

Effects of Digital Inclusive Finance on Adverse Selection of Commercial Banks

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Abstract. The development of digital inclusive finance has changed commercial banks' credit to some extent. We construct the panel data of commercial banks from 2011-2021 and use a two-way fixed effect model to study effects of digital inclusive finance on the adverse selection of commercial banks. The results show that digital inclusive finance has a significant negative effect on adverse selection of commercial banks, and the effect is stronger in eastern regions and rural commercial banks. The evidence strongly suggests that digital inclusive finance reduces the risk of adverse selection of commercial banks by promoting the development of financial technology and reducing the risky asset ratio of commercial banks in a way that excludes the mechanism of action of commercial bank soundness. These results have important implications for the development of the traditional financial industry, and commercial banks could use digital inclusive finance to reduce adverse selection risk and achieve digital transformation.

Keywords: Digital Inclusive Finance, Adverse Selection, Commercial Banks, Fintech.

1. Introduction

With the development of digital inclusive finance, financing for SMEs and the general public will be more convenient, and commercial banks will liberalize credit to some extent. In the process of liberalizing credit, the risk of adverse selection by commercial banks will change. Due to information asymmetry, commercial banks' adverse selection risk arises from time to time. While the related literature is devoted to finding solutions, the development of digital inclusion has important implications for commercial bank credit, especially for ex-ante default risk. Therefore, we are committed to examining the relationship between digital inclusive finance and the adverse selection of commercial banks, testing the application of information asymmetry theory in commercial banks affected by digital inclusive finance, and making relevant suggestions.

We regress a total of 19525 sample panel data from 2011-2021 using a two-way fixed effect model with the non-performing loan rate as the explained variable and the digital inclusive finance index and digital financial breadth as the explanatory variables. The results find that digital financial inclusion has a significant negative effect on adverse selection of commercial banks.

The literature related to digital financial inclusion can be divided into two categories: systemic impact and locality impact. Related studies on systemic impact focus on financial inclusion (Malady, 2016; Ozili, 2018) and development disparities (Demirgüç-Kunt and Klapper, 2013; Khera et al., 2022). Related studies on locality impact focus on the cost of financing SMEs (Chinoda and Kapingura, 2023). We concentrate on the impact of bank lending.

The literature on adverse selection is extensive and related research started earlier. It can be classified by the object of study into labor (Greenwald, 1986), credit (Cressy and Toivanen, 2001), insurance (Cohen and Siegelman, 2010), and securities (Lauermann and Wolinsky, 2016). There are also some studies that aim at market stability (Philippon and Skreta, 2012). We focus on adverse selection of commercial banks.

The impact of digital financial inclusion on adverse selection is less studied. Some literature obtained a positive impact of financial inclusion on adverse selection (Karlan et al., 2016; Mhlana, 2021) and others obtained a negative impact of financial inclusion on adverse selection (Mader, 2018). Studies are testing the adverse selection of financial inclusion on commercial banks in Islam (Banna

et al., 2022), India (Singh, 2017), and Kenya (Musau, 2022). We focus on China to test the causal relationship between digital financial inclusion and adverse selection of commercial banks.

Based on this, we design the following structure: section 2 introduces the background of digital inclusive finance research and proposes theoretical hypotheses; section 3 introduces the research design of the impact of digital inclusive finance and adverse selection of commercial banks; the fourth section analyzes the benchmark regression results of digital inclusive finance and adverse selection of commercial banks, robustness tests, and heterogeneity analysis and mechanism analysis; the fifth section concludes and makes recommendations.

2. Research background and theoretical hypothesis

2.1. Background of the study

Digital financial inclusion has started to develop amidst the development of financial inclusion and digital technology. This is because the traditional financial services industry is under pressure to transform digitally amidst the widespread use of the Internet, big data, and other technologies. In addition, the government's focus on SME and individual financing has driven the development of inclusive finance, and the combination of the two has given rise to digital inclusive finance. Since 2004, digital inclusive finance has grown from embryonic to booming, reducing the cost and improving the efficiency of financial services with the help of digital technology, expanding the audience of inclusive finance, and enhancing the utility of services obtained. At the same time, the development of digital inclusive finance has responded to the call for a national policy of poverty eradication. Therefore, from domestic to foreign countries, digital inclusive finance research has become an important research target in the current financial field.

