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Fintech Regulation: International Practices and Opportunities for China

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Forewords

FinTech has surged on the back of recent technological progress featuring big data, AI and blockchain technologies. It has entered into a phase of rapidly transforming development and this new era presents fresh opportunities for innovation and growth. China, among others, has established itself as one of the global leaders in FinTech development with its proliferation of business activities such as third-party online payment, marketplace lending and crowd funding facilitated by high levels of smartphone penetration, technological innovation, and the policy objective of the Chinese government to enhance financial inclusion through digital finance to promote innovation and growth.

While the FinTech innovation has brought about benefits to consumers such as the ease of cash-free transactions, the regulatory efforts of the Chinese government have yet to lead to the establishment of a compatible and comprehensive framework. Its digital financial services remain under-regulated, and in some areas, unregulated. The rapid development of financial service innovations such as non-bank electronic payments and marketplace lending (peer-to-peer lending for instance) have often emerged prior to the establishment of a supporting regulatory framework and incidences of customer detriments such as illegal funding, fraudulent activities and reputational risks have been reported, often to take advantage of loopholes in existing legal and regulatory systems.

It has become evident that the FinTech boom necessitates a parallel evolution and development of a financial regulatory system which allows for both the sustainable development of FinTech sector and the provision of necessary supervision to guard financial stability and customer protection. Collaborated endeavors have been made to promote innovations for FinTech regulation on a global scale. The potential risks

with the rise of FinTech have been recognised by international forums and organisations such as The G20, The Financial Stability Board (FSB), The International Monetary Fund (IMF), and The World Bank. In the 2016 G20 Hangzhou summit, for instance, the "G20 High level Principles for Financial Inclusion" has been endorsed to advocate broader financial inclusion, particularly in the area of digital financial inclusion. Regulators around the world have taken initiatives in regulatory innovations such as the Regulatory Sandbox created by UK's Financial Conduct Authority, "A framework for Fintech" launched by the US's National Economic Councils, along with the establishment of Innovation Hubs and Innovation Accelerators to harness innovation and financial inclusion.

In this line of thoughts, this report aims to firstly provide a systematic overview of Fintech regulation practices globally, secondly a review of regulatory sandbox and its international practices in different regions, followed by a comprehensive analysis of current Fintech regulation framework in China and the feasibility of implementing a pilot project of Fintech regulatory sandbox in one of China's Fintech hubs.

We appreciate FCO's initiatives to disseminate knowledge on regulatory innovation and support international collaboration between the UK and China to promote greater FinTech innovation and financial stability. We are grateful to the support of British Embassy Prosperity Fund China Programme. We hope this research report could be useful to both regulatory authorities and FinTech firms, in China and globally.

Professor BEN Shenglin

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Executive Summary

In recent years, the rapid development of Fintech has brought profound changes to the financial industry. The combination of new technologies and traditional financial services has spawned a series of new forms of internet financial industry, such as mobile mobile payment, marketplace lending, online crowd-funding, internet insurance, etc. However, the ensuing risks of the changes have also brought great challenges to the financial regulatory authorities. Therefore, how to balance financial innovation and the risks it brings has become an important topic for financial regulatory authorities globally.

Some countries have started to make introducing plans and arrangements to promote Fintech innovation, mainly including the Innovation Hub, the Regulatory Sandbox, the Innovation Accelerator etc. Among them, the Regulatory Sandbox, firstly introduced by the Financial Conduct Authority (FCA) in March 2015, has received extensive attention and recognition, and has been tested in the UK, Australia, Singapore, Hongkong and other countries or regions.

According to FCA's definition, "Regulatory Sandbox" is a "safe space" in which companies can test their innovative financial products, services, business models, etc., without being immediately subject to regulatory rules, in order to encourage financial innovation. Regulatory sandbox also places great emphasis on the protection of financial consumers' rights. The FCA requires that companies those which enter the "Regulatory Sandbox" can only test their new products with customers who have agreed to participate in the test. Before the test, customers will be fully informed about the potential risks and the available compensation. In addition, participating in the test also helps to better expose the defects and risks of the related products or services, so as to avoid the losses when it is adopted at a large scale.

Currently, China's regulation on Fintech has adopted a mixed model, i.e., the combination of separated regulation and industry self-regulation. On one hand, the "One Bank and Two Commissions" (People's Bank of China, China Securities Regulatory Commission and the newly formed China Banking and Insurance Regulatory Commission) are responsible for separate regulation of Fintech companies and businesses in respective areas. On the other hand, local financial affair office and industry self-regulatory organizations (such as local internet finance associations) function as important supplementary regulators of the internet finance industry through formulating industry self-regulation rules. Under this regulatory model, central and local government regulation and industry self-regulation complement each other and form a comprehensive, multi-dimensional, regulatory system. However, the separated financial regulatory framework often leads to insufficient communication and coordination among different regulators, and the obscure responsibilities of different regulators will likely cause regulatory arbitrage. Moreover, as internet connects different investors and businesses bypassing the constraints of geography, the local regulators find it difficult to regulate Fintech business under current legal system, as it's difficult to collect evidence and enforce the law across different regions. To cope with the challenges brought by the vigorous growth of Fintech industry in China, innovative regulatory frameworks and new rules are needed.

In October 2017, Academy of Internet Finance (AIF) Zhejiang University and Cambridge Center for Alternative Finance jointly conducted a research project on "Fintech regulation: international practice and China's opportunities". The project was initiated by British Embassy China Prosperity Fund China Programme, aiming to conduct an in-depth analysis on the Fintech

regulatory framework in China and the UK, and to further provide policy recommendations to regulators of both nations. The project team conducted field research to a number of financial regulators and Fintech enterprises in Beijing, Shanghai, Shenzhen and Hangzhou, collected first-hand data by interviews and questionnaires, and evaluated the main opportunities and challenges of China's Fintech regulatory system and the feasibility of a pilot program of the regulatory sandbox. Based on the thorough analysis of the data collected from the survey, following conclusions are reached.

► **China's existing Fintech regulatory framework can effectively prevent systemic risk, but it lacks flexibility and is not beneficial to financial innovation.**

Most of the Fintech enterprises interviewed believe that China's current Fintech regulatory system can effectively prevent financial risks. However, the special rectification on internet finance industry can easily lead to excessive market reaction, which may trigger systemic risks. As to whether China's current Fintech regulatory framework is conducive to promoting financial innovation, most of the Fintech enterprises interviewed believe that the current regulatory framework lacks flexibility and hinders financial innovation.

► **China's financial regulatory authorities are facing multiple challenges**

First, the existing law and regulatory system are inadequate. Second, regulators lack professional knowledge or skills about Fintech, and find it difficult to supervise the business of Fintech companies or to effectively identify the risks embedded in their products and services. Third, insufficient manpower and funding also restrict Chinese regulators' ability to implement effective regulation on Fintech enterprises. Fourth, China's current separated financial regulatory framework leads to insufficient communication and coordination among different regulators, and the obscure responsibilities of different regulators is

likely to cause regulatory arbitrage. Local regulators find it difficult to regulate Fintech business under current legal system, as it's difficult to collect evidence and enforce the law across different regions.

► **The concept of regulatory sandbox is already well-known in China**

The vast majority of financial regulators and Fintech enterprises interviewed said that they have heard about the concept of regulatory sandbox, and a few of them expressed their familiarity with the concepts, principles, and implementation measures. The concept of regulatory sandbox has a good degree of recognition in China, laying a good foundation for the launch of the pilot project.

► **Chinese regulators have divided opinion on Fintech regulatory sandbox pilot project in China**

The project team found that there was a clear disagreement among the regulators in term of China's regulatory sandbox pilot project. Only less than half of the interviewees' indicated that they support the pilot project in China, while the others are opposed to or not optimistic about it.

Fintech enterprises also have different attitudes towards launching Fintech regulatory sandbox pilot project in China. Among them, large Fintech firms show a relatively negative attitude toward regulatory sandbox, while small and medium-sized Fintech companies are more supportive. The possible explanation could be that large Fintech companies have concerns about whether regulatory sandbox will affect their market status whilst small and medium-sized FinTech firms hope to obtain more market share and opportunities to grow through the regulatory sandbox pilot project.

► **Government regulatory authorities should take the lead to establish the pilot of Fintech regulatory sandbox**

The majority of the regulators and enterprises

interviewed agreed that the "one bank and two committees" and provincial-level and financial regulatory authorities could be the main players in the supervision of the Sandbox. At the central level, in order to ensure the orderly implementation of the regulatory sandbox pilot project, the State Council's Financial Stability Development Committee can coordinate and supervise the pilot work of the Fintech regulatory sandbox. Moreover, in subject to the current status of China's Fintech industry, a cooperative mechanism for inter-regulatory authorities should be established, and it can even be considered that a dedicated institution established by all major regulatory agencies or local Internet finance associations will be responsible for the daily operation of the Sandbox.

► **An approval system can be applied to the entry to the Fintech regulatory sandbox. A co-funding model can be considered in terms of financing.**

In terms of entry requirements into the sandbox, the regulators interviewed tend to adopt the approval system, while Fintech enterprises prefer the filing system. Moreover, as the regulatory sandbox can be considered a weak-form regulation, the demand for operating funds can be relatively more approachable. Therefore, co-financed by government and enterprises and the mixed operating mode with government's preferential policies and enterprises' funds can be considered.

► **Fintech regulatory sandbox pilot can bring both new ideas and challenges.**

First, there is a conflict between regulatory sandbox practice and China's legal system and existing regulatory frameworks. Under the regulatory sandbox framework, it is necessary to grant certain exemptions to the participating companies and products, based on relevant laws and regulations. In addition, when the tested companies or products go bankrupt or default causing losses to investors or financial

consumers, how to define the legal responsibilities also needs in-depth discussion and research. Secondly, the regulatory sandbox can be applied to Fintech companies from different areas, therefore, it is necessary to establish a special coordination mechanism among various regulatory authorities. But under China's current segmented regulatory framework, it is difficult. Third, at present, the regulators lack sufficient funds and manpower to support the Sandbox pilots. Thus, how to establish a sustainable operating mode needs to be discussed. Fourth, because China's relevant Fintech laws and regulations are still inadequate, Fintech companies can often find regulatory loopholes for regulatory arbitrage. Therefore, participating in regulatory sandbox will increase the company's compliance costs. At the same time, participation in the Sandbox test may also lengthen the cycle of new products entering the market, resulting in competitive disadvantages of some companies.

However, since China's financial regulatory system is quite different from the UK, the regulatory sandbox practice must be adjusted according to the characteristics of China's financial regulatory framework and the development of the Fintech industry, if it is to be implemented and developed in China. In the following paragraphs, corresponding policy recommendations will be offered.

► **Policy Recommendation 1: Main participants of regulatory sandbox pilot: licensed financial institutions and some quasi-financial institutions.**

The applicants for the test should include internet finance services and products of both traditional licensed financial institutions and "quasi-financial institutions" such as marketplace lending platforms, online crowd-funding platforms, third-party payment, internet banking, internet insurance, and internet funds. In the future, if the regulatory sandbox operation becomes relatively mature, the coverage of

applicants can be considered to be extended to a wider range of business areas.

► **Policy Recommendation 2: Executive bodies of regulatory sandbox: "One bank and two commissions" and local financial affair office.**

Under current China's Fintech regulatory framework, the "two peak" mode, a combination of the "one bank and two commissions" and provincial financial affair office, seems to be more appropriate.

► **Policy Recommendation 3: Bottomline supervision should be emphasized in the implementation of Fintech regulatory sandbox pilot project.**

In the specific implementation process, regulatory sandbox practice should authorize enterprises full autonomy and avoid excessive intervention.

► **Policy Recommendation 4: Fintech regulatory sandbox should pay special attention to the protection of financial consumers.**

regulatory sandbox should pay special attention

to the protection of the rights and interests of financial consumers throughout the implementation of regulatory sandbox, and strengthen the appropriate management of customers. Only customers who have agreed to participate in the test can invest in related products. Prior to this, customers must be fully informed of the potential risks and the available compensation.

► **Policy Recommendation 5: The regulatory sandbox mechanism is not the "once for all" solution. Regulators should fully realize its limitations and encourage innovation of regulatory frameworks.**

The regulators must also recognize that the regulatory sandbox is not a perfect regulatory mechanism and needs corresponding cost or investment as a complement. In addition, the regulatory sandbox is not an all-encompassing framework for the regulation of Fintech, and the regulatory framework needs to keep evolving in accordance to the changing environment.

Chapter 1

International Practices of Fintech Regulation

Since the origin of Fintech where there has been long history of advanced Internet technologies, the UK and the US have continuously innovating their Fintech regulatory system along with continuous development of their digital financial industry, so as to adapt to the rapidly reforming needs of the customers and the ever-evolving market, and creating new models of financial regulation.

1. International Fintech Regulation Principles and Innovations

In recent years, it has become evident that the Fintech boom necessitates a parallel evolution and development of a financial regulatory system which allows for both the sustainable development of Fintech sector and the provision of necessary supervision to guard financial stability and customer protection. Collaborated endeavors have been made to promote innovations for Fintech regulation on a global scale. The potential risks with the rise of Fintech have been recognised by international forums and organisations such as The G20, The Financial Stability Board (FSB), The International Monetary Fund (IMF), and The World Bank. In the 2016 G20 Hangzhou summit, for instance, the 'G20 High level Principles for Financial Inclusion' has been endorsed to advocate broader financial inclusion, particularly in the area of digital financial inclusion.

Regulators around the world have taken initiatives in regulatory innovations such as the Regulatory Sandbox created by UK's Financial Conduct Authority, 'A framework for Fintech' launched by the US's National Economic Councils, along with the establishment of Innovation Hubs and Innovation Accelerators to harness innovation and financial inclusion.

Innovation hub, which supports and guides institutions (including regulated and unregulated institutions) to understand the financial regulatory framework and to identify regulatory, policy, and legal issues in innovation. As early as October 2014, the UK Financial Conduct Authority (FCA) launched the "Innovation Project" to help Fintech innovators become familiar with financial regulatory framework rules, understand whether they need to obtain business licenses from regulators, and how to obtain permits.

Regulatory sandbox allows real or virtual test on the new Fintech products or services in a controlled testing environment. It first appeared in the United Kingdom, following the "innovation project", it hoped to strengthen policies and improve processes further, and to introduce more practical policies to encourage the innovation in Fintech.

Innovative accelerator means that regulatory authorities or government departments establish cooperation mechanisms with the industry, and accelerate the development and application of Fintech innovation by providing financial support or policy support.

2. Fintech Regulation in The UK

1. Centralized regulatory system

After the financial crisis, the UK Government carried A new Financial Policy Committee (FPC) was established under the Central Bank, and the Prudential Regulation Authority (PRA) and the Financial Conduct Authority (FCA) were newly established to replace the Financial Services Agency (FSA) - the organization originally responsible for unified regulation. At present, the UK has incorporated third-party payment, P2P, crowd funding and other Internet financial institutions and services into the regulatory scope of the Financial Conduct Authority (FCA).

2. Emphasis on prudential and market conduct regulation

Prudential regulation and behavioral regulation are two pillars of financial regulation. An organic balance must be kept between the two pillars to maximize the mutual boosting and complementing effects. Prudential regulation is a mode of regulation in which the regulatory authority, in order to prevent and defuse risks in the financial industry, formulates a series of careful and cautious operating rules that must be followed by all financial institutions, objectively evaluates the risk status and timely implements risk monitoring, early warning system and control measures. Behavioral regulation is a mode of regulation in which the regulatory authority, in order to protect consumer rights to safety, rights to know, options, fair trading, compensation claim, education, and other legitimate rights and interests, formulates corresponding rules or guidance on fair transactions, anti-fraud and anti-misleading, personal privacy protection, adequate information disclosure, consumer dispute resolution, anti-unfair competition, protection of vulnerable groups, advertising behaviors, contract specifications, and debt collection, etc., and requires the financial institutions to abide by such rules, regularly organizes on-site inspections and assessments of the overall situation of financial institutions' consumer protection measures, and discloses relevant information and handles relevant affairs.¹

In respect of prudential regulation, the “Regulations on Online Crowd Funding and the Issuance of Non-readily Realizable Securities via Other Methods” promulgated by the UK FCA put forward the minimum prudential capital requirements in order to avoid excessive expansion of the scale of platform lending and guarantee the normal operation and development of the platform. In respect of behavioral regulation, UK has established an investor eligibility system for regulating equity crowd funding and limiting investment quotas, so as to ensure the consistency of online and offline rules. In addition, FAC requires for information disclosure and risk warning.

3. Pairing of functional regulation and institutional regulation

In regard to equity-based crowd funding, the UK Government adopts functional regulation and determined that it

¹ Wang Huaqing. “On Relationship between Behavioral Regulation and Prudential Regulation” [J]. China’s Banking Industry, 2014(5).

is a type of securities act and incorporated it into the securities regulation framework. According to the functional characteristics of investment crowd funding, FCA specifically proposed the concept of “non-readily realizable securities”, and put all referral “non-listed stocks” or “non-listed bonds” under the scope of regulation. However, as for third-party payment, the UK Government determined that it has the characteristics of financial products, which has increased the difficulty of currency control. Therefore, in order to achieve the goal of prudential regulation, institutional regulation is more often adopted.

4. Emphasis on industry self-regulation

The UK Government imposes less mandatory requirements on Internet finance, thus occupying relatively less limited regulatory resources. Take the P2P industry as an example, UK regulation is relatively loose and the regulation is mainly focused on standardized information disclosure, business risk warning, and consumer rights protection. Comparatively speaking, the UK Government has paid more attention to industrial self-regulation of Internet finance. The three leading P2P companies in the UK, Zopa, Rate Setter and Funding Circle, established their own industry self-regulation association, P2PFA, in March 2011. Based on the establishment of P2P industry guidance on standardizing the business model and internal control mechanism, the P2PFA members have taken a 95% share of the P2P market.

For instance, the UK Government requires the P2P industry to strictly abide by the rules set by the P2PFA while complying with the relevant laws and regulations of the government.² In regard of senior management, P2PFA requires that at least one of the company’s board members should be an accredited agent that meets the qualification requirements of the Financial Services Authority (FSA). For minimum working capital, P2PFA requires the higher value between £20,000 and 3 month’ operating expenses, with a static minimum capital of £50,000, and £20,000 during the buffer period (prior to April 1, 2017). With respect to customer fund separation, P2PFA requires that customer funds must be separated from self-operating funds and deposited in a separate bank account. This type must be reviewed annually by the company’s external auditor and managed separately by a third party (banks for instance). In respect of credit risk management, P2PFA requires that the member companies must have prudent and healthy policies in place for managing credit risks and ensuring that the borrowers have the ability to repay. The member companies must report to relevant regulatory sectors the credit management policies they adopt and must audit the borrowers’ credit in advance. In respects of anti-money laundering and anti-fraud, P2PFA suggests each member join the Anti-Money Laundering Association (CIFA) and the Anti-Fraud Association (AFA).

