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## Article

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# Thorny roses: The motivations and economic consequences of holding equity stakes in financial institutions for China's listed nonfinancial firms



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## ABSTRACT

The reforms of China's financial system have significantly changed the country's financial sector. One noteworthy phenomenon is that many nonfinancial firms have obtained equity stakes in financial institutions. This study investigates the motivations behind and economic consequences of this recent proliferation of investments in financial institutions by nonfinancial listed firms. We find that the motivations for holding equity stakes in financial institutions include alleviating the pressure of industry competition, reducing transaction costs, and diversification to reduce risk. These investments, however, have double-edged effects on the performance of the investing firms. While their investment income increases, their operating income and overall return on assets decrease, as the investment income cannot compensate for the decrease in other operating income. The investing firms' cost of debt also increases, their cash-holding decreases, and stock price performance does not improve after investing in financial institutions. These effects contrast with the enthusiasm nonfinancial listed firms have for investing in financial institutions. The empirical findings in this study can inform financial industry regulators and decision-makers in listed firms. We advise nonfinancial firms to be cautious when considering investing in financial institutions.

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## 1. Introduction

The debate over mixing/separating banking and commerce has carried on for centuries. The activities of banks have been restricted since they first emerged in the Mediterranean city states, and government limitations on the trade investment of banks first appeared in Venice in 1374 (Salley, 1976), before spreading throughout continental Europe. The powers of England's banks were restricted in the late 17th century, and the practice was then exported to colonial America. The market collapse of 1929 in the U.S. and the subsequent great depression reinforced restrictive powers of banks with the enactment of the Glass-Steagall Act in 1933 (Halpert, 1988). Today, financial systems worldwide are generally regulated (Barth et al., 2001). The fear of bank failure and monopoly were previously the main reasons to restrict bank powers, but today the most common concerns include conflicts of interest, excessive bank powers, and threats to the safety net (Krainer, 2000). There are, however, obvious benefits from the mixing of banking and commerce (Wall et al., 2008), such as economies of scale and scope, the fostering of internal capital markets, and diversification. The boundary between banking and commerce has never been clear-cut. Merchant banking was very common among banks in the Italian States of the Middle Ages (Craig, 2001), and universal banks in Germany and Japan have long been encouraged. In the U.S. today, there are various ways banking and commerce mix (Haubrich and Santos, 2003); commercial firms can own banks, for example. In fact, commercial firms throughout the world are commonly found to possess equity stakes in banks.

Traditionally, the activities of banks are restricted from two dimensions; first, from carrying out fee-based activities such as securities, insurance, and real estate, and second, from owning commercial firms, and/or from restricting commercial firms from owning banks. Globally, the divisions between bank and non-bank finance have been dismantled since the late 20th century, and increasingly more countries allow commercial firms to own banks. Bank ownership of commercial firms is permitted in Germany and other countries, but with certain limitations. The effect of bank ownership of firms, though restricted throughout the world, has been examined in the literature. But commercial firms' ownership in banks, though permitted in many countries, has been largely ignored. In this study, we attempt to fill this gap by investigating the motivations and economic consequences of commercial firms' equity stakes in banks. We also expand the concept of combining banking and commerce to include the equity stakes in various types of financial firms held by commercial businesses. We define this as the integration of finance and commerce, where finance represents the broad financial sector including banks, securities, insurance, various funds, trusts, etc., and commerce represents the nonfinancial sector as a whole.<sup>1</sup>

During China's financial system reforms, many commercial firms obtained equity stakes in financial institutions.<sup>2</sup> According to the *Chinese Entrepreneurs Survey System (2011)*, 20.4% of firms surveyed had equity investments in financial institutions, and 27.8% had their own finance firms. The 2009 report of the *International Finance Research Institute of the Bank of China (2010)* revealed that nonfinancial business groups actually controlled 24 out of 52 trust firms, 19 out of the top 50 investment banks, 12 out of 25 property insurance firms, and 20 out of 39 life insurance firms. These represent 46%, 38%, 48%, and 51%, respectively. Even financial institutions controlled by the government or financial groups were found to be partially held by nonfinancial firms. An increasing number of commercial firms are interested in investing in the financial sector. For example, in 2010 China Mobile obtained 20% of the equity in Shanghai Pudong Development Bank for RMB39.8 billion. In 2013, Vanke invested RMB2.7 billion in Huishang Bank in exchange for 8.28% ownership, and the Evergrande Group obtained 5% of Huaxia Bank in 2014. Alibaba and Tencent, the two Chinese Internet giants, are currently expanding their financial empire through Alipay and WeChat Wallet.

<sup>1</sup> Political economists view the integration of finance and commerce as creating finance capital. The concept of finance capital was first proposed by Hilferding (1910), and then taken up by Lenin in his wartime analysis of the imperialist relations of the great world powers. Hilferding (1910) summarized the development of capitalism and concluded that "the most characteristic features of 'modern' capitalism are those processes of concentration which, on the one hand, 'eliminate free competition' through the formation of cartels and trusts, and on the other, bring bank and industrial capital into an ever more intimate relationship. Through this relationship capital assumes the form of finance capital, its supreme and most abstract expression."

<sup>2</sup> In this study, commercial firms refer to all nonfinancial firms. Financial institutions include banks, and firms dealing in securities, venture capital and private equity, insurance, finance, loans, trusts, guarantees, futures, asset management, investment funds, leasing, and pawnshops, etc.

