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Bank competition, real investment return and corporate financialization

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ABSTRACT

The competition and interaction between the financial and real industry transmitted to the micro level are manifested in the allocation trade-off between financial and non-financial assets of companies. However, little literature has discussed the role of financial intermediaries in corporate financialization. Using samples from China's A-share non-financial and non-real estate listed companies, we distinguish two competing hypotheses, the *Reservoir hypothesis* and the *Profit-seeking hypothesis*. We find that bank competition intensifies corporate financialization driven by *profit-seeking* motivation. This effect is strengthened in firms with a lower return on non-financial investments, greater market arbitrage space, or private ownership. Finally, economic consequences analysis suggests that bank competition enhances the *crowding out* effect of corporate financialization on real investments. This article focuses on the potential costs brought by financial competition and provides empirical evidence for our in-depth understanding of the relationship between the evolution of financial system and the financial asset allocation of micro-enterprises.

KEYWORDS

Bank competition; financialization; reservoir hypothesis; profit-seeking hypothesis

1. Introduction

The trade-off between financial investment and real investment is the miniature of financial system and real economy. The existing literature reveals that the phenomenon of corporate financialization is the natural consequence of the development of financial market, and mainly focuses on the impact of external environment changes such as economic cycles, monetary growth, and financial instrument innovation on corporate financialization (Orhangazi, 2008). Another category of literature examines the internal motivation of corporate financialization, including external profit pressure, financing constraints, risk control, and other governance issues (Almeida et al., 2004; Alvarez, 2015; Demir, 2009).

However, little literature has explored the role of financial intermediaries in corporate financialization. Distinguished from market practices in other economies, China has exhibited unique financialization phenomena during its development (Liu & Luo, 2019), which is closely

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related to financial intermediaries. First, the banking system has undergone a process of development from high monopoly in 1979 to increasingly fierce competition under the gradual market-oriented reforms, while the process of marketising deposit and loan interest rates has shown asynchrony. Second, the real estate sector and the traditional financial sectors interact closely in the Chinese market, making major financial sectors such as banks play an important role in corporate financialization. Relevant studies discuss the real estate sector together with traditional financial sectors (Krippner, 2005). The above background has changed the financing costs and financial investment return rates faced by Chinese firms, gradually highlighting their impact on the trade-off between financial and real investment projects.

The existing research extensively investigates the impact of bank competition on corporate business activities, exploring the promotion of R&D investment and innovation output (Cai & Yan, 2016; Chava et al., 2013; Dai et al., 2020), the growth of corporate income scale (Fang & Cai, 2016) as well as the alleviation of financing constraints (Jiang et al., 2019). However, there is insufficient attention in existing literature on how competition among financial intermediaries affects the investment structure and its economic consequences from the perspective of balance sheet.¹

We focus on the role of intensified bank competition in corporate investment decisions, attempting to answer a basic research question from the perspective of corporate financialization and in combination with the Chinese institutional background: How does bank competition affect the investment preferences of real enterprises towards financial assets (corporate financialization)?

We briefly present the regional distribution characteristics of the changes in bank competition over time. Figure 1 compares the distribution of bank competition in prefecture-level cities in China in 2007 and 2019. Where lighter colours indicate a higher level of bank competition in that area. It can be seen that there are obvious differences in the distribution of bank competition before and after the 12-year period.

We empirically analyse the impact of changes in the banking industry's industrial structure, specifically the level of competition on corporate financialization and its economic consequences, using non-financial and non-real estate listed companies on the A-share market in China from 2007 to 2019 as the research sample. We distinguish two competitive hypotheses, the *reservoir hypothesis* and the *profit-seeking hypothesis*, and find that bank competition intensifies corporate financialization on profit-seeking motivation. And this relationship is more pronounced for firms with lower real investment returns. Furthermore, we examine the impact of differences in credit environments resulting from external investment environments and property rights on the promotion effect of bank competition on corporate financialization and find that firms with greater market arbitrage space and private firms are more sensitive to the intensification of financialization caused by bank competition. Finally, we test the economic consequences and find that bank competition strengthens the 'crowding out' relationship between corporate financialization and real investment, providing evidence on the costs of financial competition. In addition, we conduct robustness tests, including providing alternative measurements of core variables and alleviating endogeneity.

¹Only a few studies, such as Dai et al. (2020) investigate the impact of bank competition on the allocation of financial assets' internal structure (long-term and short-term financial assets).

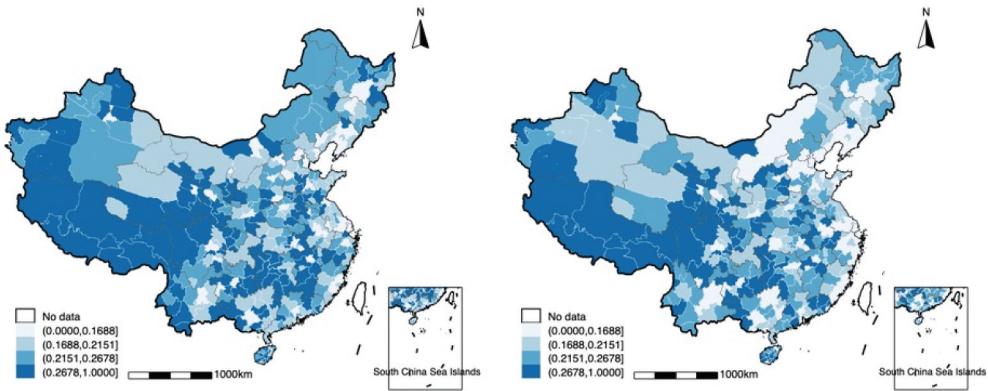


Figure 1. The distribution of bank competition in China in 2007 and 2019.

Note: Based on the standard map service website GS (2020) No. 4619 of the Ministry of Natural Resources.

Our study makes several contributions. First, different from the explanations based on the internal factors and economic environment of financialization (Chen et al., 2015; Du et al., 2019; Liu & Luo, 2019), this paper enriches the research on the driving factors of corporate financialization at the economic structural level, providing empirical evidence for the impact of structural changes in the financial system on corporate financialization. Second, we distinguish the two competitive hypotheses of bank competition on the motivation of corporate financialization and decompose the mechanism by which banking competition affects corporate financialization. Third, through the tests of economic consequences, we demonstrate that bank competition intensifies the crowding out effect of corporate financialization on real investment, which sheds light on the cost brought by financial competition. Fourth, in terms of theoretical exploration, we focus on the relationship between the evolution of financial institutions and the allocation of financial assets of micro-enterprises, providing empirical attempts to incorporate financial institutions as endogenous financial factors into economic analysis framework proposed by Chen (2015).

The rest of the article is structured as follows: [Section 2](#) provides the background on the institutional context. [Section 3](#) presents the theoretical analysis and literature review. [Section 4](#) proposes the hypotheses. [Section 5](#) describes the data source and research design. [Section 6](#) describes empirical results and [section 7](#) suggests further research. [Section 8](#) concludes and provides future prospects.

2. Institutional background

In the process of China's economic development, the reform paradigm of the banking industry has been quite unique, exhibiting significant differences from the financial market reforms of other countries. These differences are gradually highlighted with the marketisation reform process, including (1) the non-synchronous marketisation process of the deposit and loan markets of the banking industry and (2) the close interaction between the real estate sector and the traditional financial sectors. These unique structural changes are highly correlated with the process of market financialization and the characteristics of micro-enterprise financialization (Liu & Luo, 2019).

