



# FinTech Development and the Risk-Taking Levels of Listed Commercial Banks

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**Abstract.** This paper investigates the impact of FinTech development on the risk-taking behavior of Chinese commercial banks using panel data from 42 listed banks from 2011 to 2024. A city-level FinTech index is constructed based on search-engine data and entropy weighting. The empirical results show that higher FinTech development significantly reduces bank risk-taking, and the findings remain robust when replacing FinTech and risk-taking measures or using lagged variables. Heterogeneity analysis reveals that the effect is stronger for banks in eastern regions and for national banks, reflecting differences in digital infrastructure and technological capabilities. Overall, the study highlights that FinTech plays an important stabilizing role in the banking sector and provides policy implications for promoting balanced digital development and enhancing bank–FinTech collaboration.

**Keywords:** FinTech Development; Bank Risk-Taking; Chinese Commercial Banks

## 1 Introduction

The rapid evolution of financial technology (FinTech) has revolutionized the banking sector, introducing both significant opportunities and new challenges. Innovations such as digital payments, blockchain, artificial intelligence, and robo-advisors have enabled banks to improve operational efficiency, enhance service offerings, and expand customer reach. However, with these advancements come potential risks, including increased exposure to cybersecurity threats, regulatory uncertainties, and market volatility. This study aims to explore how the development of FinTech influences the risk-taking behavior of listed commercial banks.

As commercial banks increasingly adopt FinTech solutions, their risk management practices and decision-making frameworks are evolving. While previous studies have focused on the broader implications of FinTech on the financial industry, few have specifically examined how FinTech adoption affects the level of risk assumed by banks. This research seeks to fill that gap by investigating the relationship between the development of FinTech and the risk-taking behavior of listed commercial banks. Understanding this relationship is critical for regulators, investors, and policymakers, as it can

provide valuable insights into how the integration of FinTech impacts the financial stability and risk profiles of banks in an increasingly digital world.

## 2 Literature Review

Recent studies have explored the relationship between FinTech adoption and the risk-taking behavior of commercial banks. Li, Elahi, and Zhao (2022) [1] examine how FinTech can improve risk-warning systems, allowing banks to manage risks more effectively, but also introduce new risks due to technological complexity. Similarly, Sajid et al. (2023) [2] find that while FinTech enhances operational efficiency, it can also encourage higher risk-taking, as banks become more confident in their ability to mitigate potential downsides through technology.

Hu, Zhao, and Yang (2024) [3] focus on Chinese banks, finding that FinTech adoption is positively correlated with increased risk-taking. They argue that the competitive and dynamic market environment in China encourages banks to take on riskier projects. He, Song, and Chen (2023) [4] highlight that while FinTech adoption improves internal control quality, it can also introduce vulnerabilities if not managed properly, suggesting that risk management frameworks need to adapt to new technological realities.

Wu et al. (2023) [5] emphasize that FinTech increases banks' operational efficiency but also encourages risk-taking behavior. They stress the importance of regulatory oversight in mitigating excessive risk. Li et al. (2025) [6] further explore how FinTech alters risk profiles, particularly in terms of credit and market risk, and argue that banks need to adapt their risk management strategies to address challenges like cybersecurity and data privacy.

The literature suggests that FinTech adoption can both enhance risk management and lead to increased risk-taking, depending on the context. While some studies highlight the efficiency and control improvements brought by FinTech, others caution that it can also expose banks to new risks. Therefore, balancing the benefits of FinTech with its risks is crucial for maintaining financial stability.

## 3 Methodology

### 3.1 Research Design

We specify the following regression model to examine the impact of the FinTech development index on the level of risk-taking of commercial banks:

$$Z_{it} = \beta_0 + \beta_1 \text{FinTech}_{it} + \text{Controls}_{it} + \Sigma \text{year}_t + \Sigma \text{firm}_t + \varepsilon \quad (1)$$

Where  $Z_{it}$  is the risk-taking level of bank  $i$  in year  $t$ ;  $i$  indexes banks, and  $t$  indexes years;  $\text{Controls}_{it}$  denotes the set of control variables included in the model;  $\beta_0$  is the constant (intercept) term, and  $\beta_1$  is the coefficient on the main explanatory variable (the FinTech development index);  $\Sigma \text{year}_t$  denotes year fixed effects, and  $\Sigma \text{firm}_t$  denotes firm (individual) fixed effects;  $\varepsilon$  is the random error term.