During the development of digital inclusive finance in full swing, commercial banks' credit risk has undergone important changes. Based on ex-ante information asymmetry and imperfect market regulation, commercial banks are unable to separately lender quality and therefore raise loan interest rates to avoid risks. This will reduce the willingness of creditworthy borrowers to borrow and increase the risk of adverse selection by commercial banks. However, digital inclusive finance can improve information transparency and make some changes in commercial banks' credit management, which to some extent affect the ex-ante risk, i.e., changes in adverse selection risk. Therefore, we focus on examining the impact of digital inclusive finance on commercial banks' adverse selection and makes suggestions on how commercial banks can seize the opportunity.

2.2. Theoretical hypothesis

First, we study the causal relationship between digital inclusive finance and commercial banks' adverse selection. When providing loan services, commercial banks will require applicants to submit proof of credit status; however, in the context of information asymmetry, commercial banks are unable to grasp the real information of applicants, and the probability of ex-ante default increases. The emergence of digital inclusive finance will make it easier for commercial banks to obtain information about borrowers, and they will find high-quality applicants who are not originally covered by loans and lower the loan interest rate and guarantee requirements to a certain extent, resulting in higher loan quality, lower ex-ante default probability, and less adverse selection. Therefore, we propose the first theoretical hypothesis:

H_0^1 : Digital financial inclusion has a negative impact on commercial banks' adverse selection.

Second, we examine whether fintech is a mechanism of action for digital inclusion finance. The implementation of digital inclusive finance would promote the further development of fintech, and commercial banks could use digital technology to open the information barriers of borrowers, who cannot submit false information through shady operations, and have more assurance of loan quality, thus reducing the risk of adverse selection. Therefore, we propose a second theoretical hypothesis:

H_0^2 : Digital Inclusion significantly reduces adverse selection risk of commercial banks through fintech applications.

We then investigate whether commercial bank risky asset ratio is a mechanism of action for digital inclusion finance. The development of digital inclusive finance makes commercial banks focus on lending, the risky asset ratio decreases, risk control is enhanced, ex-ante default rate decreases, and adverse selection risk is reduced. Therefore, we propose a third theoretical hypothesis:

H₀³: Digital financial inclusion has a significant negative impact on adverse selection by reducing the risky asset ratio of commercial banks.

Finally, we investigate whether commercial bank soundness is a mechanism of action for digital inclusion finance. The development of digital inclusive finance poses important challenges to traditional financial institutions, and commercial banks will implement digital transformation to reduce their own insolvency risk, making them more robust, attracting quality borrowers, improving loan quality, and reducing adverse selection risk. Therefore, we propose a fourth theoretical hypothesis:

H₀⁴: Digital financial inclusion provides a significant disincentive to commercial bank adverse selection by enhancing commercial bank soundness.

3. Study Design

3.1. Data sources

We use digital inclusive finance data, commercial bank data, and China Statistical Yearbook data from 2011-2021 to test effects of digital inclusive finance on the adverse selection of commercial banks. We obtain digital inclusive finance data from Peking University Digital Inclusive Finance Index and commercial bank data from Wind database. Among them, Peking University Digital Financial Inclusion Index has high accuracy and authority. Due to the large gap of adverse selection of commercial banks in different regions, we also obtain regional economic development indicators from the China Statistical Yearbook. Meanwhile, we obtain data on the level of fintech development from the CSMAR database to test the fintech mechanism and continue to use the commercial bank data from the Wind database to test the commercial bank risky asset ratio mechanism and the commercial bank soundness mechanism.

3.2. Variable selection

The explained variable is adverse selection of commercial banks. We use the nonperforming loan ratio (NPL) to measure commercial banks' adverse selection risk. Due to the effect of outliers, we use tailoring. The variable is designed to divide the amount of non-performing loans by the total loans, which more intuitively reflects the adverse selection risk of commercial banks themselves. When the nonperforming loan ratio is higher, the risk of adverse selection of commercial banks is higher.

The core explanatory variable is digital inclusive finance. We use the Digital Financial Inclusion Index ($\ln(\text{index_aggregate})$) and Digital Finance Breadth ($\ln(\text{coverage_breadth})$) to measure the extent of digital inclusive finance development. We also logarithmize the indicators.