Firstly, the structural changes in the banking industry and the unsynchronised interest rate liberalisation have profound impacts on firms' resource allocation. Since the establishment of the People's Republic of China, the main body of bank competition has experienced a transition from simplification to diversification and then to marketisation, while the reform process is different between deposit and loan businesses. The People's Bank of China granted banks the right to independently determine the loan interest rate in July 2013 and fully opened up the upper limit of commercial bank deposit rates in 2015. The interest rate liberation improves bank risk-taking (Cubillas & González, 2014) and intensifies the competition in the deposit and loan markets (Zhao & Yao, 2022), thus prompting banks to increase interest rates of deposits and financial products to attract customers. At the same time, the continuous market-oriented reform and the asynchronous nature of the reform process have an important influence on the resource allocation of enterprises, including the reduction of financing costs (Jiang et al., 2019), the alleviation of credit allocation for private enterprises (Bian et al., 2017) and the increasing pursuit of quasi-deposit financial products by enterprises (Guo & Zhao, 2017; Wu, 2013).

Secondly, in the competition process, the close interaction between the real estate sector and the traditional financial sectors has put the development of enterprises under the dual background of the financial system dominated by banking institutions and the rapid growth of real estate investment. In 2017, domestic loans for the real estate industry reached 2.88 trillion *yuan*, while the manufacturing industry, ranked second, was only 1.21 trillion *yuan*. Loans for the real estate industry accounted for 39.93% of all fixed asset investment loans of the whole industry, and this proportion was still as high as 29.95%, the lowest level in the past decade. This phenomenon, the rapid expansion of the real estate sector, actually benefits from the characteristics of the financial system dominated by banking institutions and their preference for loan maturity structure, low-risk and high-yield projects (Zhang et al., 2016). Therefore, the structure of the banking system has also become the key to understanding financial investment in developing countries. The interaction between the banking system and the real estate sector provides us with institutional reference to understand the economic consequences of bank competition, including credit direction for loan business and competition in deposit business.

3. Theoretical analysis and literature review: the incentives of financial asset allocation

'Reservoir' incentive. Financial asset holding is to prevent the adverse effect caused by cash flow shocks on enterprise operations, consistent with the precautionary saving theory proposed by Keynes (1936). Mitigating liquidity risk is one of the important purposes for firms to allocate financial assets (Demir, 2009; Hu et al., 2017). When the external financing environment and internal cash flow are uncertain, firms are more inclined to buy financial assets when cash is abundant to avoid increased external financing pressure and prevent the risk of fund chain rupture and bankruptcy. Conversely, in times of financial strain, enterprises tend to sell financial assets to adjust their funding levels (Almeida et al., 2004; Opler et al., 1999).

'Profit-seeking' incentive. With the rapid development of financial market in recent decades, more and more financial products and derivatives have been created. The incentive of financialization lies in the consideration of profit-seeking and risk

diversification (Alvarez, 2015; Demir, 2009). Financialization is particularly common among large firms (Bodnar et al., 1995, 1998). Some enterprises also use financial derivatives to hedge transactions to achieve tax savings, reduce the costs of financial distress, and mitigate investment shortfalls (Bessembinder, 1991; Smith & Stulz, 1985; Stulz, 1996). Previous studies of profit-seeking motivation point out that firms are more likely to prioritise the resources to financial projects to improve the overall profitability of their assets in the context of slowing economic growth and intensifying competition in the real industry (Alvarez, 2015; Krippner, 2005).

'Agency Costs' incentive. The interaction between shareholder value orientation and managerial power mechanism reflects the impact of corporate governance mechanism on financialization. For the sake of reducing private costs, the management and controlling shareholders are not willing to invest the idle funds of enterprises in high-risk and long-cycle real investment and are more likely to invest in the financial and quasi-financial real estate fields with short-cycle and high-income to obtain the private interests of management and control rights (Du et al., 2019; Wen & Ren, 2015). Therefore, both the first and second agency problems may lead to the short-term investment vision of enterprises and encourage real-sector enterprises to invest in financial assets.

The above three theories explain the firms' motivations to hold financial assets from different perspectives. The 'reservoir' incentive and the 'profit-seeking' incentive emphasise the evaluation of costs and benefits in decision-making, especially the impact of external environment changes on the holding of financial assets, including external financing availability, liquidity risks, and returns on investment in financial assets allocation, while the 'agency' motivation focuses on the impact of internal governance arrangements and shareholder interest game on financial asset holding.

4. Hypotheses development

Bank competition may affect the motivation of financialization by changing the external financing environment and the difference in return rate on alternative projects (internal and external), which is the change of the costs and benefits in decision-making in the business process. Meanwhile, changes in bank competition in the external environment have little influence on the agency costs within enterprises. Therefore, we mainly analyse the impact of bank competition on corporate financialization from the perspective of 'reservoir' motivation and 'profit-seeking' motivation.

4.1. *Diver of external factors: bank competition and corporate financialization*

If enterprises hold easily liquidated financial assets that originate from a precautionary motivation, that is, the 'reservoir' motivation, then the driving force behind corporate financialization mainly considers the opportunity cost and shortage cost caused by liquidity constraints. The opportunity cost lies in the income from investing the same capital into operation, which is equal to the real investment return rate of the firm. From the perspective of scarcity cost, given the real investment rate, financialization depends on liquidity risk and financing pressure (Keynes, 1936). The impact of bank competition on firms mainly lies in the change in financing pressure and credit resources availability: bank competition increases the opportunities for lenders rejected by a bank to obtain loans

from other banks and enhances the possibility of gaining credit resources (Barth et al., 2004; Berger & Hannan, 1998; Gilbert, 1984; Leon, 2015), thereby reducing the liquidity risk and reservoir motivation.

Moreover, the result of bank competition not only implies an increase in credit supply (monopoly output) but also comes with a continuous decrease in credit cost (monopoly price). Bank competition enables firms to engage in multi-party lending, improve negotiation ability, and reduce the possibility of banks demanding high interest. To a large extent, the intensified bank competition reduces the monetary and time costs to obtain funds and eases the financing constraints (Jiang et al., 2019). Existing literature finds that bank competition lowers financing costs for enterprises, eases the credit allocation situation for private enterprises, and facilitates financing for R&D activities (Bian et al., 2017; Cai & Yan, 2016; Jiang et al., 2019). Meanwhile, changes in the financing environment also reduce enterprises' financial risks, thereby weakening the precautionary demand for holding short-term financial assets (Du et al., 2019).

Therefore, under the 'reservoir' motivation, we expect bank competition to weaken the degree of corporate financialization. Based on the above, we propose the following hypothesis:

H1a: *Ceteris paribus*, intensified bank competition reduces the degree of corporate financialization.

If the financial assets holding comes from the 'profit-seeking' motivation, the main driver of corporate financialization is that the return on financial investment is higher than that of real investment. In fact, at this point, financialization reflects an evolution process in which the way of value creation no longer depends on the production and exchange of physical assets but gradually becomes dominated by financial capital appreciation. For enterprises, the choice of financialization is a consideration of pursuing higher return projects and diversifying their risks in physical business (Alvarez, 2015; Demir, 2009).