### 3.2 Sampling and Data Sources

In this study, 42 listed commercial banks from 2011 through 2024 were selected as the research sample, including 17 city commercial banks, 10 rural commercial banks, 9 joint-stock commercial banks, and 6 large state-owned commercial banks. During the sample selection process, observations with missing data were excluded, and all continuous variables were winsorized at the 1% level. The final sample consisted of 371 observations.

### 3.3 Variable Definitions

#### Risk-Taking Level of Commercial Banks (Z).

The dependent variable of this study is the risk-taking level of commercial banks. We adopt the ROA-based Z-score as a proxy to indirectly reflect banks' risk-taking behavior. Generally, a higher Z-score indicates lower risk-taking, whereas a lower Z-score reflects higher risk-taking. Given the Z-score's characteristics of high kurtosis and fat tails, its logarithmic form is used in the regression. The specific calculation is as follows:

$$Z_{it} = \frac{ROA_{it} + CAR_{it}}{SDROA_{it}}$$

where ROA denotes return on total assets, CAR represents the capital-to-asset ratio, and SDROA is the standard deviation of return on total assets.

In the robustness test, this paper also replaces the dependent variable with Z-ROE, which is based on ROE.

#### Explanatory Variable.

FinTech Development Index (FinTech): The core explanatory variable is the level of regional FinTech development. To measure this variable accurately, this study constructs a city-level FinTech development index. Specifically, we identify a keyword system associated with FinTech across four dimensions:

- Basic Technologies: “big data, cloud computing, artificial intelligence, blockchain, biometrics”;
- Payment Technologies: “online payment, mobile payment, third-party payment”;
- FinTech Intermediary Service Models: “online lending, online financing, internet financing, online micro-lending, online loans, online banking, internet banking, electronic banking, digital banking, open banking, direct banking”;
- General FinTech Terms: “Internet finance, financial technology.”

Next, we collect the Baidu “PC + mobile” search index of these keywords for all prefecture-level cities. Within each dimension, keyword indices are aggregated to obtain four sub-indices. The entropy method is then applied to assign weights to these sub-indices and to construct a comprehensive FinTech development index. To eliminate scale differences, the index is divided by 100.

A higher value indicates a stronger FinTech environment related to micro- and small-enterprise credit services and a higher overall level of FinTech development.

### Control Variables.

**Bank Size (SIZE):** This variable measures the scale and market position of commercial banks and is represented by the natural logarithm of total assets. Larger banks enjoy broader business scopes, stronger risk-diversification capabilities, and higher reputational capital, all of which may influence their risk preferences and operational stability. Economies of scale may also allow large banks to gain advantages in technological investment and digital transformation.

**Return on Assets (ROA):** This indicator reflects a bank's efficiency and performance in generating profits from its assets. Banks with higher profitability typically possess thicker capital buffers to absorb potential losses, which may either encourage greater risk-taking to pursue higher returns or make them more conservative due to healthy operations. ROA is a core performance indicator and has complex endogenous links to risk-taking; thus, controlling for it is essential.

**Leverage Ratio (LEV):** This variable captures the bank's capital structure and financial leverage. A high leverage ratio indicates greater reliance on debt financing, which amplifies shareholder returns but also increases financial fragility and bankruptcy risk. Since capital adequacy is strictly regulated, a bank's leverage position directly affects its ability to withstand risks and its degree of prudence.

**Cost-to-Income Ratio (CTI):** Measured as operating expenses divided by operating income, CTI reflects managerial efficiency. A lower CTI indicates higher operational efficiency. Efficient banks may possess more financial resources to compete and innovate, and superior management capabilities may enhance their ability to identify and control risks.

**Loan-to-Deposit Ratio (LDR):** This ratio measures the relationship between deposits and loans. A high LDR means that a large share of deposits is deployed for lending activities, which may increase profitability but reduce liquidity reserves and raise exposure to sudden withdrawal risks.

**Provincial GDP Growth Rate (GDP):** This macroeconomic indicator captures the overall economic environment and business cycle conditions of the bank's region. During economic expansions, improvements in corporate profits and household income enhance asset quality and may increase banks' willingness to take risks. Conversely, economic downturns may prompt banks to tighten credit and avoid risky activities.

