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THE REPORT OF FINANCIAL INCLUSION DEVELOPMENT IN CHINA (2017)

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Preface

Financial inclusion is in full swing in China. Small and medium-sized banks continue to make their services more accessible at the grassroots level. While rural credit cooperatives and rural commercial banks are accelerating the introduction of technical means to improve their services, leveraging their comparative advantages, large banks and even mega banks are setting off a new boom of financial inclusion competition marked by the establishment of their financial inclusion divisions. In the insurance sector, several insurers are ready to embrace the blue ocean of financial inclusion. There is also encouraging news in the securities sector. Several securities companies have been involved in the issuance of bonds earmarked for poverty alleviation. Non-listed companies in poverty-stricken areas are eligible for IPO green channel. In the non-bank or even non-financial credit sector, micro-lending companies are gradually arising from the ashes, striving to rebrand and reposition themselves.

The development of digital financial inclusion is even more astounding. New payment methods that Chinese consumers are enjoying stun the world. Digital financial planning and investing services, online insurance and big data-underpinned credit scoring and analytics products have proved their strong vitality and unique value despite some controversies. It is foreseeable that with such momentum the development of financial inclusion will demonstrate unprecedented robustness and help people achieve their goals faster.

Of course, we should not rest on our laurels. Compared with early starters, financial inclusion in China had a relatively late start and has yet to have much experience or lessons to summarize. Given the relatively slow development of civil societies in China, businesses and government have to fill the void where in other countries civil societies spearhead the efforts, resulting in a variety of new problems. For ex-

ample，business ventures are generally profit-driven and time-sensitive，and as a result，instead of going the extra mile continuously refining as would be the case of nonprofit social enterprises，they may simply cut corners for instant profits. On the other hand，government can ensure a high efficiency，but usually at the price of a sustainable market and commercial momentum. Moreover，distortion is foreseeable in an environment without adequate integrity and self-discipline.

This year I had the opportunity to participate in the study tour organized by CAFI to visit some renowned international financial inclusion institutions in three Asian countries，among which，BRAC of Bangladesh and BRI of Indonesia impressed me deeply. BRAC is arguably the largest nonprofit financial inclusion organization in the world. In addition to its microfinance business，it is also engaged in banking，education，retail and other sectors，with employees totaling up to 110，000，of which 72% are female. Whenever it identifies a legitimate need of the impoverish segment of the society，whether such need being financial services，healthcare or education，it strives to provide the service across the board. BRI also has its own unique characteristics. Transformed from a state-owned bank，it is now a bank specialized in financial inclusion and has launched its own satellite to cover more than 10，000 islands scattered across Indonesia. Interestingly，BRI has been able to maintain a sound operation，yet it is still making cost reduction efforts. Given the fact that manpower constitutes the largest portion of the total cost of microfinance，BRI established an agent mechanism to select the most outstanding customers to become its sales agents，thereby reducing costs. This fully shows that even a leading organization with over 10 years of rich experience in financial inclusion still needs to make constant efforts to improve their service capabilities.

What we can learn from these examples is that financial inclusion is neither limited to financing nor an effort once and for all. We need to make constant progress and improvement，with a focus on capacity building.

Once we identify the MSMEs（Micro，Small，and Medium-Sized Enterprise）and vulnerablegroups as the main target group of financial inclusion，we will soon find out that their pain points lie not only in finance but also in their capacity. For example，most vulnerable households either give financial services a wide berth or find them difficult to comprehend. This situation can be attributed to the lack of financial knowledge and financial literacy. The financing difficulties confronting MSMEs in-

volve many factors such as corporate business model, competitiveness and product life cycle, which can't be simply addressed with granting of loans. Even in the financial sector, financial inclusion is not limited within the scope of microfinance. Since MSMEs and vulnerable groups in effect consist of several market segments, it is necessary to make targeted financial service arrangements for each market segment. Numerous studies have showed that MSMEs usually need more valuable equity investment such as angel investment, venture capital investment or the newly-emerged equity crowdfunding. In other words, a multi-level capital market is an essential condition for the development of financial inclusion. All the above problems will be discussed in the 2017 Green Paper.

Literature on capacity building is voluminous, yet most of it focuses on the financial capacity building for households, such as financial education and financial literacy, while the practices in China have made it clear that the capacity building for households is just one of the basic factors of financial inclusion development. What may be more important is the capacity building for financial service providers.

Institutions that provide financial inclusion services, chartered or otherwise, all share the common problem of capacity building. Without outstanding capacity, healthy corporate governance and clear strategic positioning, it is hard to envision that they would be able to effectively promote the development of financial inclusion. Furthermore, the regulatory authorities at all levels that provide the infrastructure for financial inclusion and perform the function of financial regulation also have the problem of capacity building. Even at the national level, the development, implementation, evaluation and coordination of financial inclusion development strategies involve a large number of capacity-related factors. For example, in the context of China, an urgent topic that needs to be discussed and practiced is how to mobilize the resources of existing financial system, especially several major state-owned commercial banks in order to promote the development of financial inclusion. An even bigger challenge confronting the regulatory authorities is how to make specific regulatory arrangement for each market segment during the delivery of services to MSMEs and vulnerable groups. Moreover, in today's digital age, households, financial institutions and government are all facing brand-new scenarios, which also leads to the challenge of building capacity.

All in all, capacity building is a big topic, and this year's Green Paper will focus

on exploring the correlation between financial inclusion and capacity building. We will be gratified if it can serve as a spur to induce future research and practice.

At present，in China's academic community，a group of scholars and students have been brought together by their shared interest in financial inclusion. We have taken into consideration the mobilization of research resources at home at the inception stage of this year's Green Paper and selected the research team on such basis. The 2017 Green Paper will again demonstrate the strength of financial inclusion research in China. I am proud of the significant quality improvement of this year's report and I hope our efforts will be duly recognized by the readers.

Bei Duoguang

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Summary

Beyond Financial Inclusion

Lacking basic financial capability，one may take either of the two extremes when offered such financial services as microcredit：totally avoiding it out of fear or over-borrowing irrationally. The results thereof are either lack of financial demand，or increased financial risk. To build a stable system for financial inclusion，financial knowledge needs to be disseminated，financial literacy improved，and financial capability strengthened.

From the demand side，financial capability，which refers to the financial capability of micro，small，and medium-sized enterprises（MSMEs）and vulnerable families or individuals，can be summarized as：

（1）the degree of proficiency in finance-related knowledge，including the understanding of the general financial knowledge（saving，investing，lending，inflation and other basic concepts）；

（2）the degree of understanding of financial products and services，such as what financial services are provided and the associated risks；

（3）the ability of individuals to use funds from financial service providers when they start up new ventures，such as how to manage their wealth and how to use available financial services and products；

（4）the individual financial consumers' capacity to protect their rights and interests，for example，from financial fraud.

These aspects affect individual financial behaviors，including money management（book keeping），long-term planning（how to respond to sudden changes in income and how to plan retirement expenses，borrowing，savings，and wealthmanagement），financial decision-making（how to choose the right financial products），and seeking financial advice，etc. The financial capability of small and medium-sized

businesses（SMBs）includes the ability to assess the value of commercial projects，the ability to manage operating cash flow，the financing and capital structure management ability adaptive to the life cycle of businesses and projects，and the ability to utilize diversified financial instruments and so on. The lack of financial capability is the main reason for the financing difficulties of SMBs.

Of course，financial capability is not limited to the demand side and should be considered in a broader perspective. The capability of regulators and financial institutions is also critical to the development of financial inclusion.

In addition to improving its service capacity，financial service providers are obliged to provide financial education，disseminate financial knowledge and even provide consumer protection when delivering financial products. However，the reality shows that inadequate capability of financial service providers，especially those interested in financial inclusion，has hampered full development of financial inclusion.

The government also needs to improve its financial capability and assume greater role in striking a balance between government guidance and market's decisive force，enhancing the financial capability of the public，cultivating a healthy environment for financial inclusion，and improving regulation and supervision. The government's financial inclusion capability includes three key areas：

First，financial infrastructure construction，including credit information and reporting，payment，clearing and settlement systems，legal system for financial services；

Second，protection of financial consumers，which involves financial education，financial literacy and prevention of financial fraud；and

Third，to improve regulation with the help of Fintech to address the emerging challenges arising from digital financial inclusion.

