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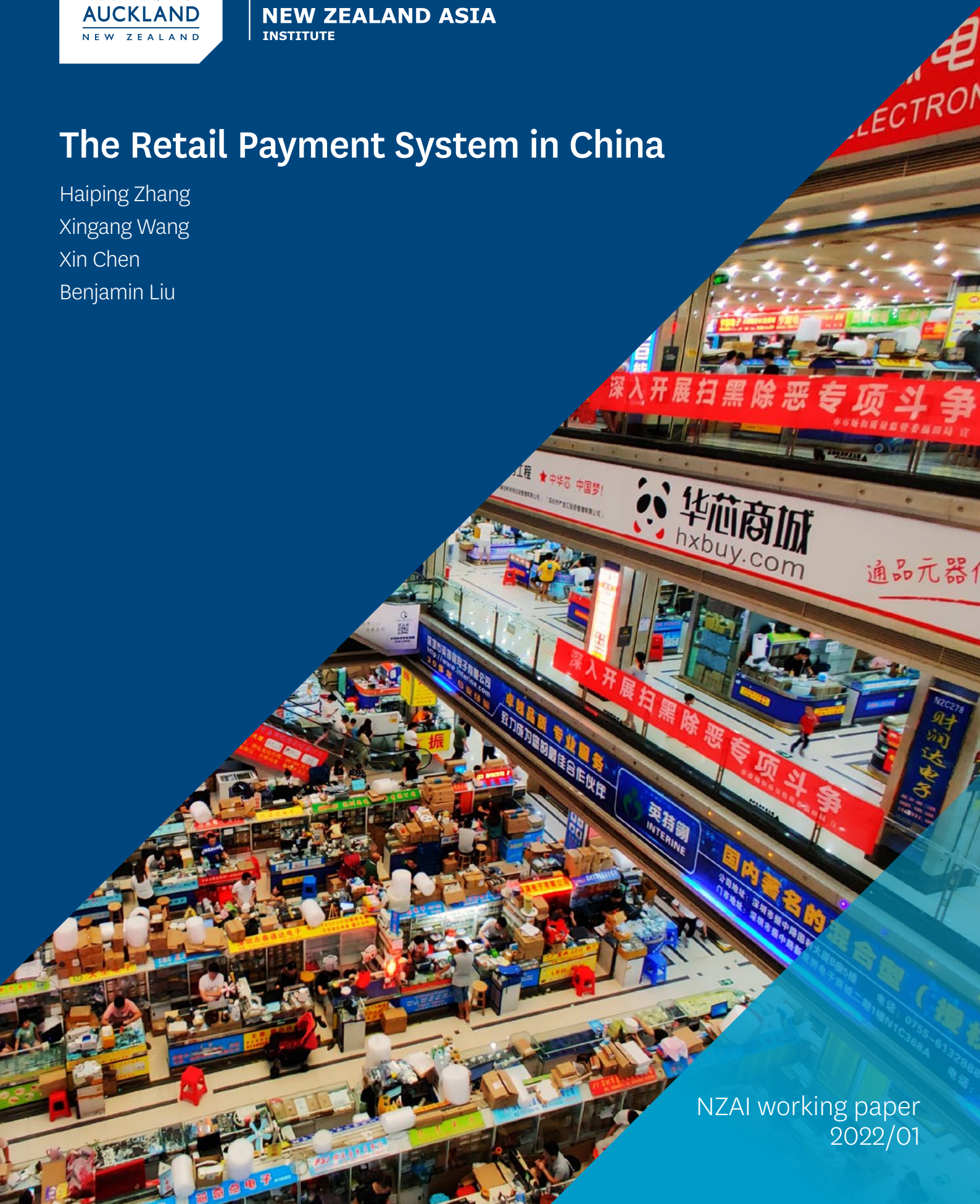
The Retail Payment System in China

Haiping Zhang

Xingang Wang

Xin Chen

Benjamin Liu



NZAI working paper
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New Zealand Asia Institute

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New Zealand Asia Institute

Enhancing New Zealand's understanding of and engagement with Asia

The New Zealand Asia Institute (NZAI) undertakes research focusing on engagement with Asia, provides a forum for informed debate, and offers a bridge to Asia-related expertise and research within the University of Auckland.