Bank competition drives firms' preference for financial assets from two aspects. First, bank competition in quasi-deposit products has increased the yield of low-risk financial products. In a situation where deposit interest rates are regulated, the issuance of high-yield financial products has become the main battlefield of deposit business competition (Wu, 2013). The competition of quasi-deposit products has impacted the pricing of financial products of bank intermediary business. As shown in Figure 2, we compared the return on real investments and the return on financial products from 2007 to 2019. As bank competition intensified year by year (as indicated by the declining Herfindahl-Hirschman Index of bank competition), the yield of financial products increased yearly with the increasing bank competition. There were even cases in 2014 and 2015 where the yield of financial products surpassed the real investment return of listed companies. Figure 3 reports the scatter chart of the difference between the real investment return and the financial product return by industry. The portion below the horizontal axis represents the industries where the yield of financial products exceeds the return on real investments (i.e. the portion where the difference between the two is less than 0). There are 89 industry-year observations (210 annual industry observations in total) whose real investment return is less than that of financial products in the same period,

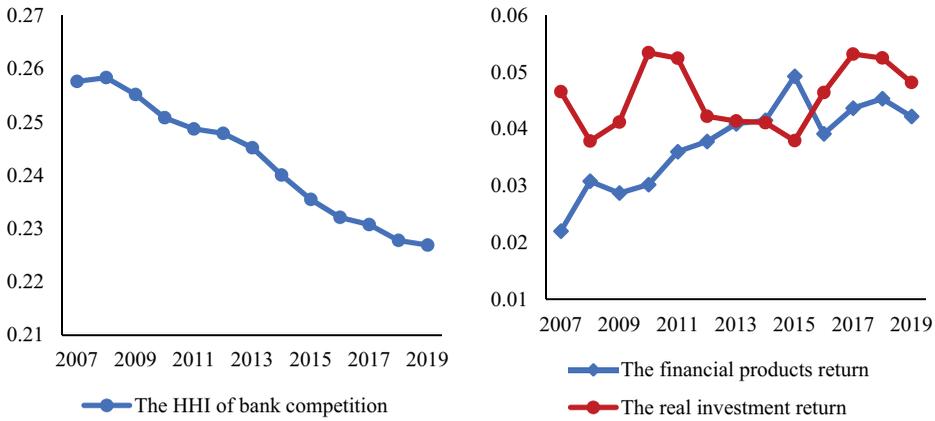


Figure 2. The annual trend of bank competition, financial products return and real investment return.

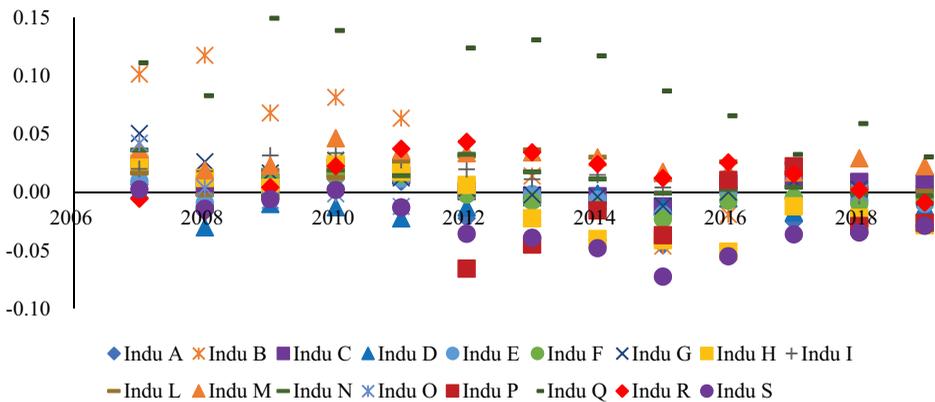


Figure 3. Annual industry scatter chart of the difference between real investment return and financial product return³

accounting for 42.38%.² These findings indicate that bank competition improves firms' screening criteria of projects: making enterprises start to weigh whether to reject some physical projects with low returns and give priority to financial projects to make up for the lack of real investment income (Alvarez, 2015; Krippner, 2005).

Second, increased competition has raised banks' internal requirements for risk control and project selection ability, leading to a stronger preference for real estate projects. With the intensification of the competition of bank loan prices, their credit risk increases simultaneously. In particular, Guo (2022) finds that homogeneous bank competition weakens the inhibitory effect of capital regulation on the non-performing loan ratio. Risk control is particularly important for bank institutions. The existence of information asymmetry, the complexity of project research and judgement, and the problem of loan

²We also look up the real investment at the firm level and find that there are 12,970 observations whose real investment returns are lower than that of financial products, accounting for 49.62%.

³The industries adopt the first letter code of the industry code in the Guidance on Industry Classification of Listed Companies (revised in 2012) issued by the CSRC

term structure make real estate projects a better choice for bank loans (Zhang et al., 2016). On the one hand, the collateral of real estate projects is sufficient. Compared with innovative projects, the cycle is shorter, which can be well adapted to the bank loan term. The mortgage can alleviate the adverse consequences even if bad debts occur. On the other hand, real estate projects typically offer ‘dual benefits’ to lending banks as they not only earn the interest rate spread on the loan but also become the mortgage lender for the projects, gaining access to individual customers seeking mortgage loans for real estate purchases and accumulating customer resources for later personal finance business development. Against the backdrop of intensified bank competition, becoming the lender for real estate projects can provide banks with dual resources from both corporate and personal customers, easing the pressure of competition for loans targeting corporate, personal, and personal finance businesses. During the credit expansion process, companies evaluating investment projects will take into account the credit criteria of financial institutions, selecting projects that align more favourably with banks’ preferences. For example, Chen et al. (2017) find that banks provide more credit to land-holding companies in response to the rising land price, crowding out the financing of non-land-holding companies. Luo and Zhang (2015) also find that during the period of credit expansion and rapid development of the real estate industry, the real estate investment of enterprises, especially state-owned ones, increases sharply, resulting in the reduction of real investment efficiency. Therefore, in line with profit-seeking motivation, bank competition is positively associated with corporate financialization. We propose the competitive hypothesis:

H1b: *Ceteris paribus*, intensified bank competition increases the degree of corporate financialization.

4.2. Diver of internal factors: bank competition, real investment return and corporate financialization

Bank competition has a significant impact on corporate financialization by changing liquidity risk, project barrier, and return differences from the external environment. However, there is another important factor to consider, which depends on the internal characteristics of the company—the opportunity cost and yield of internal productive investment projects, i.e. the competition between a company’s productive investment and financial investment. Therefore, we explore the impact of real investment return on the relationship between bank competition and corporate financialization.

From the perspective of reservoir motivation, a firm’s financial situation is directly related to real investment performance (Cleary, 1999). Firms with high returns on real investments tend to have better performance and more stable cash flows, resulting in lower demand for reservoirs (Zhang & Zhang, 2016). Moreover, their high-quality physical projects can serve as collateral, making it easier to obtain adequate credit resources. The benefits brought about by intensified bank competition may have limited impacts on the financing capacity of firms with higher real investment returns.

From the perspective of profit-seeking motivation, financialization reflects the profit comparison between financial investments and real investments (Cai & Ren, 2014). Bank competition raises the opportunity cost of idle funds and increases the threshold of real

investment return, thus making the financialization brought by bank competition more significant in firms with lower real investment returns.

Consequently, the impact of bank competition on financialization is more pronounced for firms with lower real investment returns. As a result, we propose the following hypothesis:

H2: The relationship between bank competition and corporate financialization is more pronounced for firms with lower real investment returns.

5. Data source and research design

5.1. Data source

We select Chinese A-share listed companies from 2007 to 2019 as the research sample to avoid the impact of changes in accounting standards involving the recognition of financial assets in this paper.⁴ Our data on bank competition is sourced from the China Research Data Service Platform (CNRDS). The income data of bank financial products, firm-level financial data and firm characteristics data are from the China Stock Market and Accounting Research (CSMAR) database. To ensure the robustness of our results, we manually delete financial firms, real estate firms, firms with missing variables and ST firms, resulting in a final sample of 3,283 firms with 26,138 firm – year observations. In addition, this article applies a 1% trim to both ends of all continuous variables to eliminate the impact of outliers.