Digital financial inclusion has shown strong performance in enhancing the capability of the financial service sector，delivering financial services to a large number of people who had traditionally been excluded from financial services. The term "digital" is a collective term for advanced technologies such as computer，artificial intelligence，mobile internet，information and communication technology，big data，cloud computing and so forth. Digital financial inclusion has many advantages such as saving transaction cost，improving service efficiency and safety，and easy dissemination. However，the rapid rise of digital financial inclusion may also lead to "digital gap". The vulnerable groups，due to the limited digital technology literacy，may not be able to enjoy the benefits of digital financial inclusion，or they may be exposed to new financial risks，including operational risk，customer relationship risk，and risks

associated with financial crimes.

From the bigger picture of financial inclusion, capability is the source of the power to change the world. Finance is only a means, and capability is the ends. The real purpose of finance is less about provision of lending or financing than tapping into the potential capability of MSMEs and vulnerable groups with the instrument of finance. Such capacity is the real power to make this world beautiful. The capacity building in the context of financial inclusion will make the world change for the better, accomplishing a "good society".

1. The Financial Capability of the Demand-Side Includes the Proficiency of Consumers and Business Operators to Leverage Financial Services to Achieve Their Goals. Such Capability can be Enhanced by Education and Training.

Consumers' financial inclusion capability refers to the financial knowledge, skills i. e. seletion of suitable financial products and services, attitude toward finance-related issues, and acting financial behaviors needed in order to make informed financial decisions. Such capability, subject to certain resource conditions, economic and financial environments and social norms and responsibilities, serves the macro goals of inclusive finance and inclusive growth, as well as micro objectives such as greater participation in the financial markets and improvement of personal or household's living standard.

From the perspective of the macro goals of inclusive finance and inclusive growth, the financial capability that business operators need is to some extent different from that of consumers. But in essence, it also refers to the financial knowledge, skills, attitude and behaviors needed to realize the micro targets of business projects and corporate development, based on similar conditions. Despite the difference in contents, the financial capability of entrepreneurs can also be divided into the categories of knowledge, skills, attitudes and behaviors.

Both consumers and business operators are subject to constraints of internal factors and external conditions. The internal factors affecting consumers' financial capability mainly include (1) financial knowledge and financial skills, and (2) psychological traits. The external constraints mainly include (1) consumers' resources, mainly referring to individual or family's physical assets; (2) economic and financial environments in which consumers operate; and (3) social norms and responsibilities to which consumers have to adhere.

The financial inclusion is often assessed from four dimensions: knowledge, aptitude, attitude, and behavior. The evaluation of financial knowledge (literacy) usually includes: (1) financial concepts, such as saving, borrowing, inflation, risk

diversification, etc.; (2) financial products and services (products and services provided by the financial sector and their corresponding risks and costs), and (3) operational knowledge (such as how to save and invest and how to prevent financial fraud, etc.). Financial skills mainly refer to reading and writing skills, simple mathematical skills and other cognitive ability. Financial attitude mainly includes psychological factors such as financial education preference, budget and expenditure management preference and views on financial service providers. The assessment of financial behavior mainly involves four aspects: fund management (day-to-day financial management), long-term planning (preparation for contingency and pension), financial decision-making (ability to choose appropriate financial products), and access to advice.

In order to improve the financial inclusion capability of the demand side, government, financial institutions, third parties and the demand side itself should all act proactively. A generally accepted approach is to enhance citizens' financial capability through financial education. Effective financial education divides the demand side into the following categories, namely: adolescents, young adults, adults, senior citizens, and business operators, and provide targeted training according to their respective needs. In short, to facilitate the realization of development goals by changing the external constraints of financial capability is effective in short term while to improve the financial literacy and capacity through education and training need to select effective instruments and appropriate timing.

2. The Financial Capability of Rural Consumers Tends to Be Low and Demonstrates Stark Regional Differences; a Significant Proportion of College Students Engage in Debt-Financed Consumption.

We selected representative groups of farmers and college students as the research object, and analyzed the current situation and influencing factors of their financial capability using survey data.

Survey samples were collected from three provinces in eastern, central and western China, respectively, and a total of 1532 valid questionnaires was collected. The survey measures 12 indicators of six aspects (basic financial knowledge, understanding and application, risk and return, financial planning, financial background information analysis, and financial responsibility awareness) so as to build an assessment framework of financial capability of rural residents in China.

A basic conclusion drawn from the analysis is that the financial capability of rural residents in China, to a certain extent, demonstrates regional differences, while the overall financial capability is low. Specifically, there is a considerable regional

difference in basic financial knowledge; financial understanding and application are inadequate; knowledge of risk and return still needs to be strengthened; financial planning awareness is weak; there is an obvious gap in financial background information analysis; and financial responsibility concept needs to be corrected and promoted.

In addition, we conducted a correlation analysis, through modeling of survey data, multiple factors impacting farmers' financial capability, and found that gender, education, occupation, and risk appetite have a great impact on the sample's financial capability.

The questionnaires for college students used simple random sampling method, with a total of 1792 valid questionnaires collected, including 795 online questionnaires, and 997 paper-based questionnaires.

Using the data collected, we scrutinized college students' overall financial literacy, financial behavior, and financial education and the relation among the three, and our major finding is that college students' financial literacy is low, with a score of merely 54 on the scale of 1 to 100, with 100 being the highest. In terms of financial behavior, 40% of the surveyed have borrowed to consume; only 40% have savings on their bank cards. In terms of financial education, the situation is worrisome. The financial education of college students comes from three sources: family, school, and society. Out of a full score of 21 points as set in the survey, the average score of college students was only about 4.

Using a stepwise regression method, we studied the relationship between financial education and financial literacy. The main finding is that school education has the greatest impact on college students' financial literacy, followed by family education, whereas the impact of social education is negligible. Other socio-economic traits, such as gender, parents' educational attainments, type of college, major, etc., also have impact on the financial literacy of college students, albeit to a lesser extent in general.

Also using stepwise regression method, we studied the relationship between financial literacy and financial behavior, including consumption behavior, saving behavior and borrowing behavior. We found that in terms of financial consumption behavior, the better the objective financial literacy is, the lower is the likelihood of excessive consumption, whereas the better the subjective financial literacy is, the higher is the likelihood of excessive consumption. We also found that the subjective financial literacy has a positive effect on saving behavior. At the same time, the higher the family income, the less likely the college student will save. In terms of

borrowing behavior，the higher the subjective financial literacy is，the more active is the borrowing behavior；the higher the objective financial literacy is，the less active is the borrowing behavior.

3. Negligence of Bookkeeping and Other Problems Hinder Micro-Business Operators from Improving Their Financial Capability

Most micro-businesses are at the survival stage and run by self-employed individuals whose financial capability is generally low and needs to be strengthened in all respects.

Micro-business operators have both the characteristics of consumer and business，and therefore，should possess the financial capability of both. A business operator needs to evaluate commercial projects，manage cash flow，finance commercial projects and business in accordance with their life cycles and leverage diversified financial instruments.

Micro-business operators，in a broad sense，include self-employed persons，owners of micro enterprises，and households engaged in agricultural production，etc. Based on the 2015 survey data of China Family Financial Survey and Research Center，4296 samples of the self-employed people were selected from 1439 villages（neighborhood）committees in 363 counties in 29 provinces（municipalities，autonomous regions）. We have analyzed their project evaluation ability，cash flow management ability，financing capacity，financial capability-related innovation activities and their application of digital payment technology.

The financial capability of micro-business operators is closely related to their operating characteristics. By analyzing the samples，we found that most of the self-employed in China run small-scale，low-profit and short-life span businesses，which usually have low technology and capital threshold. A micro-entrepreneur，in essence，is a freelancer.

Project evaluation. The survey data show that 36% of the micro-business operators have no bookkeeping. Without accurate financial data，project evaluation is impossible.

Cash management. Micro-business operators are also in bad shape. On the one hand，their average duration of accounts receivable is rather long and there is likelihood of bad debts. On the other hand，the commercial credit they receive is rather limited. Therefore，their working capital is rather tight，exerting a negative impact on their businesses.

Financing capacity. Most of the self-employed do not have a strong demand for financing. Those who do find it inaccessible or costly. If they do eventually get loans

from banks，such loans are usually of smallamount，short maturity and high interest rates. Collateral and guarantee are generally required. The difficulty and high cost of financing is mainly caused by the asymmetry of information. It is in the interest of the micro-business operators themselves to accurately record the accounts and use electronic payment and other means to build their credit history and eliminate asymmetry of information. In addition，to use innovative Internet marketing and digital settlement means can attract more consumers，thus increasing business revenue and the size of assets that could be pledged as collateral.