Theoretically, by investing in the financial sector, commercial firms can obtain high returns, reduce transaction costs, and strategically diversify their operations. A large-scale capital flow from commercial to financial sectors can, however, give rise to economic instability and resource allocation problems.<sup>3</sup> There are also concerns of contagion effects. In this study, we attempt to discover the reasons behind these capital flows and explore their effects on the performance of commercial firms. Using hand-collected data on the equity stakes in financial institutions held by Chinese nonfinancial listed firms between 1999 and 2012, we find that the more intensive the industry competition, the more likely that a commercial firm will invest in financial institutions. This effect is more obvious in non-state controlled listed firms, when investee firms are non-bank financial institutions, and when investee firms are subject to less regulation. Reducing transaction costs is one motivation for commercial firms to hold equity stakes in banks. Consistent with the strategy of diversification, larger firms with higher profitability, more debt, and with sufficient cash are more likely to invest in financial institutions. Finally, the ownership type and structure can affect a commercial firms' decision on investing in financial institutions.

The economic consequences of investing in financial institutions by nonfinancial listed firms are not particularly good. We find that as nonfinancial listed firms invest more in financial institutions, their investment income increases, but other operating income decreases and the overall return on assets decreases. Increases in investment income cannot compensate for decreases in other operating income. Investing in financial institutions also increases the investing firms' costs of debt, decreases their cash-holdings, and their stock price performance does not improve. Investing in financial institutions does not therefore improve firm performance; in fact it deteriorates. Investing in financial institutions is like a thorny rose; it looks beautiful, but it can be dangerous.

The remainder of this paper is organized as follows: Section 2 introduces the evolution of the global trend of integrating of banking and commerce, particularly in China. Section 3 reviews the literature and presents the theoretical analysis. Section 4 describes the research design, Section 5 reports the empirical results, and Section 6 concludes the paper.

## 2. Institutional background

### 2.1. *The evolution of mixing banking and commerce worldwide*

Modern banking developed in the Mediterranean city states in the 13th and 14th centuries from the activities of "money changers" and merchants.<sup>4</sup> To prevent banks from undertaking risky activities and monopolizing particular commodities, their activities were at times restricted. For example, in 1374 the Venetian Senate prohibited bankers from dealing in copper, tin, iron, lead, saffron, and honey. Regulation alone was, however, not enough to prevent the economic and financial disruptions associated with banking failures, currency problems, and bubbles, so public banks were set up by governments. Established in 1694, the Bank of England was a chartered bank. The activities of the public banks of the European continent and the chartered banks in the U.K. were restricted and various regulations were imposed on them, to address monopoly and public interest concerns. Early banks in the United States were modeled on the Bank of England, and were prevented from engaging in mercantile enterprises. However, by the late 19th century, the bond departments of large national banks in New York and Chicago had begun to undertake investment banking activities, and eventually through securities affiliates they became involved in many types of financial activities.

In October 1929, the New York Stock Exchange crashed, triggering the 1929–1933 global economic crisis. The securities activities of commercial banks were blamed for fueling the crisis. In 1933, the Glass-Steagall Act revoked the powers of commercial banks, preventing them from engaging in securities activities. However, commercial banks could still expand into new activities through bank holding companies until 1956, when

<sup>3</sup> Wenzhou is a microcosm of economy instability arising from capital flow from commercial to financial sectors. As the birthplace of private economy in China, Wenzhou has millions of small- and medium-sized firms. Over the years, these firms have lost their competitive advantages. They invest their hot money in real estate, mining, the tertiary industry, and informal loans, resulting in a diminished manufacturing sector. This triggered the large-scale bankruptcies of 2011 in Wenzhou.

<sup>4</sup> The early upheavals of mixing/separation banking and commerce reviewed here are partly taken from Shull (1999).

the Bank Holding Act was passed. Even under this act, commercial banks were able to extend their activities by exploiting various loopholes. In the 1980s, legal and market changes substantially affected banks' expansion activities. Sears, a large conglomerate, was able to own a retail enterprise, an insurance company, a securities firm, a real-estate development company, and a savings and loans company. Securities firms and insurance companies could also acquire banks that refrained either from commercial lending or taking demand deposits. The Glass-Steagall Act restrictions eased in the 1980s, and most of the barriers separating commercial banks from nonbank financial services were lifted by the Gramm-Leach-Bliley Act of 1999.

Elsewhere in the world, relationships between banks and commerce are often much closer. Interestingly, there are few explicit legal restrictions on the types of business a bank can undertake in the United Kingdom. For many years they have been able to hold equities of commercial firms and commercial firms can hold bank equities, but only since the "Big Bang" of 1987, commercial banks have aggressively moved into securities trading and insurance. In the late 19th century, universal banks emerged on the European continent as part of government efforts to rapidly industrialize. Universal banks provide short-term bank credit and intermediate and long-term capital, through underwriting and investing in equities. Under the universal banking system, banks and commercial companies maintain close and long-term relationships through ownership, credits, boards of directors, etc. In Japan, after World War II, the Glass-Steagall restrictions were imposed under the Securities Transaction Act of 1948, but banks and companies became associated in keiretsus (groups of enterprises) and since the 1970s banking activities have expanded. The Financial System Reform Law of 1992 permitted Japanese banks to conduct securities business through subsidiaries in which they had a 50% or greater share.

Industrial-financial groups persist and often prosper in many developing countries. During the Soviet regime, for example, the Russian banking system consisted of a single, monolithic bank owned by the state. The financial reforms of 1987 created three regional banks from the former state bank. The reforms of the early 1990s enabled a large number of private banks, over 2000 by 1993, to be established in Russia. The freedom to set up and own banks led to widespread enterprise shareholding. According to a survey in 1994 (Belyanova and Rozinsky, 1995), ownership of new banks was dominated by new private companies, while former state banks were in the main held by state institutions, state enterprises, private enterprises, and individuals, each with around 25% of the shares. Bank ownership of enterprises is, however, much less widespread. The banking industry of Taiwan was deregulated in the early 1990s, and before this liberalization most banks were state-owned and banking entry was highly regulated. The Ministry of Finance revised the Banking Law in 1991 to allow for the setting up of private commercial banks. Deregulation provided a means for the entry of private banks into the market, and the number of banks increased from 24 in 1990 to 51 in 2003 (Ma, 2007).

