The Impact of Internet Finance Development on Financial Repression

——Taking P2P as an Example

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Abstract: With the development of Internet technology and big data, Internet finance represented by online lending, third-party payment, crowdfunding platform, etc. has developed rapidly in China, and its impact with the traditional financial system has brought a new kind of financial format. With its advantages of low cost, high efficiency, convenience and speed, Internet Finance provides financial consumers with more choices of wealth management products, broadens the financing channels for small and medium-sized enterprises and individuals, and to a certain extent, has played a role in China's financial repression. Taking peer-to-peer lending as an example, this paper constructs a measure of financial repression level and studies the impact of P2P lending development on financial repression. The empirical research results show that although the level of financial repression in China is on the rise, the development of online lending is helpful to reduce the rise of China's financial repression. Therefore, under the momentum of regulating the regulation of the Internet financial industry and ensuring its healthy development, Internet finance will inevitably bring about an inestimable impact on the optimization of China's financial environment.

1. Introduction

As a developing country, China's financial market has always had financial repression. The main manifestation is that the central bank controls the nominal interest rate and requires a high reserve ratio. Correspondingly, the efficiency of the capital market will be reduced and the form of financing will be restricted, especially for small and medium-sized enterprises. Financing difficulties make it difficult to obtain the operating funds necessary for business development. According to the China Internet Network Information Center's "Statistical Report on China's Internet Development Status" released at the end of January 2018, as of the end of 2017, the number of Internet users in China reached 772 million, with a total of 40.74 million new Internet users, and the Internet penetration rate was 55.8%. The number of mobile Internet users reached 753 million, and the proportion of Internet users using mobile Internet users increased from 95.1% in 2016 to 97.5%. Under the momentum of increasing Internet penetration, Internet finance is booming, according to "Promoting the healthy development of Internet finance." There are five types of Internet finance in the classification of Internet finance, including third-party payment, online lending, Internet banking, Internet insurance, and equity crowdfunding. With the help of Internet technology, the traditional financial industry can significantly reduce transaction costs, alleviate the problem of information asymmetry, and improve the efficiency of risk pricing and risk management. In terms of online lending, the P2P network lending platform represented by PPDAI, Lufax, etc. It avoids traditional financial intermediary service institutions such as banks, directly blends the supply side and demand side of funds with low cost, high efficiency and low investment threshold, which solves the financing problems of a large number of small and medium-sized enterprises and ordinary people, but at the same time because of its internal risks and regulatory loopholes ,various problem platforms frequently appear, which seriously damages the financial reputation and consumer interests. Its specific impact on alleviating China's financial repression needs further exploration.

2. The current development of P2P in China

Since 2011, China's P2P online loan market has maintained a relatively high growth rate. According to the "China P2P Network Lending Market Trend Forecast Report 2016-2019" released by Analysys, in 2016, the scale of China's P2P network lending market has reached 1971.27 billion yuan, an increase of 126.9% from the previous quarter, 203 times that of 2011.

As of February 2018, the cumulative number of online lending platforms in China has reached 6,054, compared with 38 new platforms in January, there are 1890 platforms in normal operation, accounting for 31.22% of the total number of platforms. there are four main reasons for the problem platform: the user withdraws difficulties, stops the business, runs the road, and intervenes in the investigation. Among them, the platform caused by the difficulty of users' cash withdrawal accounted for 19.74%, the problem caused by the suspension of the platform was the largest, reaching 51.36%.the problem caused by the road platform accounted for 28.26%. There are 27 problem platforms due to the involvement of the investigation, accounting for 0.64%.
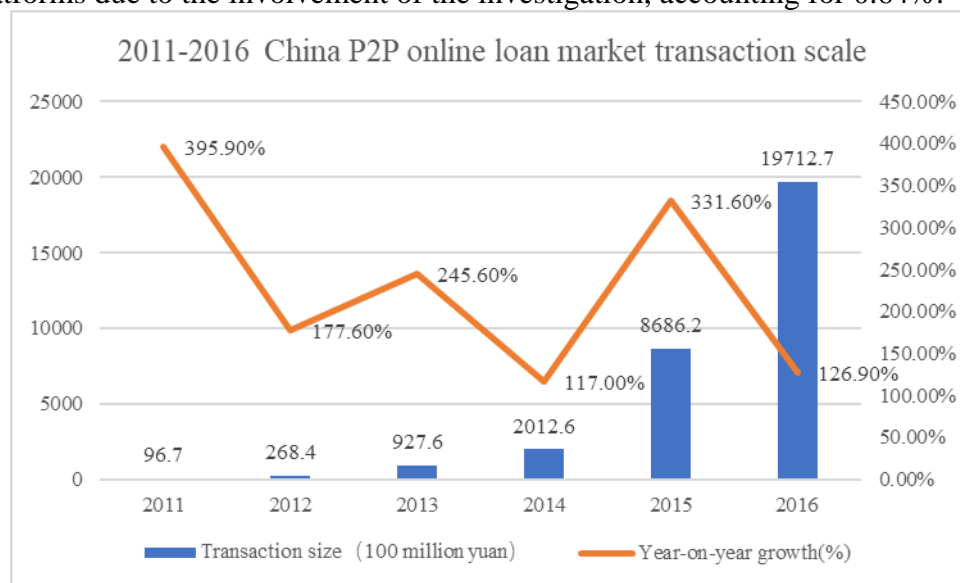

