one of the clear benefits that digital finance has for a country like China is the prospect of a more financially integrated society. This lesson applies equally to other countries.

China has made remarkable economic progress over the past decade, by any measure. Since 1990, the country has brought the number of people living in poverty down from 755 million in 1990 to 25 million in 2013.⁹⁵ Since 1980, China has maintained an average GDP growth of 9.7%⁹⁶ and as of 2014, 79% of China's adults have a bank account as compared to India where only 53% do.⁹⁷

The digital payments products in China and their related ecosystems have increased access to financial services for many, reduced the barriers to entry, and helped to democratize finance.

Exact numbers on the overall economic impact that digital payments and digital finance are difficult to assess at this point because, while much progress has been made, there is still an acknowledged lack of core indicators for measuring that progress.⁹⁸



There are several different areas where digital finance has helped drive financial inclusion in China:

Easier Access to Payments

Unsurprisingly, Alipay users in eastern coastal provinces, including Shanghai, Beijing, and Zhejiang, spend more annually on average than the less-populated western provinces. Yet, the percentage of Alipay transactions completed by mobile phone is markedly higher in the less-developed provinces like Guizhou, Gansu, and Shanxi. In fact, in Tibet, over 83% of digital payments were completed on a mobile phone.⁹⁹ Although data is not readily available, it is likely that household computer ownership in less-developed provinces would be lower than the country as a whole, increasing the importance of, and reliance on, mobile payments for financial inclusion.

Cheaper Payments for Merchants and Nearly Free for Consumers

Digital payments are also very inexpensive for both merchants and users. For merchants, accepting a digital payment through Alipay or Tencent costs on average 0.6% of the value of the transaction, as compared to the typical credit card fee that can be up to 1% in China, depending on the merchant.

Typical Merchant Fee Comparison

	UNITED STATES / EUROPE	CHINA
Credit Card	2-4%	0-1%
Digital Payments	PayPal ~3%	Average 0.6%

Better Access to Savings and Investment Vehicles

With the democratization of wealth management products, consumers can invest with as little as 1 RMB. Since their launch, both the Yu'e bao and Licaotong services have expanded and now offer a wide range of WMPs from many different providers. China's largest search engine, Baidu, has also launched its own fund distribution service. The three have become some of China's largest WMP distribution services, distributing 5% of China's \$17.5 trillion held in WMPs in 2015.¹⁰⁰ Many of China's banks have also followed this trend and offer products that have similarly low investment minimums.

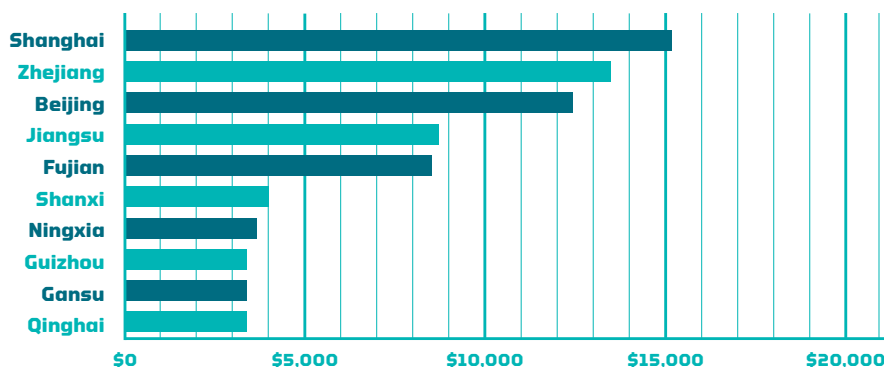
Access to Liquidity

Due to the heavy State Owned Enterprise-focus of China's big banks, many SMEs have often found themselves struggling to access credit and lending. Similarly, many individuals who are new to the financial system may lack credit histories, which would likewise limit their choices. Digital finance has dramatically increased access to capital for both merchants and consumers. As of September 2016, Ant Financial had lent a cumulative RMB 740 billion (US\$107.3 billion) to over 4.11 million small and micro enterprises and entrepreneurs.¹⁰¹ This is a large number especially in comparison to other micro-finance programs like Grameen bank, which has lent US\$17 billion since its inception in 1976. Jiebei, Alipay's credit-based consumer loan service, cumulatively issued consumer loans worth RMB 300 billion (US\$43 billion) to 12 million users in 2016.¹⁰²

Expectedly, Alipay users from provinces with larger incomes spend more with the wallet

Top and bottom 5 provinces by average spend with Alipay, USD, 2015

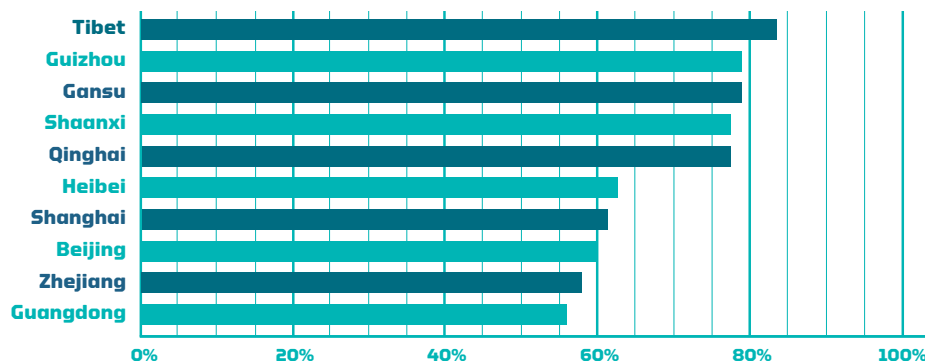
Source: Ant Financial, Tencent, iResearch, Kapronasia Analysis