To summarize, worldwide deregulation has greatly broadened the activities of banks, but there are still substantial variations in the ability of banks to engage in securities, insurance, and real estate activities and in the combining of banking and commerce in different countries (Barth et al., 2001). More research into these variations is therefore required.

## *2.2. The integration of finance and commerce in China*

### *2.2.1. Investing in commercial banks*

The financial system of China was highly centralized under the Ministry of Finance after the establishment of the People's Republic of China in 1949. The People's Bank of China was the mono-bank and engaged in savings, credit, and money supply. Market entry and financial innovation was suppressed. Decentralization gradually followed with China's reform and open policy, and in 1979 the People's Bank of China separated from the Ministry of Finance and became the central bank. Subsequently, the Bank of China, the China Construction Bank, the Agricultural Bank of China, and the Industrial and Commercial Bank of China were established and began functioning as commercial banks. The joint stock commercial banks emerged in the 1980s. Of these, the Bank of Communications was the first national joint stock commercial bank, with 72% of its stocks held by the state and local government, and 28% by commercial firms. It was the first time commercial firms were allowed to enter the banking sector. Investment in the banking sector by commercial firms has since grown rapidly, and they have become important stakeholders in many commercial banks, such

as China Construction Bank, China Minsheng Bank, China Merchants Bank, Huaxia Bank, and Shanghai Pudong Development Bank.

### 2.2.2. Establishing finance firms

To facilitate the development of business groups, the State Council issued *Provisions on Further Promoting the Horizontal Economic Alliance* in 1986, and *Opinions on the Formation and Development of Business Groups* in 1987. These regulations allowed business groups to set up finance firms with the approval of the People's Bank of China. Finance firms can arrange borrowing and lending within the business group, and carry out transactions with banks or other financial institutions. Business groups can raise money from the public. The first finance company approved was the Dongfeng Motor Finance Company, established in May 1987, and many business groups have since established finance subsidiaries, including Petrol China, China Power, the CITIC Group, the China Everbright Group, China Wanxiang, the New Hope Group, the Haier Group, etc. By the end of 2015, 186 finance firms were organized by commercial firms in China.<sup>5</sup>

### 2.2.3. Cross-industry operations and the formation of financial holding groups

The four state-owned banks began multi-operations in 1984, in areas such as securities, leasing, real estate, and investment. The People's Bank of China was at the time both central bank and regulatory body, in charge of the regulation of banking, investment banking, insurance, and trust firms. However, due to the weak legal system, insufficient discipline, and a lack of risk control, the money from the banking sector flooded into the stock market and real estate. This dried up the credit funds available for enterprises, producing bubbles in the stock and real estate markets. By the beginning of the 1990s the financial system was seriously chaotic, the inflation rate was high, and the economy overheated. The central government then began to rectify and regulate the financial market, and in 1993 the State Council issued the *Decision on the Reform of the Financial System*, proposing the separation principle for the financial industry. The Law of the People's Bank of China, the Law of Commercial Banks, and the Law of Insurance were successively issued since 1995. These laws set up the rules of separating banking from commerce, and separating banking, investment banking, and insurance. Banks are prevented from owning equities in commercial firms, but commercial firms can still invest in banks. The China Securities Regulatory Commission was established in 1992 followed by the setting up of the China Banking Regulatory Commission and the China Insurance Regulatory Commission. These regulatory bodies aided the development of a sound financial market.

A global trend of broadening bank activities has emerged since the 1990s, and China's separate operation model was also relaxed. Commercial banks were able to set up fund management subsidiaries. And cross-industry operations could be realized through holding companies. For example, the Ping An China Group has insurance, securities, and commercial banking subsidiaries. The separation of Chinese banking and commerce is also a unilateral separation: commercial firms can invest in the financial sector.

An increasing number of business groups have entered the financial industry since 1997. The Haier Group invested RMB500 million in Qingdao Bank in 2001, and invested in Changjiang Securities and the Anshan Trust and Investment Co. It established its own finance subsidiary in 2002. The Luneng Group has strategically become the largest shareholder of Huaxia Bank, Xiangcai Securities, and Weishen Securities, the fourth largest shareholder of the Bank of Communications, and the controlling shareholder of Jinan Yingda International Trust and Shandong Jinshui Futures. Another example is the New Hope Group, the founding investor of China Minsheng Bank, which has now expanded its investment into insurance, securities, and investment firms. The main investing force in the financial industry is in fact the firms controlled by SASAC (State-owned Assets Supervision and Administration Commission of the State Council). Most SASAC-controlled firms have established finance subsidiaries, with some extending to banking, securities, insurance, and futures. In addition, many local governments restructured their banking, securities, insurance, trust, and leasing affiliates into controlling financial groups after 2009.

<sup>5</sup> The statistics are obtained from the website of the China Banking Regulatory Commission: <http://www.cbrc.gov.cn/chinese/jrjg/index.html>



In July 2013, the State Council issued its *Guidance on Financial Support to the Economic Structure Adjustment, Transition, and Upgrading*. The Guidance proposed 10 reform policies encouraging private capital to invest in financial institutions. By the end of 2013, 36 commercial banks were approved to be sponsored by private capital.