5.2. Research model

5.2.1. Empirical model of H1

To differentiate the reservoir hypothesis and the profit-seeking hypothesis, we construct the following Equation (1):

$$Fn_{i,t} = \alpha + \beta_0 Comp_{i,t} + \beta_1 \sum controls_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where $Fn_{i,t}$ represents the degree of financialization of firm i in year t . With the deepening of domestic scholars' understanding of financialization, the measure of financialization has been continuously refined. Liu et al. (2014) consider trading financial assets, financial assets for resale, available-for-sale financial assets, held-to-maturity investments, loans, and advances as firms' financial assets. Song and Lu (2015) include cash, transactional financial assets, entrusted financial products, trust products, investment real estate, and equity of financial institutions as financial assets. Building on Liu et al. (2014), Peng et al. (2018) incorporate the equity of real estate firms into their analysis of financial assets, and Gu et al. (2020) further expand financial assets to 12 balance sheet accounts, including other accounts

⁴After the implementation of the new accounting standards in 2007, the accounting items related to the financial assets of the old standards, including net short-term investment and net long-term investment, were stopped being used, while the accounting items related to the financial assets of the new standards, such as trading financial assets, available-for-sale financial assets, held-to-maturity investments, long-term equity investments, and investment real estate began to be used. We only select the year after the change of accounting standards as the sample year to maintain the consistency and accuracy of the data.

receivable and other non-current assets. Based on the aforementioned studies, the financial assets include trading financial assets, derivative financial assets, available-for-sale financial assets, held-to-maturity investments, investment real estate, investment in the financial industries and real estate industries in long-term equity investment, entrusted loans and financial products in other current assets. F_n is defined as the financial assets divided by the total assets at the end of the year.

The independent variable, $Comp_{i,t}$, represents the degree of bank competition in the prefecture-level city where firm i is located in year t and is typically measured by the Herfindahl-Hirschman Index (HHI) and concentration ratio ($Cr3$) based on banks' market shares in terms of the number of bank branches in the previous literature (Cai & Yan, 2016; Dai et al., 2020; Jiang et al., 2019). We follow the measures of Jiang et al. (2019) to select commercial banks for calculation in the following Equation (2) and Equation (3), including state-owned commercial banks, joint-stock commercial banks, urban commercial banks, postal savings banks, rural commercial banks, private banks, and foreign banks.

$$HHI = \sum_{k=1}^N Branch_k / Total_Branches^2 \quad (2)$$

$$Cr3 = (Branch_{1st} + Branch_{2nd} + Branch_{3rd}) / Total_Branches \quad (3)$$

Where $Branch_k$ indexes the number of branches operated by the k^{th} bank in the city, $Total_Branches$ represents the sum of all bank branches operating in the city, $Branch_{1st}$, $Branch_{2nd}$, and $Branch_{3rd}$ represent the three banks with the largest number of branches in the city. HHI and $Cr3$ are both negative indicators and the higher the value, the lower the degree of bank competition. In addition, following Cai and Yan (2016), Dai et al. (2020), we adopt $HHI2$, which calculated bank competition by including all types of banks for variable substitution and robustness tests.

Control is a set of firms' financial and non-financial characteristics that potentially affect corporate financialization, including firm size ($Size$), leverage (Lev), sales growth ($Growth$), return on equity (Roe), largest shareholder holdings ($Top1$), equity restriction ($Shrs$), management shareholding ($Mshare$), operating cash flow (Ocf), firm age (Age), state-owned enterprise (Soe), GDP growth rate (GDP), and financial marketisation index ($Finance$). We also control the fixed effects for industry ($Indu$), year ($Year$), and province (Pro) in our analysis.

5.2.2. Empirical model of H2

To investigate the impact of real investment returns on the association between bank competition and corporate financialization, we divide the sample into two groups based on the annual average mean of firms' real investment return and perform Equation (1) separately. The real investment return is measured by operating revenue minus operating cost, taxes and surcharges, expenses, and assets impairment loss, and subsequently divided by the operating assets, in line with the methodology proposed by Zhang and Zhang (2016), Peng et al. (2018).

Variable definitions are available in Table 1.

Table 1. Variable definitions.

Variable	Definition
<i>Fn</i>	Financial assets/total assets.
<i>HHI</i>	The Herfindahl-Hirschman Index of bank competition. Following Jiang et al. (2019), we exclude policy banks, rural cooperative banks, and rural credit cooperatives to calculate <i>HHI</i> , including state-owned commercial banks, joint-stock commercial banks, urban commercial banks, postal savings banks, rural commercial banks, private banks, and foreign banks.
<i>Cr3</i>	The concentration ratio of bank. Following Jiang et al. (2019), <i>Cr3</i> is measured by the number of bank branches with the top three banks divided by the sum of all bank branches in the city.
<i>Return</i>	A dummy variable that equals 1 if a firm's real investment return is greater than or equal to the annual median of all the firms and 0 otherwise. Following Zhang and Zhang (2016), Peng et al. (2018), real investment return is measured by operating revenue minus operating cost, taxes and surcharges, expenses, and assets impairment loss, and then divided by the operating assets.
<i>Arbitrage</i>	A dummy variable that equals 1 if a firm's market arbitrage space is greater than or equal to the annual median of all the firms and 0 otherwise. Following Wang et al. (2017) and Yu et al. (2021), we use the yield rate of regional financial products or real estate industry minus the yield rate of firm's real investment to measure a firm's market arbitrage space.
<i>Size</i>	Natural logarithm of lagged total assets.
<i>Lev</i>	Total liabilities/total assets.
<i>Growth</i>	Annual sales growth rate.
<i>Roe</i>	Net profit/net assets.
<i>Top1</i>	Largest shareholder's shareholding ratio.
<i>Shrs</i>	Equity restriction. The sum of the shareholding ratio of the second largest shareholder to the tenth largest shareholder.
<i>Mshare</i>	Management shareholding ratio.
<i>Ocf</i>	Net cash flow from operating activities/total assets.
<i>Age</i>	Firm age
<i>Soe</i>	A dummy variable that equals 1 if the ultimate owner of a company is the government or other state-owned enterprise and 0 otherwise.
<i>GDP</i>	GDP growth rate.
<i>Finance</i>	Fangang financial marketisation index, obtained from Marketisation Index of China's Provinces
<i>Invest</i>	(Cash paid for the purchase and construction of fixed assets, intangible assets, and other long-term assets in period t - net cash received from the disposal of fixed assets, intangible assets, and other long-term assets in period $t-1$)/total assets at the end of period t .
<i>Lcratio</i>	Bank financial products/total assets.
<i>Rratio</i>	Real estate financial assets/total assets.

5.3. Descriptive statistics

Table 2 reports descriptive statistics of the main variables. The average value of financial assets (*Fn*) is 0.0600, with the 95th percentile recorded at 0.2784. It indicates that financial assets are an important part of firms' investments, and some firms do have the problem of over-financialization. The mean of *HHI* is 0.1413, with the 5th percentile at 0.0707 and the 95th percentile at 0.2606. It shows that the bank market structure is relatively centralised and varies across different cities. On average, company size in the samples is 3.845 billion *yuan* ($=e^{22.07}$); financial leverage is 0.4295; return on equity is 0.0609. The ratio of state-owned firms in the sample is 0.4186.

6. Empirical results

6.1. Test on H1

Table 3 reports the regression results of H1 to test the impact of bank competition on corporate financialization, which distinguishes the reservoir hypothesis and the profit-seeking hypothesis by estimating Equation (1). We find the coefficients of *HHI*

Table 2. Descriptive statistics.