Mobile phones play a larger role in payments in provinces with lower incomes

Top and bottom 5 provinces by phone usage as % of all Alipay payments, 2015

Source: Ant Financial, Tencent, iResearch, Kapronasia Analysis



Digital Payment Ecosystems Beyond Borders

As a result of their success, China's digital payments ecosystems are spreading beyond mainland China. In an effort to service Chinese nationals during their travels overseas, users can now use Alipay and WeChat Pay in Thailand, one of the most popular destinations for Chinese tourists, to pay for goods and services in many stores.¹⁰³⁴

In January of 2016, WeChat launched WeChat Pay in Hong Kong.¹⁰⁴ The wallet was customized for Hong Kong users and included several exclusive promotional offerings for local merchants.¹⁰⁵ At its inception, however, the wallet did not contain all of the functionality that is available to mainland Chinese users, most notably the Red Envelope function and the ability to pay other users.¹⁰⁶ This was recently rectified in August 2016 when the Hong Kong Monetary Authority granted it a Stored Value Facilities (SVG) license. Ant Financial's Alipay also received an SVG license at the time, which will allow it to offer its product in Hong Kong as well.¹⁰⁷

Both Ant Financial and Tencent are also expanding their influences abroad through their investment activity. Alibaba has made a significant investment in India's PayTM¹⁰⁸ and Tencent into India's PayU, two of the largest digital payment providers in India. Although these investments are significant in their own right, they have become even more relevant as PayTM and PayU have now both been provisionally approved to receive bank licenses.¹⁰⁹

In addition, the Alibaba/Ant Financial investment into PayTM is not just a transfer of money, but also knowledge and expertise. According to reports, both Alibaba and its affiliate, Ant Financial, have invested more than US\$900 million in One97, the owner of PayTM, giving them a 40% stake in the firm.¹¹⁰ Alibaba and Ant Financial have also been providing the staff of PayTM with technical assistance by sending trainers to India to share their expertise on product development, systems, and risk control methods, as well as technology and business models.¹¹¹ The partnership has had an effect. Since the investments in 2015, PayTM's users have increased from 40 million to 140 million and PayTM has expanded its service offerings to build out its own digital payments ecosystem.¹¹²

More recently, Ant Financial invested in Moneygram, a US-based provider of cross-border remittance services, which will strengthen Ant Financial's reach globally.¹¹³ Although regulations around cross-border remittances are tightening, the access to the US market, if the buy-out is approved, would be a strong base for Ant Financial's continued growth.

In Africa, Tencent partnered up with one of its early investors, the South African based Naspers fund,¹¹⁴ to launch the WeChat Africa joint-venture in mid 2016.¹¹⁵ Smartphone adoption has grown 30% year-on-year from 2012-2016, and there are now 30 million smartphones in a country of 55 million people.¹¹⁶ 78% of all internet traffic in South Africa takes place over mobile channels, one of the highest rates in the world, and yet only 15% of South Africans reported making a purchase on a mobile phone in the preceding month when surveyed in 2016, indicating a large opportunity to expand digital payment access.¹¹⁷ Through WeChat Africa, consumers and merchants can use WeChat to pay for goods and services in South African Rand.

But there are already other alternatives in that market, such as WhatsApp. South Africa is WhatsApp's strongest market in terms of penetration, with over 10 million users. Although WeChat had reached 5 million users in 2014 by establishing linkages with Standard Bank and SnapScan, a popular retail payments app, uptake has been somewhat lower than expected. This may be a result of lower-power smartphones and education around the WeChat app,¹¹⁸ which is slightly more complicated than WhatsApp.¹¹⁹ Interestingly, Chinese smartphone manufacturer TECNO has done well in Africa by catering specifically to the needs of the market, which may increase smartphone penetration in the longer-term.¹²⁰ In general, however, linking more retail points and financial services to these growing networks could enable millions more South Africans to gain access to digital payment channels.

The expansion of Tencent and WeChat is not unlike other ex-China digital payment and social platforms who are also pushing to expand internationally.

One of the most successful global payment platforms is the nearly ubiquitous PayPal, which is available in 202 countries and 25 currencies.¹²¹ Although PayPal has struggled to make an impact domestically in China, it has done well with cross-border transactions and has helped Chinese merchants process payments for about 40 million users who have used PayPal to buy from China.¹²²

Facebook as well is looking at payments and in December 2016 revealed that it had acquired licenses for e-money and payment services out of Ireland, which would allow it to provide payment services across Europe, thus building on the Facebook Payments product which is already live in the US.¹²³ With Europe's "Payment Service Directive Two," or PSD2 for short, banks are required by regulators to open payment APIs to 3rd party providers, which means that Facebook could operate as a complete payment service provider in Europe.