Only 10% of the self-employed persons in China engage in innovation activities，5% conduct business via Internet，and 13% use POS equipment for settlement. These figures indicate that the self-employed segment's capacity to innovate and adapt to this brave new world and their revenue generation capacity are both rather low，posing a stringentconstraint for financing.

4. SMEs Are the "Missing Middle".

The "missing middle" dilemma for SMEs can be explained by comparing them with micro enterprises and large enterprises in risk profiles，profitability，and financing capacity and the dilemma can be solved with a combination of commercial guarantee，government guarantee，and joint guarantee.

In the nearly four decades since China's reform and opening-up，SMEs have become an important force for economic development and been playing an increasingly important role in job creation，tax revenue generation and innovation activities. However，the financing difficulty has always been one of the major constraints for their development. Empirical evidence shows that SMEs' financing difficulty is universal both in China and abroad. In China，this is because the banking sector are traditionally focused upon serving large state-owned enterprises（SOEs）and more or less "discriminate" against SMEs. However，even if such financial exclusion is taken out of the equation and taking into consideration of the emergence of local banks that have been established with the mandate to better serve SMEs，the financing difficulty does not diminish，and the financing problem is more acute for SMEs than for micro enterprises and large enterprises.

This chapter explains the reasons behind the financing difficulty of the "missing middle" by comparing SMEs with micro enterprises and large enterprises in risk profiles，profitability，and financing capacity. We found that the crux of the financing difficulties of SMEs mainly lies in its higher operating risks，therefore it needs to bear a higher risk premium. Yet，compared with micro enterprises，SMEs have lower profitability，therefore，less likely to bear higher interest rates. At the same time，

large enterprises，albeit in average not as profitable as SMEs，have a strong capacity to use collateral，guarantee and other means to offset risk premium；therefore，they also enjoy lower interest rates than SMBs. All the above combined thus far result in the “missing middle” dilemma.

There are many ways to solve this problem and one of the effective ways is to use the combination of commercial guarantee，government guarantee，and joint guarantee.

5. Capability Building for Financial Inclusion Service Providers

Financial inclusion requires extensive involvement of relevant institutions，including specialized financial institutions，as well as some comprehensive financial institutions and non-financial institutions. The capability of financial inclusion service providers refers to their capability to provide financial services to various groups，including those excluded from the traditional financial system，in a formal and responsible way. The capability is the sum of such factors that affect the quality，efficiency and outcome of financial inclusion operations.

A. Four Elements of the Financial Inclusion Service Providers' Capability

a. Capable of providing appropriate and responsible financial services. There are two important criteria：（1） whether the provision of services is appropriate；and （2） whether such provision is responsible. By “appropriate”，it means that the services provided should be aligned with the needs of the clients. By “responsible”，it means that all financial inclusion business should be carried out in a responsible way as such that the rights and interests of the clients be effectively safeguarded.

b. Capable of sustaining the financial inclusion business. Viable financial inclusion business should have earning sustainability，operation sustainability and funding sustainability. The criteria are rather simple：whether the operation is sustainable and whether it can obtain a reasonable profit.

c. Capable of dealing with issues of development and transformation. It means whether the service provider has the capability to make appropriate arrangements at the institutional governance and business management level so as to provide appropriate and responsible services for development and transformation and make the business sustainable.

4. Capable of building an adaptive governance structure and business management system. To develop a governance structure and a business management system designed to enhance the financial inclusion capability is a means to ensure the “inclusive” nature as well as a concrete measure to build the capability of service providers. The following will discuss how to build and develop this capability.

B. A Reasonable Governance Structure System

First of all, it is necessary to give additional consideration to the governance structure. Financial inclusion services providers often involve non-governmental organizations, non-profit organizations, socially responsible investors, government or public sector, business investors, management and employees, all of whom have different agendas and experiences. Based on their experience, financial inclusion investors can be divided into the following categories: investors with general experience, investors with experience in traditional finance, and investors with expertise in other areas. Investors with expertise invarious areas can play to their strengths in business planning and management, which is conducive to the long-term and stable development of financial inclusion.

Second, it is necessary to establish effective institutional governance. Institutional governance is an all-encompassing principal-agent system that connects all stakeholdersfrom shareholders down to day-to-day management and includes organizational structure and management processes. Effective institutional governance has bearing on whether the organization can provide appropriate and responsible financial inclusion services and make the business viable. It also helps ensure that the overall development strategy developed at the shareholder level can be implemented and consistency between business operations, risk management and established strategies can be enhanced. Especially in the case of the increasing number of investors and the increasing diversification of businesses, the effectiveness of governance also needs to take into consideration the following two aspects: first, the governance structure should represent and coordinate the varied interests of different investors so as to maintain the stability of the governance; and second, the governance structure should help overcome the two extremes, namely "welfarism" and "Mission Drift", and establish a correct financial inclusion concept at the shareholder level.

Finally, it is necessary to build a good organizational culture. First, the service providers need to strike a balance between fulfilling social responsibility and achieving business sustainability. It requires that shareholders, management and employees work together to cultivate a right financial inclusion culture and common values and implement them in the day-to-day operation. Second, with the development of financial inclusion, investors are increasingly diversified, and a good institutional culture is thus needed to achieve coherence and resolve conflicts. Third, many originally pure non-profit services providers face a transition to viable businesses (e. g. cooperatives transforming to banks, charitable social groups transformingto corporations, etc.), a process during which shareholders, management and employees need to understand the

necessity of transformation and support the process. All this requires an institutional culture and a common sense of mission. Finally，due to the special characteristics of financial inclusion，consumer protection warrants particular emphasis. A good institutional culture is conducive to this end by helping the service providers and their members establish a sense of responsibility.

C. A Suitable Business Management System

A suitable business management system should be balanced，appropriate and forward-looking. Being balanced means that it has to balance the demands of various stakeholders and balance the relationship between public welfare and viability，between risk and profit，and between compliance and innovation. Being appropriate means that the management system should be compatible with the business and its capability and its business objectives and with external factors such as the socio-economic environment and regulatory regime. In short，a specialized financial inclusion business should be carried out by a specialized service provider. Being forward-looking means the management system should be both adaptive and compatible.

D. Manage the Relationship Between Business Model and Risk Management

As the clientele of financial inclusion includes the poor or low-income people，who lack financial experience and thus have poor capability for risk-resistance，adopting a suitable business model and managing risks in a sensible manner is one of the service provider's fiduciary duties to its clientele as well as a necessary condition under which its business sustainability can be achieved. Different service providers should adopt differentiated business models and risk management models with varied attributes and emphases consistent with their varied natures of business.

6. Improving the Governance Structure to Solidify the Foundation of Financial Inclusion

A. Background of the Development of the Village and Town Banks

Village and town bank（hereinafter referred to as "village bank"）is a rural financial institution chartered in accordance with the policy as outlined in "Opinions on Relaxing Restrictions on Banking Institutions in Rural Areas to Better Support the Construction of New Countryside" issued by the China Banking Regulatory Commission（CBRC）in 2006. A new classification of rural financial institution，a village bank's proclaimed mandate is to be positioned in rural communities，to serve local farmers，agriculture and small and micro enterprises（SMEs），with a particular emphasis on serving poor farmers，small and medium-sized farming households，and agriculture-related SMEs，which were traditionally not effectively covered by the traditional rural financial system，and to improve the coverage of rural financial in-

stitutions, financial supply and competitiveness. Since their inception, village banks have been serving the cause of enhancing the financial inclusiveness in rural areas.

After the issuance of the CBRC Opinion, the number of village banks in China increased exponentially in the early years. Although its growth rate continued to decline in recent years, it still grew at 19% in 2016. As of the end of June 2017, a total of 1496 village banks has been approved by the CBRC. At the end of 2016, total banking outlets of all village banks numbered at 4547, covering 67% of counties and townships across the country. However, there is still room for improvement at the township level. Farming households and micro and small businesses constitute a major portion of the village banks' clientele and the average household loans continued to decline to RMB 410,000 at the end of 2016.