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About this report

This report is the first in a series of working papers that report on a research project 'Understanding China's Digital Yuan.' Since the concept of Bitcoin was proposed in 2008, there have been three major rounds of discussions on the topic of digital currency in China's academic, policy and interested public circles. The first round focused on Bitcoin's potential to grow into a new generation of legal tender, the second on Libra's capability to become a 'super-sovereign' currency for cross-border settlements, and the third on central bank-issued digital currencies (CBDC). These discussions have inspired the People's Bank of China (PBC) to begin digital yuan research in 2014, establish the China Digital Currency Research Institute in 2016, complete the R&D and system testing in 2019, launch in 2020 the e-CNY (Chinese yuan), also commonly referred to as digital RMB or the Digital Currency/Electronic Payment (DCEP), and to lately conduct on-the-ground trials.

This working paper series examines these developments and the issues they present for regulators and users, as viewed by Chinese commentators and others.

The research team deeply appreciates

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The authors that make up the research team for this project are academic staff members of the University of Auckland Business School.

Xin Chen is Research Fellow at the New Zealand Asia Institute (Email: x.chen@auckland.ac.nz).

Benjamin Liu is Senior Lecturer at the Department of Commercial Law (Email: b.liu@auckland.ac.nz).

Xingang Wang is Professional Teaching Fellow at the Department of Economics (Email: xingang.wang@auckland.ac.nz).

Haiping Zhang is Senior Lecturer at the Department of Economics and Co-Director of the APEC Studies Centre (Email: haiping.zhang@auckland.ac.nz)

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Enquiries about this report can be addressed to the corresponding author at x.chen@auckland.ac.nz.

Highlights

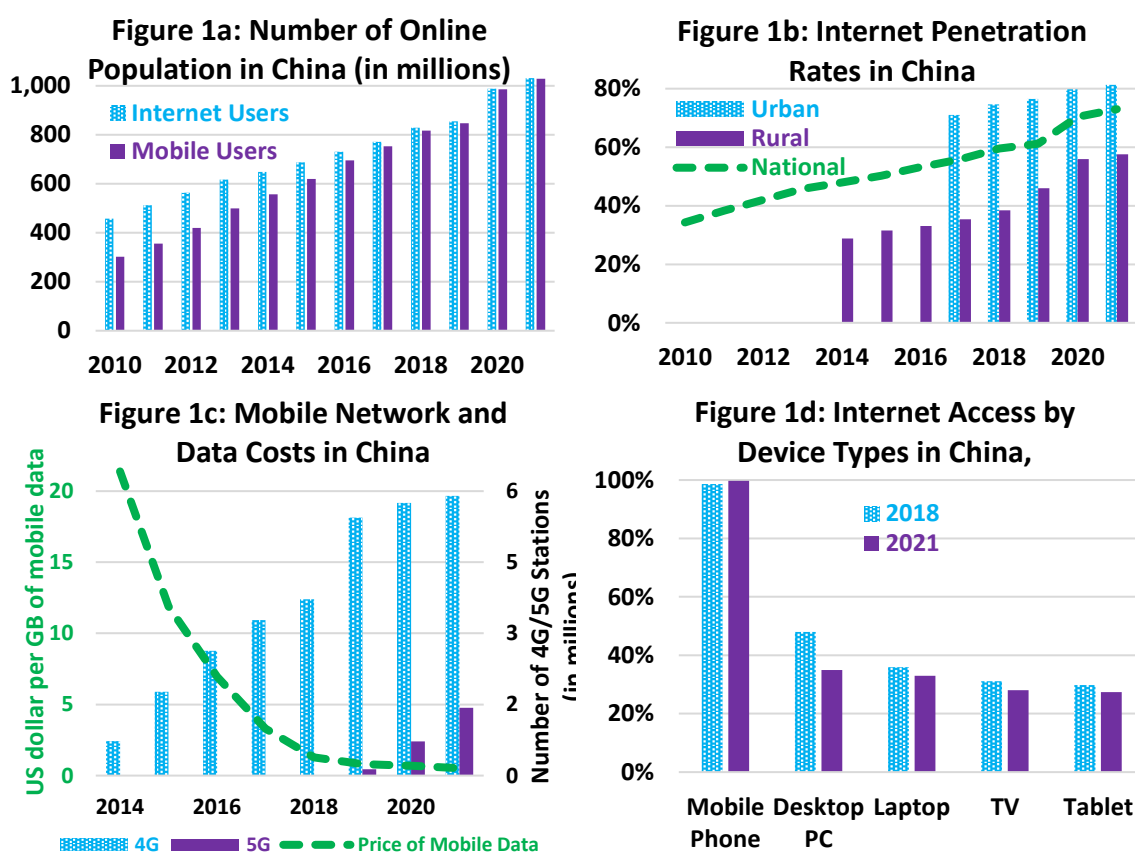
- The Chinese economy has witnessed a dramatic transition towards digitalisation over the last decade.
- The launch of the e-CNY, the digital Chinese yuan, will enable the PBC to build upon the strength of the current mobile payment system and mitigate potential financial and socio-economic risks and crises.
- Instead of following the traditional path of developing a bank-based credit card structure, Chinese fintech companies and platforms quickly adopted a new scheme built upon digital wallets and QR codes (two-dimensional bar codes).
- Transactions through digital wallets have expanded enormously. Alongside this growth, challenges to market providers and regulators are apparent.