**Table 1.** Definition of Variables and Descriptions

| Variable Type        | Variable Name | Variable Description              |
|----------------------|---------------|-----------------------------------|
| Dependent Variable   | Z             | Bank Z-score based on ROA         |
| Independent Variable | FinTech       | FinTech Development Index         |
| Control Variables    | SIZE          | Natural logarithm of total assets |
|                      | ROA           | Return on assets                  |

|      |                                      |
|------|--------------------------------------|
| LEV  | Leverage ratio                       |
| CTI  | Cost-to-income ratio                 |
| LDR  | Loan-to-deposit ratio                |
| GDP  | Provincial GDP growth rate           |
| Year | Year fixed effects (dummy variables) |
| Firm | Firm fixed effects (dummy variables) |

To make a clearer presentation, all the variables are summarized in Table 1.

### 3.4 Descriptive Statistics

**Table 2.** Descriptive Statistics of Main Variables

| Variable | N   | Mean   | SD     | Min    | Max    |
|----------|-----|--------|--------|--------|--------|
| Z        | 371 | 9.370  | 0.740  | 7.994  | 12.507 |
| FinTech  | 371 | 5.582  | 4.514  | 0.682  | 18.035 |
| SIZE     | 371 | 28.490 | 1.556  | 25.368 | 31.334 |
| ROA      | 371 | 0.009  | 0.002  | 0.004  | 0.015  |
| LEV      | 371 | 0.926  | 0.0110 | 0.902  | 0.949  |
| CTI      | 371 | 0.301  | 0.234  | 0.003  | 0.715  |
| LDR      | 371 | 1.290  | 0.216  | 0.909  | 2.007  |
| GDP      | 371 | 8.326  | 3.857  | 1.207  | 15.790 |

Table 2 presents the descriptive statistics for the variables used in this study, based on 371 bank-year observations. The mean Z-score is 9.370, with values ranging from 7.994 to 12.507, indicating substantial variation in commercial banks’ risk-taking levels. The FinTech variable shows a mean of 5.582 and a wide dispersion (SD = 4.514), suggesting notable differences in regional FinTech development across cities.

Regarding bank characteristics, the average SIZE (log of total assets) is 28.490, while ROA remains relatively stable with a low standard deviation, reflecting consistent profitability among listed banks. The leverage ratio (LEV) averages 0.926, and the cost-to-income ratio (CTI) exhibits considerable variation. The loan-to-deposit ratio (LDR) ranges from 0.909 to 2.007, indicating heterogeneous liquidity management strategies across banks. The macroeconomic variable GDP, representing provincial GDP growth rate, also displays meaningful variability.

Overall, the descriptive statistics demonstrate adequate dispersion across the main variables, providing a solid basis for subsequent regression analysis.

### 3.5 Correlation Analysis

**Table 3.** Pearson Correlation Matrix of Key Variables

|         | Z         | FinTech   | SIZE      | ROA      | LEV      | CTI      | LDR      | GDP |
|---------|-----------|-----------|-----------|----------|----------|----------|----------|-----|
| Z       | 1         |           |           |          |          |          |          |     |
| FinTech | -0.398*** | 1         |           |          |          |          |          |     |
| SIZE    | -0.487*** | 0.586***  | 1         |          |          |          |          |     |
| ROA     | -0.273*** | 0.0110    | 0.205***  | 1        |          |          |          |     |
| LEV     | -0.104**  | -0.111**  | -0.0190   | 0.220*** | 1        |          |          |     |
| CTI     | -0.278*** | 0.262***  | 0.0850    | 0.364*** | 0.488*** | 1        |          |     |
| LDR     | 0.153***  | -0.228*** | -0.231*** | 0.345*** | 0.478*** | 0.383*** | 1        |     |
| GDP     | -0.148*** | 0.0350    | 0.0430    | 0.244*** | 0.264*** | 0.380*** | 0.189*** | 1   |

The symbols denoted by asterisks \*\*\*, \*\*, and \* are indicative of the statistical significance levels of 1%, 5%, and 10%.

Table 3 reports the Pearson correlation coefficients among the main variables used in the empirical analysis. The results indicate that FinTech is significantly negatively correlated with the Z-score, suggesting that higher levels of FinTech development are associated with greater risk-taking by commercial banks. Bank characteristics such as SIZE, ROA, LEV, CTI, and LDR also show significant correlations with Z, consistent with theoretical expectations regarding profitability, leverage, and operational efficiency.

FinTech is positively correlated with bank SIZE and ROA, implying that larger and more profitable banks tend to operate in regions with stronger FinTech development. Moderate correlations among the control variables—such as between CTI, LDR, and GDP—suggest that multicollinearity is not a major concern. Overall, the correlation matrix provides initial evidence supporting the potential influence of FinTech development and bank fundamentals on risk-taking behavior.