3. Fintech Regulation in The US

Different from the UK pattern, the U.S. Internet finance regulation adopts a separate regulation system, which focuses more on behavioral regulation and functional regulation over self-regulation.

1. Separate regulation system

The US Government adopts a separate regulation approach and incorporates third-party payment into its currency

² Ben Shenglin. (2014). “Reference Meaning of the British and American P2P Industry Regulation Experience for China’s Internet Finance”. Exploration and Contention, (12), 27-29.

transfer business regulation framework, with the regulation mainly conducted by the Federal Deposit Insurance Corporation (FDIC). P2P marketplace lending and crowd funding are included in the scope of securities trading regulation which is regulated by the Securities and Exchange Commission (SEC), and the regulation of P2P marketplace lending platform is carried out by implementing compulsory registration of federal securities issuance and continuous information disclosure systems as required by SEC. The Consumer Financial Protection Agency (CFPB) is responsible for the formulation and implementation of laws and regulations that are closely related to consumer financial products and services.

2. Market conduct regulation

The US Government mainly adopts behavioral regulation for regulating behaviors of the Internet financial infrastructure organizations, Internet financial institutions and relevant participants. For example in the equity-based crowd funding sector, the US Government has established an investor suitability system for limiting the investment quotas, so as to ensure the same rules are implemented by both online platforms and offline entities, at the same time requiring for information disclosure and risk warning. The Securities and Exchange Commission (SEC) requires that the crowd funding financing platform should be registered as a broker and prohibits the platform from having an interest in the issuer, it also limits the single enterprise's financing quota and the single investor's investment quota and requires for information disclosure and risk warning.

3. Implementation of functional regulation

The US Government divides its regulatory authority mainly in accordance to its functions. In regard to P2P sector, the US Government divides Internet financing into two modes: equity and lending, which are regulated by financial market regulators and bank regulatory agencies respectively. In regard to equity-based crowd funding sector, the US Government recognizes it as securities investment conduct and incorporates it into the securities regulation framework, the legitimacy of which is determined through the JOBS Act, and the regulation is conducted by the Securities and Exchange Commission (SEC), which mainly regulates information disclosure and consumer protection. As to third-party payment sector, the US Government defines it as an extension of traditional payment services and implements functional regulation, mainly on trading behaviors and trading process.

4. Emphasis on government regulation

In US, government regulation is relatively strong. Take P2P marketplace lending as an example, US regulation focus on information disclosure, business risk warning and consumer rights protection. With respect to equity-based crowd funding, according to US legislation, it falls into the scope of securities issuance regulation, mainly regulating the investment quotas and information disclosure.

4. Fintech Regulation in Singapore

Each country has its own characteristics and emphasis on Internet finance regulation. In this section, the Singapore regulation system is selected for introducing its progressiveness and representativeness. In the field of Internet finance, Singapore has adopted a centralized regulation system, a comprehensive legal system and a regulatory attitude that encourages innovations.

1. Centralized regulatory system

The Monetary Authority of Singapore (MAS) performs its administrative functions for all financial institutions and companies that are licensed for providing funds market services in Singapore. The scope of its administration covers not only all the targets currently under the regulation of China's "One Bank and Three Commissions", but also includes the administration of quasi-financial institutions such as wealth management and credit rating.

2. An all-inclusive legal system

Singapore's financial legal system consists of banking law, insurance law, securities law, futures trading law, funds management law, foreign exchange trading law, letters issued by MAS, and other relevant regulations. Based on the all-inclusive legal system, Singapore has also successively issued the "Law on Computer Abusing", the "Law on Electronic Transactions" and relevant guidance to specifically strengthen legal regulation.

Chapter 2

Regulatory Sandbox and International Practice

1. What Is Regulatory Sandbox?

The concept of “Regulatory Sandbox” was first put forth by the British Government in March 2015. According to the definition of the UK Financial Conduct Authority (FCA), the “regulatory sandbox” is a “security space” within which companies can test their innovative financial products, services, business models, payment mechanisms, and marketing methods, etc., without causing immediate regulatory ruling of relevant activities if there is any problem, nor will they lead to immediate regulatory sanctions for violating existing regulations.

The regulatory sandbox mechanism provides a “regulatory experimental zone” for emerging industries such as Internet finance and new finance, facilitating financial innovations to be tested in real life circumstances. Under the precondition of protecting consumer rights and observing the necessary legal provisions, regulators should appropriately loosen the regulatory constraints on participatory and experimental innovative financial products and services and reduce regulatory barriers to Fintech innovations, so as to stimulate invigorated financial innovations and promote the transformation of innovative solutions from ideas to realities. Under such mechanism, it is conducive to the realization of “win-win” situation between Fintech innovation and effective risk control as well as the creation of a healthy and dynamic environment for the development of Fintech.

2. Evolution of Regulatory Sandbox

“Sandbox” was originally a term applied in computer science discipline which refers to a test environment for programs that are either destructive, with dubious sources, or with suspicious intent while restricting their code access to the application. Tests in sandbox are mostly conducted in a real data environment, but without interrupting the external market environment and data because there are safety isolation measures preset already.

The so called “regulatory sandbox” pioneered by UK means that under the premise of safeguarding consumer rights and in accordance with the specific simplified FCA approval process, institutions that engage in financial innovation will be allowed to carry out tests within the applicable scope after submitting an application and obtaining limited authorization. The FCA will monitor the testing process and assess the to determine whether to give formal regulatory authorization and promote such regulation outside the sandbox. In June 2011, the British Government officially released a white paper entitled “New Approaches to Financial Regulation: A Blueprint for Reform” to reform the UK’s financial regulation system.

From 2013, the regulatory authority of the UK Financial Services Authority (FSA) has been replaced by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA). FCA is a continuation of FSA legal entity which is responsible for regulating the conducts of banks, securities and insurance companies, and also responsible for behavioral regulation and prudential regulation of financial service providers that are not subject to PRA regulation.

In recent years, the British Fintech industry has been developing rapidly. By the end of 2014, the size of the British Fintech industry had reached £20 billion, and the number of people working in financial technology services in the City of London exceeded 40,000. Having recognized the important role of the Fintech industry in investment and economic growth, the British Government decided to establish specialized agencies to support the development of Fintech industry and give preferential tax and investment treatment to start-ups, in particular, it proposed that the UK’s financial regulatory environment should help promote innovations in Fintech industry and support the development of start-up companies.

The British Government is committed to strengthening its leading position in the field of financial technology and, to achieve this goal, it has been taking important initiatives. The FCA has set up “Project Innovate” and “Innovation Hub” to provide innovative companies with regulatory support and help them obtain limited authorization. Due to the good trial results made one year after the “Innovation Hub” was established, and as proposed by the UK Government’s Science Office, the FCA began to conduct the feasibility study on the “regulatory sandbox” and solicit public opinions. In the end, a “regulatory sandbox” system was set up in 2015, with corresponding departments established.

The “regulatory sandbox” program provides a “regulatory experimental zone” for emerging industries such as Fintech and new finance, so as to support the development of start-up companies. In the experimental mode, the “regulatory sandbox” has created a “safe place” to loosen the regulatory constraints on the participatory and experimental innovative products and services, so as to stimulate innovation. Specifically, first, the FCA screens companies that intend to participate in the “regulatory sandbox” program, assesses the size of the company, decides whether the product is innovative, and confirms whether the innovative products or services can promote consumer welfare. Secondly, FCA selects suitable consumers based on the innovative products and services to be tested, and requires the participating companies to formulate consumer protection plans, including the provision of appropriate compensation. Finally, the qualified participants are allowed to promote innovative products and services to customers, and the test usually lasts 3-6 months. FCA will formulate or improve its regulatory policies based on the test results, so as to prevent financial risks while promoting the sustained development of emerging industries such as Fintech.

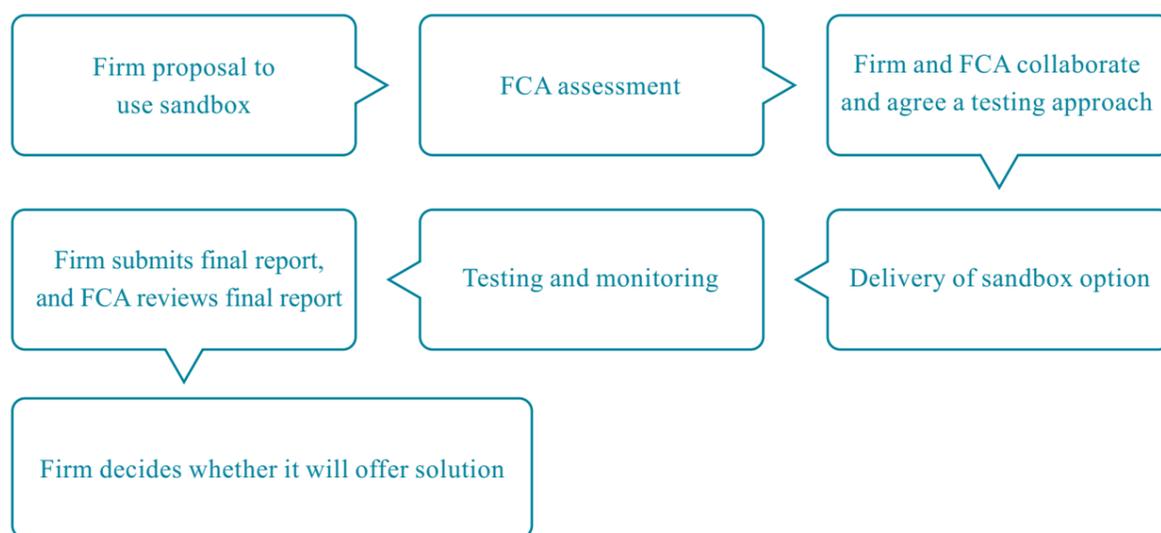
3. International Practices of Regulatory Sandbox

1. Regulatory Sandbox in the UK

The UK Financial Conduct Authority (FCA) is the organization that proposed the “Regulatory Sandbox” program. The British Government supports the development of emerging industries and proposes to create a favorable regulatory environment. Specifically, first, the FCA carries out preliminary screening of companies who intend to participate in the “regulatory sandbox” program. The screening criteria include the size of the company, whether the product is genuinely innovative, and whether the innovative products or services can promote consumer welfare. Secondly, FCA selects suitable consumers based on the

innovative products and services to be tested, and requires the firms to formulate consumer protection plans, including the provision of appropriate compensation. Finally, the qualified participating companies are allowed to promote innovative products and services to customers, and the test usually lasts 3-6 months. FCA will formulate or improve its regulatory policies based on the test results, so as to prevent financial risks while promoting the development of emerging industries such as Internet finance (ITFIN).

The main process of the “regulatory sandbox” test program in UK is as follows: (1) The company submits a test application to the FCA, proposing new solutions and stating the criteria to be met. (2) FCA reviews the applications and accepts the qualified application. (3) The company cooperates with the FCA to confirm the test plan. If the innovative products or services pass the review, the FCA will work with the company to confirm the “optional sandbox”, test parameters, measurement of results and protection measures. (4) After obtaining limited FCA authorization, the company enters into the “regulatory sandbox” for test. (5) Testing and monitoring. The company starts testing as required, and the FCA will monitor the whole process to ensure risk control. (6) Based on the business development, the company will submit a test results report to the FCA for appraisal. (7) The FCA audits the final report it received. If the final report is approved, the company may decide whether to promote new products or services outside the “sandbox” (as shown in the Figure below).



Source: FCA (2015): Regulatory Sandbox

The FCA regulatory sandbox places great emphasis on the protection of financial consumer rights and the FCA has adopted a number of corresponding measures, mainly in the following aspects: (1) As required by the FCA, companies in the “sandbox” can only test their new products with customers who have already agreed to participate in the test after being fully informed about potential risks and available compensation. (2) When seeking to use the “regulatory sandbox” and submitting proposals, companies should indicate what kind of information disclosure, consumer protection and compensation policies they will provide, and the FCA will review the proposals. (3) Consumers engaged in sandbox test will be protected by the UK financial services compensation plan and/or enjoy services provided by financial complaint service agencies. (4) Companies using “regulatory sandbox” need to prove to the FCA that they are capable of compensating consumers for possible losses.

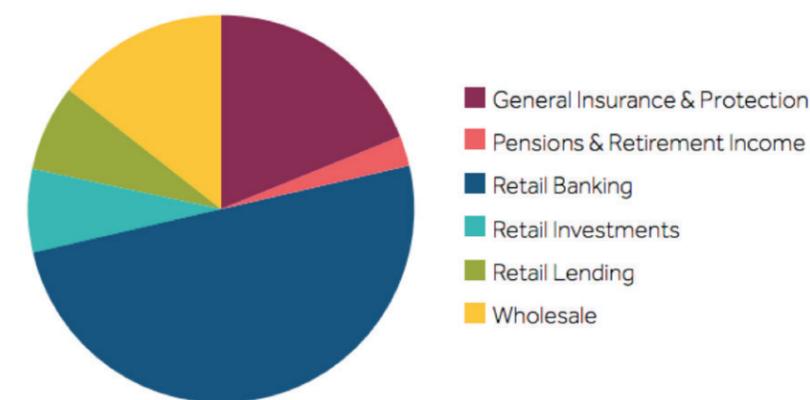
FCA issues restrictive financial licenses to companies and encourages them to test their innovative products or services. Meanwhile, the FCA will provide companies with specific guidance on regulatory requirements for Fintech innovation. Under certain circumstances, the FCA may provide the participating companies with exemptions or amendments so that if the company temporarily breaks the rules, as promised by the FCA, no mandatory measures will be taken during the test. However, from the perspective of consumer protection, the FCA preserves the right to terminate the test.

On May 9, 2016, FCA started to accept the first batch of applications, and the second round of tests was scheduled from November 21, 2016 to January 19, 2017. The FCA allows companies to submit applications without necessarily having met all regulatory requirements. Licensed companies will be given access to regulatory sandbox to test their new products, services, or business modes, without triggering regulatory consequences in normal circumstances. As of November 2016, the FCA had received test applications from 69 companies in different scales in various industries and regions, and only 24 of them had passed the preliminary review.

FCA has authorized these 24 Fintech companies to test with customers in a dynamic environment of the regulatory sandbox. According to the authorization, these 24 companies will be allowed to test their products, services or business modes in a “safe zone” while ensuring proper protection of consumers. The 24 companies with authorization are start-ups and will carry out short-term and small-scale tests according to the test scope agreement for the purpose of investor protection. 18 of the aforementioned authorized companies soon began testing. By the end of June 2017, the FCA announced that it had selected 31 companies from 77 applicants to participate in the second round of “sandbox regulation” test program, and the third round of tests would begin in November. It seemed to have indicated that the current pilot procedure had accommodated the regulatory compliance and received good market response. More rounds of tests will be implemented in an accelerated manner.

In October 2017, FCA issued a “regulatory sandbox” report to review and summarize its status of progress, achievements, and impacts on the UK market. As indicated in the report, the UK’s regulatory sandbox program covers a diversified composition of Fintech firms,, and the participating firms come from a wide range of background such as banking, insurance, investment and leasing, mostly from the retail banking industry.

Figure 2.1: Sector Distribution of Companies Participated in FCA's Regulatory Sandbox



Source: FCA (2017): Regulatory Sandbox Lessons Learned Report

Meanwhile, in the report, the FCA summarized four benefits brought about by the implementation of the regulatory sandbox system, namely: the regulatory sandbox system helps reduce the time and cost of injecting innovative ideas into market; testing in the regulatory sandbox helps innovators gain access to finance; the regulatory sandbox system provides a platform for product testing and marketing; and, the regulatory sandbox system enables the cooperation between regulators and innovators, so as to ensure the protection of consumer rights in terms of new products and services.

Table 2.1: Advantages of Regulatory Sandbox

Benefits	Specific Outcomes
Reduce the time and cost of introducing innovative ideas into market	<ol style="list-style-type: none"> 75% of the first batch of companies have successfully completed the test. Among the companies that completed the first round of tests, about 90% continued this mode in the broader market. Most companies that were permitted to participate in the test have been fully authorized after completing the tests. 77% of companies of the second round have entered into the testing phase.
Help innovators obtain financing	During or after the regulatory sandbox test, at least 40% of the companies that completed the first round of tests have received investment.
Provide a platform for the testing and marketing	<ol style="list-style-type: none"> Regulatory sandbox test covers a wide range of industries and products. In the first two rounds of regulatory sandbox tests, FCA received a total of 146 applications, Out of these applications, 50 firms were accepted and participated in 41 tests. About one-third of the companies participated in the first round of tests have modified their business model before large-scale marketing based on the experience gained from the test.
Establish appropriate consumer rights protection for new products and services	<ol style="list-style-type: none"> All regulatory sandbox tests comply with FCA's standard protection measures. FCA and the companies jointly developed the customized protection measures. Due to a lack of consumer appeal, one of the companies successfully launched the exit plan during the test. About one-third of the companies participated in the first round of tests have adjusted their business mode before large-scale marketing based on the experience gained from the test.

Source: FCA (2017): Regulatory Sandbox Lessons Learned Report

2. Regulatory Sandbox in Australia

On March 21, 2016, according to the statement of Morrison, Australian Minister of Finance, the Federal Government would approve the Australian Securities and Investment Commission (ASIC) to establish and manage the “regulatory sandbox” so that Fintech companies in the infant stage would also be able to cope with regulatory risks, thereby reducing the financial and time cost to market.

On December 14, 2016, the Australian Securities and Investment Commission (ASIC) issued a guidance, allowing qualified Fintech companies to test their specific services after filing with ASIC, without holding an AFS or Credit License. Unlike the UK and Singapore, Australian sandbox does not require companies to apply for approval. The ASIC directly publishes the regulatory exemption clauses in the regulatory guidance: the test may be carried out as long as the specific conditions are met and the ASIC is notified. However, the regulatory exemptions are applicable only in a few areas, with specific requirements for the number of customers and the existence of risk exposure.

