Fintech and Liquidity Creation: The Mediating Effect based on Bank Risk-Taking

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Abstract

Based on panel data of 49 commercial banks in China from 2013 to 2020, this paper empirically examines the impact of fintech on liquidity creation and the mediating role played by bank risk-taking in the relationship between fintech and liquidity creation. The findings suggest that the development of fintech helps to drive up the level of liquidity creation. The analysis of the intermediation mechanism finds that fintech can indirectly increase liquidity creation through bank risk-taking. Third, the heterogeneity analysis further shows that the contribution of fintech to liquidity creation is more significant among banks with higher regional financial development.

Keywords

Fintech; Bank Risk-Taking; Liquidity Creation; Two-way Fixed E Ng.Ffects Model.

1. Introduction

As the most important financial institutions in the financial market, commercial banks have two main functions: liquidity creation and risk transfer. As the central institution that regulates liquidity in the financial system, commercial banks must absorb liquid liabilities and convert them into illiquid assets to achieve effective liquidity allocation and provide power support for themselves to resist systemic financial risks and improve operational efficiency. In addition, the function of liquidity creation is also an important factor affecting the development of China's real economy, which plays a major role in promoting the output of the real economy and promoting the efficiency of investment and financing in the real economy. However, the development of financial technology has changed the traditional business model of commercial banks, which will also have an impact on the liquidity creation function. From the perspective of reality, the global digital transformation trend is increasing, and high-quality services involving fintech technology such as digital banking and contactless payment will become a major demand direction in the future. The rapid development of financial technology has brought vitality and crisis to the banking industry. Fintech is forcing commercial banks to transform and upgrade, improving the efficiency of bank resource allocation and lending quality through emerging technologies, bringing new profit growth space for banks, but also under huge pressure on their business activities, resulting in the creation of liquidity.

For commercial banks, the execution of their liquidity creation function is inseparable from the bank's risk-taking. The capital liquidity of commercial banks is different due to the two different directions of income and lending. In the process of creating liquidity through liquidity mismatch, banks will lead to the accumulation of risks. When credit resources are misallocated to high-risk resources in the case of low-quality enterprises, the non-performing loan ratio of banks will increase, and at the same time, banks will face many risks such as customer runs under excessive maturity mismatch. Therefore, if commercial banks want to operate stably in the market, they must adjust their own risk-absorbing capacity, optimize allocation of credit resources to create liquidity. Therefore, based on this background, this paper studies the possible changes in liquidity creation under the development of financial technology, and

discusses the role of bank risk-taking in the mechanism of financial technology on liquidity creation, as well as the relevant heterogeneity characteristics, so as to improve the theoretical mechanism of the impact of financial technology on liquidity creation.

The rest sections of this paper are organized as follows: In Section 2, we review the existing literature. Section 3 is the theory and hypotheses. In Section 4, we construct the model and introduce data sources. The empirical content is reported in Section 5. And the Section 6 is the conclusions and policy implications.

2. Literature Review

The literature on the influencing factors of liquidity creation is studied from two aspects: the external operating environment and the individual characteristics of banks. From the perspective of the external business environment, it mainly studies the impact of monetary policy and capital regulation on liquidity creation. Dang and Dang (2021) [1]found that there is an interaction between monetary policy and bank size, and under loose monetary policy, smaller banks can create more liquidity. De Bandt et al. (2021)[2] argue that when regulatory constraints increase, banks will accumulate additional liquidity, thereby increasing bank liquidity. From the perspective of individual bank characteristics, this paper mainly studies the impact of capital adequacy ratio and bank competition on liquidity creation. Casu et al. (2019)[3] confirmed a dual causal-negative relationship between bank capital and liquidity creation. Horvath et al. (2016)[4] concluded that intense banking competition can lead to a decline in liquidity creation and thus have adverse economic effects. However, insufficient attention has been paid to how fintech affects liquidity creation in existing research.

From the perspective of the specific relationship between fintech and liquidity creation, the current literature views are not unified. On the one hand, some literatures believe that Internet finance competes with commercial banks in business, resulting in the diversion of funds and customers, and the crowding out effect of the fintech market appears, thereby inhibiting the creation of liquidity. Gu (2021)[5] believes that internet finance can promote liquidity creation by increasing the mismatch between bank deposit and loan terms. Research by Li (2021)[6] and Sheng (2022)[7] shows that the development of financial technology can significantly improve the liquidity creation of banks. On the other hand, some studies have found that with the development of fintech, the enabling effect has emerged. Commercial banks optimize business processes by further learning new technologies of fintech or cooperating with fintech companies, and the technological spillover effect of fintech will become more and more It is more and more prominent, which is conducive to promoting liquidity creation. Yu and Zheng (2021)[8] found that Internet finance will weaken the creation of liquidity by squeezing the scale of deposits and raising the cost of interest payment.