The China experience shows that there are vast opportunities that other countries can harness by using existing e-commerce platforms and social networks as a foundation for expanding the digital payments ecosystem. Mobile has become the dominant form of internet access in several developing countries and social media platforms are growing rapidly, laying the groundwork for easy payments integration. Indonesia, for example, was the fastest growing m-commerce market in the world in 2016, expanding 155% from January 2016 to January 2017.¹²⁴ Some of this growth may be due to the release in 2015 of BBM Pay's Instant Mobile Payments.¹²⁵ The popular BBM chat app has over 55 million users in Indonesia, and BBM Pay had previously allowed those users to transfer money just as they would photos or files. The Mobile Payments function allows them to pay for goods and services with participating merchants, and was directly inspired by the ecosystem that WeChat has built in China.¹²⁶

Many markets in South America also have the infrastructure necessary to build payment ecosystems similar to those seen in China. For instance, 59% of the South American population uses social media, and 52% connect with social media over their mobile phone.¹²⁷ 75% of the population has access to broadband,¹²⁸ and 57% of all connections are smartphones, far higher than Africa or South Asia.¹²⁹ Yet the digital payments space remains fractured, and no payments provider has linked their service to these platforms in a significant way, or vice versa. E-commerce is dominated by card transactions (61%) and cash payments to prepaid cards or kiosks (23%).¹³⁰

With Facebook, Facebook Messenger, and WhatsApp the dominant platforms in South America (Brazil alone makes up 10% of all Facebook usage globally),¹³¹ attention will be focused on whether payments integrated into those networks will emerge as a viable point of entry. Facebook's addition of Payments to its Messenger platform in the US, combined with its payment license in Europe, points toward eventual global integration of payments onto its platforms.¹³² Whether this will impact

countries in South America, where traditional banks and card companies are well established, is an open question.

While the final outcome of all of these endeavors remains to be seen, these are promising beginnings that show how businesses and operating models can be applied successfully to improve the uptake of digital payments and to help foster the development of digital payments ecosystems that can advance financial inclusion.

RISKS OF DIGITAL FINANCE

In addition to noting the benefits that are created by new innovations in finance, it is important to identify and manage the potential risks, of which there are several.¹³³ Although many of these risks may exist with any financial product, arguably, the nature of digital finance raises special concerns.

Financial Loss from Investments

As digital finance expands access to financial products and services to a wider group of people, many of whom may have no prior experience with financial services, it is important to ensure that effective rules are in place to adequately inform and protect these new consumers against the potential risks that they may encounter. Financial literacy can also play an important role in reducing the risks of potential loss.

For instance, recently, one of the investment firms listed on Ant Financial's Zhaocaibao platform defaulted on its US\$45 million worth of corporate debt, affecting the returns of 13,000 investors.¹³⁴ This raised questions about the quality of the investments options listed on the platform and whose responsibility it was to ensure levels of investment quality. Ant Financial does not consider itself liable since the products in question were issued by a third party, but it has pledged to help investors in obtaining legal assistance.¹³⁵

Fraud, Identity Theft, and Other Potential Misdeeds

Strong monitoring and supervision is necessary to reduce financial risk and ensure that payment providers take adequate measures to secure the personal data and information of their customers and prevent fraud, identity theft, and other potential misuses from occurring. For instance, as noted above, the P2P lending space in China has recently experienced several instances of large-scale fraud, prompting the regulators to increase their supervision and mandate a set of prudential measures to protect consumers.

To date, however, there have been few widely reported instances of fraud in payment transaction services. In fact, according to officials at Alibaba, the rate of error or fraud is 1 in 100,000 or about 0.001%. In China, the fact that both Alibaba and Tencent are well-known companies with large market shares means that they have self-interested reasons to reduce risk in order to manage their reputation, market share, and, in the case of Tencent, its stock price (although reports have emerged that Ant Financial is preparing for an Initial Public Offering in 2017,¹³⁶ so may have similar concerns).

Protecting clients' digital data is increasingly important

given the volume, velocity, and variety of data being used for marketing and credit scoring, while recognizing that use of client data can increase the range of products a client can access.

Better Than Cash Alliance,
Responsible Digital Payments Guidelines

Big Data, Big Brother

Processing payment transactions and their accompanying information creates a large amount of raw data that can be used for many purposes. For instance, the data can be used to meet Know Your Customer (KYC), Anti-Money Laundering (AML), and Counter-terrorist Financing (CTF) requirements. Information from digital payments and other related online activities can also be used to compile credit scores, such as those that are being crafted by Sesame Credit. These uses can be very beneficial.