The control variables are divided into two categories: commercial bank-level control variables and province-level control variables. We use the net asset margin (ROE), growth capacity (Growth), and liquidity (Liquid) to measure the commercial bank-level control variables; we use the gross regional product per capita (GDPPC) and consumption level index ($\ln(\text{consumption_level_index})$) to measure the province-level control variables. We also logarithmize the consumption level index.¹

The mechanism variables are fintech, commercial bank risky asset ratio, and commercial bank soundness, measured by fintech level ($\ln(\text{fintech})$), weighted risky asset ratio (Risk), and z-value(Z), respectively. In this case, we logarithmize the fintech level indicator.

Table 1 shows the results of descriptive statistics of the basic variables. Among them, the mean value of NPL is 0.4% and a few commercial banks have an NPL ratio higher than the regulatory red

¹ The calculation rule of the consumption level index is that the previous year's consumption level index is 100.

line of commercial banks. Therefore, we analyze commercial banks' adverse selection from the perspective of digital financial inclusion.

Table 1 Results of descriptive statistics of basic variables

variable type		variable	N	Mean	s.d.	min	max
explained variable	adverse selection of commercial banks	NPL	19525	0.004	0.008	0.000	0.021
	core explanatory variable	digital inclusive finance	ln(index_aggregate)	19525	5.282	0.667	2.786
			ln(coverage_breadth)	19525	5.137	0.814	0.673
control variables	commercial bank-level control variables	ROE	19525	0.031	0.064	-0.543	1.765
		Growth	19525	0.138	4.912	-32.137	629.170
		Liquid	19525	0.135	4.401	0.000	500.020
	province-level control variables	GDPPC(Yuan/person)	19525	53791.850	24866.779	16024.000	183980.000
			ln(consumption_level_index)	12425	4.694	0.026	4.639
mechanism variables	Fintech	ln(fintech)	19525	1.141	0.458	-0.37	2.014
	commercial bank risky assets ratio	Risk(%)	5920	10.530	0.705	8.040	13.546
	commercial bank soundness	Z	7614	30.095	248.078	-5.123	18199.301

3.3. Model setting

To test the effect of digital inclusion on adverse selection by commercial banks, we set up a two-way fixed effects model. Equation (1) is the aggregate model:

$$Adverse_{ipt} = \beta_0 + \beta_1 DigitalFinancialInclusion_{pt} + \beta_2 Control_{ipt} + \beta_3 Control_{pt} + \delta_p + \rho_t + \varepsilon_{ipt} \quad (1)$$

Where $Adverse_{ipt}$ is the degree of adverse selection risk of commercial bank i at year t , province p , measured by the nonperforming loan ratio (NPL). $DigitalFinancialInclusion_{pt}$ is the degree of development of digital financial inclusion at year t , province p , measured by the Digital Financial Inclusion Index and Digital Finance Breadth. The latter is used for robustness testing. $Control_{ipt}$ is the control variable for commercial bank i at year t , province p . $Control_{pt}$ is the control variable for province p at year t . δ_p and ρ_t are province and year-fixed effects, respectively. ε_{ipt} is the random error. β_1 is expected to be negative, which means that the development of digital inclusive finance will reduce the adverse selection risk of commercial banks.

4. Empirical results

4.1. Baseline regression

Table 2 shows results of the benchmark regressions of the impact of digital inclusive finance on the adverse selection of commercial banks, both with the inclusion of province-fixed effects and year-fixed effects. Column (1) explains the regression coefficient of the core explanatory variable Digital Inclusive Finance Index is significantly negative, indicating that when the Digital Inclusive Finance Index increases by 1%, the NPL ratio significantly decreases by 0.00003. This regression coefficient accounts for 75% of the mean of NPL (0.003/0.004) and is economically significant. Column (2) controls for commercial banks and provinces, and the regression result remains robust. Column (3) explains the core explanatory variable Digital Finance Breadth has a significant negative coefficient, indicating that when the digital financial inclusion index increases by 1%, the NPL ratio decreases significantly by 0.00001. The regression coefficient accounts for 25% of the mean (0.001/0.004) and is economically significant. Column (4) controls for commercial banks and provinces and the regression result remains robust. The above results suggest that the development of digital inclusive

finance can significantly reduce the non-performing loan rate and thus reduce the risk of adverse selection by commercial banks.