In addition, some scholars also found that the application of financial technology will have a significant impact on the risk-taking of banks, and risk-taking ability is one of the important factors affecting the liquidity creation of commercial banks. Rui (2020)[9] found that the development of fintech has generally intensified the risk-taking of banks. In addition, the research of Deng and Zhang (2018)[10] shows that monetary policy will affect both on- and off-balance sheet liquidity creation of banks by affecting the risk-taking of commercial banks. Liu et al. (2020)[11] also show that the deposit insurance system will weaken the risk-taking ability of commercial banks, which will lead to the reduction of liquidity creation.

Although existing studies have considered the importance of bank risk-taking, they have not included bank risk-taking in the research on the relationship between fintech and liquidity creation. They only examine the role of bank risk-taking on fintech and liquidity creation. Involving the intermediary effect of bank risk-taking. Therefore, this paper combines the contents of the above literature and makes innovations from the following three aspects: First,

this paper subdivides liquidity creation into asset-side, liability-side and off-balance sheet liquidity creation, and specifically analyzes the impact of fintech bank and risk-taking on overall liquidity creation and liquidity creation. Second, the intermediary effect test is conducted to further examine whether t bank risk taking paly an intermediary role in the relationship between fintech and liquidity creation. Thirdly, from the perspective of heterogeneity, we further analyze the differences in the mechanism of fintech's effect on liquidity creation in different regions of financial development.

3. Theory and Hypotheses

From the perspective of bank assets, the scale of credit supply is an important factor affecting the level of liquidity creation. Under the background of financial technology, the form of bank competition is more severe, the interest margin of deposit and loan business has narrowed, and the marginal profit has decreased. Credit expansion and liquidity creation. Therefore, the impact of fintech on liquidity creation may intensify bank competition and banks' profit-seeking behavior, thereby increasing liquidity creation.

From the perspective of bank liabilities, the most direct factor affecting the level of liquidity creation is the change in bank deposit business. When financial disintermediation in the market intensifies, financial technology will compete with commercial banks. At the same time, with the addition of its information advantages and channel advantages, commercial banks are forced to narrow their market share, divert their debt business, and reduce the proportion of retail deposits. , the capital cost increases, resulting in insufficient liquidity of commercial banks, thereby increasing the risk-taking preference of commercial banks, improving the competitiveness of interest levels to make up for the increase in liability-side costs, and exacerbating maturity mismatches to create more liquidity.

From the perspective of off-balance sheet business, the development of financial technology has promoted the innovation of financial products in the financial market, intensified the "monetary nature" of off-balance sheet businesses such as asset securitization of commercial banks, and showed more capital to enhance the commercial bank's Risk appetite, enhance credit lending capacity, and increase the level of liquidity creation.

Based on the review of the literature and the study of the transmission mechanism, this paper proposes the following hypothesis 1:

Hypothesis 1: The development of fintech helps to facilitate the liquidity creation of commercial banks.

Fintech can change the liquidity creation level of commercial banks by affecting the assets and liabilities of commercial banks, and the adjustment of bank assets and liabilities is closely related to its risk-taking level. Therefore, this paper argues that the impact of fintech on liquidity creation will be mediated by banks' risk-taking levels. When fintech acts on commercial banks, the risk estimation level of commercial banks will change. Commercial banks will adjust their own risk-taking level out of profit maximization and prudent operation principles, and then change the credit issuance decision, affecting the Liquidity creation. That is, financial technology will intensify the competition and profit-seeking of commercial banks, and commercial banks will therefore tend to adopt active credit policies and increase risk appetite to expand their profit margins.

Based on this, this paper proposes the following hypothesis 2:

Hypothesis 2: Bank risk-taking plays a intermediary role in the mechanism of fintech's effect on the level of liquidity creation.