The data can also be used for other purposes, for instance to monitor user activities. In China, for example, social media is subject to the government's censorship rules. Messages of WeChat users in China, therefore, are subject to review and may be altered if objectionable language is used. Interestingly, however, Tencent applies different censorship rules to its users depending on whether a Chinese or a foreign telephone number is used during registration.¹³⁷

Another potential use of the data is to facilitate the creation of profiles. For example, the Chinese government has announced plans to create a fully functioning "social credit system" that will use payments and online data as one aspect in the creation of a behavior profile to rate creditworthiness as well as personal conduct.¹³⁸ A user's social credit score will be linked to his or her identity card and thus be a permanent measure that can be potentially used in myriad ways.¹³⁹ The system is not set to become operational until 2020. Concerns have been raised about the government's potential use of this information in China, from a privacy and civil liberties perspective.

However, there are a range of other ways that payments and online activity data can be used in more open societies, where higher levels of accountability, transparency, and checks and balances can ensure different outcomes and provide substantial user and societal benefits.

One example of this is India's use of biometric data in the Aadhaar system. In 2016, India established a Unique Identification Authority (UIDAI) to issue Unique Identification Numbers (UIDs), or Aadhaar numbers, to all residents of India that were: "a) robust enough to eliminate duplicate and fake identities, and b) can be verified and authenticated in an easy, cost-effective way."¹⁴⁰ The Aadhaar number is obtained by submitting biometric and demographic information during a process of enrollment.

The Aadhaar Act and its governing regulations established a transparent framework for the functioning of the system. Under the Act, "biometric information" is defined as a "photograph, fingerprint, iris scan, or such other biological attributes" that may be specified by regulation.¹⁴¹ "Demographic information" is defined as including information relating to name, date of birth, address, or other relevant information as may be specified by regulation.

However, the Act specifically prohibits the inclusion of information related to “race, religion, caste, tribe, ethnicity, language, records of entitlement, income, or medical history.”¹⁴² The Act also specifies the permissible uses of the UID and biometric data, the security measures that must be put in place to secure them, who has access to them, under what circumstances, and the user’s right to appeal. In the system, the data is centrally maintained by the UIDAI and may be queried by authorized users, as defined by the regulations. Some payment service providers have already made use of the system.

For instance, PayTM is using it in its electronic KYC process to verify its customers’ identities and facilitate their use of digital signatures.¹⁴³ A key difference between the Aadhaar number and China’s proposed social credit system is that the former does not use payments data to build a behavioral profile of a user, but instead focuses on enabling accurate identification which enhances the accuracy of payments, and thus increases trust in digital payments more generally.

Operational Risk

As the payments ecosystems of firms like Ant Financial and Tencent grow and their customer base expands, it is critical to ensure the capacity and safety of their operations. Strong supervision is required to ensure that they properly assess and manage their risks and ensure the resiliency of their operations, such as having effective business continuity plans in place to address any potential eventualities. In addition, given the many unique cyber threats currently existing, their cyber-security programs must be robust and constantly evolving to keep pace with new threats as they emerge.

Systemic Risk

In addition to operational risk, as digital payments ecosystems expand, their potential to exert systemic impact rises. At present, the digital payments services of Alipay and WeChat Pay do not rise to the definition of being “systemically important.” To achieve this, they would have to be the “sole payment system in a country or the principal system in terms of the aggregate value of payments [made], mainly handle time-critical, high-value payments, [or] settle payments used to effect settlement in other systemically important FMI (financial market infrastructures),”¹⁴⁴ as defined in the *CPSS-IOSCO Principles for Financial Market Infrastructures*.

This definition – while perhaps not technically fulfilled in the cases of Alipay and WeChat Pay – is worth consideration, because it highlights that broad-based disruptions in their services may have the potential to spread financial contagion to other critical components of the financial system. “Poorly designed and operated FMIs can contribute to and exacerbate systemic crises if the risks of these systems are not adequately managed.”¹⁴⁵

Policymakers in other countries looking to build out their payments ecosystems can learn from these principles as they put in place the regulatory and infrastructure components of their ecosystems, and can do so much more effectively in terms of mitigating systemic risk if they heed these principles from the outset rather than proceeding through trial and error.

A Young Entrepreneur in Shanghai



Jacky is a young entrepreneur. He started a personalized fruit vendor business in Shanghai using WeChat. He initially developed the idea after speaking with some friends who worked in the food supply chain business, and ran his venture for two years before he recently had to close the business and relocate to Wuxi for personal reasons. He saw a niche opportunity meeting the needs of clientele who wanted customized service and quality merchandise, and who were price aware but not overly price sensitive. Jacky focused on service, picked the fruits for quality himself, and delivered them carefully.

Jacky used WeChat to run his business. His customers were all in one group on the network. What started out as a service among a few friends soon blossomed into a network of over 120 customers. His customers were all friends of friends, and constantly added more friends. In this way, his business and reputation grew via word of mouth over the WeChat network. Jacky liked using WeChat because he could see the whole profile of his customers and he knew that they were real people, not just numbers.

He preferred using a direct WeChat group over a corporate account on Alibaba's Tmall or Taobao because he could maintain the personalized nature of his client interactions, which he felt was lacking in the official commercial accounts. The ability to communicate with each client directly from a centralized network allowed him to not only customize their purchases, but also their delivery preferences and to easily accommodate changes. WeChat provided him greater flexibility.