The ASIC sandbox application process emphasizes timeliness. Before obtaining a Fintech license exemption, a written application stating the intent of the remedy and some other information must be submitted to the ASIC first. Applications must be submitted in writing via e-mail to the ASIC Innovation Center. Some of the information shall be posted on the ASIC website to meet the transparency requirements. The test will begin in 14 days after the notice is sent. The ASIC will notify in writing the beginning date of the test. Within two months after exiting the test, the company shall provide a brief report to ASIC. The report shall record the details of the test items and provide relevant information as required. In exceptional circumstances, ASIC may extend the test period or increase the maximum number of customers. The test duration requirement in the “regulatory sandbox exemptions” fully reflects the importance of time efficiency (as shown in the Figure below).



Source: ASIC (2017): Regulatory Guide 257: Testing Fintech Products and Services Without Holding an AFS or Credit License

3. Regulatory Sandbox in Singapore

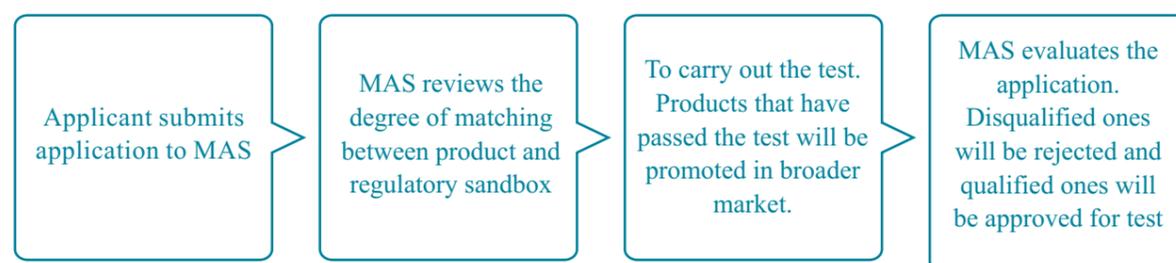
The Monetary Authority of Singapore (MAS) has proposed a “regulatory sandbox” mechanism for Internet finance companies, that is, any Internet finance company registered in the sandbox system, as long as a registration application is submitted in advance, is allowed to launch the business contradicting with the existing laws and regulations, and will not be held responsible for relevant legal responsibilities even if such business is terminated by the authority afterwards.

The person in charge of MAS introduced the main regulatory attitude of the Singapore Government towards financial innovations such as Blockchain and other forms of Internet finance, and publicly stated that MAS was very keen to promote various types of financial innovations. Even if the business could possibly contradict with existing laws and regulations, it could possibly be allowed once it was filed in advance and replace with conduct under MAS guidance. Through this “sandbox” mechanism, various financial service innovations will be put forward with certain constraints, and financial companies are

allowed to carry out various innovative financial services.

In November 2016, MAS released the “Singapore Financial Technology Sandbox Regulation Guidance”, which introduced the sandbox regulation methods, purposes, targets, goals and principles, as well as the evaluation criteria, expansion and exit mechanisms, approval procedures, etc. In addition, relevant examples were given. In the early 2017, MAS announced the invitation for sandbox regulation test. So far, the MAS website has announced two companies have passed the screening process. The test of the insurance company PolicyPal started in March 2017, and the test of the digital wealth management company Kristal Advisors started on August 10, 2017 and ended on May 10, 2018.

The Singapore “regulatory sandbox” application process includes the following steps: the applicant submits an application to the MAS; the MAS completes the review within 21 working days after receiving the application; if the degree of potential matching level between the product and the “sandbox” system is high, then it enters into the assessment stage, and the consumers will be informed of the “sandbox” test of such financial technology solution. The follow-up evaluation results include “accepted” and “rejected” (see the Figure below).



Source: MAS (2016): Fintech Regulatory Sandbox Guidance

Table 2.2: Regulatory Sandbox in Different Countries

Nation	Regulatory Body	Regulatory Target	Regulatory Strength
UK	UK Financial Conduct Authority (FCA)	No restriction on firm size. Suitable for emerging technological innovation organization and traditional financial institutions, restricted to Fintech sector solely.	3-6 months’ test of “regulatory sandbox”
Australia	Australian Securities and Investment Commission (ASIC)	Fintech companies	6-month test of “regulatory sandbox”
Singapore	Monetary Authority of Singapore (MAS)	Fintech companies	Comparatively loose regulation, flexible requirement for test period of “regulatory sandbox”

Table 2.3: Review Criteria of Regulatory Sandbox in Different Countries

Economy	Regulatory Body
UK	<ol style="list-style-type: none"> Whether the product or service is genuinely innovative Whether it can provide consumers with prospects of verifiable benefits, such as higher quality services or lower prices Whether there is a significance necessity for conducting a regulatory sandbox test Whether or not fully prepared for research on innovative solutions, understanding applicable laws and regulations, and mitigation of risks
Australia	<ol style="list-style-type: none"> Specific data requirements for the company’s business scope, customer size, and risk exposure. Companies which have met the relevant standards may be exempt from review. Whether appropriate compensation arrangements (such as professional insurance compensation) are in place Whether a mechanism for resolving disputes is established Whether information disclosure and other enforcement requirements are met
Singapore	<ol style="list-style-type: none"> Whether it is a technological innovation or an application method that is innovative Whether it helps solve major problems or bring about benefits to consumers / the industry as a whole Whether the applicant has planned to and possesses the capability to promote its Fintech innovation in a broader market within the country after the test is completed Whether the test scenarios and expected results are clearly defined, and agree to report the testing process to the MAS Whether the applicable conditions are clearly defined and proven to be effective for testing in the regulatory sandbox while protecting the interests of consumers and maintaining the safety and safety of the industry Whether it’s possible to assess and reduce the foreseeable risks Whether it’s stated that if the test is discontinued, an acceptable exit and transition plan will be executed

Chapter 3

China's Fintech Regulatory System

In China, the development of Fintech relies on the Internet financial platform. Therefore, the regulation of Fintech in China is essentially based on the regulation of Internet finance.

1. Evolution of China's Fintech Regulation

The development of China's Internet finance regulation is divided into four phases:

1. Information security regulation phase

In the preliminary phase of the development of Internet finance, Internet technology was gradually applied to relevant financial services, which has been continuously promoting the informationalized development of services provided by financial institutions. The regulation of Internet financial services at this phase mainly focused on ensuring information security. Taking the regulation of third-party payment system as an example, in June 2010, the People's Bank of China promulgated the "Administrative Measures for Non-financial Institutions' Payment Services", which formally incorporated third-party payment into the regulation system. In October 2010, the People's Bank of China introduced the "Implementation Rules for Administrative Measures For Non-financial Institutions' Payment Services", which focuses on the business regulation of third-party payment system.

2. Risk alert phase

With further development of the Internet finance industry, new forms of industry business such as marketplace lending, Internet financial management and crowd funding have been emerging rapidly, causing outstanding issues such as financial fraud and illegal fund-raising. During this phase, numerous Internet financial institutions sold numerous products in the market, but the main regulatory bodies were not identified, and the regulation at this phase was mainly carried out in the form of risk warning.

3. Exploratory phase

In 2013, with the support of the national "Internet Plus" strategy, the Internet finance industry entered into a "barbarous growth" phase, and the number of companies and products engaged in Internet financial services was increasing extremely rapidly. At that time, China had not yet established regulation policies targeted at the Internet finance industry, incidents such as violations of laws and regulations and

infringement of consumers' rights were emerging one after another, bringing great challenges to relevant regulatory authorities such as the "Rijinbao" product payment crisis of Fanya Metal Exchange, the Ezubao-Ponzi scheme, etc. However, with continuous outbreak of risk events, in July 2015, the "Guiding Opinions on Promoting the Healthy Development of Internet Finance" jointly issued by 10 ministries and commissions, including the People's Bank of China, became an important milestone in China's Internet finance regulatory system. Based on the principles of "legal regulation, appropriate regulation, classified regulation, coordinated regulation, and innovative regulation", the "Guiding Opinions" proposed a number of regulatory recommendations for new forms of industry business such as Internet third-party payment, P2P marketplace lending, equity-based crowd funding, Internet fund sales, and Internet financing, defined the main regulatory bodies for different businesses and strengthened the respective responsibilities of the regulatory institutions.

4. Special rectification action on internet finance

After the promulgation of the "Guiding Opinions, all regulatory bodies in China have been strengthening their regulatory responsibilities in respective fields. On October 13, 2016, the State Council issued the "Implementation Plan for the Work of Internet Financial Risk Special Rectification" (abbreviated as "No. 21 Document"), which has become the main legal basis for China's Internet finance regulatory system. According to the "Implementation Plan", the Internet Financial Risk Rectification Team was officially established and began to identify and eliminate relevant risks by conducting key investigation and special rectification. The special rectification work of Internet financial risk has escalated the task of Internet finance regulatory system and risk prevention to a higher level.

At that time, potential risks in the Internet finance industry were mainly concentrated on P2P marketplace lending, equity-based crowd funding, Internet insurance, third-party payment, Internet-based asset management, cross-sector financial services, Internet finance advertising, etc. Oriented at problems, the special rectification has been focusing on the following key areas.

- ⊙ The focus of P2P marketplace lending rectification is to define the intermediary position of marketplace lending institutions and prohibit marketplace lending institutions from breaking through their role of information intermediary and committing illegal activities such as setting up capital pools, self-financing and self-insurance, and issuing loans.
- ⊙ The special rectification in the field of equity-based crowd funding is focused on the prohibition of public issuance of shares without approval in advance, issuance of disguised public offerings, and illegal business operation of securities.
- ⊙ The focus of Internet insurance reform is to prohibit Internet high cash value business operation and prevent insurance companies from carrying out Internet cross-sector business operation and illegal business operation of Internet insurance.
- ⊙ The reform in the field of third-party payment is focused on the protection of non-banking payment institutions from provisions risks and the regulation of inter-agency clearing business, as well as the prevention of unlicensed payment service operation. The third-party payment license issued by the People's Bank of China. Any institutions engaged in unlicensed payment services will be forced to carry out special rectification.
- ⊙ The rectification of Internet-based asset management and cross-sector financial management is targeted on Internet companies eligible for asset management but their operations have been

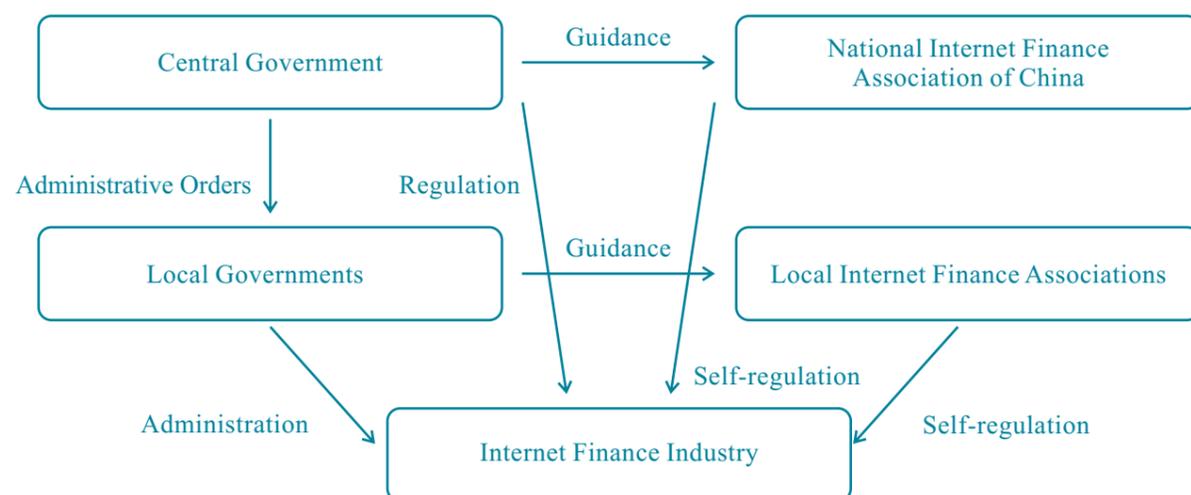
unregulated, as well as Internet companies not eligible for providing financial services (such as asset management) but have been conducting cross-sector financial activities.

- ⊙ The rectification of advertising in the field of Internet finance is focused on preventing Internet financial institutions from publishing false and illegal financial advertisements.

2. China's Internet Finance Regulatory Framework

Currently, China's Internet finance regulatory system applies a mixed model of regulation, i.e., the combination of "multi-institution separate regulation" and industry self-regulation. On the one hand, the "One Bank and Three Commissions" are responsible for separate regulation of Internet finance companies and businesses in respective areas. On the other hand, industry self-regulatory organizations (such as the Internet Finance Associations) across China function as important supplementary regulators of the Internet finance industry through formulating industry self-regulation rules. Under the model of mixed regulation, central and local government regulation and industry self-regulation complement each other and form a multi-level and comprehensive regulation system (as shown in the Figure below).

Figure 3.1: Structure of China's Internet Finance Regulatory Framework

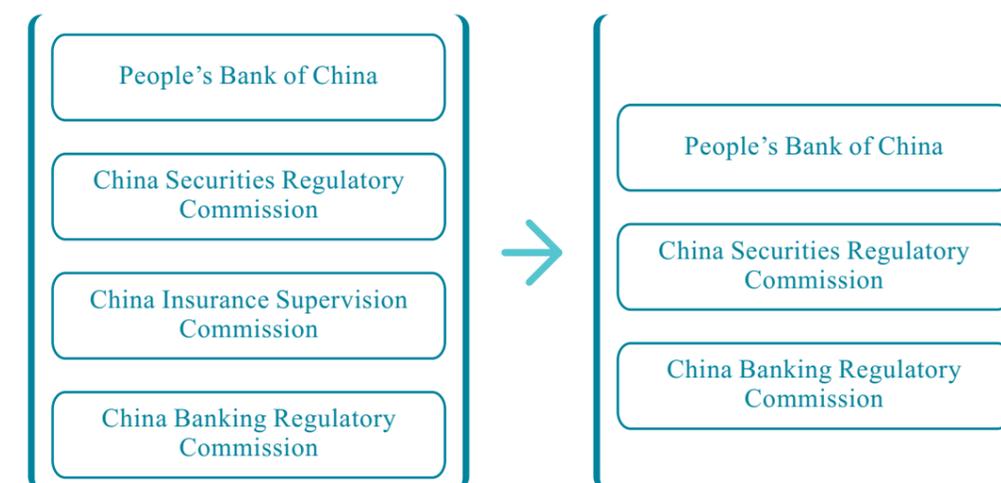


Source: Zhejiang University Academy of Internet Finance

Since 2017, China's new Fintech regulatory framework of "one bank and two commissions plus local financial affair office" has emerged. At the central level, in July 2017, during the National Financial Work Conference, which is held in Beijing, the State Council established the Financial Stability Development Committee to strengthen the responsibilities of the macro-prudential management and systemic risk prevention of the People's Bank of China. Fifteen years after the formation of the "one bank and three commission" regulatory structure, the State Council's institutional reform plan was announced on March 13, 2018, which proposed integrating the responsibilities of the China Banking Regulatory Commission and the China Insurance Regulatory Commission to form Insurance Regulatory Commission of the Bank of China. as a unit which is directly under the State Council. "One bank and three commission" were adjusted to "one bank and two commission" (which are shown in the pictures), namely the People's Bank of China, the China

Securities Regulatory Commission and the China Banking Insurance Regulatory Commission. The main responsibility of the newly-assembled bank-assurance committee is to supervise the banking and insurance industry in accordance with laws and regulations, guarantee the legal and steady progress of the banking industry and the insurance industry, prevent and defuse financial risks, protect the legitimate rights and interests of financial consumers, and maintain financial stability. The original responsibility of the China Banking Regulatory Commission and the China Insurance Regulatory Commission: drafting important laws and regulations for the banking and insurance industries and the prudential supervision of the basic system was transferred to the People's Bank of China. The People's Bank of China will play a more important role in the new financial regulatory framework. At the regional level, in 2017, after the National Financial Work Conference, the Central Government requested local financial regulatory agencies (including local financial offices, local financial bureaus, etc.) to attach the local financial supervision agency's brands, and the supervision function will continue to be strengthened.

Figure 3.2: From "One Bank and Three Commissions" to "One Bank and Two Commissions"



3. Government Regulation

In 2014, the Chinese Government Work Report first proposed "to promote the healthy development of Internet finance". On March 24, 2014, the People's Bank of China announced that the following five principles must be followed in the Internet Finance Regulatory System: first, innovation in Internet finance must adhere to the essential requirements that finance shall serve the physical economy, and the innovation scope and strength must be reasonably controlled; second, Internet finance innovation must comply with the overall requirements of macroeconomic regulation and financial stability; thirdly, the legitimate rights and interests of consumers must be guaranteed; fourth, a fair-competition market order must be maintained; and fifth, the relationship between government regulation and industry self-regulation should be balanced so as to give full play to the industry self-regulation..³

³ "The Central Bank's First Sharing of Internet Financial Regulation Ideas: Five Principles for Regulation" [N]. Shanghai Securities News. 2014-3-25.

1. “One Bank and Two Commissions” regulation

The “Guiding Opinions clarified that the Internet finance regulatory authorities were “One Bank and Three Commissions” -- the People’s Bank of China, the China Banking Regulatory Commission (CBRC), the China Securities Regulatory Commission (CSRC), and the China Insurance Regulatory Commission (CIRC). In addition, the Ministry of Finance (MOF) would also participate in regulation. The “One Bank and Three Commissions”, as the regulatory organizations of China’s traditional finance industry, would continue to fulfill responsibilities of central government-level regulation on Internet finance. It integrated the regulation of Internet finance into the original regulation system and continued the financial industry’s pattern of separate regulation. In specific regulation, the General Office of the State Council issued on October 13, 2016 the “Implementation Plan for the Work of Internet Finance Risk Special Rectification” (hereinafter referred to as the “Implementation Plan”), with a comprehensive arrangement for Internet finance risk special rectification requiring all regulatory authorities to carry out rectification within their respective regulation areas.

From the perspective of separate regulation of various forms of Internet finance, the People’s Bank of China is responsible for regulating the online payment services; the China Banking Regulatory Commission is responsible for the regulation of marketplace lending business, Internet trust business, and Internet consumer finance business; the China Securities Regulatory Commission is responsible for the regulation of equity-based crowd funding business and Internet fund sales; the China Insurance Regulatory Commission is responsible for overseeing the Internet insurance business, and the Ministry of Finance is responsible for formulating financial regulation policies for Internet financial institutions. As shown in the Figure below, various regulatory authorities collaborate with each other to form a joint force and give full play to the role of financial regulation and the inter-ministerial joint meeting system, thus forming a national-level government regulation synergy.