4. Data, Variables and Model

4.1. Variables

4.1.1. Explained Variable: Liquidity Creation

Table 1. Balance sheet and off-balance sheet liquidity segmentation

Balance sheet liquidity segmentation and weights			
Assets			
Iliquid assets (0.5)		Semi-liquid assets (0)	Liquid assets (-0.5)
Residential mortgages	Insurance assets	Other consumer/retail loans	Interbank deposits and cash
Other mortgages	Foreclosed properties	Loans and loans to banks	Securities held at fair value
Corporate loans	Fixed assets	repurchase agreements and cash collateral	Derivatives
Other loans	Goodwill	Available-for-sale securities	
Equity investments	Other assets	Held-to-maturity securities	
Real estate investments	Other securities		
Liabilities and equity			
Iliquid liabilities and equity (-0.5)		Semi-liquid liabilities (0)	liquid liabilities (0.5)
Senior debt	Insurance liabilities	Time deposits	Demand deposits
Subordinated borrowings	Other liabilities	Savings deposits	Derivatives
Other funds	Total equity	Interbanking	Trading liabilities
Provision for credit impairment	Deferred tax liabilities	Reverse repurchase agreements and cash collateral	
Pension and other reserves	Discontinued operations	Other deposits and short-term borrowings	
Current tax liabilities	Other deferred liabilities	Fair value portion of liabilities	
Off-balance sheet liquidity segmentation and weighting			
Illiquid operations (0.5)		Semi-liquid operations (0)	Liquid operations (-0.5)
Off-balance sheet published promissory notes and letters of credit		Off-balance sheet published escrow securitised assets	
Committed lines of credit		Other off-balance sheet lending of securities	
Other contingent		liabilities Collateral	

This paper mainly builds on the cat-fat indicator constructed by Berger and Bouwman (2009)[12], and then constructs liquidity creation indicators based on the asset-liability profile of domestic commercial banks. The specific steps are as follows:

Step 1: Classify liquidity. The first step is to classify the bank's assets, liabilities, equity and off-balance sheet activities using three liquidity classifications: liquid, semi-liquid and illiquid, based on the ease of accessing funds from the bank, the associated costs and the time to maturity.

Step 2: Assigning weights. Here, weights are assigned mainly to the operations classified as liquid in step one, as can be seen in Table 1.

Step 3: Weighting and Summing. Here the liquidity creation indicator is constructed based on the activities classified and weighted in step 1 and step 2.

Specific formula: Liquidity creation = 0.5*(illiquid assets + liquid liabilities + illiquid off-balance sheet business) + 0*(semi-liquid assets + semi-liquid liabilities + semi-liquid off-balance sheet business) - 0.5x(liquid assets + liquid liabilities + liquid off-balance sheet business)

At the same time, taking into account the size of the bank, this paper provides some treatment to the liquidity creation indicator by using unit liquidity creation, i.e. the ratio of liquidity creation to total assets of commercial banks, as a relative indicator. The specific formula is: unit liquidity creation = liquidity creation / total assets.

4.1.2. Explanatory Variable: Fintech

This paper uses the Peking University Digital Financial Inclusion Index compiled by the Digital Finance Research Centre of Peking University as a proxy indicator for the extent of Fintech development. Among them, the main Fintech indicators used include two variables, the total fintech index (Fintech) and the digital degree sub-index (Digital), and the digital degree sub-index is mainly used for robustness testing.

4.1.3. Intermediate Variable: Bank Risk-Taking

With regard to the measurement of commercial banks' risk-taking, the main risk-taking indicators used in the existing literature include non-performing loan ratio, Z-value, expected default rate and loan loss provisioning ratio. In this paper, we refer to Houston et al. (2010) [13] to construct the Z-value as a bank risk indicator, which is often used to measure the level of bankruptcy risk of commercial banks, and the higher the value of this indicator, the higher the level of bankruptcy risk.

4.1.4. Control Variables

Referring to Berger and Bouwman (2009) [12]and Zheng et al. (2019)[14], this paper introduces the following variables as the main control variables. Among them, the bank-level control variables include return on average assets, bank size, income cost ratio, and asset liquidity, and the macro-level control variables are the growth rate of money supply. (i)Return on average assets (roaa): The return on average assets is mainly used to measure the profitability of commercial banks. A higher value of the indicator represents a better use of the bank's assets per unit, while the risk of maturity mismatch is also higher and the bank will create more liquidity. Bank size(size): This paper takes logarithms for bank size to improve the accuracy of the empirical results. There are different findings on the mechanism of bank size on commercial bank risk. Some scholars point out that when the asset size of a bank increases, the risk of commercial banks will increase, while on the contrary, some scholars point out that the larger the size of a commercial bank, the greater the corresponding risk diversification ability. (iii)Revenue-to-cost ratio (mc): The revenue-to-cost ratio refers to the proportion of a bank's operating expenses to its operating income. When the ratio is higher, the greater the cost paid per unit of income earned by a commercial bank, and is usually used to measure the bank's profitability. (iv)Liquidity of assets (liqa): Asset liquidity is mainly measured using the ratio of liquid assets to total assets. The development of financial technology can have an impact on commercial banks in making asset allocations of different maturities, which in turn affects the overall liquidity creation process. (v)Money supply growth (m2): This paper mainly uses the