B. Defects in Governance Structure Restrain Village Banks from Fulfilling Their Financial Inclusion Mandate.

Due to the banks' strategic positioning, the business practices of village banks deviates, to some extent, from what the government policy has intended. First, it is designed to address the issue of "low coverage, short supply and inadequate competition of financial institutions in rural areas", yet most of the banks are set up at county seats or even urban areas with relatively dynamic economic activities and clustered populations. Second, the banks in practice aim at local high-end clients as the average household lending size of RMB 410,000 indicates that they are in effect serving market segments not visibly lower-end than those of traditional rural financial institutions.

Village banks are victims of late-comer disadvantages. Due to their short history, reasonable level of marketing efforts not withstanding, village banks have difficulty in winning local population's recognition. Some of the village banks have not yet been connected into the real-time payment system of the People's Bank of China and as a result their fundclearing is of low efficiency and prone to errors, hurting its lending business.

In pursuant to CBRC's requirements, village banks should be incorporated with established commercial banks as sole or controlling shareholders, a policy stance that have been faced with doubts and dilemmas. Some large banks responded rather passively to the CBRC's calling and the less developed regions with scarce financial resources are not appealing to major banks to establish village banks. Without their active participation, the coverage of financial institutions in rural areas is rather difficult to improve. In addition, the funding banks are required to assume the responsibility for risk resolution and as a result, the village banks' status as independent legal

entities could be easily compromised，making them more like branches of the founding banks.

C. Improving the Governance Structure to Consolidate the Foundation of the Financial Inclusion Service of the Village Banks

Village bank' governance structure has to be rationalized in order that their capability to provide inclusive finance services be improved.

First，a simple and yet diversified investor structure need to be developed. It is necessary to introduce strategic investors with financial inclusion experience and increase the financial inclusion awareness of major shareholders. Within the village bank，a long-term mechanism to promote the benign interactions among different types of investors should be established so that different groups of investors can contribute and collaborate，thus promoting not only the financial inclusion mission but also its business viability. Building on that，it can be further developed toward a distributed ownership structure with no controlling shareholders.

Second，an effective institutional governance needs to be established. Village banks need to establish a long-term mechanism to ensure and enhance the financial inclusion awareness of investors and shareholders. In addition，financial inclusion-oriented performance indicators need to be set up，which should measure both inclusiveness and sustainability.

Finally，a good financial inclusion culture need to be cultivated. The institutional culture of the village bank should include not only common corporate values like cooperation，innovation and proactivity，but also common financial institution values like compliance and risk management，in particular，financial inclusion-related elements.

7. Identify Strategic Position and Unleash Financial Inclusion Capacity

A. Development of Zheshang Bank

Since its inception in 2007，Zheshang Bank has been striving to provide financial services for SMEs. As of the end of June 2017，the outstanding SME loan balance of Zheshang Bank amounted to RMB 163. 579 billion，or 30. 80% of the total outstanding loans，highest among all China's joint-stock commercial banks. Accumulatively a total of nearly 150,000 SMEs clients has received nearly RMB 600 billion in loan. The bank has 115 outlets dedicated to SMEs，accounting for more than 60% of the total. As of the end of 2016，the NPL ratio of SME lending was 1. 29%，lower than the average level of corporate lending. As of the end of June 2017，the overall overdue rate was 1. 62%，indicating sound risk control. Now the micro finance business has become an important source of income of the Bank；the cumulative interest income

has exceeded RMB 31 billion. Per capita loan granted was RMB 120 million, and per capita annual profit was around RMB 1million.

B. The Core Capability of Zheshang Bank

a. A small business-specialized institution system is the cornerstone. Zheshang Bank has built a relatively independent organizational system to provide specialized service for small businesses. This system, on the one hand, is a "firewall" that separates the new business from other business segments to insulate possible impact of setbacks; on the other hand, it can tap into the potential of the new business and have shaped development strategies and business models, both specialized and non-specialized, that suit the small businesses.

b. A professional team is the driving force. Through selective recruitment (campus recruiting starts from the junior year and internship; non-campus recruitment focuses on state-owned banks as well as city and rural commercial banks), Zheshang Bank has built a professional and competent team that sinks to the grass-roots level, truly understands small businesses, and is willing to communicate with them. It is this team that helps Zheshang Bank to get to "the last mile" of micro finance.

c. Differentiated target clients are the focus of business development. Zheshang Bank first focused on micro credit between RMB 0.5 and 5 million. After years of consolidation, it then began to develop micro businesses with credit of less than RMB 0.5 million and small growing businesses with credit of more than 5 million RMB.

d. A cornucopia of product and service lines tackles to the development of small businesses. Zheshang Bank is good at meeting the financial needs of SMEs at all stages in an all-round manner. An SME can always find a desired financial product on the "shelves" of Zheshang Bank.

e. An efficient approval mechanism is an accelerator for business development. Zheshang Bank aims to provide efficient service by working on process classification, specialized forms, authorization matching, Internet use, and efficiency tracking.

f. A risk control system is an anchor for SME business development. Given that small businesses are usually small-sized, short-lived, and highly volatile and that their financial statements are usually not standardized and their information not reliable, Zheshang Bank has adopted a series of institutional arrangements to control credit risk and operational risk, including: (1) Adherence to client targeting and entry criteria and control of individual clients' overall financing and leverage level so as to control credit risk from its source; (2) Establishment of a special and standardized small business credit system: the management approach, operating procedures, business authorization, credit rating, collateral assessment, and pricing are all sig-

nificantly different from large and medium-sized companies；（3）Dual management and risk control at the branch level. SME lending centers are established at branches as management hubs，mainly responsible for business management，marketing，performance assessment，and team building. Meanwhile，a risk control department has also been established for risk review，post-loan management，risk supervision，early warning disposal，etc. A dual "account manager + risk manager" has been implemented for review and audit at both front and back offices to avoid operational risk.（4）Specified recruitment standard and vetting for the SME business sales force. A regular training and practitioner qualifying management mechanism has been improved to ensure the personnel are up to standard. A risk investigation and "16 don'ts" system have been established to make sure the business operation will not cross the line. The risk manager's standard of conduct has been established with unified assessment criteria to improve the efficiency of assessment.

C. The Dynamic Competence of Zheshang Bank to Serve SMEs

Facing an ever-changing economic environment，Zheshang Bank has maintained its dynamic ability to serve SMEs with its own unique strategic focus and specialized operation. Strategic strength-wise，although the Bank's board of directors changes several time because of term limit，the SME-oriented strategy has always been adhered to：the credit planning for SMEs has always been made separately；loan allocation for SMEs has always been given priority；SME credit granting has always been part of the performance assessment；and the Bank always goes an extra mile to provide financing conduits for SMEs. A special loan-to-deposit ratio is established for the branch so that the lack of deposit from SMEs will not hinder credit granting. Specialized business unit under specialized management enables all those involved in the SME business to fully take initiatives within their respective specialized fields.

With effective strategic positioning，Zheshang Bank has enhanced its financial inclusion competence and become a benchmark of micro finance for commercial banks in China. The six strategies mentioned above have become its core competence to serve SMEs，namely，a specialized institutional system，a professional team，differentiated market segmentation and targeting，a comprehensive product and service system，an efficient reviewand approval mechanism and a risk control system. In addition，its long-term strategic focusat the decision-making level and specialized operation principle help ensure that its services for SMEs is always adaptive to ever-changing socio-economic and financial environment and have proved a driving force for the Bank's efficient organizational learning mechanism. As a non-specialized financial inclusion provider，Zheshang Bank's approach to separate its microfinance business

and corporate finance business is of great significance to many potential services providers. However, before copying the Zheshang model, one needs to consider Zheshang Bank's as well as its specific market and geographical conditions as well as its intrinsic qualities.

8. Optimize Risk Control Mechanism to Improve the Sustainability and Reach of Financial Inclusion Services

This chapter examines the credit rating system for farming households, a main targeted segment of financial inclusion services. Based on the credit rating system and model and related empirical analyses, it explores how the service provider can improve the sustainability and reach of financial inclusion service while optimizing the risk control mechanism.

A. Microfinance Credit Rating for Farmers

a. Develop a Broad Selection Index System

First, develop a broad selection Index set.

Based on the index data obtained from a commercial bank, combined with the micro-credit risk assessment index adopted by typical institutions at home and abroad, and the related literature, the paper first develops a broad index set for microfinance credit rating.

Second, conduct preliminary screening based on data observability.

According to the data observability, the index without data backing are deleted first.

Third, preprocess index data.