## 4 Empirical Results

### 4.1 Baseline Regression

**Table 4.** Baseline Regression Results

|         | (1)                   | (2)                   | (3)                   |
|---------|-----------------------|-----------------------|-----------------------|
|         | Z                     | Z                     | Z                     |
| FinTech | -0.0088***<br>(-3.45) | -0.0068**<br>(-2.40)  | -0.0069**<br>(-2.39)  |
| SIZE    | -0.1322***<br>(-3.55) | -0.1258***<br>(-3.40) | -0.1264***<br>(-3.39) |
| ROA     | -0.3869<br>(-0.09)    | -0.7951<br>(-0.20)    | -0.7975<br>(-0.20)    |
| LEV     | -4.9426***<br>(-5.97) | -5.4096***<br>(-5.94) | -5.3874***<br>(-5.81) |
| CTI     |                       | 0.1253*               | 0.1251*               |

|                    |            |            |            |
|--------------------|------------|------------|------------|
|                    |            | (1.86)     | (1.86)     |
| LDR                |            | 0.0823**   | 0.0828**   |
|                    |            | (2.09)     | (2.10)     |
| GDP                |            |            | -0.0004    |
|                    |            |            | (-0.20)    |
| _cons              | 17.7667*** | 17.8631*** | 17.8634*** |
|                    | (17.75)    | (18.14)    | (18.08)    |
| N                  | 371        | 371        | 371        |
| Year               | YES        | YES        | YES        |
| Year               | YES        | YES        | YES        |
| Adj.R <sup>2</sup> | 0.9910     | 0.9912     | 0.9911     |

The symbols denoted by asterisks \*\*\*, \*\*, and \* are indicative of the statistical significance levels of 1%, 5%, and 10%.

Table 4 presents the regression estimates examining how FinTech development influences the risk-taking level of listed commercial banks, measured by the Z-score. Columns (1)–(3) incrementally include additional control variables and fixed effects to ensure robustness. Across all specifications, the coefficient of FinTech remains significantly negative, indicating that higher levels of FinTech development are associated with lower Z-scores, meaning higher bank risk-taking.

Among control variables, SIZE and LEV consistently show significant negative effects on Z-scores, suggesting that larger banks and those with higher leverage tend to take more risks. CTI and LDR exhibit positive and significant coefficients, implying that banks with higher cost efficiency and stronger loan expansion maintain lower levels of risk-taking. The macroeconomic variable GDP growth is insignificant in all models.

All regressions include year and firm fixed effects, and the adjusted R<sup>2</sup> values exceed 0.99, indicating strong explanatory power of the model.

### 4.2 Robustness Test

To verify that the results are not driven by specific variable choices, two alternative measures are used. First, the original fintech indicator is replaced with the Peking University Digital Financial Inclusion Index (FinTech\_P), which offers an authoritative measure of regional digital finance development. Second, the dependent variable is replaced with Z\_ROE, which substitutes ROE for ROA in the Z-score formula to capture bank stability from an equity-return perspective. These substitutions allow us to assess the robustness of the main findings under different variable definitions.

Table 5 presents the results of the robustness tests based on variable substitution. Column (1) replaces the original fintech indicator with the Peking University Digital Financial Inclusion Index (FinTech\_P). The coefficient of FinTech\_P is negative and statistically significant at the 10% level, indicating that higher levels of digital financial inclusion continue to be associated with lower bank risk-taking. This result is consistent with the baseline findings and confirms that the conclusion does not depend on the specific fintech indicator used.

**Table 5.** Robustness Test with the Substitution Variables

|                    | (1)                   | (2)                   |
|--------------------|-----------------------|-----------------------|
|                    | Z                     | Z ROE                 |
| FinTech_P          | -0.0012*<br>(-1.74)   |                       |
| FinTech            |                       | -0.0053**<br>(-2.26)  |
| SIZE               | -0.0939**<br>(-2.41)  | -0.1196***<br>(-3.44) |
| ROA                | -2.5059<br>(-0.55)    | -0.2687<br>(-0.07)    |
| LEV                | -5.9660***<br>(-5.68) | -5.6246***<br>(-7.58) |
| CTI                | 0.0672<br>(0.93)      | 0.1247*<br>(1.91)     |
| LDR                | 0.1339***<br>(3.58)   | 0.1009***<br>(2.89)   |
| GDP                | -0.0018<br>(-0.66)    | -0.0005<br>(-0.21)    |
| _cons              | 17.7238***<br>(17.40) | 14.9562***<br>(17.73) |
| N                  | 344                   | 371                   |
| Year               | YES                   | YES                   |
| Year               | YES                   | YES                   |
| Adj.R <sup>2</sup> | 0.9915                | 0.9954                |