Figure 3.3: China’s Internet Finance Regulation Authorities and Responsibilities

The People’s Bank of China	CBRC	CSRC	CIRC	Ministry of Finance
Regulating the Internet payment services Website: http://www.pbc.gov.cn/	Regulating the business operation of marketplace lending, marketplace trust and Internet consumer finance Website: http://www.cbrc.gov.cn/index.html	Regulating the business operation of equity-based crowd funding and Internet fund sales Website: http://www.csrc.gov.cn/pub/newsite/	Regulating the business operation of Internet insurance Website: http://www.circ.gov.cn/web/site0/	Formulating the financial regulation policies for Internet financial institutions Website: http://gks.mof.gov.cn

Source: Zhejiang University Academy of Internet Finance

(1) Regulatory Responsibilities of the People's Bank of China

According to the “Guiding Opinions”, the People’s Bank of China is responsible for regulating online

payments. In fact, long before the concept of “Internet finance” was officially proposed, the People’s Bank of China had been taking effective measures in the regulation of online payment business. Meanwhile, the People’s Bank of China has also been taking risk prevention measures for the regulation of Bitcoin -- a new digital currency.

• Online payment services

In order to effectively regulate the emerging online payment services, in April 2009, the People’s Bank of China issued an announcement, requiring the online payment agencies to complete registration procedures within time limit. In June 2010, the People’s Bank of China issued the “Administrative Measures for Non-financial Institutions’ Payment Services”, stipulating for the first time the scope of online payment services, the admission thresholds and regulatory measures. In particular, it requires that non-financial institutions must obtain the license for providing payment services, which set the precedent of “licensed operation” in the online payment industry. In July 2015, the People’s Bank of China issued the “Administrative Measures For Non-bank Payment Institutions’ Online Payment Services” (Draft for Opinions), which outlined the regulatory ideas such as insisting on the implementation of real-name payment account system, keeping the balance between safety and efficiency of payment services, ensuring the protection of consumer rights, and promoting payment innovations. The “Measures” proposed a number of regulatory measures, such as clear definition of payment institutions, implementation of real-name payment account system, balance between payment safety and efficiency, protection of legitimate rights and interests of individual consumers, and implementation of classification-based regulation to promote innovations. The “Measures” was put into effect on July 1, 2016.

• Digital currency

In December 2013, five ministries and commissions including the People’s Bank of China jointly issued a “Notice on Preventing Bitcoin Risks”, stating that “Bitcoin is not a real currency and cannot and should not be used as a currency for circulating in the market. However, Bitcoin trading is a kind of commodity trading on the Internet, and ordinary people have the freedom to be engaged under the premise of self-bearing of relevant risks.”⁴ In January 2017, due to continued fluctuations of Bitcoin prices, the People’s Bank of China talked to persons in charge of these Bitcoin trading platforms, informing them of the potential legal, policy and technical risks and suggesting non-engagement in illegal trading activities.

(2) Regulatory Responsibilities of the CBRC

As a regulatory authority for marketplace lending and other forms of business, in 2015, the China Banking Regulatory Commission established a new Inclusive Finance Department to regulate and coordinate various non-licensed institutions’ marketplace lending and other activities. Meanwhile, as the earliest attempt of Internetization of traditional financial institutions, online banking is also a key area of commercial bank regulation carried out by CBRC.

• Marketplace Lending

In August 2011, the China Banking Regulatory Commission issued the “Notice on Relevant Risks of Renrendai Loans”, calling for prevention of risk transfer in private lending through Internet. This is the first time that the Government showed its regulatory attitude toward marketplace lending. In December

⁴ A notice issued by five Ministries including the People's Bank of China on the prevention of Bitcoin risks, http://www.gov.cn/gzdt/2013-12/05/content_2542751.htm

2015, four ministries and commissions including CBRC jointly issued the “Interim Measures for the Administration of Business Activities of marketplace lending Intermediaries” (Draft for Opinions), so as to solicit public opinions to better regulate marketplace lending activities. In August 2016, as a follow-up to the promulgation of the “Draft”, four ministries and commissions jointly issued the “Interim Measures for the Business Administration of marketplace Lending Information Intermediaries”, which defined the scope of marketplace lending services, established the regulation system of marketplace lending, and clarified the operational rules of marketplace lending, all of which will function as the basis for further and orderly development of the marketplace lending industry.⁵ In the same month, the China Banking Regulatory Commission (CBRC) issued the “Guidance on the Management of marketplace Lending Funds” (Draft for Opinions), which proposed specific requirements for the regulation of the banking system’s management of marketplace lending funds.⁶ In November 2016, the China Banking Regulatory Commission (CBRC), the Ministry of Industry and Information Technology (MIIT) and the China Administration of Industry and Commerce (CAIC) jointly issued the “Guidance on the Registration Administration of Marketplace Lending Information Intermediaries”, which stipulated that the marketplace lending platform registration system is a precondition for license application of bank deposit and value-added telecommunications. In February 2017, CBRC issued the “Guidance on the Management of marketplace lending Funds”, which further proposed detailed requirements for management of funds and emphasized the strengthening of the supervision and administration of the circulation of marketplace lending funds, so as to prevent misappropriation of marketplace lending funds and protect the investors’ capital safety.

• **Online banking**

On November 10, 2005, CBRC issued the “Administrative Measures for Electronic Banking Business”, which specified that “the China Banking Regulatory Commission is responsible for the supervision and administration of the e-banking business”. In parallel, CBRC formulated the “Guidance on E-banking Safety Assessment”, which specified the requirements for the implementation and administration of e-banking safety assessment. The promulgation of the “Measures” has filled up the gap in China’s online banking legislation and promoted the orderly and healthy development of the online banking industry.⁷

(3) Regulatory Responsibilities of the CIRC

The China Insurance Regulatory Commission is responsible for overseeing the Internet insurance business. In order to standardize the Internet insurance business operation, protect the legitimate rights and interests of insurance clients, and promote the healthy development of Internet insurance industry, on July 22, 2015, the China Insurance Regulatory Commission issued the “Interim Measures for Regulation of Internet Insurance Business”. The promulgation of the “Measures” signifies the official establishment of China’s Internet insurance business regulation system, it clarified the definition of Internet insurance

⁵ Four ministries and commissions jointly issued the “Interim Measures for the Administration of Business Activities of Marketplace Lending Information Intermediaries”, http://www.gov.cn/xinwen/2016-08/24/content_5102029.htm

⁶ Interpretation of the “Guidance on the Administration of Marketplace Lending Funds” (Draft for Opinions), <http://www.weiyangx.com/201605.html>

⁷ Order of China Banking Regulatory Commission, <http://www.gov.cn/flfg/2006-02/06/content179492.htm>

business and proposed basic norms and regulatory requirements for business entities participating in Internet insurance business, including operational conditions, business scope, information disclosure, and supervision and administration of such entities. The “Interim Measures for Regulation of Internet Insurance Business” was put into force as of October 1, 2015, effective for three years.

(4) Regulatory Responsibilities of the CSRC

The China Securities Regulatory Commission is mainly responsible for overseeing two forms of Internet finance: equity-based crowd funding and Internet funds. In recent years, CSRC has issued a number of regulations for creating a good regulatory environment for Internet finance.

• **Regulation of equity-based crowd funding**

In December 2014, the China Securities Industry Association (CSIA) issued the “Administrative Measures for Private Equity-based Crowd Funding (Trial)” (Draft for Opinions), which specified that “China Securities Industry Association is responsible for self-regulatory administration of the equity-based crowd funding finance industry” and listed nine behaviors that are prohibited on the equity-based crowd funding platform.⁸ On August 7, 2015, the China Securities Regulatory Commission issued the “Notice on Conducting Special Inspection of Institutions Engaged in Equity Financing through the Internet”, stipulating that “without the approval of the State Council Securities Regulatory Authority (i.e., the China Securities Regulatory Commission), no person shall carry out equity-based crowd funding activities.”

• **Regulation of internet funds**

On March 15, 2013, the China Securities Regulatory Commission issued the “Interim Provisions on the Business Administration of Securities Investment Fund Sales Agencies through Third-Party E-Commerce Platforms”, which stipulated the requirements for operations of fund sales agencies through third-party e-commerce platforms, such as conditional admission, behavioral regulations and registration procedures, so as to encourage the fund sales agencies to conduct online fund sales through working with mature Internet institutions and e-commerce platforms.⁹

Table 3.1: Summary of China's Internet Finance Regulation Provisions

Authority	Date	Legal Provisions
CBRC	Apr. 2014	Notice on Strengthening the Business Administration of Cooperation Between Commercial Banks and Third-party Payment Agencies
	Dec. 2015	Measures for the Administration of Business Activities of marketplace Lending Information Intermediaries

⁸ “Notice on Public Consultation on ‘Administrative Measures for Private Equity Crowd Funding’ (Trial)” (Draft for Opinions), http://www.sac.net.cn/tzgg/201412/t20141218_113326.html

⁹ China Securities Regulatory Commission, Press Conference (August 16, 2013) http://www.csrc.gov.cn/pub/newsite/zjhxwfb/xwfbh/201308/t20130816_232742.html

Reference regulations: “Interim Provisions on the Business Management of Securities Investment Fund Sales Agencies Through Third-Party E-Commerce Platforms”

Authority	Date	Legal Provisions
CBRC	Mar. 2016	Opinions on Further Strengthening the Work of Risk Supervision on Trust Agencies
	Apr. 2016	Implementation Plan of the Work of P2P marketplace Lending Risk Special Rectification
	Jul. 2016	Measures for the Supervision and Administration of Financial Services of Commercial Banks
	Aug. 2016	Interim Measures for the Administration of Business Activities of marketplace Lending Information Intermediaries
	Feb. 2017	Guidance on the Management of marketplace lending Funds
	May 2017	Notice on Further Strengthening the Administration of Campus Loans
CIRC	Dec. 2014	Interim Measures for Supervision of Internet Insurance Business
	Oct. 2016	Implementation Plan of the Work of Internet Insurance Risk Special Rectification
CSRC	Dec. 2014	Measures for Administration of Private Equity Crowd Funding (Trial)
	Oct. 2016	Implementation Plan of the Work of Equity Crowd Funding Risk Special Rectification
People's Bank of China	Jan. 2015	Notice on Making Good Preparation for Personal Credit Investigation Business
	Jul. 2015	Guiding Opinions on Promoting the Healthy Development of Internet Finance
	Jul. 2015	Measures for Administration of Online Payment of Non-bank Payment Institutions
	Dec. 2015	Measures for Business Administration of Online Payment of Non-bank Payment institutions
	Mar. 2016	Regulations on Internet Financial Information Disclosure
	Oct. 2016	Implementation Plan of the Work of Non-bank Payment Institution Risk Special Rectification
	Oct. 2016	Implementation Plan of the Work of Non-bank Payment Institution Risk Special Rectification
	Jun. 2017	Notice on Clearing Up and Rectifying the Illegal and Infringing Businesses of Internet Platforms in Cooperation with Various Trading Sites
	Jul. 2017	Announcement on Preventing the Risk of Issuance of Coinage Offerings
	Dec. 2017	Notice on Regulating and Rectifying the "Cash Loan" Business
State Council	Jan. 2014	Notice on Strengthening the Regulation of Related Issues of Shadow Banking
	Jul. 2015	Guidance on Actively Pushing Forward the "Internet Plus" Actions
	Nov. 2015	Guiding Opinions on Actively Giving Play to the Leading Role of New Consumption and Accelerating the Cultivation of New Supply and New Momentum
	Oct. 2016	Implementation Plan of the Work of Internet Finance Risk Special Rectification
CAIC	Jul. 2016	Interim Measures for the Administration of Internet Advertising

2. Local government regulation

In government regulation system, local governments also play a very important role in addition to "One Bank and Three Commissions". At present, China's Internet finance is subject to localized administration. Therefore, more often than not, routine guidance, registration administration and risk prevention and control fall into the scope of responsibilities of local financial offices. Taking the "Interim Measures for the Administration of Business Activities of Internet Lending Information Intermediaries" promulgated by CBRC in 2015 as an example, the "Measures" clearly stipulates that under the principle of "legal regulation, proper regulation, classification regulation, and coordinated regulation", the CBRC shall be responsible for establishing a unified normative development policy and supervision and management system for P2P business, while the specific normative guidance, registration administration, and risk prevention and control shall be assigned to local financial offices.

Since local financial regulatory authorities are often in the state of "one system two departments", i.e., the Financial Office and the Financial Administration, which means that in addition to the regulatory functions in the general sense, local financial regulatory authorities often have specific functions such as "guiding, planning, managing, and serving", for which they are in need of talents, funds and technology, which means enormous challenges for achieving actual regulation effects.

4. Industry Self-Regulation

Industry self-regulation is a useful supplement and strong support for government regulation, it's also an important part of Internet financial regulation innovation. Industry self-regulation is achieved through the collaborative work of Internet finance industry associations at all levels. Internet finance companies in the same industry association usually formulate self-disciplines based on common interests, so as to realize self-regulation within the industry to protect their own interests and promote the development of the industry. A sound industry self-regulation mechanism is conducive to creating a more efficient and more flexible regulatory environment and improving the flexibility and effectiveness of regulation. Self-regulation of industry practitioners can go deep into the industry to standardize the market behaviors of institutional practitioners, protect the legitimate rights and interests of the industry, and fill in the regulatory gaps that are difficult to cover in administrative regulation, so as to provide guarantees for legal business operation of the Internet finance industry.

In China, in addition to the National Internet Finance Association at the national level, there are also the Internet Finance Industry Associations at provincial and municipal levels, which have formed a multi-level system of industry self-regulation.

1. National level - the National Internet Finance Association of China

With rapid development of the Internet finance industry, in order to further improve the nationwide industry self-regulation mechanism, on March 25, 2016, the People's Bank of China and relevant ministries and commissions such as CBRC, CSRC and CIRC jointly organized the establishment of a national-level self-regulation organization for the Internet finance industry -- the National Internet Finance Association of China.

The National Internet Finance Association of China (NIFA) is a national-level self-regulation organization for the Internet finance industry which was established according to the "Guiding Opinions" jointly

promulgated on July 18, 2015 by 10 ministries and commissions including the People’s Bank of China as approved by the Central Government and the State Council. The establishment of NIFA was jointly organized by the People’s Bank of China and relevant ministries and commissions such as CBRC, CSRC and CIRC.

Through conducting self-regulatory management and providing membership services, the Association aims to standardize the market behaviors of institutional practitioners, protect the legitimate rights and interests of the industry, promote the institutional practitioners to better serve the socio-economic development, and guide the industry to realize orderly and healthy operation. The main functions of the Association include: formulating business administration rules and industry standards according to the business scope, promoting business exchanges and information sharing between institutions, defining the self-regulation and disciplinary mechanisms, enhancing the binding force of industry rules and standards, and strengthening the institutional practitioners’ awareness of legal conducts, integrity and self-disciplines, so as to build a positive image of the industry serving the economic and social development and create an environment for integral and orderly development of the industry.

The member institutions of the Association include banks, securities, insurance, funds, futures, trusts, asset management firms, consumer finance services, credit investigation services, as well as online payment, investment, financing and lending services. There are also some financial infrastructure organizations and financial research and education institutions.

2. Local self-regulatory organizations

As a national industry self-regulatory organization, the NIFA has a significant leading role in promoting the development of Internet finance industry. However, its strong official background and extremely high entry threshold make it difficult for most Internet finance companies to get admitted. The NIFA covers only those largest and most famous Internet finance companies, which makes its “outreaching” effectiveness doubtful.

In regard to self-regulation of the Internet finance industry, the Association should not only focus on “promoting excellent enterprises,” but also “consolidating mediocre enterprises” or even “subsidizing backward enterprises”. In this context, local industry self-regulatory organizations provide a way out for more extensive industry self-regulation. In fact, as early as before the establishment of the NIFA, many regions had established regional Internet finance industry associations within their respective jurisdiction, which are useful attempts for self-regulation in the Internet finance industry. After the establishment of the NIFA, the local associations continued to exert the local industry’s self-regulatory functions, which has promoted the construction of the local Internet finance ecosystem.

As one of the earlier established local industry associations, Guangdong Internet Finance Association established on May 18, 2014 has a wide membership including various enterprises and universities, aiming to gather the wisdom of private enterprises and facilitate the development of Internet finance industry. Following closely after Guangdong, other regions such as Shanghai, Jiangsu and Zhejiang have successively established Internet finance associations, hoping to create an orderly market environment and boost the healthy development of the Internet finance industry (as shown in the Table below).