Based on the interviews with a number of bankers and suggestions given by 10 experts, a qualitative credit risk assessment standard has been set up that suits micro loans to farmers. The 19 qualitative indicators are transformed into a number between 0 and 1.

B. Quantitative Screening of Assessment Indicators

It involves two steps: first, eliminate the indicators of redundant information, and second, select indicators that can significantly affect the size of losses in case of defaults.

C. Credit Scoring Method

First, divide the farmers into the default sample group and the non-default sample group and use the deviation method to obtainthe group deviation matrix A of both groups and the inter-group deviation matrix B.

Secondly, compute the Fisher weight vector of the indicators by using the non-linear programming model based on the weighting principle of maximum matrix B

and minimum matrix A.

Finally，the credit score of the farmer can be obtained by using the linear weighting method and taking into consideration of the standardized score and the indicators' specific weight.

4. Credit Rating

Build a micro finance credit rating model based on the ranking of the credit scores obtained from previous steps.

The objective function：To build a function that will maximize the number of borrowers above the bank's critical point of profit target.

Constraint 1：risk constraint that matches credit rating and default loss rate.

Constraint 2：bank profit target constraint.

Constraint 3：constraint equation to solve the default loss rate of k level.

B. Empirical Analysis

a. Sample Selection and Data Sources

The empirical sample is obtained from the microcredit system of a state-owned commercial bank in China. A total of 2039 farmers' samples from 28 provinces isused，witheach having 48 indicators for empirical analysis.

b. Build A Credit Rating Index System

Based on preprocessing of assessment index data，the standardized score of the index data can be obtained. On this basis，15 indicators of significant credit risk impact are selected by using collinearity to eliminate indicators of information redundancy.

c. Obtain the Credit Score

According to the weighted Fisher index，based on the data of 15 indicators screened from previous steps，corresponding index weight can be obtained，and then the preliminary and standardized credit score can be computed by putting the corresponding indicators' data into the credit score formula.

d. Determine the Credit Rating

Given that the maximum acceptable annual default loss rate is 10.31% when the bank reaches its profit target，the credit rating result can be computed.

e. Comparative Analysis of Empirical Results

First，Risk Level Matching Standard

The loss rate of each grade is strictly increasing，which indicates that the credit rating of the model satisfies the matching standard：the higher the credit rating，the lower the default loss rate.

Second，"financial inclusion" and credit decision-making function

The rating results in this chapter can help banks achieve maximization of farmer borrowers under the precondition of achieving profit target and sustainable growth. The results help banks tap into the farmers above a certain rating grade and give full play of the decision-making function of the rating system. Meanwhile, it also brings more farmers into the formal lending sector than would otherwise be the case, staying true to the proclaimed mission of financial inclusion.

C. Findings and Recommendations

In this chapter, a credit rating model for farmers' micro loans is constructed with a risk matching standard as the constraint(the higher the credit rating, the lower the loss rate), and with the maximum number of farmer borrowers above the bank's profit target critical point as the objective function. It ensures that banks can achieve their profit target while a maximum number of farmers can obtain loans, conducive to increasing lending penetration in rural communities. In the future research, we can use the credit rating results for loan pricing to ensure that the higher the credit rating of farmers, the lower the default loss rate and interest rate, which in turn can lower the financing cost for farmers.

9. Introduction of Emerging Financial Institutions to Improve the Overall Service of Financial Inclusion

A. Why emerging financial institutions can improve the overall service

a. Information perspective: Promoting information output can effectively solve the information asymmetry

Whether pre-transaction or post-transaction, emerging financial institutions differ greatly from the traditional institutions in terms of information symmetry.

b. Cost perspective: reduce fixed cost and conversion cost

From the fixed cost point of view, once a product of emerging financial institutions is developed, the marginal cost is close to zero. From the conversion cost point of view, by using the Internet platform for precise advertising, to a large extent, they can expand the user groups, thus reducing the conversion costs.

c. The perspective of economies of scale: strengthening the externalities of the network

The externality of the network allows the information to be transmitted between any two endpoints on the network. This externality of the network makes the network value grow exponentially as the number of nodes grows.

d. Credit perspective: they can help micro, small and medium-sized enterprises (MSMEs) obtain funds.

The rapid development of P2P lending and online micro lending by e-commerde

platforms has broadened the channels for financing and gradually become an important financing means outside banks.

B. How emerging financial institutions hone their financial inclusion competence：China's path and operating mechanism

a. Financial product dimension：emerging financial institutions expand financial services

（1）Digital technology helps emerging financial institutions enrich financial inclusion products system.

① Diversification of Payment Options

As the Internet penetration in rural areas keeps increasing，third-party payment and online banking payments also extend their reaches to the countryside.

② Credit Facilitation

The development of Internet technology gave birth to Peer-to-Peer（P2P）lending platforms，a notable example being CreditEase，and the micro loan companies，such as Ant Micro Loan. Correspondingly，traditional commercial banks also broaden the range of their lending products.

③ Universal Wealth Management

The meteoric rise of Alibaba's Yu'e Bao money market fund in 2013 has created a new market of "fragmentized" wealth management for general public. At the same time，banks are also actively promoting financial products targeted to less affluent market segments in reaction to the impact of wealth management products of the emerging financial institutions.

（2）Digital technology lowers the threshold of financial services and expands the scope of financial inclusion services.

① It helps to solve MSMEs' financing dilemma.

In recent years，based on innovation of digital technologies and credit assessment technologies，emerging financial institutions have significantly shortened loan processingtime，and expanded the scope of the services，thus improving the financial services accessibility for MSMEs.

② It expands the boundaries of financial services and boosts rural financial development.

The digital technology infrastructure and the massive data accumulated over the Internet platforms have created conditions for the development of digital financial inclusion in rural areas. Internet-based payment，internet-based insurance，value chain financial services and other financial service offerings targeted at rural communities，agriculture and rural households are meeting the increasing demands for financial

needs in rural areas.

b. Financial industry dimension: the emerging financial institutions have reshaped the competitive landscape of the financial industry.

(1) They forced the traditional financial industry to transform and upgrade.

Products of emerging financial institutions are more convenient, more flexible, and of lower threshold and relatively high returns, enabling them to be quickly accepted by general public. As a result, banks' demand deposits took a nosedive. As their traditional profit model seriously challenged, banks have to intensify their commitments to transformation and upgrading.

(2) They changed the way financial business is conducted.

The application of digital technology in the financial field has an inherent nature of platform economy. In particular, leveraging the Internet technology and Internet users, a digital financial platform can integrate the resources and to achieve the effective and full linkage between user data and financial resources, and thus a transparent, efficient and convenient financial transaction channel is created.

c. Financial reform dimension: emerging financial institutions propels interest rate liberalization and advance of digital currency

(1) to accelerate the interest rates liberalization

Money market funds have had a strong downward impact on demand deposits. In 2015, the central bank removed the deposit interest rate ceiling. It is undeniable that the new financial institutions played a certain role in the process.

(2) to promote the development of digital currency

Digital currency has become an important payment means. Virtual currency, such as bitcoin, together with their underpinning block chain technology, are increasingly drawing attentions from financial institutions.

10. Build the Government Capability for Financial Inclusion

Government's financial inclusion capacity includes the ability to provide guidance and construct a system. In the process of promoting financial inclusion development, it is essential to stick to the basic principle of "guided by the government and driven by the market". A balanced relationship between government and market and a fully-functioning government guidance are the key to building and enhancing government's financial inclusion capacity. Economic theories hold that the government should play a role in avoiding market failures. Compared to other economic areas, the characteristics of financial inclusion determine a higher possibility of market mechanism failure during its development. The government capacity of financial inclusion also includes the ability to "construct a system". In terms of the participants, the financial

inclusion system is composed of the financial institutions that provide financial inclusion services and their investors and employees，the customers who receive financial inclusion services and their families and governments and regulating authorities at all levels；in terms of the business scope，financial inclusion encompasses all formal and accountable financial services that serve all sectors of society（including groups that are excluded from the traditional financial system）；in terms of the constituents，the financial inclusion system consists of the relevant financial index system，credit system，payment and settlement system，institutional system，product and service system，legal system，supervision and regulation system，financial education system as well as coordination and communication system. In such a comprehensive organic unity of financial inclusion，the various elements or components must be well-oiled and complement each other to ensure its overall development and growth.