Most of Jacky's customers used the payment function within the WeChat app to pay for their purchases because of the convenience. Having the payment function directly in the app also allowed him to keep the order information and the payment record in one place. To clarify any questions, he simply could consult his chat history with a customer.

The ecosystem benefits of WeChat helped to keep his customers in the app and tied to his business, and the payments function kept his cash flow running consistently or at least predictably. For Jacky, WeChat was instrumental in helping him launch and grow his small business.

7. KEY LESSONS FROM CHINA: SUCCESS FACTORS FOR ESTABLISHING A ROBUST AND INCLUSIVE DIGITAL PAYMENTS ECOSYSTEM

The scope of its digital payments ecosystems makes China an ideal case study for other countries as they consider various strategies to promote the transition from cash to digital payments and advance financial inclusion. Many factors enabled the development of these ecosystems in China. However the factors that are most relevant for potential application elsewhere can be grouped into three broad categories:

- 1) Effective Business Strategies for the Private Sector;
- 2) Supportive Regulation and Policy for Governments; and
- 3) Security Considerations for the Payment Providers and Governments.

EFFECTIVE BUSINESS STRATEGIES FOR THE PRIVATE SECTOR

Use Existing E-Commerce Platforms and Social Networks as a Foundation

As this report has sought to demonstrate, one of the most effective ways to encourage the uptake of digital payments is to use existing e-commerce platforms and social networks as a foundation for building new products and services to retain existing users and reach new ones. Alibaba demonstrated the effectiveness of this approach when it linked its payment product to its successful e-commerce platform. Similarly, Tencent achieved the same benefits when it embedded its payment product in its successful social network. Rather than using the existing national payments systems, which existed as utilities, Alipay and WeChat pay incorporated payments to create additional value for their existing networks. In combination with a supportive regulatory environment, making use of an already familiar and robust network or platform can assist greatly with overcoming the issue of trust that many new users of digital payments feel.

Incentives for Use and Sustainability

While tapping a pre-existing customer base is useful, the strategic use of incentives can help to strongly encourage and maintain usage. Tencent's creative gamification of the "red envelopes" custom is an instructive example. Both Alipay and Tencent have made significant strides in partnering with a wide range of participating vendors to provide practical benefits for users in obtaining goods and services. They have also employed a variety of additional incentives for users, such as vendor promotions and discounts. Alipay and WeChat subsidized their digital payments services when they were initially launched by making transactions free of charge. Both providers appear to be taking a longer-term strategic approach of building up frequently used products into go-to financial service points for much of China's population, although these products have now become significant sources of revenues.

Another important aspect to note is that to be sustainable, a digital payments ecosystem also needs to be self-perpetuating. To achieve this there needs to be enough tools, such as APIs, available to vendors and SMEs to enable them to make their own additions to the ecosystem and create new business models supported by fully integrated payments functionality. This allows the ecosystem to be innovative and adaptable to the needs and preferences of its users, because the group of developers is decentralized and usually in close touch with the users. Longer term, this will grow the user base and serve to support financial inclusion by helping developing products and services to meet segments of the population that are on the fringes, or outside of the digital payments ecosystem. This is also something that rarely occurs in other markets because companies often do not have diversified revenue streams from payment services.

Hardware Neutrality

An often-overlooked element in robust digital payments ecosystems is the role of hardware agnostic platforms. Many payment providers have attempted to introduce digital payments as a product. ApplePay and Samsung Pay are just two examples. However, where their products can only be used with their particular phones and wallets, this can limit user uptake. In contrast, Alipay and WeChat Pay are hardware agnostic. No matter what kind of smartphone a user has, the app is available in a store that will service that device. As a result, they enjoy much higher rates of uptake.

Universal Access

Another important factor to consider in boosting the inclusiveness of digital payments ecosystems is the extent to which they provide universal access. For those users without bank accounts, value can also 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 those users without access to bank branches. In particular, it can help to increase the financial inclusion of populations in more remote and rural areas, a benefit that is potentially applicable in many countries that have more decentralized populations or that are experiencing demographic flows within their countries that are taking people away from their place of origin.

Of course, many people in China and other emerging economies still face significant barriers to obtaining a bank account. For example, difficulties proving their identity, problems with literacy, and problems with physical access to bank branches in cases where in-person applications are required can all pose obstacles. The ability to use a prepaid card to gain access to the digital payments ecosystem can significantly boost familiarity with, and confidence in, digital payments and will benefit financial inclusion in the long run. This is a useful lesson to note for other countries.

SUPPORTIVE REGULATION AND POLICY FOR GOVERNMENTS

A “Wait and See” Regulatory Approach

One of the most significant factors determining the success of digital payments and the development of a robust and responsible digital payments ecosystem, is the regulatory environment. With respect to market participants such as banks, technology companies, and third-party payment providers, regulations can both encourage innovation and stifle it. Care must be taken by regulatory authorities to establish a set of policies and regulations that encourage a sufficient amount of innovation but also stay within prudentially acceptable limits.

