Research on the impact of financial inclusion on the profitability of commercial banks in China

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Abstract

As an important financial tool for promoting economic growth and social equity, inclusive finance has a profound impact on the profitability of commercial banks. Taking Chinese commercial banks as the research object, this paper empirically analyses the mechanism underlying the impact of the proportion of inclusive financial loans on bank profitability, and its dynamic change characteristics, based on relevant data from 2018 to 2023. It is found that the increase in the proportion of inclusive financial loans has a significant negative effect on the return on equity. This finding suggests that inclusive finance remains at a stage characterised by "high input, low return." In addition, the study reveals the moderating roles of variables such as Loan-to-Deposit Ratio, Provision Coverage Ratio, and Asset-Liability Ratio in the relationship between financial inclusion and profitability, further enriching the theoretical connotations and practical significance of financial inclusion. The paper concludes that commercial banks should optimise their credit structure, enhance their risk management capability, improve financial inclusion product innovation, and balance the relationship between financial inclusion and profitability objectives to ensure the sustainable improvement of profitability while practising social responsibility.

Keywords: Inclusive Finance; Inclusive Loan; Profitability; Commercial Banks; Sustainable Development

JEL Classification: G21, O16, E44

Introduction

Against the backdrop of the "International Year of Microcredit" in 2005, the United Nations systematically incorporated the concept of "financial inclusion" into the global development agenda for the first time, emphasising that building an inclusive financial system is crucial for eradicating extreme poverty and hunger and promoting sustainable economic growth. This concept quickly gained widespread attention and recognition from the international community (UNESCAP, 2006). Building on this foundation, international organisations began to further promote the development of related theories and policy practices. In 2006, the World Bank refined the concept of financial inclusion by proposing the provision of diversified, differentiated financial services through various channels to low-income groups traditionally excluded from the formal financial system, thereby enabling them to enjoy equal access to financial services and products (World Bank, 2008). The outbreak of the global financial crisis in 2008 triggered deep reflections in many countries on the inclusiveness of their financial systems, elevating financial inclusion to a higher policy priority. Consequently, many developing countries established alliances to promote financial inclusion and relevant institutional frameworks. In 2011, the Global Partnership for Financial Inclusion (GPFI, 2011) further deepened the concept by explicitly defining "effective access" to financial services for the first time, namely, enabling people with low income to obtain financial products and services that match their needs in a convenient, compliant, and affordable manner. As the

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concept of financial inclusion continued to spread, the World Bank led multi-level global discussions to promote the construction of inclusive financial systems and the exchange of international best practices.

In recent years, financial inclusion has gradually become a key priority in China's financial policy agenda and is regarded as an essential tool for addressing social inequalities and promoting equitable development. Against this backdrop, the Chinese government has continuously strengthened policy support and actively promoted the development of inclusive finance across institutions, resource allocation, and technology, accelerating its implementation nationwide. Notably, the accessibility and coverage of financial services for micro and small enterprises (MSEs), the agricultural sector, and low-income groups have been steadily improving. Regulatory authorities such as the People's Bank of China (PBoC) have introduced a series of policies to guide commercial banks in expanding credit support for inclusive finance, resulting in sustained growth in inclusive loan portfolios. By the end of the fourth quarter of 2024, the outstanding balance of inclusive loans to MSEs issued by Chinese commercial banks had increased by more than 20% year-on-year (NFRA, 2025). Meanwhile, the rapid development of financial technology (FinTech) and digital financial inclusion has enabled commercial banks to adopt more efficient service channels and risk-control tools, significantly enhancing the reach and operational efficiency of inclusive finance services (Liu et al., 2024).