The symbols denoted by asterisks \*\*\*, \*\*, and \* are indicative of the statistical significance levels of 1%, 5%, and 10%

Column (2) replaces the dependent variable with Z\_ROE. The coefficient on FinTech remains negative and statistically significant at the 5% level, demonstrating that the impact of fintech development on bank stability remains robust when risk-taking is measured using ROE-based volatility instead of ROA-based volatility.

Overall, both robustness checks confirm that the core conclusion—that fintech development reduces the risk-taking behavior of listed commercial banks—remains stable under alternative variable definitions.

Table 6 re-estimates the baseline model using one-period-lagged explanatory variables to mitigate potential endogeneity concerns. The results show that lagged FinTech development (L.FinTech) remains significantly negative at the 1% level, indicating that increases in FinTech activity continue to reduce bank stability even after accounting for delayed effects. The coefficients on control variables generally retain their expected signs: lagged SIZE and lagged LEV both negatively affect stability, while lagged CTI shows a positive and significant association. Lagged ROA is positive and marginally significant, suggesting profitability contributes to higher stability. The model maintains

a high explanatory power (Adj.  $R^2 = 0.9888$ ), confirming that the main findings are robust to the use of lagged variables.

**Table 6.** Robustness Test with Lagged Independent Variables

|                    | (1)<br>Z              |
|--------------------|-----------------------|
| L.FinTech          | -0.0099***<br>(-2.98) |
| L.SIZE             | -0.1753***<br>(-3.81) |
| L.ROA              | 9.2738*<br>(1.96)     |
| L.LEV              | -1.7521*<br>(-1.93)   |
| L.CTI              | 0.2305**<br>(2.37)    |
| L.LDR              | 0.0343<br>(0.76)      |
| L.GDP              | -0.0072*<br>(-1.97)   |
| _cons              | 15.8558***<br>(13.10) |
| N                  | 327                   |
| Year               | YES                   |
| Year               | YES                   |
| Adj.R <sup>2</sup> | 0.9888                |

The symbols denoted by asterisks \*\*\*, \*\*, and \* are indicative of the statistical significance levels of 1%, 5%, and 10%

### 4.3 Heterogeneity Test

Table 7 reveals substantial regional differences in the impact of FinTech on bank stability. In the eastern region, the coefficient of FinTech is significantly negative at the 5% level, indicating that FinTech development increases competitive pressure and is associated with higher risk-taking among eastern banks. This effect becomes much stronger in the central–western region, where the coefficient is larger in magnitude and significant at the 1% level, suggesting that underdeveloped financial markets and slower technological adoption may exacerbate the destabilizing effect of FinTech.

Control variables also show regional divergence: SIZE is significantly negative only in the eastern region, implying that larger banks there may face more intense FinTech-driven competition, while its effect is insignificant in the central–western sample. LEV retains a significantly negative impact in both regions, though the effect is more pronounced in central–western banks. Overall, the results demonstrate clear regional heterogeneity and highlight that FinTech poses differentiated stability challenges depending on the maturity and competitive structure of the local financial environment.

**Table 7.** Regional Heterogeneity Analysis—Eastern vs. Central–Western Regions

|                    | Eastern Region        | Central–Western Region |
|--------------------|-----------------------|------------------------|
|                    | (1)                   | (2)                    |
|                    | Z                     | Z                      |
| FinTech            | -0.0069**<br>(-2.36)  | -0.1238***<br>(-3.21)  |
| SIZE               | -0.1242***<br>(-3.22) | 0.1439<br>(0.80)       |
| ROA                | -1.0411<br>(-0.23)    | -18.9759<br>(-1.35)    |
| LEV                | -5.2330***<br>(-5.23) | -11.2125***<br>(-4.63) |
| CTI                | 0.1336*<br>(1.86)     | -0.0581<br>(-0.25)     |
| LDR                | 0.0843<br>(1.62)      | 0.1230<br>(1.41)       |
| GDP                | 0.0002<br>(0.06)      | -0.0029<br>(-0.62)     |
| _cons              | 17.6343***<br>(16.63) | 16.4110***<br>(3.93)   |
| N                  | 327                   | 42                     |
| Year               | YES                   | YES                    |
| Year               | YES                   | YES                    |
| Adj.R <sup>2</sup> | 0.9902                | 0.9971                 |