Table 3.2: Directory of Internet Finance Associations in China

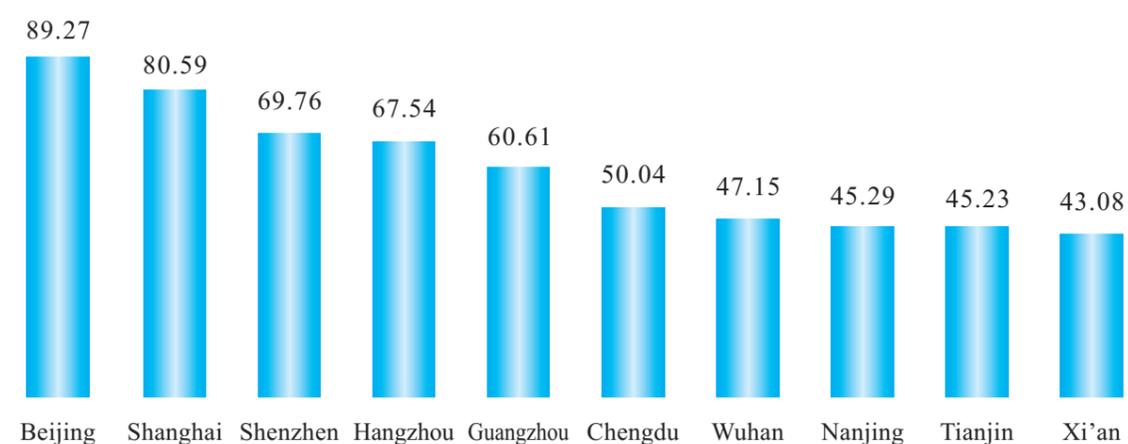
	Association	Year	Date of Establishment
Provincial-level and Municipal-level (Directly under the Central Government)	Guangdong Internet Finance Association	2014	May 18, 2014
	Hong Kong Internet Finance Association		2014
	Jiangsu Internet Finance Association		Dec. 16, 2014
	Beijing Marketplace Lending Industry Association		Dec. 26, 2014
	Shanghai Internet Finance Industry Association	2015	Aug. 06, 2015
	Zhejiang Internet Finance Alliance		Sep.29, 2015
	Fujian Internet Finance Association		Dec. 23, 2015
	Jiangxi Internet Finance Association	2016	Dec.25, 2015
	Guangxi Internet Finance Industry Association		Jan.11, 2016
	Inner Mongolia Internet Finance Association		Mar. 24, 2016
	Anhui Internet Finance Association		Nov. 09, 2016
	Shanxi Internet Finance Association		Nov. 29, 2016
Municipal-level and below	Zhongguancun Internet Finance Industry Association	2013	Aug. 09, 2013
	Dongguan Internet Finance Association	2014	Jun. 2014
	Xiamen Internet Finance Association		Sep. 10, 2014
	Guiyang Internet Finance Association		Nov.07, 2014
	Wuhan Internet Finance Industry Association	2015	Mar. 31, 2015
	Guangzhou Internet Finance Association		Apr.10, 2015
	Changsha Internet Finance Association		May 16, 2015
	Shenzhen Internet Finance Association		Jul. 28, 2015
	Hangzhou Internet Finance Association		Sep. 13, 2015
	Nanning Internet Finance Industry Association	2016	Jun. 15, 2016

Source: Academy of Internet Finance, Zhejiang University

Chapter 4 Fintech Hubs in China

Fintech Hub refers to a large and medium-sized city that serves as the hub of Fintech activities within the macro-scale geographic region and mainly embodies the features of gathering sufficient number of Fintech enterprises and talents, providing a wealth of Fintech products and services and owning good Fintech facilities and environment. For better analysis of the development of Fintech sector in China, Sinai Lab of the Academy of Internet Finance(AIF), Zhejiang University introduced the Fintech Hub Index in 2017 based on a scientific and objective evaluation index system and big data technology. Starting with three major market participants (e.g., enterprises, users and government), the index is composed of 3 first-class indicators (e.g., Fintech industries, Fintech experience and Fintech ecology), 16 second-class indicators (e.g., 5 major Fintech sectors, including marketplace lending, crowd funding, third-party payment, big data credit investigation and block chain; 5 major Fintech experiences; macro business environment; infrastructure; scientific research strength; policy environment; regulatory environment; social attention; etc.), as well as 39 third-class indicators (e.g., number of enterprises, market size, capital strength, policy environment, regulatory environment, infrastructure, scientific research strength, etc.).

Figure 4.1: Top 10 of Fintech Hub Indexes in China in 2017



Data source: AIF, Zhejiang University

The results show that Beijing, Shanghai, Shenzhen and Hangzhou are the top four important Fintech Hubs in China, among which, Beijing and Shanghai rank the first and second respectively, demonstrating their good foundation and strength in terms of Fintech development. Shenzhen and Hangzhou, as the models that drive financial development by science and technology in China, are nearly on a par with each other in regard of index score and are both developing rapidly.

1. Macroeconomic Performance

The development of Fintech industry depends on highly-developed network, sound economic foundation, as well as a broad range of demands for financial resources. Therefore, the comprehensive macroeconomic performance of a region is vital for the development of Internet finance.

1. Economic aggregate

The GDP rankings in 2016 show that Shanghai had the highest total GDP followed by Beijing, but the year-on-year growth rate of the two cities was consistent with each other. Although Shenzhen ranked the fourth, it had the highest GDP per capita in the country, reaching RMB 179,200. The total GDP of Hangzhou ranked the tenth, with its GDP per capita ranking the third.

Table 4.1 : Total GDP and Growth Rate Rankings of Top 10 Cities in 2016

City	GDP (RMB 100 million)	Year-on-year growth (%)	Population (10,000 persons)	GDP per capita (RMB 10,000)
Shanghai	26,688	6.7	2,415	11.05
Beijing	24,541	6.7	2,171	11.30
Guangzhou	20,004	8	1,667	12.00
Shenzhen	19,300	9	1,077	17.92
Tianjin	17,800	9	1,547	11.51
Chongqing	17,010	10.7	3,372	5.04
Suzhou	15,400	7.5	1,060	14.53
Wuhan	11,756	7.8	1,061	11.08
Chengdu	11,721	7.5	1,573	7.45
Hangzhou	11,700	10	889	13.16

Data source: Collated by the AIF, Zhejiang University according to the statistical yearbooks of various provinces.

2. Industrial structure

The dominant industries in Beijing, Shanghai, Shenzhen and Hangzhou are finance, information, as well as science and technology, thus providing a good economic foundation for the development of Internet finance. In 2016, the proportion of tertiary industry in the four major cities (Beijing, Shanghai, Shenzhen

and Hangzhou) was above the national average of 53.8%, and the tertiary industry became the main pillar of economic development. In the future, the tertiary industry will be the main driving force of regional economic growth.

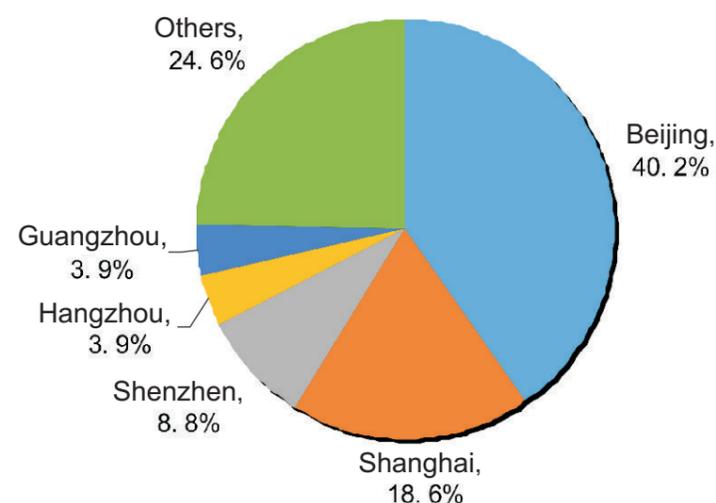
Table 4.2: Industrial Structure of Beijing, Shanghai, Shenzhen and Hangzhou in 2016

	Proportion of primary industry (%)	Proportion of secondary industry (%)	Proportion of tertiary industry (%)	Pillar industries
Beijing	0.52	19.17	80.30	Finance, cultural innovation, tourism, modern services, as well as high-tech
Shanghai	0.39	29.1	70.5	Information, finance, commerce, automobile, complete equipment and real estate
Shenzhen	0	39.5	60.5	Information, finance, electronics, cultural innovation, high-tech, as well as modern logistics
Hangzhou	2.8	36.0	61.2	Cultural innovation, tourism, financial services, e-commerce and Internet of Things

Data source: AIF, Zhejiang University

The regional distribution of listed Internet companies indirectly reflects the development environment of the Internet industry in various regions. According to the 41st Statistical Report on Development of Internet in China, by the end of December 2017, there are a total of 102 domestic and foreign listed Internet companies, with an overall market value of 8.97 trillion yuan, of which four registered in Beijing. The percentage of listed Internet companies registered in Shanghai and in Shenzhen were respectively 18.6% and 8.8% while Guangzhou and Hangzhou both accounted for 3.9%.

Figure 4.2: City distribution of Internet listed companies



3. Local government revenues

Comparing the fiscal revenues of Beijing, Shanghai, Shenzhen and Hangzhou in 2011 and 2016, although Shenzhen and Hangzhou had faster local revenue growth rate, their fiscal revenues in 2016 still lagged far behind that of Beijing and Shanghai. In terms of local financial resources, Shanghai and Beijing still had a big superiority.

Table 4.3: Financial Revenues of Beijing, Shanghai, Shenzhen and Hangzhou (RMB 100 million)

City	2011	2016	5-year growth rate
Beijing	3,006	5,081	69%
Shanghai	3,430	6,406	87%
Shenzhen	1,340	3,136	134%
Hangzhou	785	1,402	79%

Data source: AIF, Zhejiang University

2. Fintech Infrastructure

The infrastructure construction is the cornerstone of Fintech eco-environment. From the perspective of Internet penetration, Beijing, Shanghai, Guangdong and Zhejiang were at the country's leading level in regard of Internet technology by the end of 2016, and the four cities and provinces were among the top five in broadband penetration.

Table 4.4: Provincial Scale of Netizens and Internet Penetration in Mainland China

Provinces and cities	Number of Netizens (10,000 persons)	Internet penetration (December 2016)	Penetration rankings
Beijing	1,690	77.8%	1
Shanghai	1,791	74.1%	2
Guangdong Province	8,024	74.0%	3
Zhejiang Province	3,632	65.6%	5

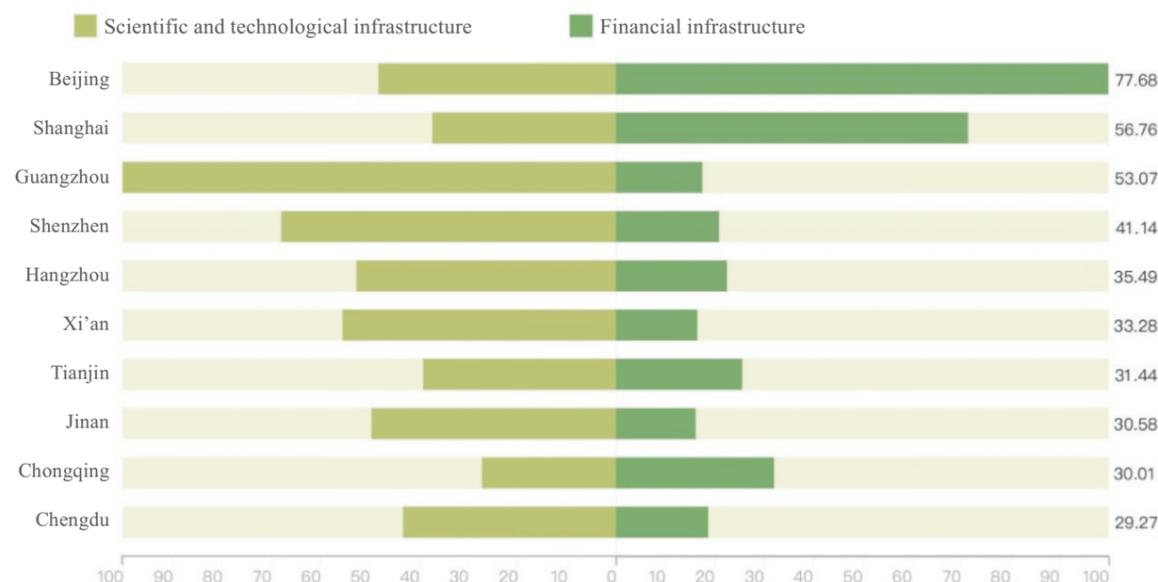
Data source: Statistical Report on China's Internet Development (2016)¹³

The AIF team of Zhejiang University analyzed the financial information infrastructure in major cities of China. The development level of financial infrastructure is mainly reflected in the accessibility to urban

¹³ Statistical Report on China's Internet Development (2016): <http://www.cnnic.net.cn/hlwfzyj/hlwzxbg/hlwjtjbg/201701/P020170123364672657408.pdf>

financial services, the coverage of financial network and the completeness of financial system, while the development of information infrastructure reflects the popularization and construction status of urban.

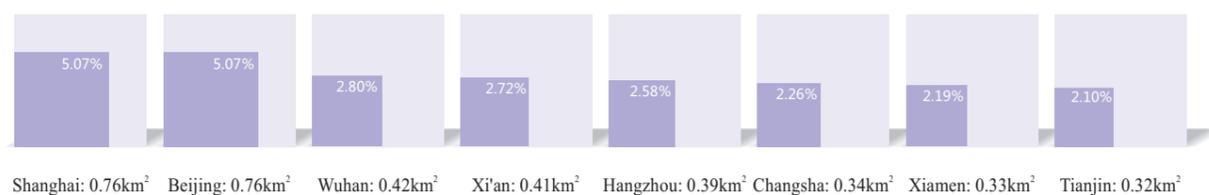
Figure 4.3: The Development of Fintech Infrastructure in Various Cities



Data source: Collated by AIF, Zhejiang University according to the 2016 statistical yearbooks of various cities.

Local governments' policy support plays an important role in promoting the development of Fintech industries. In recent years, local governments have also promoted the development of Fintech industries by increasing public expenditure, enhancing preferential and supporting policies, building enterprise incubators, etc. Through the analysis of data on approved science and technology-oriented enterprise incubators in various cities in 2015, it can be seen that the national science and technology-oriented enterprise incubators in Shanghai and Beijing occupied the largest area, followed by Wuhan, Xi'an and Hangzhou.

Figure 4.4: The Area of National Science and Technology-Oriented Enterprise Incubators in Various Cities



Data source: Collated by the Sinai Lab, AIF, Zhejiang University

3. The Geographical Distribution of Fintech Sector

Enterprises are the most direct participants in Fintech activities. They use technology to continuously improve financial efficiency and change people's lifestyles. They have become a key force for the continuous advancement of the Fintech industry. The AIF research team of Zhejiang University analyzed the indicators such as trading volume and business volume of the 5 major industries (e.g., marketplace lending, crowd funding, big data credit investigation and block chain) in 4 cities (including Beijing, Shanghai, Shenzhen and Hangzhou).



Beijing

Beijing ranks the first in the country in regard of the market volume of crowdfunding, big data credit investigation and blockchain industries, with a significant industrial agglomeration effect. The Fintech enterprises in Beijing are mainly distributed in Haidian District and Chaoyang District where there is a favorable developing status of Fintech industries, the enterprises have solid foundation and strong innovation momentum, and the market is very active.



Shanghai

As an international financial center, Shanghai has attracted many Fintech companies, with market volume increasing continuously. Shanghai ranks the first in the country with regard to the market volume of marketplace lending industry.



Shenzhen

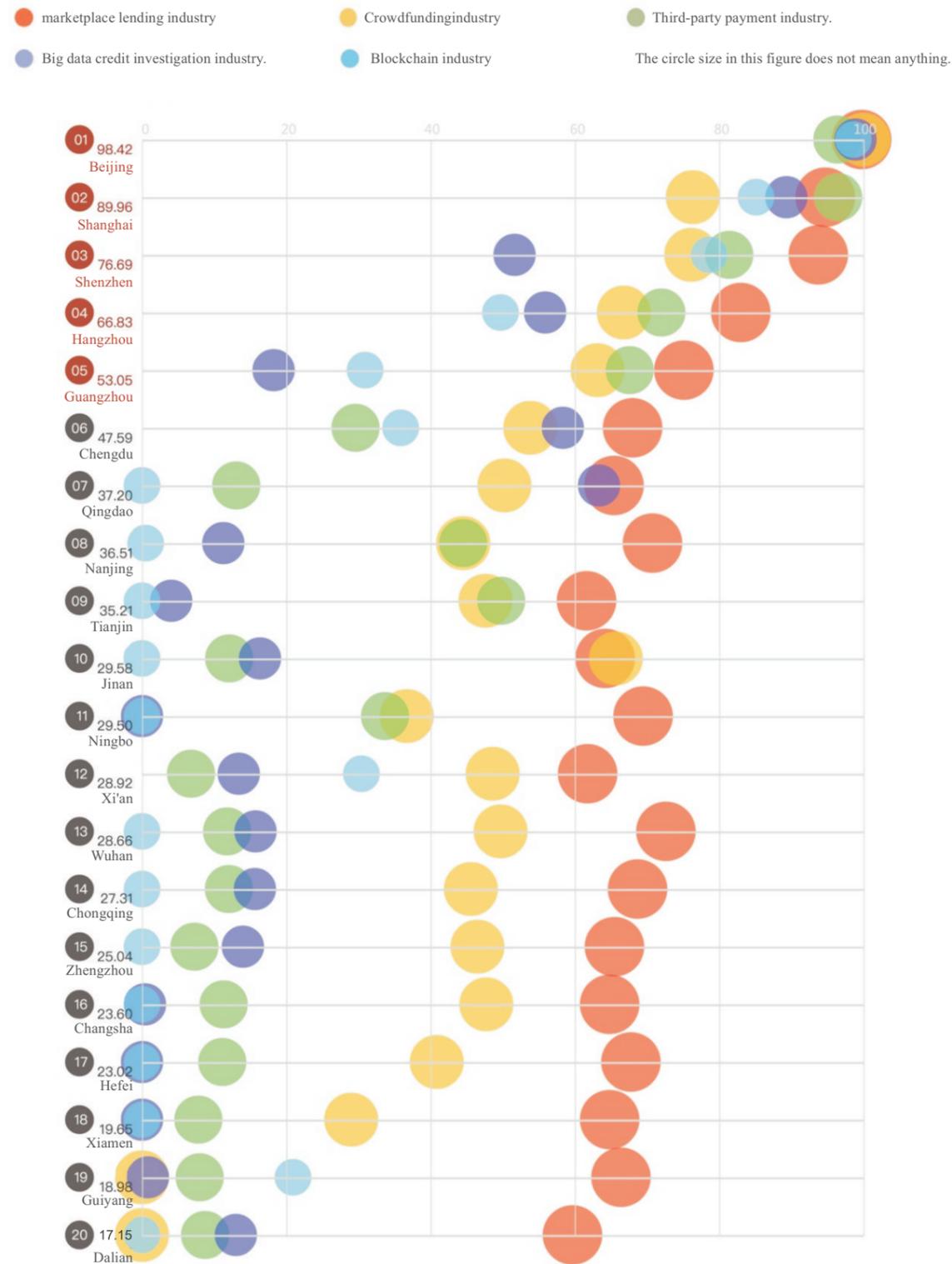
The Fintech enterprises in Shenzhen mainly focus on marketplace lending and third-party payment, especially the third-party payment, which is represented by WeChat Pay and has a great advantage in market volume. In addition, the Fintech enterprises in Shenzhen are mainly distributed in Nanshan District and Futian District. Nanshan District, as the university town and high-tech industrial park in Shenzhen, has provided strong support for Fintech companies, while Futian District is the financial center of Shenzhen with completed supporting facilities and strong radiation and driving effects.



Hangzhou

Hangzhou ranks the fourth in the country in regard of the market volume of marketplace lending, crowd funding and third-party payment industries. The relocation of Alipay headquarters has a huge impact on the market volume of third-party payment in Hangzhou. In addition, Hangzhou has performed very well in terms of big data credit investigation, especially the enterprises represented by Zhima Credit, whose rapid development reflects their obvious advantage in market volume.