Variable	N	Mean	SD	P5	P25	P50	P75	P95
<i>Fn</i>	26138	0.0600	0.0992	0.0000	0.0008	0.0161	0.0734	0.2784
<i>HHI</i>	26138	0.1413	0.0604	0.0707	0.0946	0.1267	0.1750	0.2606
<i>Cr3</i>	26138	0.5217	0.1373	0.3207	0.4187	0.5047	0.6199	0.7743
<i>Size</i>	26138	22.0744	1.2704	20.3474	21.1642	21.8950	22.7824	24.4543
<i>Lev</i>	26138	0.4295	0.2032	0.1089	0.2683	0.4255	0.5827	0.7651
<i>Growth</i>	26138	0.1866	0.4285	-0.2474	-0.0087	0.1158	0.2756	0.7802
<i>Roe</i>	26138	0.0609	0.1301	-0.1053	0.0303	0.0689	0.1144	0.2088
<i>Top1</i>	26138	0.3511	0.1490	0.1373	0.2332	0.3334	0.4523	0.6211
<i>Shrs</i>	26138	22.9943	13.1573	3.8164	12.2333	21.8398	32.3981	46.4015
<i>Mshare</i>	26138	0.1234	0.1956	0.0000	0.0000	0.0011	0.2112	0.5624
<i>Ocf</i>	26138	0.0483	0.0703	-0.0650	0.0092	0.0471	0.0888	0.1661
<i>Age</i>	26138	16.0257	5.7240	7.0000	12.0000	16.0000	20.0000	26.0000
<i>Soe</i>	26138	0.4186	0.4933	0.0000	0.0000	0.0000	1.0000	1.0000
<i>GDP</i>	26138	0.0919	0.0302	0.0560	0.0694	0.0824	0.1093	0.1511
<i>Finance</i>	26138	7.9444	2.0855	4.7300	6.1300	8.3200	9.5700	10.7500

and *Cr3* are significantly negative at the 1% level. It is consistent with the prediction of H1b that bank competition promotes corporate financialization.

For control variables, the coefficients of *Size* and *Age* are significantly positive, implying big firms or firms with a long history have a higher degree of financialization. The coefficients of *Lev*, *Top1*, *Shrs*, *Mshare*, and *Soe* are significantly negative, suggesting financial leverage, largest shareholder holding, equity restriction, management shareholding, and state-owned ultimate control can inhibit the degree of corporate financialization.

6.2. Test on H2

Table 4 reports the regression results of H2 to explore the impact of real investment returns on the relationship between bank competition and corporate financialization. Columns (1) and (3) test firms with low real investment returns. We observe that the coefficients of *HHI* and *Cr3* are significantly negative at the 1% level. In contrast, Columns (2) and (4) test firms with high real investment returns. The coefficients of *HHI* and *Cr3* are insignificant. Moreover, when we test the differences in coefficients between the two subsamples, we find that the difference is statistically significant. Hence, as we expected, the impact of bank competition on financialization is more pronounced for firms with lower real investment returns, consistent with H2.

6.3. Robustness tests

6.3.1. Alternative measures of key variables

Following Jiang et al. (2019), we only choose commercial banks to compute the indicators of bank competition in the baseline regression. In the robustness tests, we incorporate all types of banks, including policy banks, rural cooperative banks, and rural credit cooperatives for calculation following Cai and Yan (2016), Dai et al. (2020).

Table 3. Bank competition and corporate financialization.

	(1)	(2)	(3)	(4)
	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>
<i>HHI</i>	-0.1203*** (-12.1647)	-0.0422*** (-3.7297)		
<i>Cr3</i>			-0.0558*** (-12.3847)	-0.0172*** (-3.3110)
<i>Size</i>	0.0027*** (4.6102)	0.0030*** (4.7983)	0.0027*** (4.6504)	0.0030*** (4.8385)
<i>Lev</i>	-0.1251*** (-32.1252)	-0.1313*** (-32.4451)	-0.1253*** (-32.1662)	-0.1313*** (-32.4706)
<i>Growth</i>	-0.0042*** (-2.8609)	-0.0060*** (-4.1704)	-0.0042*** (-2.8586)	-0.0060*** (-4.1711)
<i>Roe</i>	0.0157*** (3.4945)	0.0052 (1.1594)	0.0157*** (3.4937)	0.0052 (1.1549)
<i>Top1</i>	-0.0290*** (-6.0692)	-0.0202*** (-4.3191)	-0.0291*** (-6.1007)	-0.0202*** (-4.3099)
<i>Shrs</i>	-0.0006*** (-11.1920)	-0.0006*** (-11.5844)	-0.0006*** (-11.2589)	-0.0006*** (-11.5824)
<i>Mshare</i>	-0.0125*** (-3.0421)	-0.0070* (-1.7461)	-0.0132*** (-3.1990)	-0.0070* (-1.7443)
<i>Ocf</i>	-0.0129 (-1.4536)	0.0084 (0.9385)	-0.0126 (-1.4226)	0.0083 (0.9355)
<i>Age</i>	0.0020*** (18.0241)	0.0009*** (7.7471)	0.0020*** (17.8355)	0.0009*** (7.7638)
<i>Soe</i>	-0.0054*** (-3.5212)	-0.0046*** (-2.9649)	-0.0053*** (-3.4867)	-0.0046*** (-2.9820)
<i>GDP</i>	-0.2109*** (-10.0751)	0.0662* (1.9462)	-0.2052*** (-9.7854)	0.0658* (1.9343)
<i>Finance</i>	0.0048*** (17.3761)	-0.0007 (-0.6897)	0.0047*** (16.9478)	-0.0007 (-0.6941)
Constant	0.0479*** (3.5081)	0.0920*** (4.9515)	0.0604*** (4.3186)	0.0949*** (5.0482)
Indu	No	Yes	No	Yes
Year	No	Yes	No	Yes
Pro	No	Yes	No	Yes
Observations	26,138	26,138	26,138	26,138
Adj R ²	0.104	0.175	0.105	0.175
F	205.40	57.50	206.40	57.44

The t-statistics in parentheses are adjusted for heteroscedasticity. ***, **, and * indicate 1%, 5%, and 10% significance, respectively.

Panel A of Table 5 reports the regression results of H1. The coefficients of *HHI2* and *Cr3a* are significantly negative at the 1% level. Panel B reports the regression results of H2. The coefficients of *HHI2* and *Cr3a* are significantly negative at the 1% level in the samples with lower real investment returns, while the coefficient of *HHI2* is significantly negative at the 10% level and the coefficient of *Cr3a* is insignificant in the samples with higher real investment returns. Moreover, the corresponding coefficients between the two groups pass the inter group difference coefficient tests. The above results support H1b and H2.

6.3.2. Consider the policy change

In December 2012, the China Securities Regulatory Commission issued the Guidance on the Supervision of Listed Companies No. 2 (*Regulatory Requirements on the Management and Use of Funds Raised by Listed Companies*), which relaxed the requirements on the use of funds raised. We add a dummy variable, *Policy*, as a control variable to avoid the impact of the implementation of the policy on our results. *Policy*

Table 4. Bank competition, real investment return and corporate financialization.