Although the continued advancement of financial inclusion has improved financial service coverage, its impact on commercial banks' profitability remains a subject of academic debate. On one hand, some studies suggest that inclusive finance can expand the customer base and enhance bank revenues, particularly by leveraging digital technologies to reduce service costs and mitigate risk exposure (Zhu & Guo, 2024). On the other hand, other literature points out that inclusive finance faces challenges in its early stages, such as incomplete credit information of clients, small loan sizes, and high administrative costs, which may compress profit margins—an effect that is especially pronounced among small and medium-sized banks (Morgan & Pontines, 2018). Against the backdrop of a continuously narrowing net interest margin and deepening interest rate liberalisation, how banks can maintain profitability while fulfilling their social responsibilities has become a pressing and practical issue.

In light of the aforementioned context, this study adopts a micro-level analytical framework, taking Chinese commercial banks as the research sample. By employing the proportion of inclusive loans as the core explanatory variable, the paper investigates the mechanism through which financial inclusion influences the profitability of commercial banks.

Literature review

Inclusive finance, as a model aimed at providing equitable and accessible financial services to low-income groups, MSEs, and other segments traditionally underserved by the formal financial system, holds significant implications not only for socioeconomic development but also for the profitability patterns and long-term sustainability of commercial banks. A substantial body of theoretical and empirical literature has been developed by international scholars in this field. Beck et al. (2007) suggest that the expansion of inclusive financial services can generate new sources of deposits for banks, reduce funding costs, and enhance long-term profitability. Similarly, Cull et al. (2014) find that microcredit services demonstrate considerable market potential in developing countries and can effectively fill the gap left by traditional large-scale lending. However, Morduch (1999) argues that, despite the large client base associated with microcredit, the small loan sizes and additional costs related to client education and risk management result in relatively high operating expenses, which may adversely affect banks' short-term profitability. In a related view, Ledgerwood (2013) contends that although inclusive finance may not yield high returns in the short term, with initial

investments often leading to low input-output ratios, its profitability tends to improve over time as customer bases expand and operational familiarity increases.

With the deepening of research on financial inclusion in China, particularly regarding its impact on the profitability of commercial banks, the topic has attracted increasing academic attention. However, scholarly opinions remain divided, and a clear consensus has yet to emerge. Tang (2021) finds a positive relationship between financial inclusion development and bank profitability by incorporating a digital financial inclusion index and conducting a basic regression analysis. Guo et al. (2022) argue that financial inclusion contributes to the stable operation of commercial banks and can be enhanced through digitalisation and intelligent technologies, thereby improving operational efficiency, reducing risk exposure, and enhancing profitability. Zhu et al. (2023) review the progress of inclusive finance in China and examine its innovative practices, concluding that inclusive finance helps expand the service scope of commercial banks and positively impacts their profitability. In contrast, Hui Zhongjie (2017), using grey relational analysis to assess the development of financial inclusion in China's five major state-owned banks between 2011 and 2015, finds that although inclusive finance developed rapidly in the sampled regions, it did not contribute to bank profitability. Similarly, Sun Yuxin (2020), using data from 2014 to 2018, empirically demonstrates a significant negative correlation between lending to MSEs and the agricultural sector, and the profit levels of major state-owned banks. Dong Xiaolin et al. (2021) further suggest that financial inclusion may conflict with the profit-maximising objectives of rural commercial banks, as its development increases operating expenses and thereby reduces profitability.

Although existing studies have explored the impact of financial inclusion on banking performance, most have focused on the macroeconomic level or the effects of specific policies, with relatively limited attention paid to the relationship between the share of inclusive finance operations and bank-level profitability. To address this gap, the present study adopts a micro-level approach, using the proportion of inclusive loans in commercial banks as the core explanatory variable and conducting an empirical analysis of how the development of inclusive finance affects bank profitability. This research aims to contribute to the literature by providing a more granular understanding of the profitability implications of inclusive finance at the institutional level.