#### 2.2.4. *The rise of supply chain finance and Internet finance*

In recent years, certain group companies have started to explore a new financing business model, providing financial services along the group supply chain. This innovation is known as supply chain finance, and it provides short-term credit and optimizes working capital for both the buyer and seller. Internet finance is another emerging innovation. E-commerce firms are able to start up various financial services by leveraging their customer and big data advantages. The businesses involve credit cards, mini-loans, insurance, and asset management. These new financing models have come into being through commercial firms rather than traditional financial institutions.

To summarize, China's financial market is emerging from its preliminary stage. In the process, we witness the unprecedented enthusiasm of commercial firms to invest in various sectors of the financial industry. This wave of enthusiasm for the financial sector promises technology and business innovations, but there are also possible hidden risks.

### 3. Literature review and theoretical underpinning

Theoretically, there are both costs and benefits of merging banking and commerce. The often-claimed benefits are a reduction of portfolio risk, economics of scale and/or scope, new sources of capital, a reduction of transaction costs, etc. The cost concerns include conflicts of interest, excessive market power, and risk contagion. The economic perspectives of bank ownership in commercial firms have been investigated, particularly in relation to German and Japanese banks. The findings of empirical studies generally support the theoretical arguments that banks' equity stakes in commercial firms reduce agency costs and the cost of capital, affect firm performance, and lower the cost of financial distress (see the review of Santos, 1997). The motivations and economic consequences of commercial firms' equity stakes in banks are, however, relatively unexamined. Ma (2007) argues that the investment by Taiwan firms during 1990s in the banking sector was used as a strategic commitment to an aggressive output stance, thus moving the industry to an equilibrium that is more favorable to the firms. Laeven (2001) and others find that the extensive enterprise ownership of banks in Russia fostered related lending. Lu et al. (2012) investigate the economic consequences of holding 5% or greater equity stakes in banks by nonfinancial listed firms from 2006 to 2008 in China. They find that for non-state-owned firms, holding significant bank ownership leads to lower interest expenses and less financial constraints. Combining these theoretical predictions and empirical findings with practices in China, we propose that obtaining high returns in the financial industry, reducing transaction costs, and diversifying risk are the three main economic reasons Chinese nonfinancial firms expand their operations into the financial sector.

#### 3.1. *Obtaining high returns of financial industry*

Capital is profit driven. Tobin (1969) explains how money and capital can be inter-convertible using  $q$  theory. When  $q$  is greater than 1, the valuation of existing capital is higher than its replacement cost, causing investment in real capital. However, when  $q$  is smaller than 1, the valuation of existing capital is lower than its replacement cost. Selling assets at replacement cost and investment in the money market can reap higher returns on capital. In a similar vein, Porter (1985) points out that when an industry's rate of return stays at a low level and there is no sign of improvement in the future, firms in that industry will look elsewhere for better investment opportunities. The financial industry has traditionally featured high returns and high risk. Over the past ten years, the banking sector has been the most profitable industry in China, and higher profits have attracted more investment.<sup>6</sup> Therefore, we argue that the primary motivation for listed firms to invest in

<sup>6</sup> For example, in 2011, the average rate of return for the commercial sector was about 8%. For the same year, the return on equity for commercial banks was 20.4% (Yang and Dai, 2012).

the financial sector is to reap the high profitability of the financial industry. This argument is also consistent with life-cycle theory, which states that mature firms with abundant cash flow will start new businesses to sustain growth.

### 3.2. Reducing transaction costs

Firms and markets are two substitutable forms of resource allocation. The scope of a firm is determined by balancing the costs of organizing within the firm with the costs of organizing in another firm, or the costs involved in leaving the transaction to be organized by the price mechanism (Coase, 1937). Williamson (1979, 1985) pointed out that transaction costs include those of search and information, bargaining, and policing and enforcement. Firms weigh the costs of exchanging resources in the environment against the bureaucratic costs of performing activities in-house. Transaction costs related to the exchange of resources with the external environment may be reflected by environmental uncertainty, opportunism, risks, bounded rationality, core company assets, etc. For example, if firms view the environmental uncertainty as high, they may choose not to outsource or exchange resources with the environment.

Goto (1982) and Diamond (1984) use transaction cost theory to identify the fundamental reason for the existence of business groups and conglomerates. Goto (1982) states that if a firm forms or joins a group, it can economize on the transaction costs it would have incurred if the transaction had been carried out through the market, and can at the same time avoid the scale diseconomies or control losses that would have occurred if it had expanded internally and performed the transaction within the firm. If the net benefit of forming or joining a group exceeds that of implementing a transaction with the firm or through the market, the firm has the incentive to form or to join a group. This explains the existence of universal banks in Germany and of Keiretsus in Japan. Diamond (1984) develops a theory of financial intermediation based on minimizing the cost of monitoring information, which is useful in resolving incentive problems between borrowers and lenders. A financing intermediary has a net cost advantage relative to direct lending and borrowing, but intermediaries must bear certain risks for incentive purposes. To diversify the risks, financial intermediaries and firms can form conglomerates.

Hoshi et al. (1991) provide empirical evidence that within business groups where banks own large equity stakes in member firms and lend considerable capital, the information and incentive costs are low, free-rider problems can be reduced, and the costs of financial distress are also lower. In China, bank loans are the main source of financing (Allen et al., 2007). Due to transaction costs, credit quotas, and lending discriminants, many firms, particularly private ones, are constrained when obtaining bank loans. To finance their projects, firms need to maintain sound relationships with banks. They may even directly own equity stakes in banks.<sup>7</sup> Therefore, we predict that by investing in financial institutions, firms can internalize transaction costs when obtaining finance.