Introduction

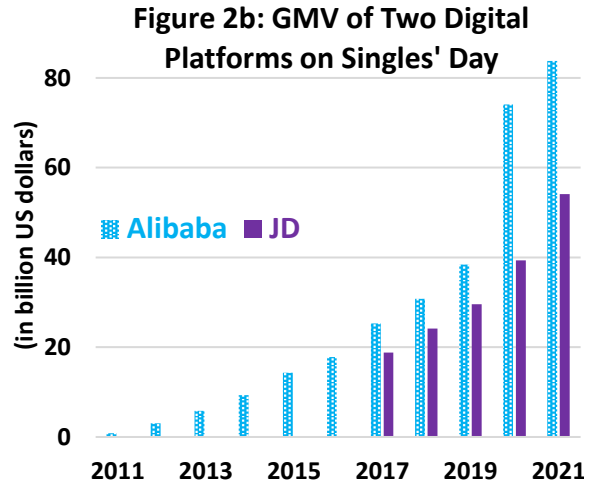
The Chinese economy has witnessed a dramatic transition towards digitalization over the last decade. The surge of e-commerce has in turn necessitated a substantial improvement in the retail payment system. To harness digital technologies and social networks, Chinese tech giants have launched and promoted mobile payments, which are now intrinsic to Chinese consumers' daily lives. It is thus commonly expected that the launch of the e-CNY will enable the People's Bank of China (PBC) to build upon the strength of the current mobile payment system and mitigate potential financial and socio-economic risks and crises. As for the widely shared curiosity about the dramatic rise of China's digital ecosystem, a recent report by the McKinsey Company has identified four interconnected contributing factors. They are: a vast digital consumer base; an immense pressure to upscale at the national level; a market-driven digital ecosystem that fosters innovation; the 'shaping role' played by the government.¹

Digital Transformation and E-Commerce in China

As of December 2021, over one billion people in China had access to the internet, while over 80% of the urban population and nearly 60% of the rural population were online regularly.² Due to the rapid expansion of 4G/5G mobile network and the substantial decline in the cost of mobile data, cell phones have become the dominant device through which most internet users in China are connected to digital services (figure 1a-1d).³