	(1)	(2)	(3)	(4)
	Return=0	Return=1	Return=0	Return=1
	<i>Fn</i>	<i>Fn</i>	<i>Fn</i>	<i>Fn</i>
<i>HHI</i>	-0.0637*** (-4.5663)	-0.0247 (-1.3766)		
<i>Cr3</i>			-0.0290*** (-4.5493)	-0.0075 (-0.9037)
<i>Size</i>	0.0029*** (3.7476)	0.0035*** (3.4301)	0.0030*** (3.7889)	0.0036*** (3.4464)
<i>Lev</i>	-0.1251*** (-22.9217)	-0.1428*** (-20.0705)	-0.1253*** (-22.9720)	-0.1428*** (-20.0642)
<i>Growth</i>	-0.0049** (-2.5614)	-0.0073*** (-3.2810)	-0.0049** (-2.5707)	-0.0073*** (-3.2837)
<i>Roe</i>	0.0014 (0.2822)	0.0230 (1.3126)	0.0013 (0.2608)	0.0230 (1.3127)
<i>Top1</i>	-0.0231*** (-3.8305)	-0.0153** (-2.0229)	-0.0231*** (-3.8250)	-0.0151** (-2.0059)
<i>Shrs</i>	-0.0007*** (-10.6501)	-0.0005*** (-5.1139)	-0.0007*** (-10.6502)	-0.0005*** (-5.1079)
<i>Mshare</i>	-0.0285*** (-5.4326)	0.0034 (0.6005)	-0.0286*** (-5.4437)	0.0035 (0.6184)
<i>Ocf</i>	-0.0592*** (-5.2509)	0.0502*** (3.4643)	-0.0591*** (-5.2499)	0.0500*** (3.4528)
<i>Age</i>	0.0013*** (8.4997)	0.0004** (2.2525)	0.0013*** (8.5407)	0.0004** (2.2526)
<i>Soe</i>	-0.0086*** (-4.3168)	-0.0017 (-0.7128)	-0.0087*** (-4.3423)	-0.0018 (-0.7247)
<i>GDP</i>	0.0104 (0.2330)	0.0964* (1.8334)	0.0080 (0.1795)	0.0969* (1.8428)
<i>Finance</i>	-0.0013 (-0.7820)	-0.0006 (-0.4237)	-0.0012 (-0.7659)	-0.0006 (-0.4236)
Constant	0.1483*** (5.4504)	0.0645** (2.2133)	0.1538*** (5.6065)	0.0649** (2.2065)
Diff		0.0847*		0.0407**
Indu	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Pro	Yes	Yes	Yes	Yes
Observations	14,017	12,121	14,017	12,121
Adj R ²	0.183	0.190	0.183	0.190
F	28.70	34.81	28.66	34.80

The t-statistics in parentheses are adjusted for heteroscedasticity. ***, **, and * indicate 1%, 5%, and 10% significance, respectively.

equals 1 if the year is greater than 2012 and 0 otherwise. Table 6 displays the regression results after adding the dummy variable of *Policy*. In Columns (1)-(2), the coefficients of *HHI* and *Cr3* are significantly negative. In Columns (3)-(6), the coefficients of *HHI* and *Cr3* are only significantly negative in the samples with lower real investment returns. Consistent with the above results, the increase in bank competition promotes the degree of corporate financialization, and the relationship is more pronounced for firms with lower real investment returns after considering the policy change.

6.3.3. Instrumental variable estimation

We use instrument variables to alleviate the endogeneity concerns stemming from omitted variables. Following Dai (2022) and Xu et al. (2020), we choose the city's bank density (the number of bank branches divided by the city's geographical area) in 1984

Table 5. Robustness tests: alternative measures of bank competition.

Panel A Re-examining H1 by using alternative measures of bank competition				
	(1)	(2)	(3)	(4)
	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>
<i>HHI2</i>	-0.1355*** (-12.7951)	-0.0532*** (-4.4287)		
<i>Cr3a</i>			-0.0600*** (-13.1353)	-0.0210*** (-4.0166)
Controls	Yes	Yes	Yes	Yes
Indu	No	Yes	No	Yes
Year	No	Yes	No	Yes
Pro	No	Yes	No	Yes
Observations	26,138	26,138	26,138	26,138
Adj R ²	0.105	0.175	0.105	0.175
F	207.00	57.60	208.10	57.52
Panel B Re-examining H2 by using alternative measures of bank competition				
	(1)	(2)	(3)	(4)
	Return=0	Return=1	Return=0	Return=1
	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>
<i>HHI2</i>	-0.0794*** (-5.2006)	-0.0322* (-1.7394)		
<i>Cr3a</i>			-0.0340*** (-5.3569)	-0.0094 (-1.1150)
Diff		0.0487**		0.0187**
Controls	Yes	Yes	Yes	Yes
Indu	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Pro	Yes	Yes	Yes	Yes
Observations	14,017	12,121	14,017	12,121
Adj R ²	0.184	0.190	0.184	0.190
F	28.80	34.85	28.78	34.82

The t-statistics in parentheses are adjusted for heteroscedasticity. ***, **, and * indicate 1%, 5%, and 10% significance, respectively.

Table 6. Robustness tests: consider the policy change.

	(1)	(2)	(3)	(4)	(5)	(6)
	H2					
	H1		Return=0	Return=1	Return=0	Return=1
	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>
<i>HHI</i>	-0.0422*** (-3.7297)		-0.0637*** (-4.5663)	-0.0247 (-1.3766)		
<i>Cr3</i>		-0.0172*** (-3.3110)			-0.0290*** (-4.5493)	-0.0075 (-0.9037)
<i>Policy</i>	0.0004 (0.0745)	0.0002 (0.0436)	-0.0556*** (-3.9085)	0.0207*** (2.9548)	-0.0561*** (-3.9458)	0.0209*** (2.9835)
Diff				0.0847*		0.0407**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Indu	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Pro	Yes	Yes	Yes	Yes	Yes	Yes
Observations	26,138	26,138	14,017	12,121	14,017	12,121
Adj R ²	0.175	0.175	0.183	0.190	0.183	0.190
F	57.50	57.44	28.70	34.81	28.66	34.80

The t-statistics in parentheses are adjusted for heteroscedasticity. ***, **, and * indicate 1%, 5%, and 10% significance, respectively.

multiplied by the year as the instrument variable for two reasons. On the one hand, the distribution of the modern bank system originated from the state-owned specialised bank system initially formed in 1984, which made the bank density in 1984 meet the correlation hypothesis of instrumental variables. On the other hand, China was still in the planned economy in 1984. The state-owned specialised banks mainly undertook policy-related tasks and were unable to meet firms' financing needs (Xu et al., 2020), which made the correlation between the city's bank density in 1984 and corporate financialization extremely low, thus satisfying the exogeneity requirement. In addition, the instrumental variable passes under-identification tests and weak identification tests, meeting the requirements of instrument variables statistically.

Table 7 reports the regression results of instrumental variable estimation. In Columns (1)-(2), the coefficients of *IV* are significantly positive. In Columns (3)-(4), the coefficients of *HHI* and *Cr3* are negative and significant at the 1% level. These findings provide further evidence that intensified bank competition promotes corporate financialization after considering the endogeneity issue.

6.3.4. Other robustness tests

(1) Add macroeconomic control variables. Macroeconomic factors may potentially affect a firm's inclination to hold financial assets. As highlighted by Peng et al. (2018), economic policy uncertainty and money supply affect corporate financialization. To strengthen the robustness of our analysis, we add economic policy uncertainty (*EPU*) and growth rate of money supply (*M2*) as the control variables for robustness tests. Panel A of Table 8 reports the regression results of H1, while Panel B reports the regression results of H2. After adding macroeconomic factors, the results are still consistent with our hypotheses. This further substantiates the robustness of our findings.

(2) Change sample period. With the deepening of corporate financialization, the authorities have also realised the problem that the economy is turning from reality to virtuality and have begun to advocate for firms to make real investments. The 19th National Congress of the Communist Party of China emphasised the need to

Table 7. Robustness tests: IV-2SLS.

	(1)	(2)	(3)	(4)
	The first stage		The second stage	
	<i>HHI</i>	<i>Cr3</i>	<i>Fn</i>	<i>Fn</i>
<i>IV</i>	0.0001*** (21.9178)	0.0001*** (23.0189)		
<i>HHI</i>			-0.2757*** (-3.1588)	
<i>Cr3</i>				-0.1275*** (-3.1811)
Controls	Yes	Yes	Yes	Yes
Indu	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Pro	Yes	Yes	Yes	Yes
Observations	25,565	25,565	25,565	25,565
Adj R ²	0.431	0.465	0.167	0.166
F	563.30	704.80	56.60	56.54

The t-statistics in parentheses are adjusted for heteroscedasticity. ***, **, and * indicate 1%, 5%, and 10% significance, respectively.