### 3.3. Diversification strategy

Commercial firms invest in the financial sector to diversify. There are costs and benefits to diversification. Diversified firms can utilize the internal capital markets to better allocate firm resources (Stein, 1997). Diversification also brings synergy effects and reduces risk (Hill and Hoskisson, 1987; Amit and Livnat, 1988). Diversification can, however, aggregate agency problems (Jensen, 1986). Managers use diversification to avoid risks and increase firm size uneconomically (Rajan et al., 2000). By investing in the financial sector, commercial firms can utilize investment opportunities that differ from their own line of business while stabilizing their overall income. For example, the Baosteel Group realized its income even in years when the steel industry as a whole was suffering losses, by reaping its profits from the financial sector.

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<sup>7</sup> The Law of Commercial Banks released in 2003, article 40, states that commercial banks shall not issue credit loans to related parties; the provisions of collateral debt a commercial bank issued to related parties shall not be superior to those of similar debt issued to other parties. Where related parties include (1) the directors, supervisors, managers, and creditors and their close relatives of a commercial bank; and (2) the corporations, enterprises, and other economic organizations those listed above persons in or serve as top management. However, these regulations do not bar the issuance of credit debt to shareholders by commercial firms, as long as the shareholder has not appointed directors, supervisors, or managers to its invested banks. Even if the shareholder of a commercial bank has appointed directors, and/or supervisors, and/or managers to the invested bank, the bank can still issue collateral debt to its shareholder.



## 4. Research design

### 4.1. Models

Based on previous analysis, we construct regression models to investigate the motivations and economic consequences of commercial companies holding equity stakes in financial firms. We identify three motivations for commercial firms to invest in the financial sector: obtaining high returns, reducing transaction costs, and diversifying to reduce risks. We expect that when an industry's competition intensifies, returns decrease, and a firm will seek to invest in a more prosperous and profitable industry. We use the Herfindahl index (HHI, where a lower HHI indicates a higher level of competition) to measure the extent of industry competition,  $Q$  to measure investment opportunities, and ROA to measure profitability. We predict that the lower the HHI, the lower the  $Q$ , and the lower the ROA, the more likely a firm is to invest in the financial sector. A firm needs external finance to support its growth. In a perfect world, a firm can obtain finance without cost, so financing will be determined by the investment opportunity. However, in the real world, transaction costs make financing expensive. Firms are often financially constrained. We use the cost of debt financing to measure the transaction costs for obtaining loans. We expect that the higher the debt cost, the more likely firms will be to invest in the financial sector. Based on diversification theory, larger firms, older firms, and those with more cash flow are more likely to diversify operations and invest in the financial sector.

Investment in financial institutions constitutes one part of investment decisions. Therefore we control for other factors that influence investment, including internal cash flow (Cashflow), the level of debt (LEV), and uncertainty (Risk). In China, government control and institutional environments are important determinants of economic decisions, so we control for government control (GOV, a dummy variable for state-controlled firms), ownership concentration (Top1, the ownership of the largest shareholder), and the extent of marketization (Lnindex).

We use a Logit model to investigate the motivations of holding equity stakes in financial institutions. The model is as follows:

$$\begin{aligned} \text{Logit}(p) &= P(y_{i,t} = 1) \\ &= \beta_0 + \beta_1 \text{HHI}_{i,t} + \beta_2 Q_{i,t-1} + \beta_3 \text{ROA}_{i,t} + \beta_4 \text{Debtcost}_{i,t} + \beta_5 \text{Size}_{i,t-1} + \beta_6 \text{Lnage}_{i,t} \\ &\quad + \beta_7 \text{Cashholding}_{i,t-1} + \beta_8 \text{Cashflow}_{i,t} + \beta_9 \text{LEV}_{i,t-1} + \beta_{10} \text{Risk}_{i,t} + \beta_{11} \text{GOV}_{i,t} + \beta_{12} \text{Top1}_{i,t} \\ &\quad + \beta_{13} \text{Lnindex}_{i,t} + \text{YearDummies} + \varepsilon_{it} \end{aligned} \quad (1)$$

$P$  represents the probability of a nonfinancial listed firm investing in the financial sector. The dependent variables are Dfinfirm, Dfinfirmb, or Dfinfirmr. Table 1 gives the definitions of the variables.

To investigate the economic consequences of holding equity stakes in financial firms, we test the changes in firm performance before and after investing in the financial industry. In particular, we check the ROA and the components of ROA: CROA (operating return on total assets) and IROA (investment income on total assets). We also test for changes in the cost of debt (Debtcost), cash-holdings of investing firms (Cashholding), and stock price performance (Rw).

We use the following fixed-effect panel data regression to evaluate the influence of investing in the financial industry on firm performance:

$$\begin{aligned} \text{Performance}_{i,t} &= \beta_0 + \beta_1 \text{FIN}_{i,t} + \beta_2 \text{Size}_{i,t-1} + \beta_3 \text{LEV}_{i,t-1} + \beta_4 Q_{i,t-1} + \beta_5 \text{Risk}_{i,t} + \beta_6 \text{Lnage}_{i,t} \\ &\quad + \beta_7 \text{GOV}_{i,t} + \beta_8 \text{Top1}_{i,t} + \beta_9 \text{Lnindex}_{i,t} + \text{Yeardummy} + \varepsilon_{it} \end{aligned} \quad (2)$$

In model (2), the dependent variable, Performance, takes CROA, IROA, ROA, Debtcost, Rw, and Cashholding, where applicable. The main independent variable is the indicator of investing in the financial sector, and takes Dfin, Dfin and Dfinb, Dfin and Dfinr, Dfin and Ratio1, and Dfin and Ratio2, respectively. Size, LEV,  $Q$ , Risk, Lnage, GOV, Top1, and Lnindex are control variables. The model also controls for firm- and year-fixed effects. The variable definitions are given in Table 1.