The current situation of inclusive finance development in China

The development process of inclusive finance in China

The development of financial inclusion in China emerged during a period of rapid economic and social transformation, with the aim of addressing the traditional financial system's inadequate coverage of low-income groups, MSEs, and rural areas. As economic growth continued and urban–rural income disparities widened, the inequality in access to financial services became increasingly pronounced. In this context, the concept of financial inclusion emphasises the universality and accessibility of financial services, enabling all members of society to participate equally in economic activities and supporting their livelihood, employment, and business financing needs. Financial inclusion has thus gradually become a critical instrument for promoting social equity, optimising resource allocation and fostering inclusive economic growth. In particular, under the influence of deepening global discourse on financial inclusion, China’s understanding of the concept has continued to evolve, with its system becoming increasingly comprehensive, its forms more innovative, and the degree of inclusiveness significantly enhanced.

The development of financial inclusion in China has undergone three stages: initial exploration, policy guidance, and deepening implementation. In the initial stage, the scope of

financial services was limited, with basic services primarily provided by policy-based financial institutions and rural credit cooperatives. As economic system reforms advanced, commercial banks gradually became involved, promoting the implementation of micro- and small-enterprise loans and rural household loans through pilot programs. In the policy guidance stage, the Third Plenary Session of the 18th Central Committee of the Communist Party of China in 2013 explicitly proposed developing financial inclusion, thereby marking its incorporation into the national strategic agenda. In 2015, the State Council issued the "Plan for Promoting the Development of Financial Inclusion (2016-2020)," which outlined the development goals, key areas, and implementation pathways for financial inclusion. During this period, various financial institutions explored innovative models, including establishing dedicated financial inclusion agencies and expanding online service channels. Additionally, fiscal and monetary policies were harmonised, with measures such as the establishment of relending and rediscounting tools, tax reductions, and fee cuts to support financial institutions in increasing their allocation of resources to the inclusive finance sector. At the stage of deepening implementation, the widespread adoption of FinTech, including big data, cloud computing, and artificial intelligence, has advanced financial inclusion, enhancing the coverage and efficiency of financial services. Furthermore, local governments, based on regional characteristics, have promoted financial inclusion pilot projects, developing innovative models tailored to local needs and effectively fostering the differentiated development of financial inclusion.

The development of inclusive finance of commercial banks in China

In recent years, financial inclusion has received significant attention at the national level. The State Council's "Government Work Report" has repeatedly issued clear directives and instructions regarding the role of commercial banks in promoting financial inclusion, while regulatory authorities have strengthened their evaluation of commercial banks, effectively guiding them to deepen their outreach and enhance inclusiveness. Since financial inclusion has been elevated to a national policy priority, the share of inclusive micro and small-enterprise loans in China has steadily increased. According to data from the People's Bank of China's "Monetary Policy Implementation Report," the balance of inclusive micro and small enterprise loans for the years 2020–2024 stood at 15.1 trillion yuan, 19.2 trillion yuan, 23.8 trillion yuan, 29.4 trillion yuan, and 32.9 trillion yuan, reflecting year-on-year growth rates of 30.3%, 27.3%, 23.8%, 23.5%, and 14.6%, respectively. In 2024, the growth rate of inclusive micro and small enterprise loans outpaced the overall loan growth rate by 7 percentage points. Furthermore, the number of recipients of inclusive micro and small enterprise loans has also increased annually, rising from 32.28 million households in 2020 to 60.99 million households in 2024.

According to data from the National Financial Regulatory Administration (NFRA), by the end of 2024, the balance of inclusive micro and small enterprise loans in state-owned banks reached 14.26 trillion yuan, marking a year-on-year growth of 18.79%, accounting for 42.77% of the total inclusive MSE loans held by banking financial institutions. National joint-stock commercial banks have increased their credit allocation to the financial inclusion sector, with the balance of their inclusive micro and small enterprise loans reaching 5.01 trillion yuan, reflecting a year-on-year growth of 6.9%, and accounting for 15.03% of the total inclusive micro and small enterprise loans in the banking sector. Due to regional and scale limitations, city commercial banks have smaller loan volumes for micro- and small enterprises compared to large and medium-sized banks, with the balance of their inclusive micro and small enterprise loans standing at 4.37 trillion yuan, representing a year-on-year growth of 9.61%. Rural financial institutions reported a balance of 8.96 trillion yuan in inclusive micro- and small enterprise loans by the end of 2024, reflecting a year-on-year increase of 8.93%.