Taking a “sandbox” approach – creating a confined area for this type of experimentation – is one of the ways that many forward-thinking regulators have approached this task in an attempt to strike the right balance between these two objectives. In this approach, market players are allowed to pursue new products and services within an established set of limitations, under the watchful eye of the regulators. As the product develops and its implications and issues emerge, the regulators develop the appropriate guidelines and regulations to address them. Singapore and the United Kingdom are two notable jurisdictions that have taken this approach.

China’s approach might be considered a “sandbox-hybrid” where the government has not created a formal “sandbox,” but has allowed for innovation within informal limits in the industry in general. This approach demonstrates that China’s regulators recognized the need in the market, were willing to allow a substantial amount of innovation to address it, and then put appropriate regulations and supervisory policies in place to ensure that services and operations are conducted safely and in a way that adequately protects consumer interests.

With respect to the potential users of digital payments, creating transparency around the operational rules (such as the procedures for recourse in cases where fraud is alleged, assessment of liability, and expectations around data handling and privacy)¹⁴⁶ will help to alleviate concerns about the safety of the services on offer, and build confidence and trust, thus playing an important part in supporting the shift from cash to digital payments for some users. Challenges presented by distrust and lack of familiarity with digital payments can be found in all markets; so too, a sufficiently proactive and transparent regulatory approach is a key factor in overcoming these challenges in all markets and building an effective and inclusive digital payments ecosystem.

Aligning Policy and Investment

Another significant factor determining the success of digital payments and digital payments ecosystems is the overall government policy stance in that jurisdiction, and the willingness of policymakers to align government investment priorities to match that policy stance. This is particularly important in areas where substantial funding is required to establish capacity, such as the basic infrastructure of the internet and mobile telecommunications.

China's Regulatory Structure

Modern Chinese financial industry regulation has a relatively short history. The People's Bank of China, China's central bank, was established on December 1, 1948 through the consolidation of Huabei Bank, Beihai Bank, and Xibei Farmer Bank.

Between that time and 1978, the PBOC was the only bank in China and was responsible for both central banking and commercial banking operations. All other banks were either part of the PBOC or non-deposit taking agencies. As China entered the reform period of the 1970s and 1980s, the commercial banking functions of the bank were split off into four independent state-owned banks: Industrial and Commercial Bank of China (ICBC), Agricultural Bank of China (ABC), Bank of China (BOC), and China Construction Bank (CCB), while the PBOC maintained its central banking function.

The financial industry continued to grow in importance, and in the early 2000s, the government set up three additional regulatory agencies: the China Banking Regulatory Commission (CBRC), the China Insurance Regulatory Commission (CIRC), and the China Securities Regulatory Commission (CSRC). These agencies largely focused on specific industry issues and regulations within their respective segments.

Today, China's four main regulatory bodies work to strike the best balance between innovation and risk mitigation. This is especially challenging given the speed with which new products and services are coming to market, many of which - such as P2P lending - that could not be anticipated when the commissions were established in the early 2000s.

Currently, responsibility for supervising the fintech industry is partitioned among the regulators according to product function or service, as follows:

PEOPLE'S BANK OF CHINA (PBOC)	CHINA BANKING REGULATORY COMMISSION (CBRC)	CHINA SECURITIES REGULATORY COMMISSION (CSRC)	CHINA INSURANCE REGULATORY COMMISSION (CIRC)
Digital Payments	P2P Lending	Crowd Funding (Equity)	Digital Insurance
Credit Checking	Online Lending		
Digital Currency	Consumer Finance		

The wealth management segment is another area where there is some functional distinction in supervisory authority. If the wealth management product is invested in stocks, then it is regulated by the CSRC, but if it functions as a time-deposit, it falls under the purview of the CBRC.

In China, the government has taken a supportive stance toward digitalization. China already has one of the most extensive internet communications networks in the world. However, recognizing the importance of the internet to China's continued economic development, the Chinese government has announced measures to support the build-up of the country's core information infrastructure and encourage the expansion of connectivity to rural areas.¹⁴⁷ This stance is reflected in its "Internet Plus" policy, the implementation guidelines of which were recently issued by the State Council, China's governing body. As of the first quarter of 2016, China had 530 million 4G users. This exceeds the number of 4G users in the United States and Europe combined. In furtherance of the Internet Plus policy, China expects to spend RMB 1.2 trillion (US\$1.88 billion) over the next three years to further improve the quality of its broadband connectivity and mobile access.¹⁴⁸ This will help facilitate the use of mobile smartphones, which are an important element in digital payments and finance.

Therefore, it is important for governments to ensure that regulations, policies, and incentives are in place to facilitate digitization and ensure that vital preconditions, such as the infrastructure for internet and mobile telecommunications, are in place.

SECURITY CONSIDERATIONS FOR BOTH THE PRIVATE SECTOR AND GOVERNMENTS

Individual Identification

In order for payments to be secure and transparent, there must be a way to identify payers and payees accurately. Not only will this enhance consumer protection, but it is also vital to meeting internationally established norms for collecting the information that is necessary to comply with KYC, AML, and CFT regulations. There are a number of ways to verify customer identities. For instance, one of the primary ways that WeChat verifies its customers is through their linked bank accounts. In this way, a provider can verify each user's real name, phone number, and bank account. If a user does not link a bank account, and uses a prepaid card or payments from other users to load their account, they can still verify their account using their national ID, but are limited to smaller-value transactions.