Table 1  
Variable definitions.

Variable	Definition
Dfinfirm	Dummy variable, coded 1 for firms with equity investment in the financial sector during 1999–2012, and 0 for firms without equity investment in the financial sector. This variable is coded at the firm-level. That is, if in any year during 1999–2012 a firm has equity investment in the financial sector, all the years of this firm are coded 1
Dfinfirmb	Dummy variable, coded 1 for firms with equity investment in the banking sector during 1999–2012 and 0 otherwise, also coded at the firm-level
Dfinfirmr	Dummy variable, coded 1 for firms with equity investment in banking, securities, and insurance sectors, where regulations are strict; coded 0 for firms with equity investment in the less-regulated financial sector, also coded at the firm-level
Dfin	Dummy variable, coded 1 for firm-years with equity investment in the financial sector, and 0 otherwise. This variable is coded at the firm-year-level
Dfinb	Dummy variable, coded 1 for firm-years with equity investment in the banking sector, and 0 otherwise. This variable is coded at the firm-year-level
Dfinr	Dummy variable, coded 1 for firm-years with equity investment in banking, securities and insurance sectors with strict regulation; and 0 for firm-years with equity investment in the less-regulated financial sector. This variable is coded at the firm-year-level
Invamt	The total balance of equity investment in financial institutions in RMB Yuan as at the end of a year
Ratio1	The first depth measure of equity investment in financial institutions, calculated as the total balance of equity investment in financial institutions divided by total assets
Ratio2	The second depth measure of equity investment in financial institutions, calculated as the total balance of equity investment in financial institutions divided by net assets
HHI	The Herfindahl index based on the ratio of industry turnover. The lower the index, the more intensive the competition
Q	The market-to-book ratio, calculated as the sum of market capitalization and the book value of debt divided by book value of total assets
CROA	Operating return on assets, calculated as operating earnings divided by average total assets
IROA	Investment return on total assets, calculated as investment income divided by average total assets
ROA	Return on assets, calculated as net income divided by average total assets
Debtcost	Cost of debt, calculated as financial expenses divided by average interest bearing debt
Size	Firm size, calculated as the log of total assets
Lnage	Log of listing age
Cashholding	Cash divided by total assets
Cashflow	Cash flows from operating activities divided by total assets at the beginning of the year
LEV	Leverage, calculated as total liabilities divided by total assets
Risk	Stock price volatility, calculated as the standard deviation of weekly stock returns during a year
Rw	Stock return, calculated as the mean of weekly market adjusted idiosyncratic stock returns during a year
GOV	Dummy variable for the type of shareholder, coded 1 for firms whose ultimate controlling shareholder is government or state asset management bureaus
Top1	The ownership ratio of the largest shareholder
Lnindex	Log of the marketization index, which is the index of marketization of <a href="#">Fan et al. (2011)</a> . For firm-years in 2010, the index is estimated based on the change tendency during 2007–2009 ( $\text{Mindex}_{2010} = \text{Mindex}_{2009} + \text{Mindex}_{2008} - \text{Mindex}_{2007}$ ); for firm-years after 2010, the estimated 2010 index is used

#### 4.2. Sample and data

The China Securities Regulatory Commission (CSRC) has required listed firms to publicly release detailed annual reports since 1999, which is therefore when our sample starts. Before 2007, equity investment was reported in the “long-term investment” account and since then, if the invested firm was listed, the investments were transferred to “available-for-sale” investments. For equity investment with over 50% ownership, the subsidiary is consolidated and not reported in the “long-term investment” account, but it can be traced in the footnotes of financial statements, where subsidiary information is disclosed. We therefore hand-collect investment totals, and the ratios invested in financial firms by nonfinancial listed companies, from the annual reports. The financial firms identified include firms providing services of banking, loans, securities, venture capital and private equity, insurance, finance, trusts, guarantees, futures, asset management, investment funds, leasing, and pawnshops. The sample period is 1999–2012. The financial and corporate governance data and stock returns are extracted from Wind and CSMAR.

Table 2  
Research sample.

		Invest in financial sector during 1999–2012?	
		Yes	No
Invest in financial sector in a certain year?			
No		A	
Yes		B	C
Sample for motivation test	A & C, D <sub>firm</sub> coded 1 for firm-years in district A, and 0 for those in district C		
Sample 1 for consequence test	A, C & B, D <sub>firm</sub> coded 1 for firm-years in district B, and 0 for those in district A and C		
Sample 2 for consequence test	A & B, D <sub>fin</sub> coded 1 for firm-years in district B, and 0 for those in district A		

We start with all nonfinancial A-share listed firms from 1999 to 2012, and exclude extreme observations (for example, if the debt-to-asset ratio is greater than 1) and firm-years with missing values. The resulting sample is made up of 15,741 firm-year observations. Depending on the status of the equity stakes held in financial institutions, the 15,471 observations are divided into five groups. The first consists of 4778 observations for firms that never invest in financial institutions, and the second of 3719 for firms consistently reporting investments in financial institutions for all years of the sample period. The third group consists of 4070 observations for firms with no equity investment in financial institutions at the beginning of the sample period but that invest in financial institutions later. The fourth group comprises of 1247 observations for firms that initially have equity stakes in financial institutions but then sell them, and the last consists of 1927 observations for firms that occasionally invest in financial institutions.