Table 2 Impact of digital inclusive finance on adverse selection of commercial banks

	(1) NPL	(2) NPL	(3) NPL	(4) NPL
ln(index_aggregate)	-0.003** (0.001)	-0.003** (0.001)		
ln(coverage_breadth)			-0.001** (0.000)	-0.001** (0.000)
Constant	0.019*** (0.006)	0.022** (0.008)	0.010*** (0.002)	0.010** (2.83)
Controls	No	Yes	No	Yes
Province FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	19525	19525	19525	19525
Adjusted R ²	0.202	0.424	0.201	0.423

Notes: Robust standard errors are reported in parentheses, * indicates significance at the 10% level, ** indicates significance at the 5% level, *** indicates significance at the 1% level, and the same below. indicates significance at the 10% level, ** indicates significance at the 5% level, *** indicates significance at the 1% level, and the same below.

4.2. Robustness test

We assume that the mean value of the disturbance term is independent of all explanatory variables, which means that the variables are exogenous and not influenced by internal factors. However, the actual analysis suffers from the problem of omitted variables; digital inclusive finance brings about an increase in the level of resident consumption, which leads to an increase in credit and consumption smoothing, and the increase in credit affects the adverse selection risk of commercial banks. Therefore, we test the robustness of the significant negative effect of digital inclusive finance and the adverse selection of commercial banks by adding a control variable on the level of resident consumption, which is a province-level control variable with an indicator of logarithm of consumption level index.

Table 3 shows the regression results of the robustness test of digital inclusive finance and the adverse selection of commercial banks. As shown in Table 3, the regression results remain robust, indicating the robustness of the significant negative effect of digital inclusive finance on the adverse selection of commercial banks.

Table 3 Impact of digital inclusive finance on adverse selection of commercial banks: robustness tests

	(1) NPL	(2) NPL	(3) NPL	(4) NPL
ln(index_aggregate)	-0.003** (0.001)	-0.003* (0.001)		
ln(coverage_breadth)			-0.001** (0.000)	-0.001** (0.000)
ln((consumption_level_index)		-0.001 0.002		0.000 0.002
Constant	0.019*** (0.006)	0.012 (0.008)	0.010*** (0.002)	0.003 (0.004)
Controls	No	Yes	No	Yes
Province FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	19525	12425	19525	12425
Adjusted R ²	0.202	0.441	0.201	0.441

4.3. Heterogeneity Analysis

4.3.1. Heterogeneity Analysis of rural commercial banks

The level of credit varies by commercial bank nature, with rural commercial banks having lower credit quality, higher NPL rates, and greater adverse selection risk (Besley, 1994). Therefore, we analyze the heterogeneity by whether or not they are classified as rural commercial banks.

Table 4 shows the regression results of the heterogeneity analysis of rural commercial banks, both with the inclusion of province-fixed effects and year-fixed effects. Column (1) examines the effect of digital inclusive finance on adverse selection of rural commercial banks. The regression coefficient of the core explanatory variable Digital Inclusive Finance Index is significantly negative, indicating that when the digital inclusive finance index increases by 1%, the NPL ratio significantly decreases by 0.00003. This regression coefficient accounts for 75% of the mean (0.003/0.004) and is economically significant. Column (2) tests the effect of digital inclusive finance on adverse selection by rural commercial banks, controlling for commercial banks and provinces. The regression coefficient of the core explanatory variable Digital Finance Breadth is significantly negative, indicating that when digital financial coverage breadth increases by 1%, the NPL ratio significantly decreases by 0.00001. this regression coefficient accounts for 25% (0.001/0.004) of the mean and is economically significant. Column (3) tests the effect of digital inclusive finance on adverse selection of non-rural commercial banks. The regression coefficient of the core explanatory variable Digital Inclusive Finance Index is not significant. Column (4) tests the effect of digital inclusive finance on adverse selection by non-rural commercial banks, controlling for commercial banks and provinces. The regression coefficient of the core explanatory variable Digital Finance Breadth is insignificant. The above results suggest that the negative effect of digital inclusive finance on the adverse selection of commercial banks is more effective in rural commercial banks, and there is no evidence that digital inclusive finance significantly inhibits adverse selection risk in non-rural commercial banks.