Figure 1 2011-2016 China P2P online loan market transaction scale.

3. The impact of P2P online lending on financial repression

3.1. Selection indicator

This paper selects the monthly volume of the official website of the online loan home official website as a measure of the development of P2P online loans. A total of 48 transaction volume data were captured from 2014.1 to 2017.12. The definition variable WD (100 million yuan) indicates the development level of online loans; this paper selects FD=M2/GDP to measure the degree of financial deepening in China. Regarding the measure of the degree of financial repression, Mckinnon (1973) proposed the Mein indicator M2/GDP, which is used to reflect the financial development depth of a country and the payment intermediary and mobilization savings function of the monetary and financial system in a certain period of time. The higher the degree of financial deepening, the lower the degree of financial suppression. The same 48-month data from 2014.1 to 2017.12 is also selected. The data comes from the National Bureau of Statistics.
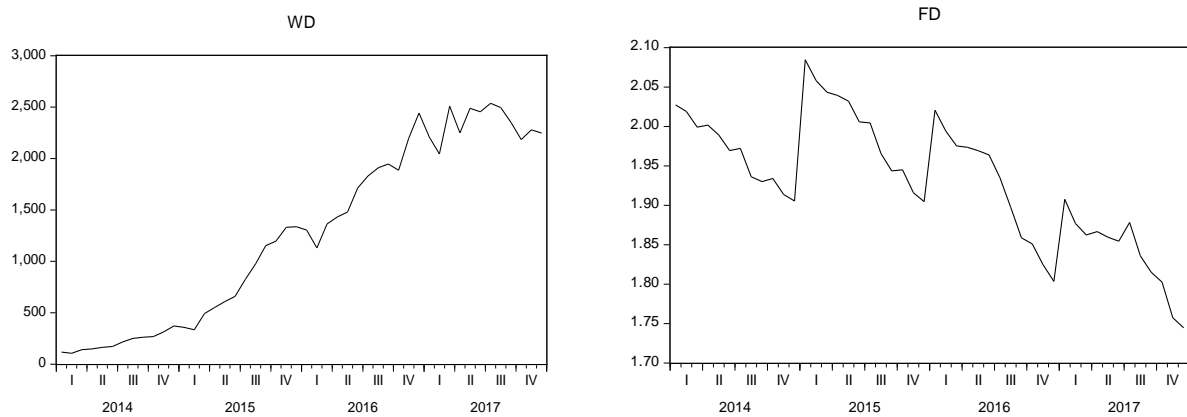
Figure 2 2014-2017 WD and FD time trends.

3.2. Data stationarity test

The VAR model that this paper will build is based on a smooth data base, where WD is processed logarithmically, and LnWD is used to represent the changed variables. In this paper, the ADF unit root method is used to analyse the above data.

Table 1 ADF test of LnWD and LnFD.

variables	ADF test statistic	Test critical values			test result
		1% level	5% level	10% level	
LnWD	-2.5498	-3.5777	-2.9252	-2.6007	unstable
FD	-1.1603	-3.5777	-2.9252	-2.6007	unstable
$\triangle$LnWD	-7.1195	-3.5812	-2.9266	-2.6014	stable
$\triangle$FD	-7.5299	-3.5812	-2.92666	-2.6014	stable

As can be seen from Table1, LnWD and FD have unit roots, which are non-stationary. After LnWD and FD are subjected to first-order differential processing, the sequences $\triangle$LnWD and $\triangle$FD are obtained, and the unit root test is performed. The results show that the null hypothesis can be rejected at the 1% significance level, indicating that both sequences are stable.