Correct ideas and effective policies are the key to building the government capacity of financial inclusion. The correct ideas should be based on the national conditions，the actual domestic situation and the international experience of financial inclusion development while the policy measures should be taken step by step，strategically and pertinent，with a view to the overall picture of economic and social development and the demands of extensive stakeholders.

Considering the differences between large-scale financial institutions and financial inclusion institutions，what should government do to improve its regulatory capacity for financial inclusion? During the practice，the regulation of financial inclusion must first be differentiated. Second，the development of financial inclusion must follow the basic market rules and a scientific and objective angle must be taken on the phenomenon of high lending rate in the financial inclusion services. Third，the regulation of financial inclusion must focus on both innovation and risk control and the regulatory capacity must be enhanced to adapt to the basic principles of financial innovation. Innovation is contributing to the financial inclusion development while challenging the risk control capability of the regulating authorities. The government capacity to regulate financial inclusion innovation can be improved from the following 3 aspects：first，standardize the management of new financial institutions；second，enhance the regulatory adaptability to the business organization form and institutional innovation of financial inclusion；third，enhance the regulatory adaptability to the use of new technologies in financial inclusion.

11. An Analysis of the Impact of Land Management Right Mortgage on Farmers' Access to Credit

Compared with the “hardware” facilities，the construction of the “software”

facilities of financial inclusion infrastructure, such as the legal system, credit system and regulatory system, is more critical. Rural finance still falls short in the entire financial system and rural development. It is imminent to establish a rural land financial system to provide long-term financing for agricultural and rural development. It's important to draw on the experience of rural land financial models in the developed countries for the development of land management right mortgage in China. This chapter introduces the rural land financial models in the United States, Germany and Japan, which shows that rural land mortgage accounts for significant portion in agricultural and farmer loans. The securitization of rural land allows the lending bank to recover the funds through the circulation of bonds, hence solving the difficulties regarding the disposal of mortgaged land. The securitization of rural land is the key to the successful operation of rural land financial system in developed countries. Meanwhile, although having adopted a market-driven approach, the financial institutions offering rural land mortgage in the developed countries still retain their mandates to support and protect agriculture, fulfilling public policy functions.

This study selects nine cases of land management right mortgages in Anhui Province, Shanxi Province, Guangxi Province and Beijing to study the actual impact of contracted land management right mortgage on farmers' access to credit. Major findings are:

1. Farmers' access to credit has been significantly improved. The total amount of loans to farmers from the same financial institutions has increased measurably and rapidly.

2. The credit limits to individual farming households and new types of agricultural operators have been significantly increased.

3. The numbers and amounts of loans to new types of agricultural operators are visibly higher than those to ordinary farmers.

4. Land management right mortgage is more favored than unsecured loans.

5. Portfolio guarantees are more often adopted for risk control while the independent mortgage function still falls short.

Conclusion: the land management right mortgage can effectively improve farmers' access to credit. The government should forcefully support the construction of rural land financial systems with land mortgage as the core element to provide long-term financing for agricultural and rural development.

First, the government should define the boundaries of property rights to provide institutional basis for the stability of the contract and the development of rural land finance. Efforts should be made to actively facilitate the separation of rural land own-

ership，contractual right and management right and clarify their boundaries to further ensure effective implementation of contractual right，make land ownership nominal and clarify the relative independence of contractual rights and management rights.

Second，improve the exit mechanism of rural land contractual rights. Under the system of land division and fragmentation，efforts should be made to explore an exit by voluntary sale mechanism of rural land contractual rights to facilitate scale operation and modern agriculture.

Third，develop rural land property rights trading market，including establishment of land trading platform and nurturing of a secondary market for property rights. Rural property rights trading centers should be set up across the country to provide a platform for property rights transfer，disposal of collateral，and monitoring of the rural property right transfer.

Fourth，as the national legal system reform lags behind the needs of rural property rights system reform，efforts should be made to expedite the revision of Property Law and Guarantee Law to improve the status and effectiveness of legal documents regarding the rural land management rights mortgages and guarantees so as to provide a stable and predictable legal support for the rural land financial system.

Fifth，the government should provide vigorous support for land bank and land securitization through institutional improvement and policy support and build a sound land management rights mortgage mechanism.

12. Improve the Regulatory Capacity of Financial Inclusion

Burgeoning financial technology（Fintech），a new trend in the development of financial inclusion，has given a major boost to the development of financial inclusion. However，occasional risk incidents did occur，wreaking havoc with public interests，a situation that necessiates improved regulatory capacity. Currently Fintech can be basically divided into four major business areas：payment，including mobile and online payments，electronic money，etc.；financing models based on various types of information technology，including crowdfunding，P2P lending，etc.；back-office technical support for the financial services，including big data technology，artificial intelligence，distributed ledger technology，interconnect technology and encryption technology；and investment management，including robo-advisory，electronic automated trading，smart contract，etc.，among which，third-party online payment，P2P lending platform and online crowdfunding are currently the most active.

Fintech increases the complexity of the financial industry. While Fintech increa-

ses convenience and accessibility, network transmission also augments systematic risks of financial markets and could heighten the usual herd effect and market resonance of the financial markets, thereby amplifying market risks. Network security has also become a key issue as information leakage and hacking attacks may cause huge losses to financial consumers and financial institutions. Regulatory technology (RegTech) was subsequently developed to supervise and regulate Fintech. In terms of the overall regulatory philosophy, the most critical mission of RegTech is to strike a balance between safety and efficiency of Fintech, implement penetrating supervision of services to prevent cross infection of risks, detect improper operations in a timely manner, and improve the accuracy of risk identification. The current Fintech regulation is more focused on the front-end industry and specific financial services and products. Major countries have introduced measures to regulate Fintech. The United States published A Framework for Fintech in January 2017 and the UK has also taken proactive and pioneering steps by launching the Regulatory Sandbox, Innovation Hub and Innovation Accelerator. Financial Stability Board (FSB), Basel Committee on Banking Supervision (BCBS) and other institutions are also taking actions to study the application of Fintech and the corresponding regulatory measures.

P2P lending platform risk early warning is to construct a set of scientific risk early warning indicator system, based upon real-time dynamic data that are shared on the platform, so as to continuously track and to monitor various indicators in the system, and to provide early warning in time. It is of great significance to study system. To test the feasibility of the system, this chapter draws on the relevant risk rating and early warning methods to build a P2P platform risk early warning model and verifies the effect of early warning through empirical analyses. The study collects altogether 4086 samples and divides them into two groups (normal platform and problematic platform) for comparison. 36 indicators were extracted from each P2P platform to build a P2P platform risk early warning indicator system. In a month, 22 of the 2093 normal P2P platforms were marked by WDZJ. Com as problematic, among which 20 have been identified by the P2P platform risk early warning system constructed by the research team. For its proven effect, the system can be used to provide early warning for P2P platforms and can also serve as a reference for other development models of Internet finance.

13. Enhance the Protection of Financial Consumers' Rights and Interests to Promote the Development of Financial Inclusion

Financial consumer protection is a key component of the financial inclusion system. Without adequate protection of financial consumers' rights and interests, finan-

cial inclusion will lose its momentum and advantages. Every financial crisis will lead to new changes in the world's financial system. In the aftermath of the 2008 financial crisis，strengthening the protection of consumers' rights and interests and safeguarding the long-term and stable operation of the financial system have become a critical part of the reflection and reform of the financial supervision authorities in various countries and regions. The financial consumers discussed in this chapter refer to natural persons who accept financial products or services provided by financial products or service providers for non-commercial，non-professional and non-business purposes. This chapter introduces the experiences of the United States，the United Kingdom，Canada，World Bank and the Alliance for Financial Inclusion（AFI）and finds that the international community is actively enhancing the protection of financial consumers and attaching due importance to the protection in terms of legislation and regulation.

The new risks and challenges that China is facing regarding the protection in financial consumers under the context of financial inclusion：

A. Regulation and legislation lag behind financial innovation.

B. The complexity of the Fintech environment raises the requirements on the professional level of the stakeholders.

C. Inadequate financial knowledge and risk awareness in financial consumers exacerbate systematic risks of the financial system.

D. The financial consumer segment with lower level of income and knowledge puts forward higher requirements for the development of financial products.

Drawing from the experiences in foreign markets and taking into consideration the deficiencies of the existing protective measures in China and the new challenges in the market，the government and regulatory authorities can promote the protection of financial consumers' rights and interests from the following aspects：

A. Legislation

First，pass specialized legislation for the protection of financial consumers' rights and interests covering all financial sectors. Second，improve the supporting laws and regulations. Third，improve the specific rules and regulations of the central bank and the three financial regulatory commissions for the financial consumers protection in the financial sector.