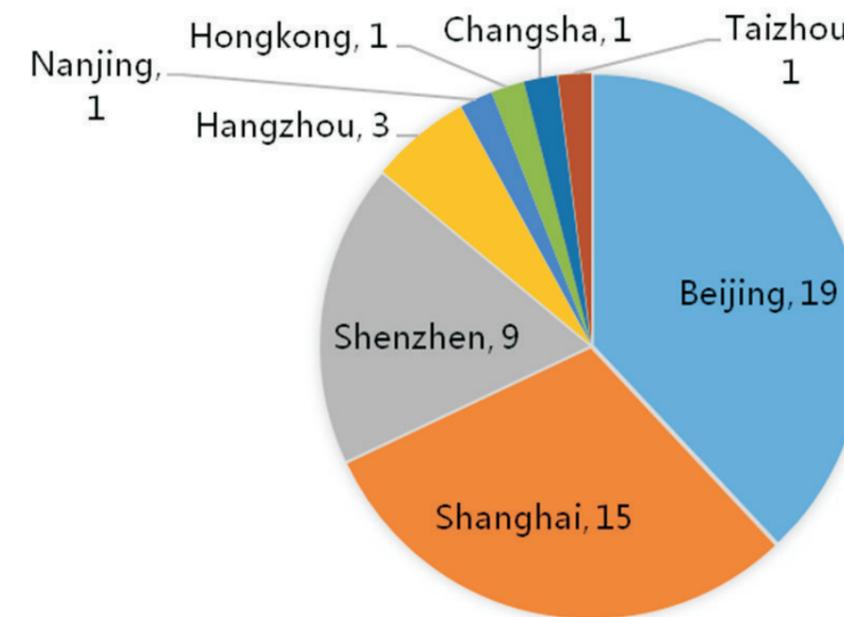
Figure 4.5: The Sub-index of Fintech Industries in Various Cities



Data source: Sinai Lab, AIF, Zhejiang University

In 2017, KPMG launched the top 50 list of China's financial technology. Nearly 70% of financial technology companies are headquartered in Beijing and Shanghai, and Shenzhen and Hangzhou are ranked third and fourth respectively.

Figure 4.6: Geographical Distribution of China's Top 50 Fintech Enterprises.



Data source: Collated by AIF, Zhejiang University, on the basis of the regional distribution data of China's top 50 Fintech enterprises issued by KPMG.

4. Financing Environment of Fintech Enterprises

The development of Fintech sector is inseparable from funding support. In recent years, the rapid Fintech development has attracted the favor of many venture capitals, providing a solid financial ground for the long-term development of Fintech industry in cities. The AIF research team of Zhejiang University analyzed the availability of funds among Fintech enterprises in four cities, including Beijing, Shanghai, Shenzhen and Hangzhou.

According to the incremental statistics of regional social financing scale issued by the People's Bank of China in 2016, Shanghai and Beijing had strong ability to access financial resources; Beijing ranked the first in the amount of bond financing; the financing ability of Shenzhen was far behind that of Beijing and Shanghai if being calculated on a third of that of Guangdong Province¹⁴; and Hangzhou lagged behind obviously in this regard.

¹⁴ Liu Xiaobo, Shenzhen will surpass Beijing and Shanghai after 15 years? You're fooled again! <http://www.vccoo.com/v/exkox6? Source = RSS>

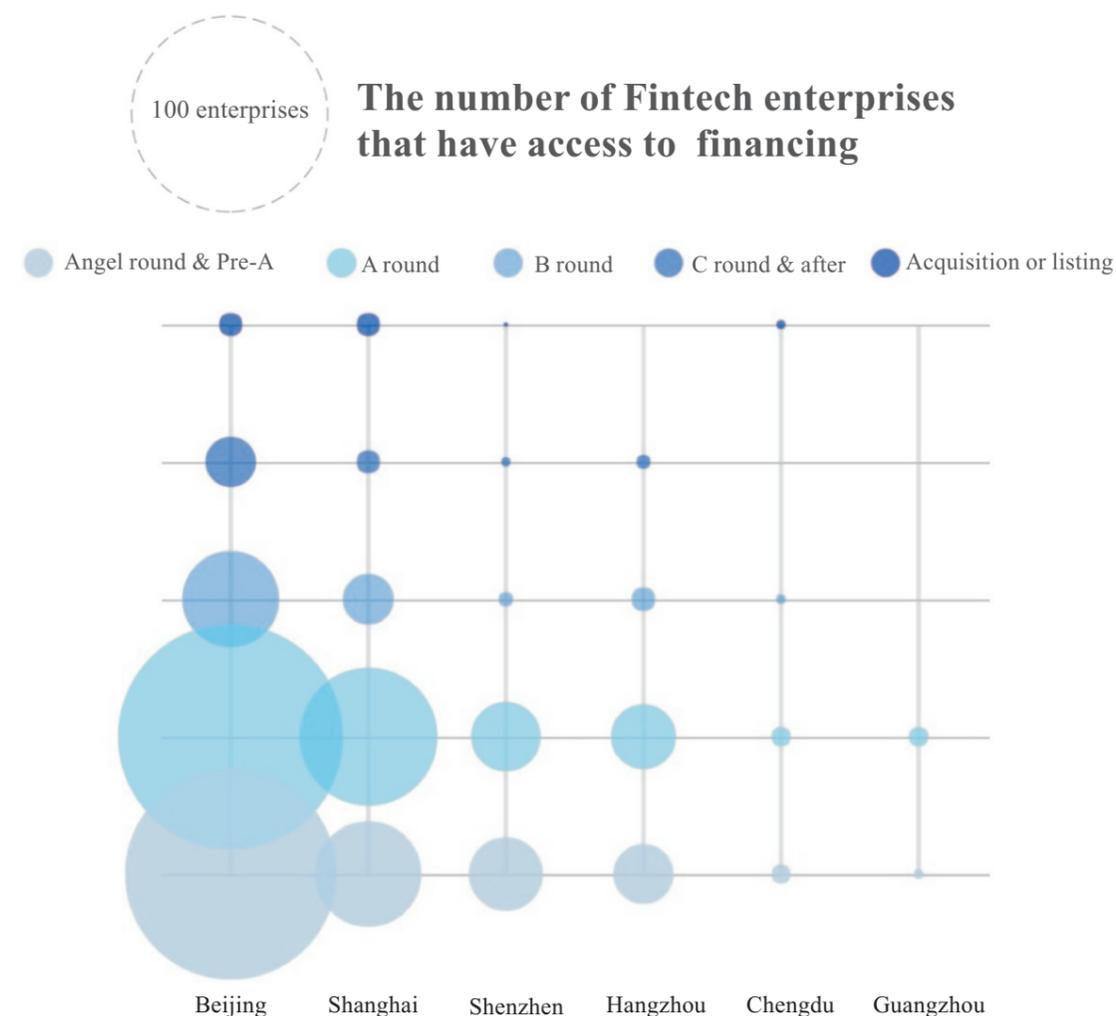
Table 4.5: Regional Incremental Statistics of Social Financing Scale in 2016 (RMB 100 million)

Provinces and cities	Regional social financing increment	RMB loans	Foreign currency loans (Equivalent amount converted into RMB)	Entrusted loans	Trust loans	Undiscounted bankers' acceptances	Corporate bonds	Domestic stock financing of non-financial enterprises
Beijing	13,446	5,392	-1,393	2,668	574	646	3,768	1,464
Shanghai	11,466	5,104	-815	2,233	1,882	17	1,920	861
Guangdong Province	21,155	14,285	203	1,772	832	-2,595	3,715	2,313
Zhejiang Province	7,485	5,816	-717	847	445	-1,843	1,270	1,294

Data source: Collated by AIF, Zhejiang University, based on the data from the People's Bank of China

In terms of financing rounds, the investment and financing of Fintech sector mainly focuses on angel round and A round, and the number of enterprises with access to financing decreased progressively in accordance with A round, B round, and C round. Judging from the financing rankings, Beijing is the top pick, followed by Shanghai, Shenzhen, and Hangzhou. To be specific, the heat of financing in Beijing is in the lead; with high capital recognition and strong strength, the five major Fintech industries in Beijing have gained relatively fast development under the capital impetus. Shanghai also has obvious advantages in venture capital investment and financing. Shenzhen ranks the third, lagging far behind Beijing and Shanghai in terms of financing capability, which is mainly caused by the fact that Shenzhen has a relatively smaller number of Fintech enterprises than Beijing and Shanghai, and the strength of enterprises is relatively weak. Hangzhou ranks the fourth in terms of financing indicators. As a regional financial hub in the south of Yangtze River Delta, Hangzhou has highly-developed private economy and sufficient social capitals, attaches great importance to the supporting effect of capital on Fintech innovations, and gradually forms the multi-level financing system of "angel investment + venture capital investment + bond financing + listing for financing" for innovation and entrepreneurship.

Figure 4.7: The Number of Fintech Enterprises Having Access to Financing



Data source: Sinai Lab, AIF, Zhejiang University; www.tianyancha.com

5. Fintech Talent Capacity

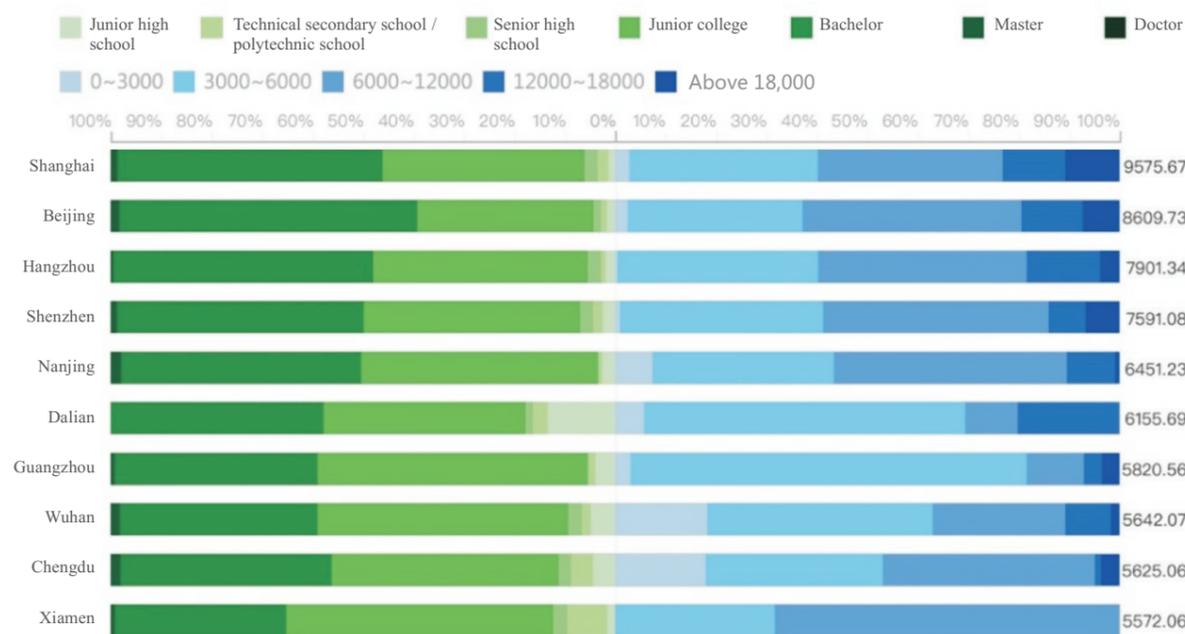
The talent supply plays an important role in developing the competitiveness of Fintech industries in cities. With the intensifying competition in the industries, only by introducing and agglomerating more outstanding talents will the enterprises gain driving forces for their sustainable development.

From the perspective of average remuneration level, as the first-tier cities in China and the regional economic and financial hubs, Shanghai, Beijing, Hangzhou, Shenzhen and Nanjing provide competitive pay. The average pay of Fintech industries in Shanghai is RMB 9,575.67, taking the lead in the whole

country. The average salary of Fintech industries in Beijing ranks second only to that in Shanghai, and the largest number of employees stand at the monthly salary range of RMB 6,000-12,000. The average salary of Fintech industries in Hangzhou is RMB 7,901.34, which is in the third place. The living cost in Hangzhou is lower than that in the first-tier cities such as Beijing, Shanghai, Guangzhou and Shenzhen, so such a relatively high remuneration level will attract more young people to work in Hangzhou, thus driving the steady growth of talent supply in Fintech industries. The average salary of Fintech industries in Shenzhen ranks the fourth; compared with Beijing and Shanghai, Shenzhen accounts for a relatively smaller proportion of monthly salary above RMB 12,000 and provides less competitive pay.

The Fintech sector integrates the knowledge about traditional finance and Internet and has a relatively higher technical threshold, therefore, there is a higher requirement for the education and professional level of employees. From the perspective of employee qualifications, the Fintech industries in Beijing have the largest proportion of employees with a master's degree or above, and Shanghai, Hangzhou and Shenzhen also have certain superiority. The increase of the proportion of highly educated talents will enhance the innovation and R&D abilities of enterprises, thus increasing the development potential of cities.

Figure 4.8: The Distribution of Employees' Pay and Educational Background in Fintech Enterprises in Various Cities.



Note: The time period of data statistics is from January 2016 to July 2017, and the value on the right side of the figure is the average monthly remuneration (unit: yuan) of employees in the Fintech enterprises in each city.

Data source: The data is collated by the AIF of Zhejiang University according to the data from the website www.tianyancha.com.

Chapter 5 Feasibility Study of Implementing Fintech Regulatory Sandbox in China

In order to analyze the feasibility of implementing a Fintech regulatory sandbox pilot project in China, the project team conducted a filed research and interviewed 11 major Chinese financial regulatory authorities and 22 Chinese Fintech companies. Due to the confidentiality requirement, the project team has anonymized the respondents' identities, thus only their main insights and suggestions are reported.

The 22 Fintech enterprises in our sample are from Beijing, Shanghai, Shenzhen and Hangzhou. Among them, 55% are big enterprises hiring more than 300 staffs and earning more than 100 billion; 36% are medium-sized enterprises with a staff ranging from 100-300, and revenue from 10 billion to 100 billion; and 9% are small and micro ones with a staff ranging from 10-100, and revenue from 500 thousand to 10 million. Their business includes: marketplace lending, crowdfunding, third-party payment, big data service, online insurance, internet bank etc.

Figure 5.1: Summary of Fintech Companies' Sizes in Sample

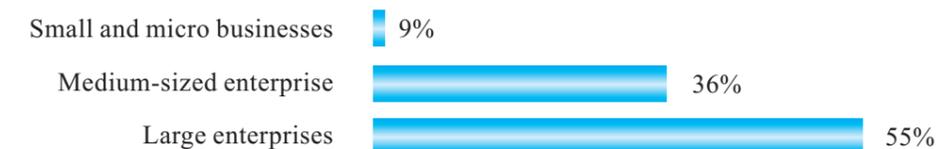
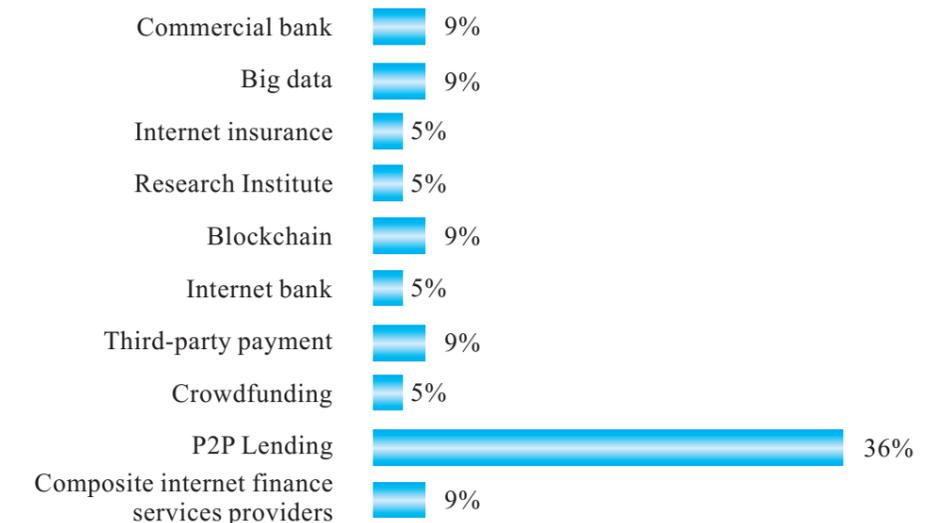


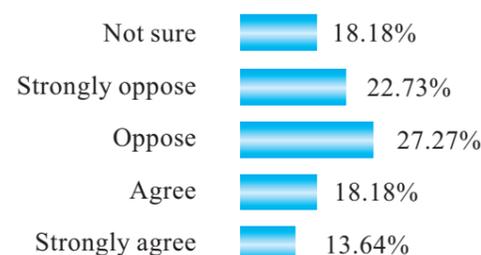
Figure 5.2: Summary of Fintech Companies' Sector Distribution in Sample



• **China’s Fintech regulation framework lacks flexibility impeding financial innovation**

50% of interviewed Fintech companies pointed out that China’s current Fintech regulation framework lacks flexibility seriously impeding financial innovation.

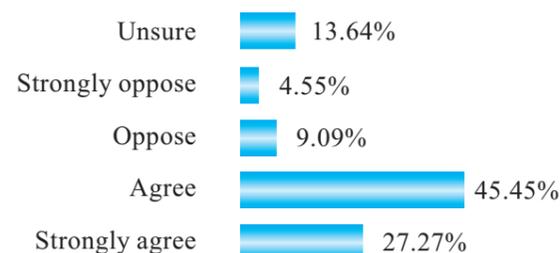
Figure 5.3: Fintech Companies’ Attitudes Towards China’s Current Fintech Regulatory Framework



• **China's Fintech regulatory framework can effectively prevent financial risks**

70% of Fintech enterprises believe China’s current Fintech regulatory framework can effectively prevent financial risks on condition of guidelines, management and specific rectification. But 13% of the interviewees hold that specific rectification can lead to overreaction of the market, causing systemic risk.

Figure 5.4: Fintech Enterprises’ Attitudes Toward The Effectiveness of China’s Current Regulatory Framework in Preventing Financial Risks



• **Sound regulatory policies should have good consistency and can well reflect the needs of different parties.**

Over 90% interviewed Fintech companies approve that sound regulatory policies should be consistent and stable. The execution and implementation of the policies should be highly transparent with full legal support; moreover, before the launch of the policies, all parties should have pertinent discussion to ensure that all parties’ needs are reflected and interests are balanced; and the policy makers should strike a good balance between risk-prevention and innovation, and ensure the policies are easy to implement so as to minimize cost of compliance.

Figure 5.5: Fintech Enterprises’ Opinions on The Features of Sound Regulatory Policies



• **Regulators in China are facing several challenges**

Most of the interviewed regulators admit that they are faced with many challenges in Fintech regulation.