Table 1: *The situation of inclusive loans to small and medium enterprises (SMEs) by Financial Institutions in 2024 (Quarterly)*
Source: *National Financial Regulatory Administration*

Unit: 100 million RMB

	Q1	Q2	Q3	Q4
Total	313815	320443	325768	334414
State-owned banks	131455	134723	137990	142608
Joint-stock banks	48167	48724	49102	50110
Urban commercial banks	41251	42096	42606	43709
Rural commercial banks	85927	87545	88559	89597

Commercial banks innovate inclusive financial credit products

Chinese commercial banks have actively promoted the innovation of inclusive financial credit products, continually expanding the depth and breadth of their services. By leveraging advanced technologies such as big data, artificial intelligence, and blockchain, they have launched a variety of credit products designed to serve key inclusive finance groups, including micro and small enterprises, farmers, and individual businesses. Among these innovations, the "Cloud Tax Loan" introduced by China Construction Bank and the "Quick Loan Access" launched by Bank of Communications have become exemplary models. These products, by integrating tax data, provide unsecured credit loans to well-performing businesses. This not only enhances loan approval efficiency but also reduces financing thresholds and costs, garnering widespread popularity.

Commercial banks, such as the Agricultural Bank of China, have introduced products like the "Agri-benefit e-Loan" in the agricultural sector that address farmers' seasonal funding needs and offer flexible repayment schedules and limits. These products provide strong financial support for agricultural production, agricultural product processing, and rural infrastructure development, contributing to the implementation of the rural revitalisation strategy. In addition, supply chain finance products have rapidly developed, integrating the credit resources of core enterprises within the supply chain to offer financing services to micro and small enterprises in both upstream and downstream sectors. These products alleviate the financial pressures caused by extended payment terms and ensure the stable operation of the industrial chain.

In addition, to further enhance the convenience and accessibility of financial inclusion, commercial banks have strengthened collaboration with local governments and technology enterprises. By leveraging online service platforms, they have enabled a "one-stop application and one-click approval" process for credit products, significantly reducing the time to finance. Through these innovative measures, commercial banks have played a crucial role in supporting the development of the real economy and advancing the goals of financial inclusion. These efforts have not only improved the availability and efficiency of capital but also promoted the equitable allocation of financial resources and inclusive economic growth. A detailed list of inclusive financial credit products offered by certain commercial banks is provided in Table 2.

Table 2: *Inclusive financial credit products of commercial banks*
Source: *Compiled based on information disclosed on the official website of the Bank of China*

Bank Name	**Inclusive Finance Featured Loan Products**
Industrial and Commercial Bank of China (ICBC)	ICBC “e-Mortgage Quick Loan”, ICBC “Tax Loan”

Agricultural Bank of China (ABC)	ABC “Agri-benefit e-Loan”, ABC “Data-based Online Loan”
Bank of China (BOC)	BOC “SME e-Loan”, BOC “Tech Innovation Loan”
China Construction Bank (CCB)	CCB “Cloud Tax Loan”, CCB “Government Procurement Loan”
Bank of Communications (BoCom)	BoCom “Quick Loan Access”, BoCom “Tax-Financing Loan”
China Merchants Bank (CMB)	CMB “Small Business e-Home”, CMB “Chain Link Loan”
Industrial Bank	Industrial “SME Quick Loan”, Industrial “Green Finance Loan”
China CITIC Bank	CITIC “Commercial Draft e-Loan”, CITIC “SME Tax Loan”
Bank of Shanghai	Shanghai “SME Growth Loan”, Shanghai “Cross-border Easy Loan”

An empirical analysis of the impact of inclusive finance on the profitability of commercial banks in China

Source of sample data

Based on data availability and accessibility, this study selects relevant data from 20 A-share listed commercial banks for the period 2018-2023, including five large state-owned banks: Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, China Construction Bank, and Bank of Communications; four joint-stock commercial banks: Huaxia Bank, China Minsheng Bank, Zhejiang Commercial Bank, and CITIC Bank; and eleven city commercial banks: Bank of Beijing, Bank of Shanghai, Bank of Jiangsu, Bank of Nanjing, Bank of Hangzhou, Bank of Changsha, Bank of Xi'an, Bank of Zhengzhou, Bank of Guiyang, Xiamen Bank, and Qingdao Bank. The data for these banks primarily comes from the Wind database, and missing values are supplemented using annual reports. Finally, panel data is constructed and processed using RStudio software.