money supply growth rate to measure China's monetary policy. The effect of monetary policy on commercial bank liquidity is usually different for different types of banks and for on- and off-balance sheet business liquidity creation.

4.2. Data Sources

To examine the impact of fintech on liquidity creation, this paper selects balanced panel data of 49 commercial banks in China from 2013 to 2020, where bank-level data are mainly sourced from Bankscope database, macroeconomic data from WI Harper's statistical database, and fintech data from Peking University's Digital Finance Research Centre.

4.3. Model

In order to examine the relationship between fintech and liquidity creation, this paper first constructs a two-way fixed effects model for individual years, and the benchmark regression model is set as follows:

$$lc_{it} = \alpha_0 + \alpha_1 fintech_{it-1} + \alpha_2 control_{it} + \omega_i + \psi_t + \varepsilon_{it} \tag{1}$$

Among the explanatory variables, the proxy variable for FinTech is BYU's Digital Financial Inclusion Index ($fintech$), which is taken as a lagged period for FinTech in this paper in order to avoid potential endogeneity issues such as reverse causality. The explanatory variables, the level of liquidity creation, include total liquidity creation (lc), asset-side liquidity creation (alc), liability-side liquidity creation (dlc) and off-balance-side liquidity creation ($offlc$). Controls are a set of current period control variables, including bank characteristic variables and macroeconomic variables. Bank level controls include return on average assets ($roaa$), bank size ($size$), income to cost ratio (mc), asset liquidity ($liqa$); macro level controls are money supply growth rate ($m2$).

In order to further examine the role of bank risk-taking in the relationship between fintech and liquidity creation, this paper conducts a mediating effects test on the impact of bank risk-taking between fintech and liquidity creation to effectively analyse the extent to which fintech affects banks' level of liquidity creation through commercial banks' risk-taking, with the main model shown below.

$$risk_{it} = \alpha_0 + \alpha_1 fintech_{it-1} + \alpha_2 control_{it} + \omega_i + \psi_t + \varepsilon_{it} \tag{2}$$

$$lc_{it} = \alpha_0 + \alpha_1 fintech_{it-1} + \alpha_2 risk_{it} + \alpha_3 control_{it} + \omega_i + \psi_t + \varepsilon_{it} \tag{3}$$

Where model (2) is used to measure the impact of fintech on commercial banks' risk-taking; and model (3) is used to measure the impact of fintech on banks' liquidity creation when bank risk-taking is considered.

5. Empirical Results

5.1. Descriptive Statistics

The descriptive statistics analysis related to each variable can be seen in Table 2. Firstly, for the explanatory variable liquidity creation, the mean value of total bank liquidity creation (lc) is 45.35, with a maximum value of 52.03 and a minimum value of -4.41. The minimum value of asset-side liquidity creation (alc) is close to total liquidity creation, with a maximum value of 2.92, indicating that there are some commercial banks that are not fulfilling the basic function

of liquidity creation and are absorbing and hoarding liquidity rather than performing Liquidity creation. The mean value of off-balance sheet liquidity creation ($offlc$) is 46.43. The gap between on-balance sheet and off-balance sheet liquidity creation is large. For the explanatory variable fintech, the paper is standardised. Bank risk-taking is measured using a z-score with a minimum value of 4.41 and a maximum value of 9.31, with some variability.