First, lack of legal support and policy tools. Currently, Fintech regulation in China mainly rely on regulatory rules, for example, the Guidelines to Promote the Development of Internet Finance issued by ten Ministries and commissions including People’s Bank of China, and the Solution of Specific Rectification of the Internet Financial Risks, related laws and policy tools are still very limited, thus more laws and regulation on Fintech regulation are needed in the future.

Second, lack of technical knowhow or skills about Fintech, regulators find it difficult to supervise the business of Fintech companies or to effectively identify the risks embed in their financial products.

Third, insufficient manpower and funding also restrict Chinese regulators’ ability to implement effective regulation on Fintech firms. For instance, during the field research, the project team found that a local regulatory authority, which is responsible for the supervising over 100 Fintech firms, has only a few numbers of employees.

Fourth, China’s current segmented financial regulatory framework leads to insufficient communication and coordination among different regulators, and the obscure responsibilities of different regulators likely cause regulatory arbitrage. Moreover, internet connects different investors and businesses bypassing the constraints of geography, local regulators find it difficult to regulate Fintech business under current legal system, as it’s difficult to collect evidence and enforce the law across different regions.

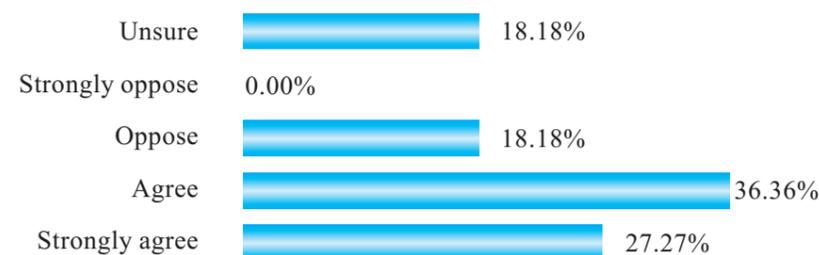
Figure 5.6: Fintech Regulators' Main Challenges

Challenge #1	Challenge #2	Challenge #3	Challenge #4	Challenge #5
<ul style="list-style-type: none"> Lack of legal support and policy tools 	<ul style="list-style-type: none"> Lack of technical knowhow or skills about Fintech 	<ul style="list-style-type: none"> Insufficient manpower and funding 	<ul style="list-style-type: none"> Segmented financial regulatory framework leads to insufficient coordination among different regulators. 	<ul style="list-style-type: none"> Difficult to collect evidence and enforce the law across the regions

• Most financial regulators are satisfied with the existing regulatory framework

Opinions are divided on whether the existing Fintech regulatory framework is effective. Over 60% of the interviewed respondents believe that China's Fintech regulatory system has clear subject and rules, and attaches importance to risk prevention. But the interviewed regulators also pointed out the disadvantages of the current passive regulatory framework. First of all, passive regulation only focuses on solving existing issues. Second, passive regulation only pays attention to institutional supervision, neglecting functional supervision and conduct regulation. In addition, the current segmented financial regulatory framework makes the regulators focus only on specific sectors, causing regulatory loopholes among different regulators.

Figure 5.7: Regulators' Opinion on The Effectiveness of The Existing Fintech Regulatory Framework

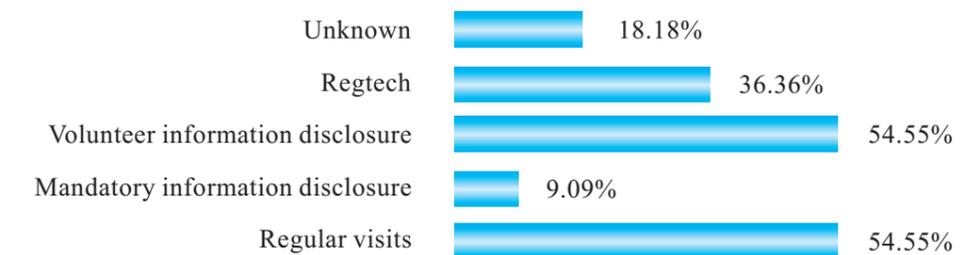


The regulators interviewed all stated that they faced difficulties in the supervision of Fintech enterprises due to the lack of regulatory tools. On the one hand, Fintech products and services develop very fast, and regulatory policies and instruments tend to lag behind. On the other hand, Fintech companies often introduce new products or services which are highly complicated, regulators lack expertise and data to identify and to control the potential risks.

• Financial regulators urgently need innovative regulation tools

Currently, Chinese regulators collect the operational data of Fintech companies mainly by taking regular on-site visits and establishing information disclosure mechanisms. For example, the Zhejiang Association of Internet Finance and some influential Fintech companies in Zhejiang Province signed an agreement for real-time access to data in July 2016. The agreement aims to establish a blind-spot enterprise monitoring and early warning mechanism. With big data, artificial intelligence and other technologies, this mechanism allows regulators to monitor the operation of Fintech companies and establish risk warning systems covering the whole industry. However, the potential errors and biases in data collected from the Fintech companies are difficult to detect or to avoid.

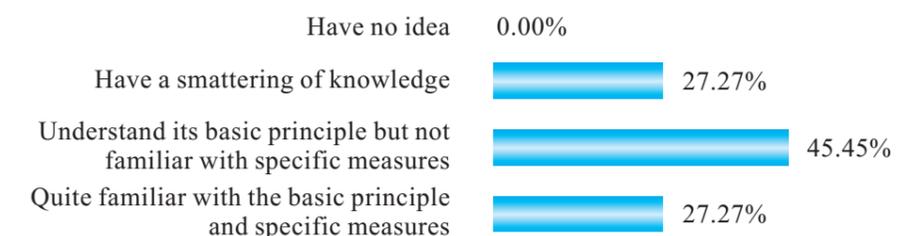
Figure 5.8: Main Regulatory Tools



• The concept of regulatory sandbox is already well-known in China

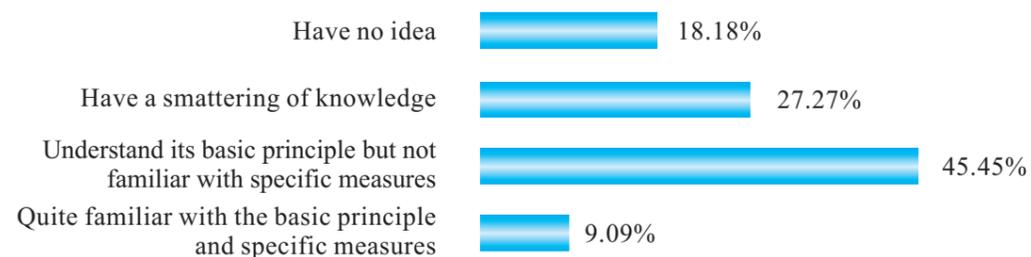
A test of awareness of regulatory sandbox practices reveals that the concept is well-known to both Chinese financial regulators and Fintech companies. The 11 interviewed regulators stated that they had heard of regulatory sandbox and three of them said that they were quite familiar with the concept, basic principles, and specific measures.

Figure 5.9: The Regulators' Knowledge About Regulatory Sandbox



Among the 22 Fintech companies, more than 80% said that they had heard of the concept, but the vast majority of them said that they only understand the basic principles, but not familiar with the implementation measures.

Figure 5.10: The Fintech Enterprises' Knowledge About Regulatory Sandbox



• Mobile media can promote the spread of the regulatory sandbox concept effectively

When asked how to obtain the information about regulatory sandbox, the interviewed regulators and Fintech enterprises agreed that they mainly got information through media, journal articles, and academic seminars. Respondents also said the most convenient and effective way is through the WeChat or mobile news apps (TouTiao, ifeng News, Tencent News, etc.).

Figure 5.11: Main Channels to Obtain Information About Regulatory Sandbox

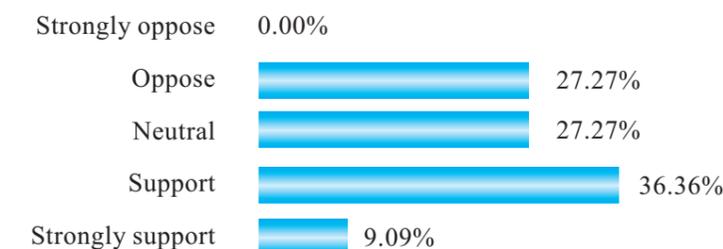


The above results show that China's regulators and Fintech companies already have some knowledge about the concept of regulatory sandbox. However, in the follow-up pilot programs, it is still necessary to further strengthen the education and training of regulators and Fintech companies.

• Chinese regulators have divided opinion on Fintech regulatory sandbox pilot program in China

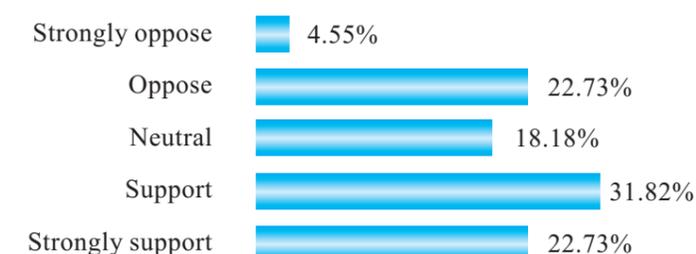
The project team found that there was a clear disagreement among the regulators in term of China's regulatory sandbox pilots. About 45% of the respondents indicated that they support the pilot program in China, while more than 50% of the respondents are opposed to or not optimistic about it.

Figure 5.12: Chinese Regulators' Attitudes Towards China's Fintech Regulatory Sandbox Pilot Project



Fintech companies also have different attitudes toward launching Fintech regulatory sandbox pilot program in China. Among them, large-scale Internet financial companies, such as Ant Financial Services and Lufax, have a relatively negative attitude toward regulatory sandboxes, while small and medium-sized Fintech companies are more supportive. On the one hand, large-scale mutual-finance companies have concerns about whether regulatory sandbox will affect their market status; on the other hand, small- and medium-sized companies hope to obtain more market space and development opportunities through the regulatory sandbox pilot program.

Figure 5.13: Fintech Enterprises' Attitudes Towards China's Fintech Regulatory Sandbox Pilot Project



• The Fintech regulatory sandbox pilot can bring both new ideas and challenges

Those who support the launch of the Fintech regulatory sandbox pilot in China stated that the sandbox has brought new ideas for Fintech regulation.

First, the regulatory sandbox introduces a testing mechanism. The test can better expose the risks of related business models and products. Regulators and companies can test these models or products in a relatively controlled environment. And they can make timely adjustment to avoid the potential risks from large-scale products accessing to the market before the test.

Second, the regulatory sandbox mechanism can effectively strengthen the interaction between the regulators and Fintech enterprises, and help the regulators better understand related businesses and products to improve their regulatory capabilities.

Third, the regulatory sandbox also emphasizes the protection of the rights and interests of financial consumers, which is in line with the major responsibilities of the regulators.

In addition, the regulatory sandbox can shorten the time for the listing of innovative financial products during the operation process, which is beneficial to the innovation and development of Fintech companies.

At the same time, according to the experience of the FCA regulatory sandbox, participating in the regulatory sandbox can expand the company's financing channels and reduce the company's financing costs, which will help many start-ups or small and medium-sized financial technology companies.

Figure 5.14: Benefits of Fintech Regulatory Sandbox

Benefit #1	Benefit #2	Benefit #3	Benefit #4	Benefit #5	Benefit #6
Improve regulatory capabilities and efficiency.	Fully expose the risk of financial innovation.	Strengthen the interaction between the regulators and Fintech enterprises.	Protection of the rights and interests of financial consumers.	Shorten the time for launching a new project and promote financial innovation.	Expand Fintech company's financing channels and reduce financing costs.

However, some of the regulators also pointed out that the existing regulatory sandbox pilots in China still faces many challenges.

First, there is a conflict between regulatory sandbox practice and China's existing legal system and regulatory frameworks. Under the supervision of the sandbox framework, it is necessary to grant certain exemptions to the participating companies and products. The exemption should be based on relevant laws and regulations. In addition, when the tested companies or products have bankrupted or defaulted and bring losses to investors or financial consumers, how to define the legal responsibilities also needs in-depth discussion and research.

Secondly, according to other countries' experience, the regulatory sandbox will be open to Fintech company from different business areas supervised by different regulators. Therefore, it is necessary to establish a special coordination mechanism among various supervisory departments. But under the existing regulatory framework, it is difficult.

Third, at present, the regulators lack funds and staff to support the sandbox pilots. The next step is how to establish a sustainable development mode of operation.

Fourth, because China's relevant Fintech laws and regulations are still inadequate, Fintech companies can often find regulatory loopholes for regulatory arbitrage. Therefore, participating in regulatory sandboxes will increase the company's compliance costs. At the same time, participating in the sandbox test may also lengthen the cycle of new products entering the market to a certain extent, resulting in the loss of the competitive advantage of some companies. Therefore, Fintech companies may be less willing to participate in the pilots.

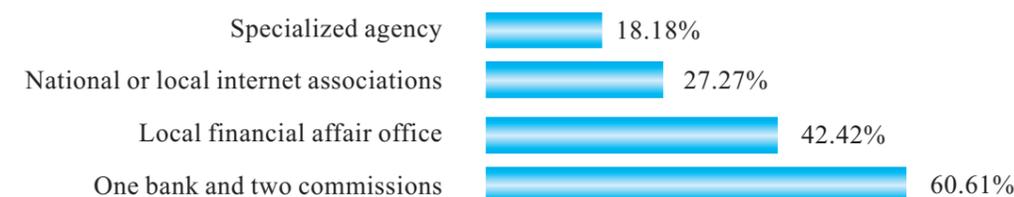
Figure 5.15: Major Challenges Faced in Launching Fintech Regulatory Sandbox Pilot Project

Challenge #1	Challenge #2	Challenge #3	Challenge #4	Challenge #5
The regulatory sandbox in the UK may not be suitable for China's national conditions, and it conflicts with the existing financial regulation system in China.	Coordination among different regulators is difficult.	Regulators lack technical knowhow and skills about Fintech.	Insufficient manpower and funds.	Fintech companies are not willing to participate.

• Respondents believe that government and financial regulators should take the lead in setting up Fintech regulatory sandbox pilots

The interviewed Fintech enterprises agree that the Fintech regulatory sandbox pilot should be led by government regulators. More than 60% of the respondents believe that it should be led by the “One bank and two commission” (People's Bank of China, China Securities Regulatory Commission, China Banking and Insurance Regulatory Commission).

Figure 5.16: Who Should Lead The Fintech Regulatory Sandbox Pilot Project?



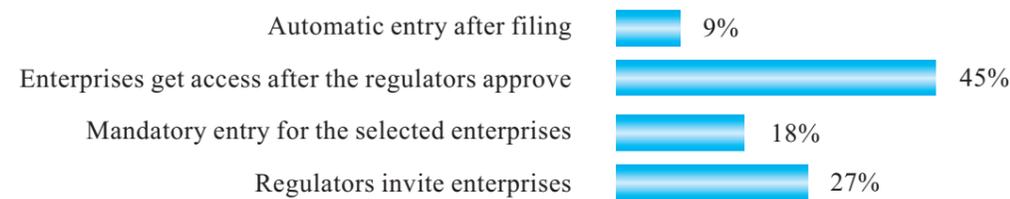
Some regulators suggested that the local “One bank and two commissions” and provincial-level financial affair office could be considered as the main players in the regulatory sandbox. For the central government, in order to ensure the orderly implementation of regulatory sandbox testing, the State Council's Financial Stability Development Committee may coordinate and supervise the pilot work of local Fintech regulatory sandbox.

When talking about the daily operation of the Fintech regulatory sandbox, the interviewed regulatory agencies and financial technology companies all agreed a joint working mechanism between different departments should be established for the “segmented supervision” in China's Fintech industry which is not well-coordinated. Some of the interviewed Fintech companies also proposed that the daily operation and management of the sandbox can be run by a dedicated agency set up by all regulatory agencies or local Internet finance associations.

• **Regulators prefer an approval system for entering the sandbox, while Fintech companies prefer a filing system.**

The opinions of the interviewed regulators and Fintech companies are quite different concerning the entry criteria for the Fintech regulatory sandbox. The regulators insisted that they need to strictly inspect the enterprises entering the regulatory sandbox. And FCA's experience of operating regulatory sandbox can be learnt, in which the Fintech companies first need to apply to the FCA, and only those qualified will be granted access to sandbox testing.

Figure 5.17: Regulators' Opinion on How to Enter The Sandbox



The vast majority of interviewed Fintech companies are more inclined to the filing system, which they believe is more beneficial, especially to start-up or small and medium-sized Fintech companies with relatively high risk. And also filing system can also improve the willingness of enterprises to get involved in financial regulatory sandbox, so as to get better promotion and popularization.

Figure 5.18: Fintech Companies' Opinion on How to Enter The Sandbox



• **Funding sources of Fintech regulatory sandbox pilot project**

For funding source of the Fintech regulatory sandbox pilot, opinions of the interviewed supervisory departments and financial technology companies are divided. Some regulators and Fintech companies believe that in order to ensure the fairness of the Fintech regulatory sandbox and avoid “regulatory capture” and conflicts of interest, the Fintech regulatory sandbox pilot should be completely funded by the government. Other regulators and Fintech companies believe that the regulatory sandbox is a form of weak supervision, and there is not much demand for operating funds. It can be jointly funded by the government and enterprises, or operated with the model featuring government preferential policies and corporate sponsorship.

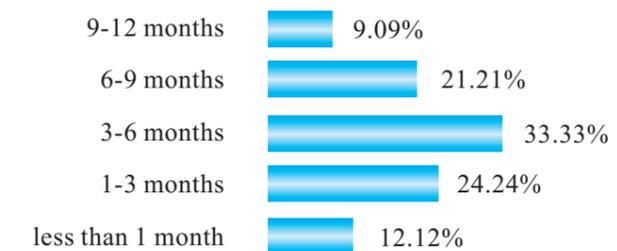
Figure 5.19: Funding Sources of Fintech Regulatory Sandbox Pilot Project



• **3-6 months testing period is preferred by both regulators and Fintech companies**

As to the testing period, the opinions of the interviewed regulators and Fintech companies are consistent. Most of the respondents stated that they can learn from the experience of the UK FCA's regulatory sandbox, and a testing period of 3 to 6 months is proper. As it balances the relationship between the timeliness of financial innovation and risk prevention. However, some Fintech companies also proposed that because of the different risks involved in the business models and products of Fintech companies, the testing period should not be the same, and they suggest that different types of business be treated differently.