Table 8. Robustness tests: add macroeconomic control variables.

Panel A. Re-examining H1 by adding macroeconomic control variables.				
	(1)	(2)	(3)	(4)
	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>
<i>HHI</i>	-0.1155*** (-11.7046)	-0.0422*** (-3.7297)		
<i>Cr3</i>			-0.0528*** (-11.7137)	-0.0172*** (-3.3110)
<i>EPU</i>	-0.0000*** (-7.3969)	-0.0001*** (-9.7260)	-0.0000*** (-7.4404)	-0.0001*** (-9.7369)
<i>M2</i>	-0.2170*** (-12.2433)	-0.6044*** (-9.0615)	-0.2113*** (-11.9198)	-0.6032*** (-9.0397)
Controls	Yes	Yes	Yes	Yes
Indu	No	Yes	No	Yes
Year	No	Yes	No	Yes
Pro	No	Yes	No	Yes
Observations	26,138	26,138	26,138	26,138
Adj R ²	0.109	0.175	0.109	0.175
F	185.30	57.50	185.90	57.44
Panel B. Re-examining H2 by adding macroeconomic control variables.				
	(1)	(2)	(3)	(4)
	Return=0	Return=1	Return=0	Return=1
	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>
<i>HHI</i>	-0.0637*** (-4.5616)	-0.0246 (-1.3750)		
<i>Cr3</i>			-0.0290*** (-4.5448)	-0.0075 (-0.9025)
<i>EPU</i>	-0.0001*** (-10.1727)	-0.0001*** (-4.8094)	-0.0001*** (-10.2034)	-0.0001*** (-4.8036)
<i>M2</i>	-0.0455 (-0.2833)	-0.7768*** (-7.4423)	-0.0410 (-0.2556)	-0.7787*** (-7.4597)
Diff		0.0850*		0.0409**
Controls	Yes	Yes	Yes	Yes
Indu	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Pro	Yes	Yes	Yes	Yes
Observations	14,017	12,121	14,017	12,121
Adj R ²	0.183	0.190	0.183	0.190
F	28.66	34.76	28.62	34.76

The t-statistics in parentheses are adjusted for heteroscedasticity. ***, **, and * indicate 1%, 5%, and 10% significance, respectively.

deepen the reform of the financial system and to enhance the ability of the financial industry to serve the real economy. Against this backdrop, the promotion effect of bank competition on corporate financialization may change. To bolster the rigour of our findings, we use the period time after the 19th National Congress (2018–2019) for robustness tests to make our conclusions more convincing. [Table 9](#) reports the regression results. The coefficients of *HHI* and *Cr3* are significantly negative, which reconfirms that intensified bank competition promotes firms to engage in more financial investments.

Table 9. Robustness tests: change sample period.

	(1)	(2)	(3)	(4)
	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>
<i>HHI</i>	-0.0936*** (-4.3122)	-0.0438* (-1.7246)		
<i>Cr3</i>			-0.0440*** (-4.6480)	-0.0232** (-2.0485)
Controls	Yes	Yes	Yes	Yes
Indu	No	Yes	No	Yes
Year	No	Yes	No	Yes
Pro	No	Yes	No	Yes
Observations	6,121	6,121	6,121	6,121
Adj R ²	0.135	0.190	0.135	0.190
F	65.31	19.52	65.47	19.53

The t-statistics in parentheses are adjusted for heteroscedasticity. ***, **, and * indicate 1%, 5%, and 10% significance, respectively.

7. Further analysis

7.1. Cross-sectional tests

7.1.1. Market arbitrage space

The impact of bank competition on financialization will be affected not only by the firms' internal characteristics—real investment return but also by the external investment environment—market arbitrage space. Yu et al. (2021) find that when the market arbitrage space is larger, the promotion effect of industrial policy on financialization is stronger. Wang et al. (2017) find that the effect of financialization on crowding out innovation is more pronounced in firms with larger market arbitrage space. These indicate that the market arbitrage space will affect the firms' economic decisions. On the one hand, the intensified bank competition has improved the availability of credit resources (Barth et al., 2004; Berger & Hannan, 1998; Gilbert, 1984; Leon, 2015), reduced the capital risk, thus enabling firms to have the objective conditions to reduce cash holding based on precautionary demand. The decrease in this part of cash holdings provides a source of funds for financial investments. On the other hand, the increase of market arbitrage space improves the opportunity cost of real investment and the subjective motivation to make financial investments. Therefore, we expect that when the market arbitrage space is larger, the promotion effect of bank competition on corporate financialization is stronger.

We divide the samples into two groups based on the market arbitrage space. Consistent with previous studies by Wang et al. (2017) and Yu et al. (2021), we use the yield rate of regional financial products or real estate industry minus the yield rate of a firm's real investment to measure a firm's market arbitrage space. Table 10 reports cross-sectional tests on market arbitrage space. The coefficients of *HHI* and *Cr3* are significantly negative at the 1% level in the samples with high market arbitrage space, while the coefficients of *HHI* and *Cr3* are insignificant in the samples with low market arbitrage space. Moreover, the corresponding coefficients between the two groups pass the inter group difference coefficient tests. These results suggest that the promoting effect of bank competition on financialization is more pronounced for firms with higher market arbitrage space.

Table 10. Cross-sectional tests: market arbitrage space.

	(1)	(2)	(3)	(4)
	Arbitrage=1	Arbitrage=0	Arbitrage=1	Arbitrage=0
	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>	<i>F_n</i>
Panel A Based on financial product to calculate market arbitrage space				
<i>HHI</i>	-0.0662*** (-4.7987)	-0.0227 (-1.2405)		
<i>Cr3</i>			-0.0307*** (-4.8905)	-0.0059 (-0.6942)
Diff		0.0575*		0.0195**
Controls	Yes	Yes	Yes	Yes
Indu	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Pro	Yes	Yes	Yes	Yes
Observations	14,293	11,845	14,293	11,845
Adj R ²	0.182	0.192	0.182	0.192
F	29.19	34.44	29.16	34.43
Panel B Based on financial product to calculate market arbitrage space				
<i>HHI</i>	-0.0696*** (-4.3263)	-0.0095 (-0.6071)		
<i>Cr3</i>			-0.0310*** (-4.4532)	-0.0014 (-0.1841)
Diff		0.0071***		0.0040***
Controls	Yes	Yes	Yes	Yes
Indu	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Pro	Yes	Yes	Yes	Yes
Observations	12,329	13,809	12,329	13,809
Adj R ²	0.185	0.188	0.185	0.188
F	27.15	36.33	27.17	36.32

The t-statistics in parentheses are adjusted for heteroscedasticity. ***, **, and * indicate 1%, 5%, and 10% significance, respectively.

7.1.2. Ultimate control of ownership

In the process of China's economic transition, property rights discrimination has posed significant challenges to the development of private firms, one of which is that financial institutions dominated by banks control the allocation of credit resources. In the allocation of credit resources, private firms usually face credit discrimination (Allen et al., 2005; Yu & Pan, 2008). State-owned enterprises have the priority to obtain credit resources because of their natural political resources and scale advantages. Under the background that the credit demands of state-owned enterprises have been satisfied preferentially for a long time, the increased availability of credit resources brought by the intensification of bank competition will be more likely to improve the possibility of private firms acquiring resources. At the same time, in the process of financialization, the government intervention and administrative control of state-owned enterprises are more direct, weakening the motivation to engage in financialization. For example, the Notice on Issues Related to Strengthening the Management of Central Enterprises' Equity Participation issued in 2019 requires central enterprises to control investment in their main business strictly and not to engage in commercial real estate and other prohibited businesses stipulated in the negative list of central enterprises' investment projects through equity participation to avoid the regulatory requirements of the main business. Therefore, we conjecture that

Table 11. Cross-sectional tests: ultimate control of ownership.