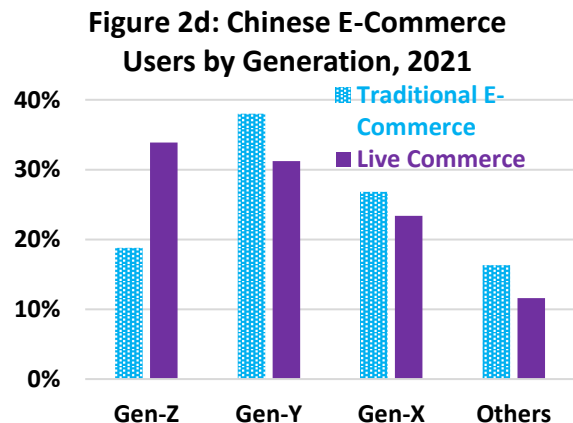
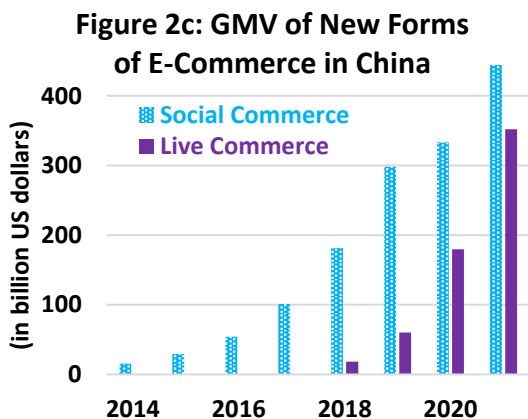


The massive online population has made China the world’s largest e-commerce market. The attending fierce competition among digital platforms has meanwhile fundamentally reshaped the retail landscape. In 2021, for example, over 80% of Chinese internet users were actively shopping online, and the online retail sales in consumer goods amounted to US\$1.6 trillion, accounting for a quarter of China’s total retail sales that year. A key contributor to the buying online phenomenon is Alibaba, the largest Chinese e-commerce platform, with its 24-hour shopping festival on 11 November - the so-called ‘Singles’ Day’. Since the initiation of the shopping extravaganza in 2009, ever more e-commerce platforms have become involved, making the Singles’ Day an unofficial but massive one-day shopping holiday in China. During the 2021 Singles’ Day, the retail sales of Alibaba’s e-commerce platforms made a gross merchandise value (GMV) of US\$84 billion, while Alibaba’s major competitor, JD.com, achieved a retail GMV of US\$54 billion (Figures 2a and 2b).⁴



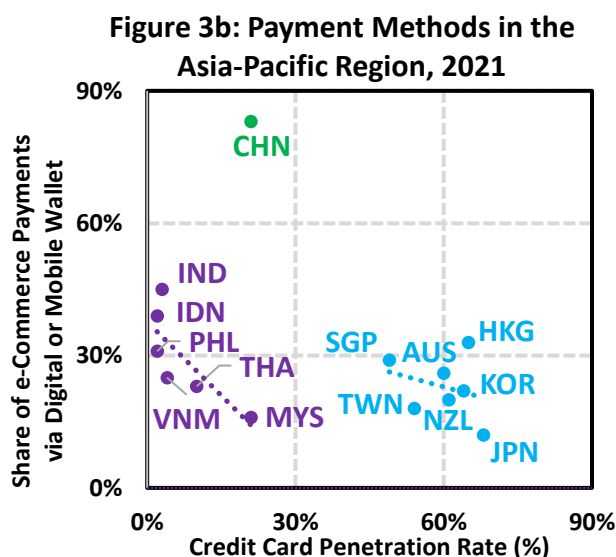
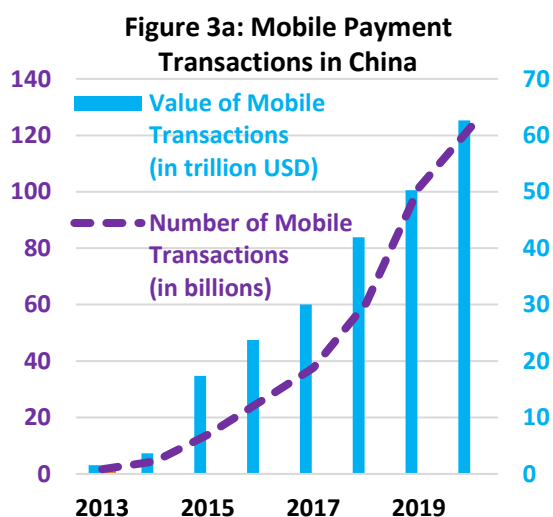
In the meantime, the rise of social media in China has nurtured other new forms of e-commerce. Initially launched as an instant messaging app by Tencent Inc. in 2011, WeChat quickly expanded into a one-stop platform for day-to-day tasks, including social networking, knowledge sharing, teamwork, shopping, payments, etc. In 2017, WeChat introduced a novel feature called 'Mini Programmes', allowing business owners to create shopping apps inside its mobile ecosystem and to promote their products and services via its social networks. As shown in Figure 2c, the 'social commerce' has grown exponentially, reaching a GMV of US\$444 billion in 2021.⁵