There are other options available for identification that have been adopted in other markets, with significant degrees of success, for example, India's Aadhaar biometric registry. In fact, some payments providers, like Alipay, are also beta testing the use of facial recognition and other biometric markings as a means of identifying users.¹⁴⁹ Regardless of which metric is used, however, the main goal is to ensure accuracy in the identification of users for the purpose of processing large numbers of payments transactions accurately, helping in turn to build trust in digital payments and the broader payments ecosystem.

Located in the southwest of China, the Chongqing area has just over 30 million people, including an urban population of 18 million. It is one of China's "directly administered" cities, meaning it is effectively its own province and one of the five "National Central Cities" in China alongside Shanghai, Beijing, Guangzhou, and Tianjin.

Digitization and Government: Better Together



Chongqing's economy is similar to others in China in that it is manufacturing and production focused; however, like many other provinces in China, the vast majority of the Chongqing area is still rural.

Because of its large rural population, the city has also been the site of various policy reform initiatives, as it seeks to encourage rural-urban migration, rural-urban land conversion, infrastructure investment, agricultural restructuring, rural development, and re-employment to drive growth. Digital finance is an important part of this effort.

The Chongqing Financial Office in conjunction with other government agencies worked with Alibaba, Tencent and other digital lending and finance businesses to set up micro-lending businesses in Chongqing to service not only local retail and business needs, but also national demand.

To attract these companies to Chongqing, the local government took a new approach to regulation which they call "Kuan Song Shi" (literally: "loose supervision"). Compared to the traditional top-down regulation and supervision approach favored in China, this new style provides basic operating parameters for the micro-lending companies such as rate and size requirements, but otherwise gives space and freedom for companies to grow their business.

This model has achieved significant results for the development of inclusive finance. For example, in 2011 Alibaba set up a company called "Chongqing Alibaba Micro Loan Limited," and approved more than RMB800 billion (US\$116 billion) in loans. Significantly, all of these loans are under RMB500,000 (US\$72,500) each. The government believes this outcome is mainly due to Alibaba's data center and internet business model.

By analyzing loan application details such as spending history and expense payments, Alibaba can make rapid decisions about which loans to fund with low cost and risk. According to Cao Ziwei, Vice Director of the Finance Office of Chongqing, the average cost per loan for Alibaba is as low as RMB0.6 (US\$0.08), whereas the typical cost for a bank would be closer to RMB2,000 (US\$290). At the moment, each micro loan company has its own database, which is one of its core assets, so there is no data sharing or communication among them or other financial institutions in Chongqing as yet.

The Chongqing government is also supporting other initiatives to promote digitization of payments and inclusive finance. For example, the government established a "Three Way" credit service for small businesses in need of capital. In this model, loans come from three sources: the small company itself, which puts up a small amount of capital to ensure it has the incentive of having invested in its own success; the local Ministry of Finance; and the banks. The portions of these sources of funding are 25%, 25%, and 50% respectively. The program provides critical lending services to small and medium enterprises that may not otherwise have access to capital. According to the Chongqing government, spending from the city's treasury on "Three Way" loans was RMB2.4 billion (US\$325 million) in 2014.

A key overarching issue in payments (both traditional and digital) is trust and convenience. There must be trust in the community or network (i.e., between the payor and payee), trust in the security of the payment mechanism, trust in the regulatory environment for consumer protection and recourse, and a belief that the method is beneficial. An examination of the China experience demonstrates that robust digital payments ecosystems can address all of these concerns and are, therefore, a useful way to accelerate the acceptance and use of digital payments.

Despite the benefits, there are challenges. Regulators are still figuring out the right balance between innovation and regulation. China's financial institutions are still working out their fintech strategies. Alipay and Tencent are expanding faster than many other similarly sized global tech companies. And we are still very much in the early days of fintech both inside and outside China. How this all plays out remains to be seen, but the initial impact of digital finance on China is difficult to over-exaggerate.

There are significant benefits of convenience and utility to be achieved by integrating payments functionality in existing e-commerce platforms and social networks. But even greater benefits of financial inclusion can be reached when robust digital payment ecosystems are developed around those networks and platforms. As China's experiences illustrates, being able access vital financial services in an easy and convenient way increases the likelihood of their use. Digital payments ecosystems, therefore, can be a powerful catalyst to accelerate digitization and increase financial inclusion.

ANNEXES



METHODOLOGY

This report is based on a combination of primary and secondary research.

Primary research was conducted through face-to-face interviews with both consumer and commercial users of digital and social payment systems, industry experts, Tencent, and Ant Financial staff, and representatives from the Chongqing City Government Finance Office and the Shanghai Finance Information Association. Additional comparisons were made through discussions with other regulators, payment service providers and banks, including the Monetary Authority of Singapore, Visa, DBS, and MasterCard.