3.3. Choice of lag order

An important problem of the VAR model is the determination of the lag order. For the lag order selection results of the Var model established by ΔLnWD and $\triangle$FD, as shown in Table 2, the table shows various information standards up to the maximum order. The AIC, SC, and HQ indicators of the second-order lag are optimal, while the LR and FPE indexes are optimal when the lag order is 4th order. At present, the literature has basically selected the order according to the AIC optimal standard, so the selection is made. The optimal lag order is 2.

Table 2 Var model lag order judgment result.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	112.2268	NA	2.03e-05	-5.126829	-5.044912	-5.096620
1	116.5141	7.976292	2.01e-05	-5.140189	-4.894441	-5.049565
2	127.9493	20.21110	1.42e-05	-5.586177*	-5.076432*	-5.334973*
3	129.6454	2.839995	1.59e-05	-5.378856	-4.805442	-5.167399
4	138.1028	13.37448*	1.30e-05*	-5.486014	-4.848930	-5.314303

3.4. Granger causality test and stability test

Whether there is a causal relationship between the model variables $\triangle$LnWD and $\triangle$FD, the results are shown in Table3. Under the 1% significance level, the change of online loan development is the cause of the change in financial deepening. The change in the degree of deepening is not the cause of the changes in the development of online loans.

Table 3 Granger causality test results.

Null Hypothesis:	Obs	F-Statistic	Prob.
$\triangle$LNWD does not Granger Cause $\triangle$FD	45	0.6967	1.E-05
$\triangle$FD does not Granger Cause $\triangle$LNWD		15.6426	0.5042

After the Granger causality test, the model needs to be tested for stability. If the reciprocal of the modulus of all roots of the Var model is less than 1, that is, within the unit circle, it is stable. If the model is unstable, the estimation result is invalid. As shown in Figure 3, all the unit roots fall within the unit circle, so the model is stable, and the impulse response analysis and variance decomposition analysis can be performed on this basis.
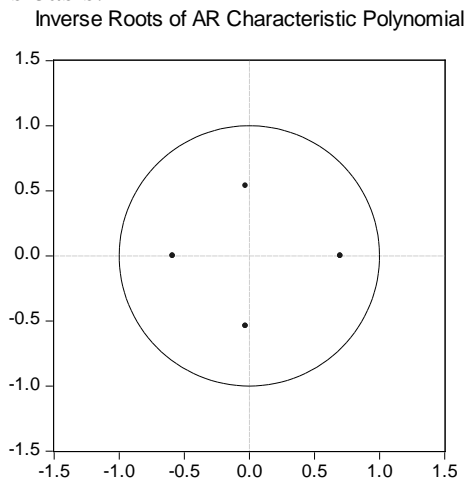

Figure 3 Model unit root test.

3.5. Impulse response analysis

Estimate the established Var model and estimate the result as

$$DLnWD_t = 0.1910DLnWD_{t-1} + 0.1885DLnWD_{t-2} - 0.6240DFD_{t-1} + 1.6592DFD_{t-2} + 0.0410 \quad (1)$$

$$DFD_t = 0.03461DLnWD_{t-1} + 0.0646DLnWD_{t-2} - 0.1385DFD_{t-1} - 0.0660DLnFD_{t-2} - 0.0133 \quad (2)$$

Its goodness of fit is $R^2_{DLnWD_t} = 0.0690$, $R^2_{DFD_t} = 0.4393$, F value is $F_{DLnWD_t} = 0.7407$, $F_{DFD_t} = 7.8307$.

Figure 4 is the impulse response function curve of the Var model. The solid line in the figure is the calculated value of the response function, the dotted line is the confidence band with the response function value increasing by two standard deviations, and the abscissa is the tracking period of 15 periods, the vertical axis indicates how much DFD responds to DLnWD. When the impact on the rate of change in the development level of online loans was exerted, the degree of financial deepening did not immediately form an impact. In the first phase, the impact was zero, and then the maximum positive response was reached in the second period. Then the impact strength gradually weakened and tends to converge stably. This indicates that the development of P2P online lending will have a positive impact on the degree of financial deepening in a certain period of time. As time goes on, the final impact tends to zero.
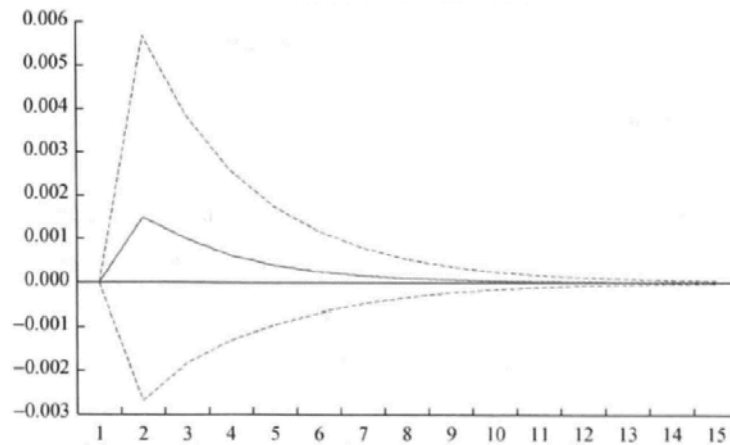
Figure 4 Impulse response function.