'Taobao Live', launched by Alibaba in 2016, represented another game-changing innovation. It brought e-commerce stores into live broadcasting booths, allowing users to watch and shop simultaneously.⁶ The 'live commerce' has transformed the retail industry in less than five years, with a GMV of US\$352 billion in 2021 (Figure 2c). The top live streamer, Jiaqi Li, sold the equivalent of US\$1.8 billion during his non-stop 12.5-hour session on Taobao Live in the run-up to the 2021 Singles Day. This new form of e-commerce is particularly popular among young people. As shown in figure 2d, generation Z accounted for a third of live commerce users in 2021, while the traditional forms of e-commerce still dominated online shopping for other age groups.⁷



Mobile Retail Payment and Challenges to the Banking Sector

The burgeoning e-commerce has unquestionably required a substantial improvement in China’s retail payment system. Yet, instead of following the traditional path of developing a bank-based credit card structure, Chinese fintech companies and platforms quickly adopted a new scheme built upon digital wallets and QR codes (two-dimensional bar codes). In 2004, Alibaba launched its digital wallet, Alipay, to facilitate transactions on its e-commerce platform, Taobao. Ten years later, Tencent introduced its digital wallet service, WeChat Pay, allowing users to make mobile payments and transfer money via contacts. As shown in Figure 3a, the mobile payment system in China processed 123 billion transactions in 2020, with a total value of US\$62 trillion. However, the mobile payment was virtually dominated by these two players: Alipay had a market share of 55.6%, while WeChat Pay accounted for 38.8%. In 2021, ByteDance, the parent company of TikTok, launched Douyin Pay, another third-party payment service in China, which may further intensify the competition.