Variable selection

This study uses Return on Equity (ROE) as the dependent variable to measure the profitability of commercial banks. ROE not only reflects the bank's profitability but also indicates the effectiveness of its capital structure and leverage. For Chinese commercial banks, which rely on leverage to expand asset size under capital constraints, ROE offers greater representativeness and explanatory power. The core independent variable is the proportion of inclusive finance loans with a lag of one period (lagAIF), which is the ratio of inclusive finance loan balances to total bank loan balances. This variable reflects the degree to which a bank allocates resources to the inclusive finance sector, demonstrating its actual effectiveness in fulfilling social responsibilities and serving vulnerable groups such as micro and small enterprises and farmers. To control for other factors that may influence ROE, this study incorporates four dimensions of control variables: profitability indicators, capital adequacy ratio indicators, asset quality indicators, and operational efficiency indicators (see Table 3).

Table 3: *Interpretation of relevant variables*
Source: *Compiled based on information disclosed on the official website of the Bank of China*

Variate	Name	Symbol

Explained variable		Return on equity	ROE
Explanatory variable		The proportion of inclusive finance loans (lag)	lagAIF
Control variable	Profitability indicators	Net interest margin (lag)	lagNIM
		Net Interest Spread (lag)	lagNIS
	Capital adequacy ratio indicators	Capital adequacy ratio (lag)	lagCAR
	Asset quality indicators	Non-performing loan ratio (lag)	lagNPL
		Provision coverage ratio (lag)	lagPCR
	Operational efficiency indicators	Cost-income ratio (lag)	lagCIR
		Loan-to-deposit ratio (lag)	lagLTD
	Other indicators	Asset-liability ratio (lag)	lagTDR
		Non-interest income ratio (lag)	lagNIIR

Empirical analysis

Descriptive statistics of variables

Descriptive statistics were conducted on the balance panel data for 20 listed commercial banks in China over the six-year period from 2018 to 2023, and the results are shown in Table 4.

Table 4: *Result of descriptive statistics*[2]
Source: *Own work, RStudio*

Vars	Obs	Mean	Std. Dev.	Median	Min	Max
ROE	120	11.39	2.51	11.36	3.29	18.88
lagAIF	120	10.90	7.27	8.99	0.18	36.50
lagLTD	120	83.97	12.74	83.25	54.50	116.24
lagNPL	120	1.39	0.30	1.38	0.76	2.47
lagPCR	120	245.58	92.05	216.66	134.05	567.71
lagNIM	120	1.97	0.31	1.96	1.28	2.59
lagNIS	120	1.93	0.34	1.94	1.14	2.69
lagCAR	120	14.24	1.75	13.62	11.49	19.26
lagCIR	120	28.03	3.56	28.05	18.93	39.65
lagTDR	120	92.26	0.90	92.18	89.67	94.00
lagNIIR	120	25.57	8.08	25.47	0.68	51.09

The weighted average ROE is 11.39%, which is slightly higher than the median of 11.36%, indicating that Chinese commercial banks generally exhibit a relatively high level of profitability. The minimum ROE is 3.29%, and the maximum reaches 18.88%, suggesting a certain degree of variation in asset profitability among different banks. The proportion of inclusive finance loans (lagAIF) is 10.90%, with a minimum of 0.18% and a maximum of

[2] Abbreviations: Vars = Variables; Obs = Number of Observations; Std. Dev. = Standard Deviation; Min = Minimum Value; Max = Maximum Value