3.6. Variance decomposition analysis

Through the above impulse response analysis, we can know that the development rate of the online loan industry has a positive impact on the financial deepening change. The variance decomposition can obtain the relative importance of each random disturbance that affects the variables in the Var model. As can be seen from Table 4, the change in the amount of financial deepening mainly comes from the impact of its own impact, reaching 100% in the first period, and then decreasing with time, the development rate of the online loan industry has less impact on financial deepening. By the tenth period, it will reach a contribution of 2%. This is mainly because there are many factors influencing financial repression. The degree of P2P development has limited influence on it, but it is undeniable that P2P development has a certain influence on the improvement of China's financial repression.

Table 4 Variance decomposition analysis result.

Period	S.E.	DFD variance decomposition	
		DFD	DLNWD
1	0.041611	100.0000	0.000000
2	0.042247	99.59646	0.403543
3	0.042832	98.16133	1.838672
4	0.042853	98.14275	1.857250
5	0.043052	98.12203	1.877965
6	0.043064	98.09432	1.905679
7	0.043072	98.06087	1.939130
8	0.043073	98.05752	1.942479
9	0.043076	98.05429	1.945715
10	0.043077	98.05262	1.947382
Cholesky Ordering: DFD DLNWD			

4. Conclusions and policy recommendations

Based on the previous literature, this paper further proves that Internet finance can reduce the level of financial repression in China through empirical research. In the field of resource allocation or financing, the P2P model is based on platform customer information and cloud data especially small micro loans, which meets the financing needs of the so-called long-tail customers, which is difficult for traditional finance, has greatly improved the inclusiveness and structure of financial services and promoted the degree of financial deepening in China. In general, the healthy development of Internet finance will undoubtedly have a good impact on China's financial environment. However, because Internet finance is more complicated than traditional finance in the crossover and mixing of industries, its supervision requires a new regulatory body. And regulatory

positions to improve regulatory efficiency and eliminate the vacuum of supervision, promote credit infrastructure construction, increase the cost of default, and regulate the laws and regulations to make this emerging financial industry better serve the real economy.

4.1. Strictly guard the bottom line and be wary of shadow banking

From the current reality of China, it is undeniable that although some financial activities are titled "Internet Finance" or "P2P", in the specific operation mode, while selling "guaranteed interest and interest" wealth management products, while constructing the "asset pool" to issue loans to the outside world, this is essentially a "quasi-bank" that combines the three major businesses of deposit, settlement and loan, and has not been approved by the regulatory authorities. The business process is not like a bank. Accepting strict regulatory indicators is undoubtedly a typical illegal financial institution. If left unchecked, it will damage the authority of the regulatory authorities, and on the other hand, it will become a shadow bank outside the supervision, which will bring risks to the financial system. The regulatory authorities must strictly adhere to the bottom line and issue policies as soon as possible to delimit the deadline. The platform that has not been rectified within the time limit is resolutely banned in accordance with the provisions on the disposal of illegal financial institutions.

4.2. Establish an information disclosure mechanism that adapts to the characteristics of Internet finance

The regulatory authorities should urge the Internet finance industry to establish an effective mechanism to ensure that financiers disclose sufficient and truthful information when borrowing or publishing projects on the platform to prevent and respond to risks arising from false disclosures. Specifically: The platform shall establish a qualified information verification system according to the regulatory requirements, and make reasonable care in the information review process. Once the platform finds that the P2P borrower or project sponsor has false or improper disclosure, it shall immediately publicize it on the website. We will inform other enterprises in the industry and social credit agencies about the situation of dishonesty, encourage the Internet finance industry to set up relevant associations or enterprise alliances, formulate self-regulatory norms and establish industry databases, and strengthen and unify information disclosure standards.

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