To obtain a clean test sample we use the first and third groups totaling 8848 observations to investigate the motivations and the economic consequences of investing in financial institutions.<sup>8,9</sup> We use the first group and the early year observations of the third group before firms have invested in the financial sector to investigate motivations. The dummy variable *D<sub>firm</sub>* is coded 1 for firms that invest in the financial sector later in the 1999–2012 period and 0 otherwise. *D<sub>firm</sub>* is a firm-level indicator. We use two samples to investigate the performance of investing in the financial sector. The first consists of all observations in the first and third group, and the dummy variable *D<sub>fin</sub>* is coded 1 for firm-years with investments in equity stakes of financial institutions and 0 otherwise. This construction results in a difference-in-difference test of the economic consequences when Chinese nonfinancial listed firms integrate finance and commerce. The second sample consists of observations from the third group, where the dummy variable *D<sub>fin</sub>* is coded 1 for firm-years with equity investment in financial institutions and 0 otherwise.<sup>10</sup> Using the second sample, we can compare firm performance before and after equity stakes in financial institutions are held. Table 2 summarizes the construction process of the test samples.

## 5. Empirical results

### 5.1. Descriptive statistics

In empirical tests, all continuous variables are winsorized at 1% and 99%, except the marketization index (*Lnindex*). Table 3 reports the descriptive statistics for the research sample. The firm-level statistics show that on average, 46% of firms have equity investment in the financial sector between 1999 and 2012, and 21.21% of firms hold equity stakes in banks, with 28.05% holding equity stakes in banking, securities, and

<sup>8</sup> Typically, the sample for the Logistic regression can be obtained by matching the research sample with a control sample. The matching standards can be industry, firm size, profitability, ... and so on, depending on the research scenario. However, in this study, industry, firm size, profitability, and other firm characteristics are independent variables of interest. If these differences are removed, the regression will become meaningless.

<sup>9</sup> As lag variables are used, the regression sample is slightly smaller.

<sup>10</sup> This sample is used in robustness checks.

Table 3  
Descriptive statistics.

	Obs.	Mean	Median	S.D.	Minimum	Maximum
Dfinfirm	8848	0.4600	0	0.4984	0	1
Dfinfirmb	8848	0.2121	0	0.4088	0	1
Dfinfirmr	8848	0.2805	0	0.4493	0	1
Dfin	8848	0.2722	0	0.4451	0	1
Dfinb	8848	0.1118	0	0.3151	0	1
Dfinr	8848	0.1667	0	0.3727	0	1
Invamt	8848	$5.1306 * 10^7$	0	$3.4742 * 10^8$	0	$1.65 * 10^{10}$
Ratio1	8848	0.0081	0	0.0277	0	0.2216
Ratio2	8848	0.0171	0	0.0572	0	0.4579
HHI	8848	0.0751	0.0465	0.0966	0.0193	0.8236
Q	8848	1.6093	1.3172	0.8757	0.6723	6.1038
CROA	8848	0.0440	0.0408	0.0661	-0.1869	0.2435
IROA	8848	0.0064	0.0009	0.0179	-0.0267	0.1084
ROA	8848	0.0385	0.0370	0.0597	-0.2006	0.2111
Debtcost	8848	-0.0525	0.0364	0.5140	-4.4348	0.1594
Size	8848	21.4987	21.3298	1.1668	19.2094	26.0217
Age	8848	8.0118	7	4.6009	1	20
Lnage	8848	1.8752	1.9459	0.6992	0	2.9957
Cashholding	8848	0.1734	0.1414	0.1271	0.0059	0.6636
Cashflow	8848	0.0551	0.0526	0.0996	-0.2717	0.3738
LEV	8848	0.4709	0.4775	0.1933	0.0508	0.9369
Risk	8848	0.0454	0.0428	0.0175	0.0163	0.0985
GOV	8848	0.6443	1	0.4787	0	1
Top1	8848	0.3928	0.3794	0.1613	0.0909	0.7500
Mindex	8848	7.9440	7.97	2.3758	1.72	12.04
Lnindex	8848	2.0218	2.0757	0.3305	0.5423	2.4882

insurance institutions over the same period. At the firm-year-level, on average 27.22% have equity investment in the financial sector, 11.18% in the banking sector, and 16.67% in banking, securities, and the insurance sector. The depth of investment in the financial sector on average is 0.81% of total assets and 1.71% of net assets, with maximums of 22.16% of total assets and 45.79% of net assets. The investment amount averages  $5.1306 * 10^7$  and the maximum value is  $1.65 * 10^{10}$ . Investing in financial institutions is therefore very attractive for nonfinancial listed Chinese firms, though the level of investment varies greatly.<sup>11</sup> We conduct correlation checks for independent variables and find that the Pearson correlation coefficients are below 0.4, so multicollinearity is not serious in our research.<sup>12</sup>

## 5.2. Motivations for investing in financial institutions

Here we examine the results of logistic regressions of the determinants or motivations of investing in the financial sector. Government and regulation are important influencers of economic life in China, so we therefore investigate state-controlled firms and non-state controlled firms separately. The financial sector is highly regulated, and banking, securities, and insurance industries are subject to the strictest regulations. For nonfinancial firms, the goal of investing in the strictly regulated financial sector may be to obtain permits rather than profits. We therefore separately investigate the motivations of investing in the strictly regulated financial sector and in the relatively less strictly regulated sector. As the debate on separating banking and commerce

<sup>11</sup> Note that the statistics here are for Group 1 and 3 only. The remaining three groups of firms all occasionally had equity investment in the financial sector. Therefore, the popularity of holding equity stakes in financial institutions is much more common for non-financial listed firms as a whole.

<sup>12</sup> To save space, the correlation coefficients are not reported but are available upon request.

Table 4a  
Determinants of equity investment in financial institutions.