B. Supervision and Regulation

First，establish a coordination mechanism for financial regulation in the form of inter-ministerial joint conference，with the central bank taking the lead to ensure effective implementation and supervision of regulatory policies in cross-over segments.

Second，turn the passive and coping supervision and regulation into proactive and interventionistones. Third，regulatory methods should be principles-based and supplemented by regulatory rules. Fourth，regulatory means shall adapt to the development of Fintech towards the RegTech era.

C. Financial Education

First，establish the dominant role of government in the public financial knowledge education and a multi-stakeholder financial consumer education mechanism. Second，incorporate the financial consumer education into the national education system and establish a long-term mechanism to enhance the financial competence of the whole population. Third，special attentions should be warranted to financial consumer education for vulnerable groups. Fourth，thorough research must be carried out to grasp the changes in the competence level and needs of financial consumers and establish an effective feedback and evaluation mechanism for financial consumer education.

D. Dispute Resolution

The significance of a dispute resolution mechanism for financial consumers has become an international consensus. The improvement of dispute resolution mechanism for financial consumers in the next stage should be focused on the development of independent third-party dispute resolution agencies.

E. Team Building

Efforts should be made to build competent and rigorous teams，especially the financial consumer protection teams at local governments' financial affairs offices and microfinance institutions.

14. How Digital Technology Improves the Financial Inclusion Services Capacity

All the relevant guiding documents of China and international organizations have without exception linked "digital technology" with the "inclusive" financial and economic development，demonstrating a shared vision of extending the benefits of technological progress，economic development and financial deepening to more vulnerable and decentralized individuals，households and businesses through the industrial application of new information technology.

Since 2010，as mobile Internet，big data，cloud computing and other emerging digital technologies continue to make inroads into the financial sector，there is a Fintech boom in Europe and North America and a large number of Internet financial companies have emerged in China，affecting traditional financial system in various ways and changing dramatically financial consumption environment for the end consumers. Under this context，many market-driven innovations of digital financial serv-

ices have inadvertently brought new opportunities for the development of financial inclusion.

So how can digital technology improve the competence of financial inclusion? And in which aspects can it improve financial inclusion services? This chapter discusses the effect of digital technology on the improvement of financial inclusion services from the perspectives of academic theories，the development of digital technology in China and how to promote financial development.

First，the theoretical logic that digital technology can facilitate the development of inclusive economy has been recognized by the academic circles. The study attempts to explain the changes of the business model and the market operation rules brought by the continuous infiltration of Internet and other digital technologies in the economic life and prove from different angles that the development of the digital technology are constantly expanding the inclusiveness of economic development. The chapter will first discuss from the following academic theories：

A. The Long Tail Theory and “Free” Pricing

In the Internet era，the development of technology has greatly enhanced the accessibility of market by providing opportunities and profit margins for the “long tail” market，underlining the important role of digital technology in expanding the breadth and depth of market.

B. Network Effect and the Value of Users

Network externality has greatly enhanced the value of users to the business ecology. As a result，consumer sovereignty，especially the interests of vulnerable consumers，are getting more respect and protection in the digital economy than before.

C. Platform Enterprise and Platform Ecology

Platform enterprises are motivated to keep what is beneficial to a benign eco-system construction in the platform ecology. Thus，the platform ecology can serve consumers with limited means and tap into markets that are less lucrative but where there are real demands，thereby providing broader space for the inclusive economic development.

D. Sharing Economy and Economic Democratization

Network technology and sharing economy has made it possible for the groups excluded from the traditional business system to use their own resources to engage in mutually beneficial trading activities in the form of self-organization and fill the market gaps neglected by the traditional business system through self-organized sharing networks.

Today，a new era of digital technology development and digital financial inno-

vation have dawned in China. Based on China's digital finance development, this chapter will review the evolution of digital technology in China from three levels and six categories, and analyze the impact of various technologies on financial development at different levels.

The first level is infrastructure-level technology, including digital communication and mobile Internet, which has overcome the barriers of limited physical network coverage and greatly improved the accessibility of financial services, making the financial network accessible for a large quantity of vulnerable groups and people living in remote communities.

The second level is business application technology, including cloud computing and big data. Their application has reduced the fixed cost input of financial institutions and improved their ability to predict, identify and deal with risks. It also provides powerful technical solutions for information asymmetry in financial transactions.

The third level is the innovative technology, including artificial intelligence and block chains. By replacing human labor with smart services, not only can AI reduce the cost of customized service but also human errors. Block chain technology and decentralized financial services can avoid the drawbacks of the current highly centralized financial system.

In the financial industry, the effect of economies of scale exists in both demand side and the supply side, which justifies the economic rationality of financial institutions' preference for the more affluent groups, and hence the ubiquity of difficulties in financial inclusion development. However, the development of the Internet inspires people's vision for the future change of the financial industry. The experience in many countries shows that digital finance innovation enjoys virtually no government support nor does it pursue deliberately of financial inclusion, but it inadvertently facilitates the inclusive financial development and enhances the capacity of financial inclusion while trying to find the market gap in the traditional financial industry and innovate based on digital technology.

15. Digital Financial Inclusion and Financial Exclusion

Digital technology has become a key driver for financial inclusion. The application of digital technology in the financial field can alleviate the traditional financial exclusion to a certain extent. However, the constraints of real-world factors will lead to new financial exclusion. By studying the inclusive effects of digital technology under the conditions of financial exclusion, this chapter tries to shed light on whether Internet finance can become a real driver for the development of rural financial in-

clusion.

Given its advantages of convenient payment，strong information processing and efficient resources allocation，Internet finance can effectively tackle the formidable challenges confronting financial inclusion as it can extend the boundaries of financial inclusion services，lower transaction costs，improve digital technology and expand financial functions. In this process，however，there are yet some restrictions，which we refer to as the “exclusive” effect in this paper. This paper will divide the “exclusive” effect into 5 categories，including regional exclusion，credit evaluation exclusion，marketing exclusion，tool exclusion and self-exclusion.

This chapter presents three hypotheses：

Hypothesis 1：Digital technology has an inclusive effect，meaning there is a positive correlation between the level of financial inclusion development and the level of digital technology development；

Hypothesis 2：Digital technology also faces multi dimensional financial exclusion，including the 5 categories mentioned above；

Hypothesis 3：Multi-dimensional financial exclusion will undermine the inclusive effect of digital finance.

This chapter will study whether the financial inclusion effect of digital technology will be affected or undermined by the multi-dimensional financial exclusion. In the models，financial inclusion was set as the explained variable，multi-dimensional exclusion effect on the application of digital technology the explanatory variable，and Internet finance the proxy variable to measure the application of digital technology in the financial field. The paper builds 3 models to study the relationship between the three variables，including Model 1（a simple model），Model 2（adding the financial exclusion variable）and Model 3（adding the across variable of the Internet finance variable and the financial exclusion variable）.

A multivariate regression analysis was performed on the micro data of 247 survey questionnaires collected from Zhoukou City of Henan Province，Jinhua City of Zhejiang Province and Chifeng City of Inner Mongolia Autonomous Region. The result of Model 1 demonstrates a clear positive correlation between the digital financial inclusion level index and the financial inclusion level index，thereby proving the inclusive effect of Internet finance. The result of Model 2 verifies the existence of tool exclusion，self-exclusion，marketing exclusion and evaluation exclusion and calculates the degree of their respective effects. The result of Model 3 shows a positive correlation between the cross terms and the financial inclusion level index，meaning that the multi dimensional financial exclusion will inhibit the development of financial inclu-

sion and, to a certain extent, offset part of the inclusive effect of digital technology.

Thus, the following conclusions can be drawn:

First, the digital technology serves the effect of financial inclusion and can help extend the boundaries of financial inclusion services, lower financial transaction costs and expand financial functions.

Second, the combined effect of multiple financial exclusions will inevitably undermine the financial inclusion effect of digital technology.

Third, the financial inclusion effect of digital technology still exists under the multi-dimensional exclusion, but it will be restricted. There is an interactive effect among financial inclusion, digital technology and multi-dimensional financial exclusion. The multi-dimensional financial exclusion will offset part but not all the financial inclusion effect of digital technology. Therefore, to promote the development of financial inclusion we need to ease the multi-dimensional financial exclusion faced by digital technology first.