36.50%, reflecting that although China has been actively promoting inclusive finance, there are considerable differences in resource allocation among banks in this area. The lagLTD is 83.97%, indicating that most banks have a high loan-to-deposit ratio; the minimum and maximum values are 54.5% and 116.24%, respectively, indicating that some banks operate with relatively higher loan utilisation. The lagNPL, as well as its minimum and maximum values, is all below the 5% ceiling set by the "Core Indicators for Commercial Bank Risk Supervision", suggesting that Chinese commercial banks generally maintain good asset quality and operate in a stable manner. The lagPCR is 245.58, ranging from 134.05 to 567.71, indicating significant differences in the degree of conservatism across banks regarding provisions for non-performing loans. The lagNIM is 1.966, with a minimum of 1.28 and a maximum of 2.59, indicating relatively small variations among banks in this regard. The lagNIS is 1.929, with a standard error of 0.3402, suggesting that most banks maintain a relatively balanced interest income and expense structure. The lagCAR is 14.24%, ranging from 11.49% to 19.26%, showing that the sample banks generally maintain a high level of capital adequacy. The lagCIR is 28.03%, with a standard error of 3.5586%, a minimum of 18.93% and a maximum of 39.65%, indicating some differences in operational efficiency across banks. The lagTDR is 92.26%, with a standard error of 0.9033%, showing that most banks maintain stable deposit-absorbing capabilities. The lagNIIR is 25.57%, with a standard error of 8.0846%, ranging from 0.68% to 51.09%, indicating significant variation in the composition of non-interest income among the sample banks.

Correlation analysis

Pearson correlation analysis was conducted on these variables. The results indicated (see Table 5) that the correlation coefficient between the core explanatory variable "Proportion of Inclusive Finance Loans (lagAIF)" and the explained variable "Return on Equity (ROE)" was -0.15, presenting a weak negative correlation. It is initially suggested that the expansion of inclusive finance business may have a certain inhibiting effect on banks' profitability.

Table 5: *Result of correlation analysis*
Source: *Own work, RStudio*

	lagAIF	**ROE**	**lagLTD**	**lagNPL**	**lagPCR**	**lagNIM**	**lagNIS**	**lagCAR**	**lagCIR**	**lagTDR**	**lagIRR**
lagAIF	1										
ROE	-0.15	1									
lagLTD	0.17	-0.55	1								
lagNPL	-0.13	-0.60	0.29	1							
lagPCR	0.11	0.63	-0.44	-0.79	1						
lagNIM	0.02	0.11	-0.08	0.19	-0.10	1					
lagNIS	-0.05	0.11	-0.15	0.14	-0.09	0.76	1				
lagCAR	-0.16	0.02	-0.14	-0.08	-0.05	-0.07	-0.01	1			
lagCIR	0.22	-0.02	0.00	-0.04	-0.04	-0.22	-0.19	0.07	1		
lagTDR	0.32	0.46	-0.37	-0.45	0.48	-0.09	-0.12	-0.45	0.30	1	
lagIRR	-0.44	0.00	0.13	0.09	-0.10	-0.46	-0.37	-0.05	0.03	-0.01	1

Model establishment and selection

This paper constructs a multiple linear regression model with the proportion of inclusive finance loans lagging by one period as the core explanatory variable, as shown below:

$$ROE = \alpha + \beta_1 lagAIF + \beta_2 lagLTD + \beta_3 lagNPL + \beta_4 lagPCR + \beta_5 lagNIM + \beta_6 lagNIS + \beta_7 lagCAR + \beta_8 lagCIR + \beta_9 lagTDR + \beta_{10} lagIRR + \varepsilon \quad (1)$$

Where α represents the intercept term, ε is the error, and β_i is the variable coefficient.

To determine the most appropriate model for the analysis, this study conducts a Hausman test. The hypotheses are set as follows:

H0: Random effects model is appropriate

H1: Fixed effects model is appropriate

If the null hypothesis is not rejected, the random effects model is preferred; otherwise, the fixed effects model should be used.