Secondary research sources included internal Kapronasia research and analysis, as well as external private and public sources of data, including company statements, domestic government databases, as well as international organizations, including the World Bank and the International Monetary Fund.

KEY DATES

DECEMBER 1999	Alibaba Launch
MAY 2003	Taobao Launch
DECEMBER 2004	Alipay Launch
SEPTEMBER 2005	Tenpay Launch
APRIL 2008	Tmall Launch
NOVEMBER 2009	First Alibaba 11/11 shopping festival
2010	Taobao loans for merchants started
JANUARY 2011	WeChat Launch
DECEMBER 2011	Alipay launches QR code for offline
SEPTEMBER 2012	WeChat Pay launches with QR code for offline
JUNE 2013	Yu'e bao Launch
JANUARY 2014	Licaitong Tencent's Wealth Management Platform Launched
FEBRUARY 2014	WeChat's first Red Envelope Marketing Campaign
SEPTEMBER 2016	Ant Forest Launched
OCTOBER 2016	Alipay Everywhere Launched

TERMS AND DEFINITIONS

DIGITAL	Data and information that is stored in electronic form on a digital medium, such as the internet, a mobile device, or a computer.
DIGITAL FINANCE	Financial transactions, including but not limited to payments, investments, lending, and insurance services, that are carried out through a digital medium.
DIGITAL PAYMENT	A payment transaction that is conducted via a digital medium.
DIGITAL PAYMENTS ECOSYSTEM	A set of financial products and services built around a digital payments platform or functionality. Can also be referred to as a “Financial Services Ecosystem.”
E-COMMERCE PLATFORM	An online website through which businesses and individuals buy and sell products and services.
MOBILE PAYMENT	A payment transaction that is conducted over a mobile phone.
ONLINE PAYMENT	A payment transaction that is conducted over the internet typically using a computer rather than a mobile device.
PAYMENT SERVICES PROVIDER	A firm that provides payment services through the use of a payment product, such as a credit card, debit card, mobile wallet, or app.
PROXIMITY / OFFLINE PAYMENT	A payment transaction that is conducted in person at a point-of-sale (POS) location, typically using NFC, soundwave, or QR-code technology.
REMOTE MOBILE PAYMENT	A payment transaction that is conducted over a mobile phone without the presence of a physical POS device.
SOCIAL NETWORK	An internet-based service that facilitates easy communication among individuals in a group or network.
SOCIAL PAYMENT	A payment transaction that is conducted using the embedded functionality of a social network.

Throughout the report, all romanization of Chinese words is done in pinyin and uses Mandarin Chinese, the form of the Chinese language most commonly spoken in mainland China.

FUNCTIONAL COMPARISON

Overview of the key functionality of various Chinese Digital Finance Platforms

FUNCTIONALITY	PARTICIPANTS					
	ALIBABA	TENCENT	BAIDU	PINGAN	JD.COM	XIAOMI
PAYMENT	Alipay	Tenpay, WeChat Pay	Baidu Wallet	1qianbao	JD Payment	Xiaomi Pay
LENDING	Ant Micro Loan, Huabei	Weilidai, Renrendai	Baiduxiaodai	Chengyi, Puhui	JD IOU	
BANK	MyBank	WeBank	Baixin Bank	PingAn Bank		
INSURANCE	ZhongAn Insurance, Cathay Insurance	ZhongAn Insurance	BaiAn Insurance	PingAn Insurance, ZhongAn Insurance	JD Insurance	
SECURITIES	Tebon Securities	Futu, Huatai		PingAn Securities		Tiger Securities
WEALTH MANAGEMENT AND DISTRIBUTION	Tianhong, Yu'E Bao, Ant Jubao, Shumi, Taojin 100 Index	Howbuy.com, Licitong	Baifa, Baizhuan	Lufax	JD Xiaojinku	Jijinbao, Huoqibao
CREDIT SCORE	Sesame Credit	Tencent Credit		Qianhai Credit		
CROWDFUNDING	Taobao Crowdfunding, Antsdaq	Tencent Lejuan		PingAn Haofang	JD Crowdfunding	Duocaito

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The Better Than Cash Alliance Research Series

Our case study and country diagnostic series seeks to highlight specific examples of shifts from cash to digital payments by governments, companies, and international organizations. Each case study and country diagnostic aims to provide insights for a wide audience on the factors that have helped or hindered the digitization process, and also present key results and benefits of the transition away from cash. We hope that readers will be able to adapt the lessons from these cases to their own contexts and local conditions.

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About Kapronasia:

Kapronasia is a provider of market insight focused on Asia's financial services industry. Through its offices in Shanghai, Singapore and India, it provides a combination of research and consulting services to help clients better understand the changing dynamics in Asia's payments, banking and capital markets.

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The Better Than Cash Alliance is a global partnership of governments, companies, and international organizations that accelerates the transition from cash to digital payments in order to reduce poverty and drive inclusive growth. Based at the United Nations Capital Development Fund (UNCDF), the Alliance has over 50 members, works closely with other global organizations, and is an implementing partner for the G20 Global Partnership for Financial Inclusion.



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