Table 4 Impact of digital inclusive finance on adverse selection of commercial banks:
Heterogeneity Analysis of rural commercial banks

	rural commercial banks		non-rural commercial banks	
	(1) NPL	(2) NPL	(3) NPL	(4) NPL
lnindex_aggregate	-0.003* (0.001)		0.002 (0.002)	
lncoverage_breadth		-0.001** (0.000)		0.001 (0.001)
Constant	0.019* (0.009)	0.009* (0.004)	0.003 (0.010)	0.011* (0.006)
Controls	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	17182	17182	2343	2343
Adjusted R ²	0.461	0.460	0.376	0.375

4.3.2. Heterogeneity Analysis of East, Central, and West regions

Different regions have different resource endowments, with the eastern region having a more developed economy, better resources, and a lower risk of adverse selection by commercial banks (Detragiache et al., 2000). Therefore, we analyze the heterogeneity by the classification of East, Central, and West regions.

Table 5 shows the analysis of heterogeneity in the East, Central, and West regions, both with the inclusion of province-fixed effects and year-fixed effects. Column (1) tests the effect of digital inclusive finance on adverse selection of commercial banks in the East region. The regression coefficient of the core explanatory variable Digital Financial inclusion index is significantly negative, indicating that when the digital inclusion index increases by 1%, the NPL rate significantly decreases

by 0.00004. this regression coefficient accounts for 100% of the mean (0.004/0.004), which is economically significant. Column (2) examines the effect of digital inclusive finance on adverse selection of commercial banks in the East region, controlling for commercial banks and provinces. The regression coefficient of the core explanatory variable digital financial coverage breadth is significantly negative, indicating that when the digital inclusion index increases by 1%, the NPL ratio significantly decreases by 0.00004. this regression coefficient accounts for 75% of the mean (0.003/0.004), which is economically significant. Column (3) examines the effect of digital inclusive finance on adverse selection of commercial banks in the Central, and West regions. The regression coefficient of the core explanatory variable Digital Inclusive Finance Index is not significant. Column (4) tests the impact of digital inclusive finance on adverse selection of commercial banks in the Central, and West regions, controlling for commercial banks and provinces. The regression coefficient of the core explanatory variable digital financial coverage breadth is insignificant. The above results indicate that the negative effect of digital financial inclusion on the adverse selection of commercial banks is more effective in the eastern region, and there is no evidence that the negative effect of digital financial inclusion on the adverse selection of commercial banks applies to the central and western regions as well.

Table 5 Impact of digital inclusive finance on adverse selection of commercial banks: Heterogeneity Analysis in Eastern, Central, and West regions

	Eastern regions		Central and West regions	
	(1) NPL	(2) NPL	(3) NPL	(4) NPL
ln(index_aggregate)	-0.004** (0.002)		-0.002 (0.002)	
ln(coverage_breadth)		-0.003*** (0.001)		-0.001 (0.000)
Constant	0.028** (0.010)	0.024*** (0.006)	0.013 (0.008)	0.006* (0.003)
Controls	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	6215	6215	13310	13310
Adjusted R ²	0.377	0.377	0.442	0.442

4.4. Mechanisms

The empirical results show that digital inclusion has a significant negative impact on the adverse selection risk of commercial banks. Based on this, we try to analyze the mechanism of the effect of digital inclusive finance from the perspective of financial technology, commercial banks' soundness, and commercial banks' risky asset ratio.

4.4.1. FinTech mechanism

Fintech development allows commercial banks to collect basic customer information data through big data to better identify and manage credit risk, and commercial banks' adverse selection risk is reduced. Therefore, we test the relationship between digital financial inclusion and fintech, and the explanatory variable is fintech, measured by the fintech level (ln(fintech)), which is a logarithmic post-index. The core explanatory variables and control variables indicators are the same as in Table 2.

Table 6 shows the regression results of the mechanism analysis of the impact of digital inclusive finance on the adverse selection of commercial banks, both with the inclusion of province fixed effects and annual fixed effects. Column (1) explains the regression coefficient of the core explanatory variable Digital Inclusive Finance Index is significantly positive, indicating that when the Digital Inclusive Finance Index increases by 1%, the level of fintech development increases by 0.339%. This coefficient is 34.97% (0.399/1.141) of the mean value of fintech level, which is

economically significant. Column (2) explains the regression coefficient of the core explanatory variable digital financial coverage breadth is significantly positive, indicating that when indicating a 1% increase in digital financial coverage breadth, the level of fintech increases by 0.159%. This coefficient is 13.94% (0.159/1.141) of the mean of fintech level. The above fully proves that digital financial inclusion development will promote the improvement of the FinTech level, thus reducing the risk of adverse selection of commercial banks.