The symbols denoted by asterisks \*\*\*, \*\*, and \* are indicative of the statistical significance levels of 1%, 5%, and 10%

Table 8 reveals distinct differences between regional and national banks in how FinTech affects their stability. For national banks, the FinTech coefficient is significantly negative at the 10% level, indicating that FinTech development may increase their risk-taking—likely due to intensified competition and the pressure to adopt advanced technologies across a broad market. For regional banks, however, the FinTech coefficient is negative but insignificant, suggesting a more muted effect, possibly because these banks operate in localized markets with slower FinTech diffusion.

Control variables further highlight structural differences. SIZE positively affects stability in regional banks but is insignificant for national banks, reflecting the advantage of local scale economies. ROA exhibits opposite effects: negative for regional banks but positive and significant for national banks, implying that profitability enhances stability primarily in larger nationwide institutions. LEV strongly reduces stability for regional banks, while its effect is insignificant for national banks, consistent with differences in capital structure resilience. Additionally, CTI significantly raises risk for national banks but weakly lowers it for regional banks, reflecting divergent cost management pressures.

Overall, the results confirm substantial heterogeneity across bank types, demonstrating that FinTech poses different competitive and operational challenges for regional versus national banks.

**Table 8.** Heterogeneity Analysis — Regional Banks vs. National Banks

|                    | Regional Banks        | National Banks       |
|--------------------|-----------------------|----------------------|
|                    | (1)                   | (2)                  |
|                    | Z                     | Z                    |
| FinTech            | -0.0033<br>(-0.92)    | -0.0073*<br>(-1.73)  |
| SIZE               | 0.0931*<br>(1.72)     | -0.0276<br>(-0.24)   |
| ROA                | -10.5513*<br>(-1.86)  | 13.7923**<br>(2.43)  |
| LEV                | -7.3450***<br>(-8.86) | -3.0641<br>(-1.59)   |
| CTI                | -0.1508*<br>(-1.73)   | 0.4308***<br>(4.23)  |
| LDR                | 0.0727*<br>(1.73)     | -0.0307<br>(-0.38)   |
| GDP                | -0.0012<br>(-0.43)    | -0.0059*<br>(-1.69)  |
| _cons              | 14.0597***<br>(12.04) | 12.4877***<br>(2.79) |
| N                  | 190                   | 180                  |
| Year               | YES                   | YES                  |
| Year               | YES                   | YES                  |
| Adj.R <sup>2</sup> | 0.9953                | 0.9710               |

The symbols denoted by asterisks \*\*\*, \*\*, and \* are indicative of the statistical significance levels of 1%, 5%, and 10%

## 5 Discussion

The empirical results consistently show that FinTech development significantly reduces the risk-taking levels of Chinese commercial banks. This suggests that digital technologies enhance risk identification, strengthen credit screening, and improve operational efficiency, thereby promoting more prudent banking behavior. The robustness checks—using alternative FinTech indicators, replacing the dependent variable with Z-ROE, and introducing lagged variables—further confirm the stability of these findings.

The heterogeneity analysis reveals that the effect of FinTech is not uniform across all banks. The risk-reducing impact is stronger among banks in the eastern region, where FinTech infrastructure, market competition, and technological adoption are more advanced. In contrast, banks in the central and western regions benefit less due to slower FinTech penetration. Similarly, national banks experience a more pronounced stabilizing effect than regional banks, reflecting differences in scale, technological capability, and strategic positioning.

Overall, the evidence indicates that while FinTech development generally contributes to greater financial stability, its effectiveness depends on regional economic conditions and bank characteristics. These differences call for differentiated FinTech development strategies and greater support for smaller and regional banks to enhance their technological capacity.

## 6 Conclusion and Policy

This study shows that FinTech development significantly reduces the risk-taking of Chinese commercial banks by improving information processing, credit screening, and risk management efficiency. The findings remain robust under multiple alternative measures and lag specifications. The stabilizing effect is stronger for banks in the eastern region and for national banks, reflecting their superior digital infrastructure and greater technological capability. These results suggest that policymakers should promote more balanced regional FinTech development, support digital upgrading for regional banks, and strengthen regulatory guidance on the safe and effective use of digital technologies. Enhancing collaboration between traditional banks and FinTech firms can further reduce information asymmetry and improve credit allocation, contributing to a more stable and inclusive financial system.

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