Table 2. Descriptive statistics of main variables

variable	N	mean	sd	min	max
lc	392	45.35	10.28	-4.41	52.03
alc	392	0.18	1.070	-3.10	2.92
dlc	392	-1.27	10.09	-46.22	3.27
lc_off	392	46.43	1.95	25.52	49.06
fintech	392	5.47	0.40	4.33	6.18
digital	392	5.72	0.46	4.67	7.26
zscore	392	6.81	0.96	4.41	9.31
roaa	392	0.92	0.36	0.01	2.70
size	392	27.28	1.68	24.31	31.14
liqa	392	24.99	8.43	6.36	52.93
mc	392	35.91	8.03	19.91	70.43
m2	392	10.68	2.11	8.10	13.59

5.2. Impact of Fintech on Liquidity Creation

This paper empirically analyses the impact of fintech development on commercial banks' liquidity creation based on model (1), and the regression results are shown in Table 3 in detail. Column (1) shows the regression results of fintech on overall liquidity creation of banks, the coefficient of fintech is significantly positive at 1% level, which indicates that the development of fintech helps to increase the level of liquidity creation of commercial banks. Column (2) shows that the coefficient of fintech is still significantly positive after adding bank characteristics and macro control variables, thus it can be found that with the development of fintech, the liquidity creation ability of commercial banks in China will be significantly enhanced, this finding is consistent with hypothesis 1 of this paper. Columns (3)-(5) show the impact of fintech on liquidity creation on the asset side, liability side and off-balance sheet side respectively. The coefficients of fintech are all significantly positive, indicating that with the improvement of fintech, liquidity creation on the asset side, liability side and off-balance sheet side of commercial banks will increase.

The specific reasons for this are: from the asset side, with the development of fintech commercial banks have an increased incentive to engage in speculative transactions. In order to chase high returns, commercial banks tend to relax their credit standards, leading to an expansion of credit scale, thus promoting liquidity creation. From the liability side, fintech is a product of the intertwining and integration of finance and technology. Its development is forcing traditional financial institutions such as commercial banks to continuously upgrade and reform, and with the new technology of fintech, commercial banks are able to secure more depositors with good credit standing, thus promoting liquidity creation. From the off-balance sheet side, fintech helps innovation in off-balance sheet business, which can, to a certain extent, circumvent regulation and thus release more liquidity externally.

Table 3. The effect of FinTech on bank Liquidity creation

	(1)	(2)	(3)	(4)	(5)
	lc	lc	alc	dlc	lc_off
fintech	0.8319***	1.4803***	1.7226***	1.2640**	1.0513***
	(3.69)	(2.76)	(3.53)	(2.39)	(5.93)
roaa		0.3599*	0.2933	0.1573	0.9703***
		(1.84)	(1.65)	(0.81)	(5.50)
size		-0.4151*	-1.1596***	-0.1450*	-0.7884***
		(-1.77)	(-5.43)	(-1.63)	(-3.78)
mc		0.0050***	-0.0081	-0.0006	0.0337***
		(3.61)	(-1.08)	(-0.07)	(4.35)
liqa		-0.0138***	-0.0116**	-0.0124**	-0.0030
		(-2.65)	(-2.46)	(-2.41)	(-0.61)
m2		0.4436**	0.4203**	0.4589**	0.5055
		(2.35)	(2.44)	(2.46)	(2.31)
_cons	-3.8639	-2.0835	18.0184***	-8.1535	13.7860***
	(-1.65)	(-0.28)	(2.67)	(-1.12)	(2.60)
Bank fixed effects	Yes	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes	Yes
Nobs	392	392	392	392	392

5.3. Testing the Intermediation Effect

Table 4. Test of intermediation effect: fintech, bank risk-taking and liquidity creation

	(1)	(2)	(3)
	lc	zscore	lc
fintech	1.4803***	1.9647**	1.4016**
	(2.76)	(2.52)	(2.59)
zscore			0.2495***
			(2.97)
_cons	-2.0835	-28.8553***	-1.0785
	(-0.28)	(-2.68)	(-0.14)
Control Variables	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes
Time effects	Yes	Yes	Yes
Nobs	392	392	392

Based on models (2) and (3), we empirically tested whether bank risk-taking has a mediating effect in fintech on liquidity creation, and the regression results are shown in Table 6. Column (2) shows the regression results of fintech on bank risk-taking. The coefficient of fintech is significantly positive, indicating that fintech has a significant positive effect on bank risk-taking. Column (3) tests whether bank risk-taking has a partially mediating role in the process of fintech and liquidity creation. The regression results show that both the bank risk-taking coefficient and the fintech coefficient are significantly positive, indicating that bank risk-taking has a partially mediating role. Columns (1)-(3) further demonstrate that bank risk-taking plays a partially mediating role in the impact of fintech on bank liquidity creation, validating

hypothesis 2. The reason may be that the development of fintech intensifies the competition for deposits in the banking industry and commercial banks tend to adjust their own risk-taking levels for profit-seeking purposes, promoting increased liquidity creation.