4.4.2. Commercial banks' risky asset ratio mechanism

The lower the risky asset ratio, the more commercial banks pay attention to risk control, the lower the non-performing loan rate, and the less risk of adverse selection by commercial banks. Therefore, we test the relationship between digital inclusive finance and the risky asset ratio of commercial banks. The explanatory variable is weighted risky asset ratio the risky asset ratio of commercial banks, which is measured by the weighted risky asset ratio (Risk). The core explanatory variables and control variables indicators are the same as in Table 2.

As shown in Table 6, column (3) The regression coefficient of the core explanatory variable Digital Inclusion Index is significantly negative, indicating that when the Digital Inclusion Index increases by 1%, the weighted risky asset ratio decreases by 60.527%. This regression coefficient accounts for 575% of the mean value of the weighted risky asset ratio (60.527/10.530) and is economically significant. Column (4) The regression coefficients of the breadth of digital financial coverage are all significantly negative, indicating that when the breadth of digital financial coverage increases by 1%, the weighted risky asset ratio decreases by 49.767%. The coefficient is 473% (49.767/10.530) of the mean value of the weighted risky asset ratio, which is economically significant. The above is sufficient evidence that digital financial inclusion reduces the risky asset ratio of commercial banks, thus reducing the risk of adverse selection of commercial banks.

4.4.3. Commercial bank soundness mechanism

The reduction in commercial bank insolvency risk leads to a reduction in the NPL rate, which in turn reduces adverse selection risk. Therefore, we test the relationship between digital financial inclusion and the robustness of commercial banks, and the explanatory variable is the robustness of commercial banks, which is measured by the z-value (Z). The core explanatory variables and control variables indicators are the same as in Table 2.

As shown in Table 6, the regression coefficients of the core explanatory variable Digital Inclusion Index in column (5) are not significant and the regression coefficient of the breadth of digital financial coverage in column (6) is not significant and there is no evidence to support the negative impact of digital inclusion on commercial banks' adverse selection through commercial banks' soundness.

Table 6 Impact of digital inclusive finance on adverse selection of commercial banks:An analysis of three mechanisms

	(1) ln(fintech)	(2) ln(fintech)	(3) Risk	(4) Risk	(5) Z	(6) Z
ln(index_aggregate)	0.399*** (0.120)		-60.527** (23.229)		-3.065 (22.864)	
ln(coverage_breadth)		0.159*** (0.039)		-49.767** (17.609)		1.547 (6.470)
Constant	-0.913 (0.653)	0.404 (0.235)	343.462** (128.470)	296.164** (103.123)	25.989 (133.473)	-1.478 (43.402)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	19525	19525	5920	5920	7614	7614
Adjusted R ²	0.945	0.945	0.004	0.007	0.008	0.008

5. Conclusion

From the above regression results, we see that the development of digital inclusive finance significantly reduces the risk of adverse selection of commercial banks and this inhibitory effect is robust. Meanwhile, the negative effect of digital inclusive finance on the adverse selection of commercial banks is more effective in the eastern region, rural commercial banks, and not in the central and western regions and non-rural commercial banks. The available evidence supports both mechanisms of fintech and commercial banks' risky asset ratios and does not support the mechanism of commercial banks' robustness.

Based on this, we need to vigorously develop digital inclusive finance so that it can better play its role in inhibiting the risk of adverse selection of commercial banks. At the same time, we need to pay attention to the construction of rural commercial banks and the construction of central and western regions to better realize the combination of digital technology and inclusive finance, so that it can play its role in inhibiting the adverse selection of commercial banks. In addition, the government can increase the development of financial technology and encourage financial technology innovation to increase the influence of digital inclusive finance on commercial banks' adverse selection; commercial banks can dissolve their risk assets so that digital inclusive finance can have a better effect on its negative influence on adverse selection risk. Therefore, for digital inclusive finance, we should further implement relevant policies, increase the breadth of influence and improve the transparency of information, so that it can better solve the problem of adverse selection of commercial banks. For commercial banks, they should seize the opportunity of the development of digital inclusive finance and make full use of digital technology. Moreover, they should improve risk management, to reduce the risk of adverse selection to a greater extent.

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