This chapter verifies, using empirical approach, the financial inclusion effect of digital technology, the negative impact of financial exclusion on the financial inclusion effect of digital technology, and the impact of the cross terms. It proves the positive impact of digital technology on the financial inclusion capacity and identifies the financial exclusion effect that ought to be underscored. It is hoped that this chapter would provide scientific methodology and conclusion to address of the issue of improving financial inclusion capacity.

16. Financial Knowledge Improves Living Standards by Enhancing Financial Competence

Few researches ever study the impact of financial competence improvement. Financial competence includes financial knowledge, skills, attitudes and behavior. Financial knowledge, a concept rich in content, is the cornerstone of financial competence. The paper uses "the ability to calculate interest rate" as the proxy variable of financial knowledge and competence to analyze the factors that affect financial knowledge and competence, the channels to obtain financial knowledge, the influence of financial knowledge on the ability to use financial and credit services, and the connection between financial knowledge and living standards. The data used for the analysis covers 3010 farmers from 19 counties in Liaoning Province, Jilin Province and Inner Mongolia Autonomous Region, all located on the southern foot of the Greater Khingan Range.

a. Factors that affect financial knowledge. The analysis found that only 16.3% of

adults in the impoverished area in the south of the Greater Khingan Range considered themselves to know how to calculate interest rates. Although the higher educational attainment a subgroup has，the higher is the proportion within the subgroup who master interest rate knowledge，merely 29% of the adults with college degrees or above have the ability to calculate interest rates. Financial competence is affected by factors including occupation，age，health and gender. Freelancers，business owners，middle-aged people，healthy people and male tend to be better at the calculation of interest rates than other segments.

b. Channels to obtain financial knowledge. It is found that 16.8% of the adults who have participated relevant financial trainings have the ability to calculate interest rates. In contrast，only 13.2% of adults who haven't been trained know how to calculate interest rates. In addition to training，leaflets，centralized training，TV programs，one-on-one guidance，SMS and WeChat posts can all serve the purpose of spreading financial knowledge.

c. Financial knowledge increases the ability to use banking services. T test shows that adults with interest rate knowledge tend to have more debit and credit cards than others and are more frequent users of Alipay，WeChat Pay，bank cards and online banking payment.

d. Financial knowledge improves the ability to use credit services. 40.5% of the group with interest rate knowledge have applied for loans in the previous year，while only 21.8% of the group with no interest rate knowledge have applied for loans. The number of loans of the group with knowledge for agricultural，industrial and commercial purposes and for financial investment is significantly higher than the other group. Especially in terms of the loans for agricultural，industrial and commercial purposes，the gap between two groups stands at RMB 10,900. The same is true of private lending.

e. Financial knowledge is related to the standard of living. The incomes of households with interest rate knowledge are significantly higher than the households without relevant knowledge. The T test shows a gap as high as 95%. There is also a gap in the property income and transfer incomes between the two groups，but not significant as showed by the T test.

The impact of financial knowledge on the standard of living includes：

First，the impact on individuals' demand for financial services，which motivates them to obtain financial services such as bank cards and digital financial services.

Second，improve the ability to use financial products，such as the use of relatively loans of higher amount from financial institutions and private lending compa-

nies.

Third, improve efficiency. Financial knowledge enables more efficient use of various preferential policies of financial institutions to reduce lending rates. When it comes to the use of private lending, the group with financial knowledge shows relatively higher interest payment capacity, meaning that they are capable to deliver higher production efficiency.

Finally, the group with knowledge shows better ability to plan for the use of financial services.

17. Improving Financial Competence can Effectively Reduce Poverty in Contiguous Impoverished Areas

It is of great significance to study how to reduce poverty in the impoverished areas by improving financial competence. Based on the analyses of the data from the survey questionnaires collected from the impoverished areas in the southern foot of the Greater Khingan Range, we find that there is no significant difference in terms of the access to financial services between the poor and the non-poor households, but there is a large gap in the amount of loans between the 2 groups. Compared with financial infrastructure, the problem of insufficient financial competence is starker.

A. Impoverished households have equal access to financing opportunities but weaker financing capacity. Rural credit cooperatives and Agricultural Bank of China's local branches are the main sources of lending for farmers in these areas. Fewer loans were made through newly emerged financial institutions such as village banks and micro-lending companies. For rural households in the impoverished areas, RMB 14,181, or 58%, out of the total amount of borrowing of RMB 24,348 is used for production purpose. In the samples, only 22.5% of the rural households and 21.3% of the poor households got loans for production purpose. Among the borrowers, the average amount of borrowing for each household is RMB 53,896 but only RMB 35,622 for impoverished households. There is no significant difference in the access to financial services between poor and non-poor households but there is a large gap in the amount of loans between the 2 groups. The same is true of private lending. Poor households are less capable to use credit services.

B. Financial competence lags behind the infrastructure services. The survey finds that 73.3% of the samples have used teller services at banks and credit cooperatives, but only 14.8% are aware that banks and credit cooperatives provide services to them. Among those having bank cards, as much as 91.6% stick to use of cash out of habits.

C. Insufficient financial competence is a major obstacle to advancing digital fi-

nancial inclusion. Despite a mobile phone penetration rate as high as 91.98% (49.59% of which are smart phones), only 38% know how to use WeChat and only 8.8% know how to use mobile banking.

D. Family risk management awareness is weak. 73.90% of the respondents are risk averse, of which 51.56% are reluctant to take any risk and 22.34% can bear relatively lower risk. Only 7.38% of the respondents are willing to take high risk.

E. Extreme shortage of financial education. Over the past year, only 8.85% of the adults in the survey have participated in financial education and training. 62.4% of the respondents learned financial knowledge through TV programs, 26% through leaflets and 6.5% through SMS. Inadequacy of financial knowledge transmission channels farmer's lack of awareness to improve financial literacy are the main reasons for low financial competence.

To achieve effective poverty reduction, the author believes that measures should be taken to:

First, intensify financial training to meet the farmers' needs for financial knowledge.

Second, extend the depth and breadth of the promotion of financial knowledge and establish a long-term mechanism of rural financial education to improve the financial competence of rural households, especially poor households. In addition, efforts should be made to facilitate the development of financial infrastructure, financial services and digital financial inclusion.

18. Analysis on County-level Poverty Reduction and Income Increasing through Financial Inclusion

Based on the data from financial service providers, the chapter calculates financial inclusion index of 2018 counties in terms of the penetration of financial institutions, the availability of financial services and the efficiency of the use of financial services to show the geographical distribution of financial inclusion. An econometric model is built to analyze the impact of financial inclusion on the main economic indicators of counties, including GDP and per capita net income of rural residents.

A. There is a large gap in the development of financial inclusion between the counties in Eastern and Western China. The overall level of financial inclusion development in the counties of China is generally low, with anaverage financial inclusion index (0 to 1) for counties standing at 0.153. The data also show higher scores for counties in Eastern China and lower for counties in Western China. The average index for counties in Eastern China is between 0.17 to 0.2 and the index for counties in central China is 0.16 without big gap among different counties, whereas the index

for counties in Western China is 0. 13. The difference in penetration is the main reason for the regional gaps in financial inclusion development. The average index and the development level of financial inclusion of non-poverty-stricken counties is higher than those in the poor counties.

B. The development of financial inclusion can significantly increase the income of rural residents. Based on the controlled factors including the financial strength, industrial structure, development level of infrastructure, the level of agricultural mechanization and investment rate of the counties, the model analyzes the contribution of financial inclusion to the per capita net income of rural residents. The result of the analysis shows that:

- In general, the development of financial inclusion can indeed improve the per capita net income of rural residents. As a county's financial inclusion index increased by 1%, the net income of rural residents there increased by 0. 62%.
- Counties with relatively higher income level demonstrated stronger effect of financial inclusion development. In the 10% of counties with the lowest income, the per capita net income of rural residents increased by 0. 51% for every 1% increase in the financial inclusion Index. If the analysis includes 90% of the counties with the lowest income, the growth rate of the per capita net income is 0. 81%.
- The results of the analyses of the respective samples of the poor and non-poor counties also prove the above conclusions. The impact of financial inclusion development on increasing the income of rural residents in non-poverty-stricken counties is significantly higher than that of rural residents in poverty-stricken counties, with the growth rates standing at 0. 34% and 0. 23% respectively.