	(1)	(2)	(3)	(4)
	Soe=1	Soe=0	Soe=1	Soe=0
	<i>Fn</i>	<i>Fn</i>	<i>Fn</i>	<i>Fn</i>
<i>HHI</i>	-0.0215 (-1.4070)	-0.0632*** (-3.9288)		
<i>Cr3</i>			-0.0053 (-0.7227)	-0.0279*** (-3.9036)
Diff		0.0597***		0.0280**
Controls	Yes	Yes	Yes	Yes
Indu	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Pro	Yes	Yes	Yes	Yes
Observations	10,941	15,197	10,941	15,197
Adj R ²	0.237	0.160	0.237	0.160
F	28.70	36.08	28.79	36.09

The t-statistics in parentheses are adjusted for heteroscedasticity. ***, **, and * indicate 1%, 5%, and 10% significance, respectively.

compared with state-owned enterprises, bank competition plays a stronger role in promoting the financialization of private firms.

Table 11 reports cross-sectional tests on the ultimate control of ownership. The coefficients of *HHI* and *Cr3* are significantly negative at the 1% level in the samples with private firms, and the coefficients of *HHI* and *Cr3* are insignificant in the samples with state-owned enterprises. Therefore, as we expected, private firms are more sensitive to the intensification of financialization caused by bank competition.

7.2. Economic consequence: firm financialization and real investment

Ex-ante studies have not arrived at a consensus on the effect of corporate financialization on real investment. On the one hand, the high yield of financialization changes the priority in the management's investment decision, making financial investment crowd out real investment (Demir, 2009; Orhangazi, 2008), thus damaging the future development of firms' main business (Du et al., 2019). On the other hand, the high liquidity of financial assets enables them to become the 'reservoir' of enterprises, reducing capital risk and financial distress. Moreover, the appreciation of financial assets can improve the balance sheet and income statement and facilitate firms to further obtain external financing, which can promote firms to increase real investment (Kliman & Williams, 2015; Stulz, 1996).

Based on the previous analysis, it can be inferred that bank competition promotes corporate financialization. How will financialization brought by bank competition affect firms' real investment? From the perspective of bank competition, bank competition can improve the availability of loans (Barth et al., 2004), ease financing constraints (Jiang et al., 2019), increase sales scale (Fang & Cai, 2016) and domestic value-added rate of export (Sheng & Wang, 2022), stimulate R&D investment and innovation output (Cai & Yan, 2016; Chava et al., 2013; Dai et al., 2020). These show that bank competition can improve the allocation of credit resources, thus effectively serving the real economy. Therefore, it is challenging to predict the effect of the financialization brought by bank competition on real investment from the theoretical analysis.

To explore this question further, we estimate the following equations. Equation (4) tests the direct impact of corporate financialization on real investment, while Equation (5) adds the multiplier of bank competition and financialization to investigate the impact of financialization caused by bank competition on firms' real investment.

$$Invest_{i,t} = \alpha + \beta_0 F_{i,t} + \beta_1 \sum controls_{i,t} + \varepsilon_{i,t} \quad (4)$$

$$Invest_{i,t} = \alpha + \beta_0 F_{i,t} + \beta_1 F_{i,t} * Comp_{i,t} + \beta_2 Comp_{i,t} + \beta_3 \sum controls_{i,t} + \varepsilon_{i,t} \quad (5)$$

Where *Invest* is a firm's real investment, measured by the difference between the cash paid for the purchase and construction of fixed assets, intangible assets, and other long-term assets and the net cash recovered from the disposal of fixed assets, intangible assets, and other long-term assets, and then divided by the total assets at the end of the year. *F* refers to financialization and its subdivision types, including financialization (*F_n*), financial product financialization (*Lcratio*), and real estate financialization (*Rsratio*). *Lcratio* is measured by the amount of bank financial products divided by the total assets; *Rsratio* is measured by the amount of real estate financial assets (investment real estate and long-term equity investment in the real estate industry) divided by total assets.

Table 12 reports the regression results of corporate financialization and real investment. In Columns (1), (4), and (7), the coefficients of *F_n*, *Lcratio*, and *Rsratio* are significantly negative at the 1% level, indicating firm financialization inhibits real investment. In Columns (2)-(3), (5)-(6), (8)-(9), the coefficients of *F_n×HHI*, *F_n×Cr3*, *Lcratio×HHI*, *Lcratio×Cr3*, *Rsratio×HHI*, *Rsratio×Cr3* are significantly negative, suggesting bank competition will intensify the crowding out effect of corporate financialization on real investment.

8. Conclusion

Will the firms' allocation of financial assets be affected by bank competition? We discuss the relationship between the evolution of financial system and the allocation of financial assets of micro-enterprises based on the reservoir hypothesis and the profit-seeking hypothesis. Our findings suggest that the bank competition can be transmitted to the micro-enterprises and deepen the financialization of the physical companies. The greater the bank competition, the higher the degree of corporate financialization. Moreover, when the arbitrage space in the external market is larger, or the property rights are private firms, the financialization effect of bank competition is more pronounced. From the perspective of economic consequences, we demonstrate that bank competition strengthens the crowding out effect of corporate financialization on real investment.

Our findings provide some practical implications. First, from the perspective of the enterprise, bank competition is transmitted to micro-enterprises through profit-seeking motivation, but it strengthens the crowding out effect of corporate financialization on real investment. Therefore, we provide an early warning for the authorities to pay timely attention to the impact of bank structure changes on the financial asset allocation. Second, from the perspective of the bank structure, bank competition promotes the financial assets holding of firms. The synchronous deepening of financialization provides references for the authorities to avoid the correlation between the volatility of corporate

Table 12. Corporate financialization and real investment.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Invest	Invest	Invest	Invest	Invest	Invest	Invest	Invest	Invest
<i>Fn</i>	-0.0602*** (-22.9880)	-0.0476*** (-8.0508)	-0.0434*** (-4.8119)						
<i>Fn</i> × <i>HHI</i>		-0.0961** (-2.2862)							
<i>Fn</i> × <i>Cr3</i>			-0.0338* (-1.8945)						
<i>Lcratio</i>				-0.0480*** (-8.6090)	-0.0295*** (-2.8345)	-0.0057 (-0.4466)			
<i>Lcratio</i> × <i>HHI</i>					-0.1205** (-2.1398)				
<i>Lcratio</i> × <i>Cr3</i>						-0.0725*** (-3.7816)			
<i>Rsratio</i>							-0.0797*** (-9.6099)	-0.0294 (-1.5047)	-0.0161 (-0.5321)
<i>Rsratio</i> × <i>HHI</i>								-0.4118** (-2.4375)	
<i>Rsratio</i> × <i>Cr3</i>									-0.1336** (-1.9835)
<i>HHI</i>		0.0204*** (3.0023)			0.0201*** (3.1578)			0.0181*** (2.8587)	
<i>Cr3</i>			0.0079** (2.5752)			0.0083*** (2.9190)			0.0068** (2.3925)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Indu	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pro	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	26,138	26,138	26,138	26,138	26,138	26,138	26,139	26,140	26,141
Adj R ²	0.166	0.167	0.167	0.156	0.157	0.157	0.157	0.157	0.157
F	70.74	69.25	69.23	64.69	63.16	63.31	65.62	64.14	64.16

The t-statistics in parentheses are adjusted for heteroscedasticity. ***, **, and * indicate 1%, 5%, and 10% significance, respectively.

returns and the financial institutions and to prevent financial risks. Third, starting from the mechanism of their impact, we disassemble the mechanism of bank competition on corporate financialization, helping policymakers better understand the fundamental motivation of corporate financialization and providing references for how to better guide the development of bank industry and avoid the financial mismatch of real estate industry.

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