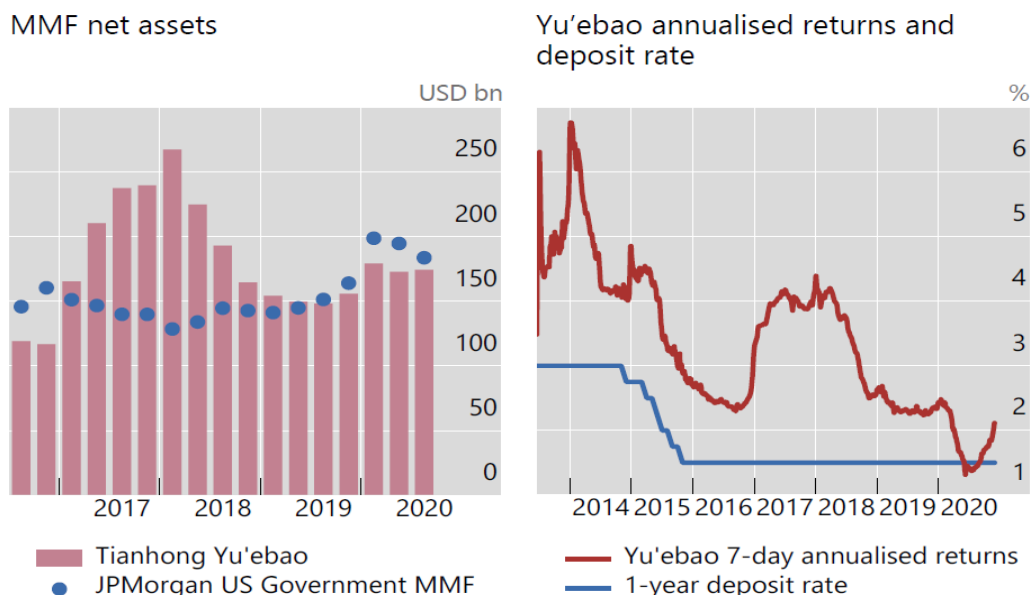


China’s leapfrogging in the development of the retail payment system is extraordinary, but not unique. As shown in Figure 3b, six major emerging Asian economies had a much lower credit card penetration rate than the seven advanced economies in the region.⁸ Nevertheless, the share of e-commerce payments via digital or mobile wallets in the six emerging economies was, on average, slightly higher than that in the seven advanced economies.⁹ It is thus worth mentioning that the share of e-commerce payments via digital/mobile wallets is negatively related to the credit card penetration rate within each group of economies.

Leveraging their success in mobile payments, tech giants in China have expanded their business into fintech. For example, partnering with the Tianhong Asset Management, Alibaba launched Yu’eobao in 2013, which offered exclusively to its users a way to invest money left in Alipay accounts. By lowering the minimum threshold of investment from the prevailing level of CNY 50,000 to CNY 1, Yu’eobao has made the money market fund (MMF) accessible to everyone. Its excess yield against bank deposits allowed Yu’eobao

to attract 43 million subscribers and become the largest MMF in China six months after its inception. Four years later, Yu'ebao overtook JP Morgan's US government MMF and became the world's largest, with assets of US\$117 billion.¹⁰ The success of Yu'ebao has certainly challenged the traditional banking and asset management in China.

Figure 4: Net Assets and Annualized Return of Yu'ebao



Source: Michael Chui, 'Money, technology and banking: what lessons can China teach the rest of the world?' BIS Working Paper No. 947, 2021

Another major challenge that Alibaba has posed to the financial sector is the rebranding of Alipay as the Ant Group Service in October 2014. Besides mobile payment, the Ant Group Service has also been involved in online lending and other financial services. In 2020, the lending service became the firm's biggest business, with US\$253 billion in consumer loans and US\$61 billion in small business loans. In the process, the Ant Group has helped provide unsecured small loans to about 500 million Chinese through two of its platforms: Huabei (花呗, Just Spend) and Jiebei (借呗, Just Borrow). While the former focuses on quick consumer loans for small purchases, the latter finances everything from travel to education.¹¹ Incorporating artificial intelligence, big data analytics, and cloud computing, the Ant Group has created and followed a user-friendly '3-1-0' online lending model, that is, three minutes for loan application, one second for approval, and zero human intervention.

Moreover, by leveraging the enormous database of transactions, spending patterns, payment behaviours, and obligation fulfilment capacities that it jointly holds with Alibaba on their customers, the Ant Group has managed to consistently keep the delinquency rate below 2%.¹² In building its online micro-lending empire, the Ant Group has also created an 'iterative loop' of making loans, packaging and selling them as loan-backed securities, using the money to make more loans, and selling them as securities again. In 2020, the Ant Group kept about 2% of the loans on its own balance sheet, with the rest funded by third parties or packaged and sold as securities.

The Ant Group's skewed, and now much publicised, debt-to-asset ratio has stoked mounting public astonishment and unease. Many Chinese still remember that mortgage securitisation escalated by the global saving glut since the end of the 1990s stimulated lenders' risk-taking behaviours, and eventually triggered the U.S. subprime mortgage crisis between 2008 and 2009. They worry that the Ant's algorithm-

based lending and securitisation, fuelled by fast-expanding funding networks, may pose substantial risks to China's financial system.