Table 6: *Hausman test*
Source: *Own work, RStudio*

Test Summary	Chi-Sq. Statistic	Chi-Sg. d. f.	Prob.
Cross-section randoms	2.6598	10	0.9883

The test results show that the Chi-square statistic is 2.6598, the degree of freedom is 10, and the corresponding p-value is 0.9883, which is much higher than the significance level of 0.05. Therefore, the null hypothesis cannot be rejected, indicating that the random effects model is more appropriate.

Empirical results and analysis

The random effects regression model was adopted for analysis, and the conclusions are shown in Table 7.

Table 7: *Results of the random effects regression model*
Source: *Own work, RStudio*

Variables	**ROE**	**ROE**
lagAIF	-0.028 (0.034)	-0.053** (0.027)
lagLTD		-0.058** (0.024)
lagNPL		-1.064 (1.029)
lagPCR		0.009*** (0.003)
lagNIM		1.251 (1.059)
lagNIS		1.135 (0.760)
lagCAR		0.044 (0.162)
lagCIR		0.078 (0.051)
lagTDR		0.817** (0.347)
lagNIIR		0.054* (0.028)
Constant	11.384*** (0.654)	-68.564* (35.990)

*p<0.1; **p<0.05; ***p<0.01

The results indicate a negative relationship between financial inclusion and the profitability of Chinese commercial banks. The coefficient of the inclusive finance loan ratio is -0.053, which is statistically significant at the 5% level. This suggests that a 1% increase in the proportion of inclusive micro and small enterprise loans leads to a 0.053 percentage point decrease in the weighted average ROE. This finding implies that, during the sample period, banks with a higher share of inclusive lending may experience a certain degree of suppression in capital returns. This could be attributed to relatively low yields and higher operational and risk-management costs associated with inclusive loans during their initial development stage, thereby limiting their contribution to overall bank profitability. Particularly under the influence of policy mandates and social responsibility objectives, achieving short-term commercial sustainability remains challenging.

In addition, the lagLTD has a significant negative impact on ROE at the 5% level, indicating that for Chinese commercial banks, excessive loan issuance relative to deposit mobilisation may lead to declining asset quality, rising funding costs, and increased liquidity risk, thereby adversely affecting profitability. Although the coefficient of the lagNPL ratio is negative, it is not statistically significant. In contrast, the lagPCR is positively associated with ROE at the 1% significance level, with a coefficient of 0.009. This suggests that banks with higher levels of loan loss provisions tend to have stronger profitability, possibly due to enhanced risk mitigation capabilities that boost confidence among markets and investors. Moreover, both the lagTDR and the lagNIIR show significant positive relationships with ROE at the 5% and 10% levels, respectively. This implies that a moderate increase in leverage, as well as proactive development of non-interest income businesses, such as agency services, financial consulting, payment settlement, and asset management, can positively contribute to commercial bank profitability.

Although profitability indicators, such as lagNIM and lagNIS, have positive coefficients on ROE, they do not reach statistical significance, indicating that interest margins across banks had limited explanatory power for return on equity during the sample period. Similarly, variables such as the lagCAR and the lagCIR do not exhibit statistically significant effects.

Robustness test

In this paper, the weighted average Return on Total Assets (ROA) is used as the explained variable for the robustness test to ensure the accuracy and reliability of the model. The results are shown in Table 8. From the robustness analysis, it can be found that at the 10% significance level, the proportion of inclusive micro and small loans is negatively correlated with commercial bank profitability, indicating that using ROA as the explained variable does not change the correlation in the original model.