Figure 5.20: Testing Period of Fintech Regulatory Sandbox



Chapter 6

Policy Recommendations for Promoting Fintech Regulatory Sandbox in China

The rapid development of the Fintech industry has brought tremendous challenges to traditional passive financial regulation mode in China. Therefore, it is of great significance to initiate the pilot program of the Fintech regulatory sandbox.

First of all, the mechanism of regulatory sandbox plays the role of regulators in the supervision of Fintech. The development of Fintech industry has not only brought profound changes to financial products, services, sales channels and business models, but also has had a great impact on the traditional financial ecological environment. Therefore, how to position its supervision will not only affect the future of Fintech, but also regulators' balance between risk control and industry development. The introduction of regulatory sandbox has found an effective regulatory mechanism for regulators to balance the innovation and risk control for Fintech. Under the regulatory sandbox framework, regulators can promote the development of Fintech under the premise of controllable risk by testing and realizing innovation, assessing risk, deciding whether a large-scale commercial application of the Fintech project is needed, and determining whether existing regulations require adjustments.

Secondly, the regulatory sandbox mechanism can well balance financial innovation with financial consumer protection. Under the regulatory sandbox framework, the purpose of financial innovation can be guided to true improvement of consumption. As the FCA stated, "the purpose of regulatory sandbox is to support innovations that can really improve consumers' life." Regulatory sandbox can help consumers to limit the risks they are facing with, to protect their legal rights, while consumers enjoy innovative financial products and services. Only if consumers are aware of the potential risks and the compensation available and agree to participate in the test can companies test their innovative products to consumers. For example, FCA requires all companies participating in regulatory sandbox testing disclose their financial consumer protection and compensation plan. Consumers own the legal rights to file complaints with the companies and seeking financial compensation, if the failure of the companies or products causes losses.

However, since China's financial regulatory framework is quite different from the United Kingdom, the regulatory sandbox practice must be adjusted according to the characteristics of China's financial regulatory framework and the development of the Fintech industry, if it is to be implemented and developed in China. In the following, we propose corresponding policy recommendations from the aspects of topics of test, bodies of implementation, and operational procedures.

Policy Recommendation 1:

Main participants of regulatory sandbox pilots: licensed financial institutions and some quasi-financial institutions

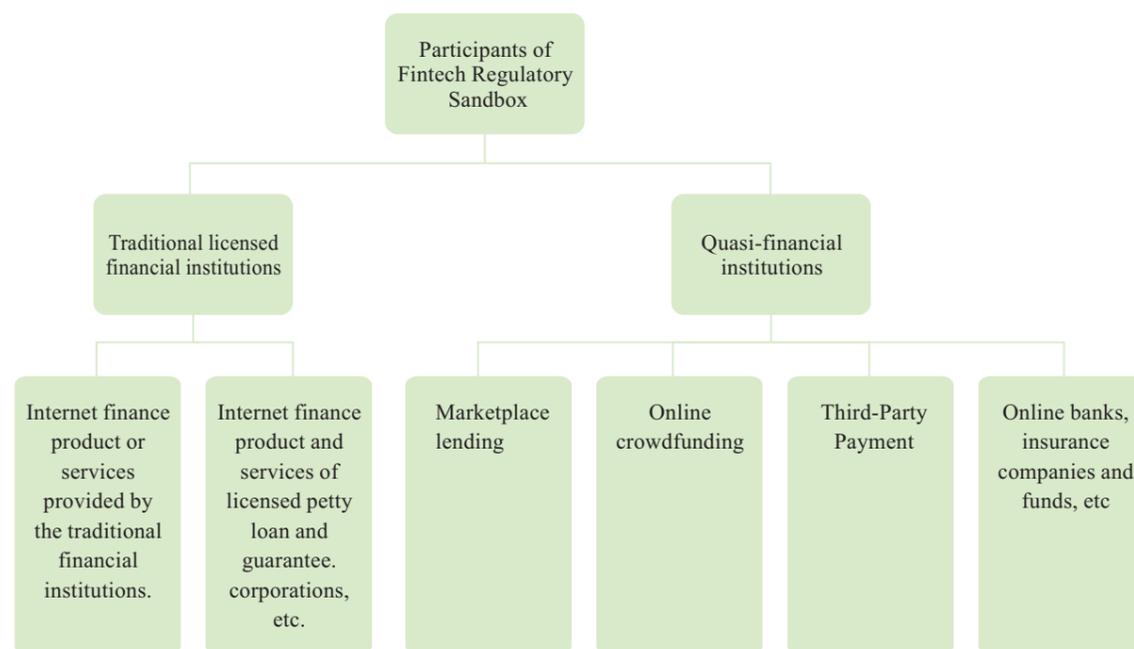
In most of the countries or regions that have launched regulatory sandbox pilot projects, the main bodies that can apply for the supervision of sandbox testing typically include formal financial institutions such as banks and Fintech companies. The UK FCA's regulatory sandbox has the broadest range of bodies and all companies can submit their innovative products, services, business models and delivery mechanisms for testing. According to the latest report released by the FCA, Fintech companies, such as DLT and Biometric, have also participated in the sandbox testing. Hongkong's sandbox program has the narrowest scope, only local banks can apply.

Combining the current development status of China's Fintech and financial supervision capabilities, we suggest that the participants of the applying for regulatory sandbox pilot project at the initial stage should include the internet finance services and products of traditional licensed financial institutions, as well as the services and products of quasi-financial institutions, for example, marketplace lending, third-party payment, internet banking, internet insurance, internet fund etc. In the future, when the regulatory sandbox pilot project operation becomes relatively mature, we may consider including a wider range of business areas.

On the one hand, in recent years, as the competition in the internet finance industry has intensified, China's traditional licensed financial institutions have continuously increased investment and development in the field of Fintech, and promote innovation in financial products and services. Through the regulatory sandbox testing financial products or services brought into the market by formal financial institutions can be more easily accepted by financial consumers. In addition, as the formal financial institutions have relatively stronger financial strength and social influence, through sandbox testing, it is easier to achieve financial fairness goals such as higher product recognition and safeguarding the legitimate rights and interests of financial consumers.

On the other hand, because "quasi-financial institutions" have less interaction with financial regulatory agencies than traditional licensed financial institutions, regulators often find it difficult to accurately assess the risks of these quasi-financial institutions' products and innovation, while companies also find it difficult to judge the regulatory agency's regulatory bottom line. Therefore, through the regulatory sandbox, it is of great importance to promote positive interaction between regulatory agencies and regulated entities. In addition, for quasi-financial institutions, regulators may encourage them to apply for sandbox testing by giving sandbox test subsidies or relaxation of application qualification based on specific conditions of the company. Because many quasi-financial institutions, especially fintech companies, are likely at the initial stage, they are small in size and weak in strength and lack venture investment, they likely deter the regulatory sandbox testing that takes too much time or too high cost. Regulators can encourage Fintech companies that have met the requirements to apply for regulatory sandbox testing.

Figure 6.1: Illustration of the main participants of regulatory sandbox pilots.



Policy Recommendation 2:

Executive bodies of the Fintech regulatory sandbox: "Two Peaks" supervision model: "one bank and two commissions" plus local financial affair office.

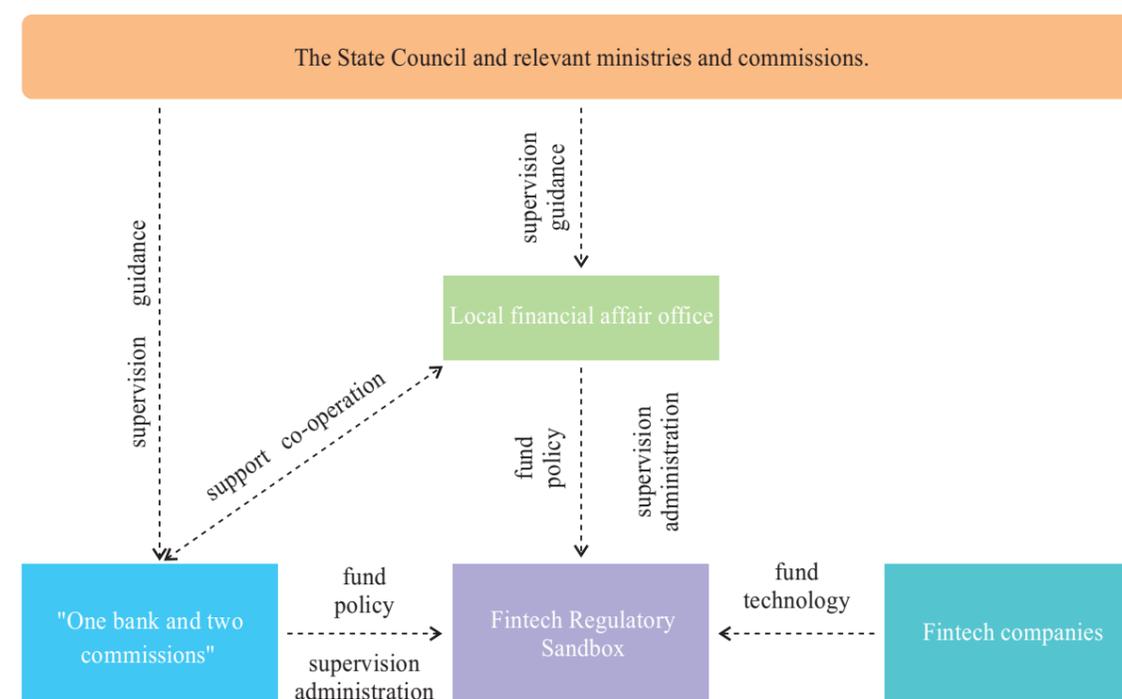
Based on the experiences of the "two-peak" or "quasi-two-peak" supervising model implemented by some countries, and also China's current financial supervision system, we believe that for the regulatory sandbox pilot in China, the "two peaks" model including both "one bank and two commissions" and also the local financial affair office is appropriate.

Given China's current separated supervision and localized management of Fintech industry, the adoption of the "two-peak" supervision model has significant advantages. On the one hand, "one bank and two commissions" is the core part of China's current financial supervision, with abundant supervision experience, talent team, and technical reserves. On the other hand, local financial affair offices have geographical and informational advantages in the supervision of quasi-financial institutions. Especially when some Fintech companies (such as P2P network lending platforms) are still under regulatory vacuum, local governments' timely attention and monitoring will help to avoid risks from "quasi-financial institution". The existing local financial affair office is attached to the government at the same administrative level, which can effectively mobilize the forces of public security, departments of industry and commerce, and other departments to cooperate for the actual operation of the regulatory sandbox, so that the operational efficiency of the regulatory sandbox can be guaranteed. In the "two commissions" and its dispatched agencies, the regulatory sandbox testing of formal financial institutions was implemented

In the implementation regulatory sandbox pilot, we propose to adopt a mixed management model (as shown in the figure). In this model, the local financial affair office and the "one bank and two

commissions" will be responsible for the formation of a joint working mechanism for the pilot of the Fintech regulatory sandbox, and also for policy and financial support, as well as for the day-to-day management and supervision. The State Council and relevant ministries and commissions are also responsible for guiding and supervising the work of the "one bank and two commissions" and the local financial affair office. Fintech companies can provide financial or technical support based on their own advantages.

Figure 6.2: Illustration of Mixed Management Model of Fintech Regulatory Sandbox



Policy Recommendation 3:

Bottom line supervision should be emphasized in the implementation of the Fintech regulatory sandbox.

The implementation of the regulatory sandbox is based on the application conditions, test procedures, and other contents. In the implementation process, the principle of bottom line supervision should be reflected to give the enterprise sufficient autonomy to prevent the excessive intervene of the regulatory sandbox implementation.

In terms of application conditions, reference can be made to the applicable standards for regulatory sandboxes in the UK: (1) The enterprise is in accordance with the general requirements; (2) The authenticity of the innovation made by certain enterprise, which means the product shall be innovative and

groundbreaking; (3) Consumers shall benefit from the new product; (4) Necessity of testing. That is, products or services do not meet current regulatory requirements, leading to high launching costs. (5) The company is ready to accept regulatory sandbox testing in terms of technology and consumer protection.

In addition, in line with China's actual conditions, we can add standards as "the benefits of improving the efficiency of serving the real economy" and "reducing the financial risks of relevant financial markets" into the new standard. It should be noted that it is not appropriate to establish a threshold for regulatory sandbox testing in the form of capital, financial status, and corporate governance structure. This is because the projects or services tested in the sandbox have not yet actually entered the market, and their risks can be controlled within a certain range. And most Fintech companies that apply for regulatory sandbox testing are still in the initial stage with weak profitability. In addition, due to the limitations of interests and perspectives of regulatory agencies, it is not appropriate for them to judge whether a certain financial product or service has innovative authenticity. Instead, a bottom line standard for judging innovation should be set in advance, or a market third-party agency can be involved to play the role of judging whether the product or service meets the conditions for innovation.

After accepting the regulatory sandbox testing application from the applicant company, on the one hand, the regulatory agency may refer to the experience of setting up a reform pilot area to suspend or adjust the regulatory rules that may be involved in the testing enterprise. After the suspension or adjustment of the regulatory rules is applied, in order to reduce the risk of innovation the agency should determine the relevant regulatory bottom line or negative list, and specify the behaviors that the participating companies may not have. On the other hand, different test deadlines may be set according to the different needs of the formal financial institutions and quasi-financial institutions when the products are put into the market, and the different nature of the products. For example, small loans such as cash loans, which are currently under regulatory supervision and control in China, can be set shorter period, but it must be ensured that the regulatory agency can identify the product's risk profile within that period.

In terms of testing interactions, refer to the relevant regulations of the UK's regulatory sandbox: (1) The regulatory agency and the applicant company jointly determine the test plan and consumer protection measures; (2) The regulatory agency maintains contact with the company during the testing process; (3) If the test is passed and approved by the regulatory agency, the company may decide on its own to bring the product or service to market. In the course of the test, we can also refer to the way that the UK regulatory sandbox establishes the interaction with testing companies, such as issuing optional action letters, individual guidance, and exemptions. In conjunction with China's regulatory system, first, the regulatory agency should implement penetrating supervision, and in accordance with the principle of substance over form, link the source of funds, intermediate links and final investment penetration, and judge the business model and laws by integrating the entire chain of information to implement the corresponding regulatory rules. Second, companies should continuously disclose the key information for the content of the tests to the regulatory agencies and the consumers. If the company participating in the test implements the behavior in the negative list or commits fraudulent activities, the regulatory agency may force it to withdraw from the test and blacklist the company, prohibiting it from applying for a regulatory sandbox test within a certain period of time. Third, when the regulatory agency conducts individual guidance to test companies, it must give enterprises full decision-making autonomy, such as whether to modify the test plan, whether to promote the product to the market, and so on, to prevent excessive interference from the regulatory agencies to test companies. In addition, when reviewing the final test report, the regulatory agency may, in conjunction with the risk status of the product or service, submit appropriate requirements to the testing company. If the product is marketed, the company shall assess the risk tolerance of the

financial consumer so that the risk of the profile of the product and service matches the consumer's risk tolerance.

Policy Recommendation 4:

Fintech regulatory sandbox should pay special attention to the protection of financial consumers.

The core interest of regulatory agencies is financial security. But for financial institutions, financial efficiency is often preferred, while for financial consumers, the protection of their legal rights plays a key role. The UK regulatory sandbox upgrades the word using of "consumer protection" to "consumer benefits". Fundamentally, benefiting consumers is to better protect the legitimate rights and interests of consumers. In fact, China has already demonstrated "consumer benefits" by promoting inclusive finance and consumer education. In the process of implementation of the regulatory sandbox, the principle of consumer protection must also be reflected, which is not only reflected in the choice and quantity of consumers (before the consumption), but also in the risk compensation (after the consumption).

In terms of the choice and quantity of consumers, if the test choice of consumers is given to the company, the company may reduce the risk in the process of regulatory sandbox test in order to increase the possibility of passing the test by deliberately choosing the consumers that will be partial to the company. In order to improve the accuracy of testing, the China Banking Regulatory Commission, the China Securities Regulatory Commission, the China Insurance Regulatory Commission, and provincial-level financial affair office can set up a "test bank" of financial consumers for the regulatory sandbox test and encourage consumers that meet the standard of purchasing power and risk taking to volunteer to participate in the test by means of financial reward. After the regulatory agency approves a company's test application and consumer protection plan, a certain number of consumers can be randomly selected from the test library to participate in the test. For products or services that do not meet consumer protection requirements, the regulatory agency may take measures such as requesting changes to product designs, restricting sales areas and objects, and eliminating the damage to the interests of consumers from products or services.

In terms of consumer compensation, since the changes in the profit and loss of consumers tested during the testing process are all likely to occur, the regulatory sandbox still needs to reflect the principle of "risk at its own risk" to achieve a match between financial consumer risk absorbability and financial asset risk. After the consumer protection plan of the test company is reviewed by the regulatory agency, it shall inform consumers participating in the test about the rights they have in the test and the risks they may bear during the test. If consumers who participate in the test suffer damages that have been notified of the risks, the company must provide appropriate compensation. Regulatory agencies can set up financial consumer protection funds. If financial technology companies are unable to provide full compensation to consumers participating in the test, the funds can pay the compensation instead.

Policy Recommendation 5:

The regulatory sandbox mechanism is not the "once for all" solution. Regulators should be aware of its limitations, and encourage innovation of regulatory frameworks.

Regulators must also recognize that regulatory sandbox is not a perfect regulatory mechanism and that there must be corresponding cost or investment as a complement. First, regulatory sandbox demands more financial supervision resources and capabilities. The regulatory sandbox mechanism requires regulators to have a deeper understanding of Fintech. At present, the existing regulatory departments and staff are still

not able to meet such professional competence requirements. Therefore, in the future, more talents must be introduced into the test, more equipment and capital should be invested, and supervision costs should be increased accordingly. Second, the regulatory sandbox mechanism may cause some financial institutions to take greater risks. As regulators is easily considered to endorse the products being tested, thus, companies may try to introduce products or services with higher risks into the sandbox.

In addition, the regulatory sandbox is not an all-encompassing framework for Fintech regulation. It also needs to constantly upgrade in line with changes in the actual situation. Some studies believe that the regulatory sandbox is a simple simulation system in a closed environment with presumed parameters, the testing results may largely deviate from the reality. And the limited-scale simulation may not be able to adapt to all the practical needs of increasingly complex, large, and connected products and services in the regulatory practices. In the future, a more advanced “financial wind tunnel” simulation system that takes more market conditions, scenarios and information into consideration will likely reshape the regulatory sandbox practices.