5.4. Robustness Tests

In order to verify the reliability of the model estimation results, this paper conducts robustness tests from the following two main points. Firstly, the digitalisation degree indicator in the digital financial inclusion index system is chosen as a replacement variable for the explanatory variables. Second, commercial banks are classified according to the degree of regional financial development, and the role of fintech on liquidity creation of commercial banks in regions with different degrees of financial development is studied.

5.4.1. Substitution of Explanatory Variables

In this paper, we use the digitisation degree indicator, a sub-index of the Digital Financial Inclusion Index system, as a proxy variable to measure the level of development of fintech, and the regression results are shown in Table 5. The regression results obtained based on the degree of digitisation indicator are generally consistent with the regression results of the benchmark model. These circumstances suggest that the fintech indicators in this paper do not affect the robustness of the empirical results.

5.4.2. Grouping by the Degree of Financial Development of Regions

Table 5. Robustness test

	Replace core explanatory variables		Level of regional financial development			
			High financial development areas		Low financial development areas	
	(1)	(2)	(3)	(4)	(5)	(6)
	lc	lc	lc	lc	lc	lc
digital	0.1513**	0.2583**				
	(2.10)	(2.33)				
fintech			0.0629**	0.6704***	4.6320	0.4380
			(-2.09)	(3.95)	(0.80)	(-0.14)
_cons	0.3560*	8.6990***	0.4737	5.9751***	-20.868*	37.6795
	(1.91)	(2.26)	(0.14)	(2.68)	(-1.83)	(0.98)
Control Variables	No	Yes	No	Yes	No	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes	Yes	Yes
N	392	392	336	336	56	56

In this paper, the regions are divided according to the degree of financial development, and 49 banks are matched according to the province where they are registered. As seen in Table 5, there are 42 banks in developed regions and 7 banks in backward regions. As can be seen from the results, in regions with a higher degree of financial technology development, the conclusions drawn are largely consistent with the results of the regression model above. This is mainly because the economic development of a region is usually positively correlated with commercial credit. The higher the level of economic development of a region, the more perfect the credit collection system is accordingly, and the information asymmetry problem of commercial banks can be effectively solved, and the pre-lending and post-lending management

is also more convenient. Therefore, under the development of financial technology, in the face of the impact of Internet finance and third-party payment platforms, commercial banks' credit activities are instead more active, and banks will increase external lending, prompting an intensified transformation of long-term assets into short-term liabilities, thus increasing commercial banks' liquidity.

6. Conclusion

This paper uses panel data of 49 commercial banks in China from 2013 to 2020 to empirically investigate the relationship between fintech and liquidity creation using a two-way fixed effects regression model, while verifying the existence of a risk-taking channel for banks through a mediation effects test. Three main conclusions are drawn: firstly, for the banking sector, the development of fintech helps to promote the overall liquidity creation level of banks, while fintech also has a facilitating effect on the asset-side, liability-side and off-balance-side liquidity creation levels. Secondly, bank risk-taking plays a part in mediating the relationship between the two, meaning that fintechs can adjust the level of risk-taking and hence liquidity creation. Thirdly, the impact of fintech on commercial banks' liquidity creation is characterized by regional heterogeneity in the degree of financial development. Based on the above findings, this paper makes the following policy recommendations.

First, commercial banks should increase their enthusiasm for the use of fintech to empower their traditional businesses. First, they should use fintech to continuously innovate their own financial business, while continuously promoting the optimisation and upgrading of their business structure. Second, use fintech to improve their own management mechanisms, both in terms of bank profitability and cost savings, to accurately capture customers' consumption habits and personalised needs, while strengthening cost management and internal controls, using more technology to reduce information collection costs and improve the science of credit decision-making.

Second, risk awareness must be raised. Risk management cannot rely solely on commercial banks themselves. Financial regulators must strengthen supervision of commercial banks' businesses, especially those closely related to liquidity management, such as interbank business, and pay more attention to commercial banks' funding maturity mismatches to prevent liquidity risks arising from commercial banks' arbitrage.

Thirdly, in the face of heterogeneous characteristics, banks in regions with a lower degree of financial development can integrate resources with local characteristics, bring into play the role of financial technology, continuously improve their business models and make use of local regional characteristics to achieve deeper integration between banks and enterprises, thereby innovating the original business development model and improving the competitiveness of their products, with a view to aligning with the banking industry in developed regions at an early date.

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