Table 8: *Robustness test*
Source: *Own work, RStudio*

Variables	ROA	ROA
lagAIF	-0.004 (0.002)	-0.004* (0.002)
lagLTD		-0.004** (0.002)
lagNPL		-0.036 (0.085)
lagPCR		0.0004

		(0.0003)
lagNIM		0.108
		(0.100)
lagNIS		0.081
		(0.066)
lagCAR		0.005
		(0.011)
lagCIR		0.004
		(0.004)
lagTDR		-0.003
		(0.021)
lagIRR		0.005**
		(0.002)
Constant	0.0839***	0.657
	(0.043)	(2.186)

*p<0.1; **p<0.05; ***p<0.01

Conclusion and recommendations

Conclusion

As an important instrument for enhancing financial inclusiveness and optimising resource allocation, inclusive finance plays a key role in improving the accessibility and equity of financial services. This paper employs panel data on 20 A-share listed commercial banks in China from 2018–2023 to empirically analyse the impact of the proportion of inclusive finance loans on banks' profitability. The results show a significant negative correlation between the share of inclusive finance loans and banks' ROE. This finding suggests that inclusive finance remains at a stage characterised by "high input, low return." In the process of providing financial services to MSEs, self-employed individuals, and rural economic entities, banks face structural challenges, including difficulties in risk identification, high operating costs, and severe information asymmetries, all of which limit profitability improvements. Nevertheless, the development of inclusive finance holds long-term strategic value for optimising customer structure and fostering inclusive economic growth.

Recommendations

To fully leverage the multifaceted functions of inclusive finance, expand its coverage and service depth, and enable it to better support the real economy and promote social equity, a systematic approach is needed across several dimensions, including policy guidance, institutional capacity, service models, coordination mechanisms, and credit infrastructure. On the one hand, the policy support system should be continuously improved by increasing fiscal support, providing tax incentives, and enhancing risk compensation and credit guarantee mechanisms, thereby effectively reducing the operational costs and risk exposure faced by financial institutions engaged in inclusive finance. Local governments should also be encouraged to formulate targeted, differentiated support policies based on regional development realities to promote balanced growth in inclusive finance across urban and rural areas and regions.

On the other hand, financial institutions must enhance their capacity for product and service innovation. Commercial banks, rural credit cooperatives, and other financial entities should be guided to develop financial tools with strong adaptability, such as unsecured loans, order financing, and supply chain finance, tailored to the diverse needs of micro and small

business owners, self-employed individuals, and farmers. Moreover, inclusive finance service models should be optimised by extending financial infrastructure to rural and remote areas, exploring mobile service platforms and specialised branches to improve service accessibility and convenience, and developing specialised products such as agricultural insurance and green finance aligned with local industrial characteristics.

In addition, it is essential to deepen government–financial institution cooperation by leveraging policy-based funds to attract and mobilise commercial capital, promoting trilateral collaboration among governments, banks, and enterprises. Demonstration models in areas such as industrial chain finance and platform-based cooperation should be developed and scaled up. Finally, strengthening financial education and the credit system is foundational. Greater efforts are needed to promote financial literacy and risk awareness among microentrepreneurs and rural residents. Meanwhile, improving the credit reporting mechanism and establishing a comprehensive, transparent, and widely accessible credit platform can help mitigate long-standing issues of information asymmetry and credit deficiency in inclusive finance, laying a solid foundation for its sustainable development.

Limitation

Although this paper reveals the relationship between financial inclusion and the profitability of Chinese commercial banks through empirical analysis, it still has some limitations. First, due to data availability and accessibility, only 20 A-share listed commercial banks are selected in this paper, which may limit the generalizability of the research findings. Second, the time span selected in this paper is 2018–2023, which includes the special period of the COVID-19 pandemic, during which abnormal fluctuations in bank profitability structure may affect the stability of the research results. The follow-up study can extend the observation period to identify the trend in long-term impact. Third, the core explanatory variable in this paper only uses the inclusive loan ratio, and further research could introduce a more comprehensive evaluation index system. In addition, although lagged variables are used to mitigate the endogeneity problem, the policy orientation (e.g., the central bank's targeted cut in RRR) may affect both the scale of inclusive lending and bank profitability, so subsequent studies will use more rigorous causal inference methods (e.g., double-difference modelling) to verify this. These limitations point to directions for future research that will expand sample coverage, develop a more comprehensive analytical framework, and improve causal identification.

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