Financial Regulatory Gaps

Although mobile payment technology was not initially invented in China, Chinese tech giants have made revolutionary changes to the retail payment system through their application-oriented innovation and market competition. Equally important is that a tolerant regulatory environment has also contributed to this process. For example, there had been no clear regulatory restrictions on mobile payment until the PBC released its 'Measures for the Administration of Payment Services for Non-Financial Institutions' in June 2010. Since then, the PBC has issued nearly 270 third-party payment licenses to stimulate not only innovation, but also competition in the digital financial market.¹³

As indicated by some Chinese studies,¹⁴ there may be two reasons for which the authorities in China did not rush to regulate mobile payments and fintech. First, acknowledging the great potential for fintech to help improve financial inclusion, many government officials preferred to allow new technologies and business models to develop. Second, the financial regulatory framework in China was for a long time segregated by industry and focused on financial institutions. The working rule of this system was 'whoever issues the license should be responsible for regulation'. Thus, mobile payment and fintech companies were in a gap area, where no specific regulator was responsible.

Notes

¹ Lambert Bu et al., 'The Future of Digital Innovation in China: Megatrends Shaping One of the World's Fastest Evolving Digital Ecosystems', McKinsey Digital, 30 September 2021, online at <https://www.mckinsey.com/featured-insights/china/the-future-of-digital-innovation-in-china-megatrends-shaping-one-of-the-worlds-fastest-evolving-digital-ecosystems>.

² By the end of 2021, nearly two thirds of the population in China lived in urban areas. The number of cities with more than 1 million residents has now exceeded 100.

³ Data Source: Statista, '49th Statistical Report on Internet Development in China'.

⁴ Data Source: Ibid.

⁵ Data Source: Statista, 'China's social commerce market statistical report 2021' by 100ec.cn; and 'China's live commerce industry research report 2021' by iResearch.

⁶ Arun Arora et al., 'It's showtime! How live commerce is transforming the shopping experience', McKinsey Digital, 21 July 2021, online at <https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/its-showtime-how-live-commerce-is-transforming-the-shopping-experience>.

⁷ Generation X includes those born between 1965 and 1981; generation Y refers to those born between 1982 and 1994, also known as digital natives; generation Z includes those born between 1995 and 2010. Data source: Fastdata, 'China's young e-commerce user consumption insight report 2021', 2022.

⁸ The six major emerging Asian economies refer to India, Indonesia, Malaysia, the Philippines, Thailand and Vietnam. The advanced economies in the region refer to Australia, Hong Kong, Japan, New Zealand, Singapore, South Korea, and Taiwan.

⁹ This phenomenon is sometimes referred to as the 'advantage of backwardness', a notion first formulated in 1952 by Alexander Gerschenkron.

¹⁰ Michael Chui, 'Money, technology and banking: what lessons can China teach the rest of the world?' BIS Working Paper No. 947, 2021; Alizila Staff, 'Alipay Yu'eobao is Largest Money Market Fund in China', alizila.com, 28 October 2013, online at <https://www.alizila.com/alipay-yue-bao-is-largest-money-market-fund-in-china/>.

¹¹ Bloomberg, 'China Plans Deeper Ant Crackdown With Bank Funding Curbs', Bloomberg Asia Edition, 4 November 2020, online at <https://www.bloomberg.com/news/articles/2020-11-04/china-is-planning-a-bigger-ant-crackdown-with-bank-funding-curbs>.

¹² Yusho Cho, 'How AI and vast data support Ant Group's financial empire', Nikkei Asia, 2 November 2020, online at <https://asia.nikkei.com/Business/Finance/How-AI-and-vast-data-support-Ant-Group-s-financial-empire>.

¹³ Yiping Huang et al., 'Mobile Payment in China: Practice and Its Effects', Asian Economic Papers, 19(3), 2020, pp.1-18.

¹⁴ Xiuping Hua and Yiping Huang, 'Understanding China's fintech sector: development, impacts and risks', European Journal of Finance, 27(4-5), 2021, pp. 321-333.