	Whole sample		State-controlled firms		Non-state-controlled firms	
	Coef.	Z value	Coef.	Z value	Coef.	Z value
Constant	-8.0257	-8.85 <sup>***</sup>	-7.5275	-7.12 <sup>***</sup>	-9.2915	-4.71 <sup>***</sup>
HHI	-0.7330	-2.26 <sup>**</sup>	-0.2391	-0.66	-2.7700	-3.31 <sup>***</sup>
<i>Q</i>	0.0075	0.12	-0.0456	-0.57	0.1151	1.16
ROA	3.7831	5.61 <sup>***</sup>	3.2537	3.92 <sup>***</sup>	4.2071	3.53 <sup>***</sup>
Debtcost	-0.0069	-0.08	-0.1383	-1.38	0.6264	1.76 <sup>*</sup>
Size	0.3942	9.33 <sup>***</sup>	0.3894	8.00 <sup>***</sup>	0.4201	4.60 <sup>***</sup>
Lnage	-0.4471	-6.16 <sup>***</sup>	-0.5115	-5.72 <sup>***</sup>	-0.4198	-3.11 <sup>***</sup>
Cashholding	1.6175	4.90 <sup>***</sup>	1.5043	3.66 <sup>***</sup>	2.1255	3.69 <sup>***</sup>
Cashflow	0.3878	1.05	1.0027	2.17 <sup>**</sup>	-0.7706	-1.22
LEV	1.3940	6.30 <sup>***</sup>	1.2176	4.57 <sup>***</sup>	1.9846	4.76 <sup>***</sup>
Risk	-5.1940	-1.79 <sup>*</sup>	-9.2367	-2.62 <sup>***</sup>	4.4854	0.85
GOV	0.0299	0.37	-	-	-	-
Top1	-0.4714	-2.09 <sup>**</sup>	-0.9957	-3.80 <sup>***</sup>	1.0241	2.25 <sup>**</sup>
Lnindex	0.0028	0.02	0.1948	1.24	-0.5001	-1.95 <sup>*</sup>
Year	Controlled		Controlled		Controlled	
LR chi2		648.29 <sup>***</sup>		480.84 <sup>***</sup>		192.06 <sup>***</sup>
Pseudo R2		0.1066		0.1127		0.1075
OBS		5103		3464		1639

Note: the Z values are calculated using robust standard errors.

\*\*\* Indicates the coefficient is statistically significant at 1%.

\*\* Indicates the coefficient is statistically significant at 5%.

\* Indicates the coefficient is statistically significant at 10%.

has continued for many years, we also test the motivations of equity investments in banks and non-bank firms separately. Tables 4a and 4b report the results.

Tables 4a and 4b shows that the coefficient on the extent of industry competition (HHI) is negative in six out of seven regressions, indicating that the lower the HHI (i.e., the higher the extent of industry competition), the more likely nonfinancial firms are to invest in the financial sector. The negative coefficients are, however, significant only for the whole sample, the non-state controlled firm sample, the non-bank equity investment sample, and for the sample of investment in relatively less strictly regulated industries. The extent of industry competition is not a consideration for state-controlled firms, for those investing in the banking sector, and those investing in the strictly regulated sector. Government influence, rather than market forces, may drive the investment decisions of state-controlled firms. We also find that obtaining permits, rather than industry competition pressure, is the main concern when investing in the banking sector and the highly regulated financial sector.

The coefficients on the cost of interest-bearing debt (Debtcost) are significant only in the non-state controlled sample and in the investment in the banking sector regression, which indicates that non-state controlled firms are more financially constrained and aim to reduce transaction costs by investing in the financial sector. Firms with higher debt costs are more likely to invest in banks, in the hope of reducing their debt costs.

The coefficients on profitability (ROA), leverage (LEV), firm size (Size), and cash holding (Cashholding) are statistically positive across the seven regressions. More profitable and larger firms, and those with ample debt financing and abundant cash, are therefore more likely to investment in the financial sector, as they are less financially constrained. Their motivations for holding equity investment in financial institutions are more consistent with the diversification strategy. The coefficient on listing age (Lnage) is, however, negative and significant, which seems inconsistent with diversification theory, but the unique IPO market in China, with its high offering prices, high pricing in terms of P/E ratio, and high over-raised funds, causes newly listed firms to over-invest, including investing in the financial sector.

The explanatory power of the major determinants of investment, investment opportunity (*Q*), internal cash flow (Cashflow), and uncertainty (Risk) varies. The coefficients on investment opportunity are not significant



Table 4b  
Determinants of equity investment in financial institutions (group regressions based on the type of invested firms).

	Investment in banks		Investment in non-bank financial institutions		Investment in the strictly regulated financial sector		Investment in the less-regulated financial sector	
	Coef.	Z value	Coef.	Z value	Coef.	Z value	Coef.	Z value
Constant	-4.3297	-3.01***	-11.4123	-10.88***	-5.2526	-4.04***	-11.9061	-10.78***
HHI	0.0589	0.15	-1.6686	-3.36***	-0.2520	-0.65	-1.4800	-2.87***
Q	-0.1540	-1.40	0.0789	1.15	-0.1224	-1.22	0.0799	1.12
ROA	3.4757	3.52***	4.0465	5.00***	3.2482	3.60***	4.3459	5.04***
Debtcost	2.2259	2.27**	-0.0618	-0.69	0.5247	1.50	-0.0544	-0.59
Size	0.2385	3.54***	0.4913	10.14***	0.2876	4.70***	0.4942	9.75***
Lnage	-0.4988	-4.61***	-0.4353	-5.15***	-0.6490	-6.57***	-0.3085	-3.44***
Cashholding	0.9761	1.90*	2.2760	5.98***	0.8268	1.81*	2.4036	5.99***
Cashflow	1.1684	2.04**	-0.0766	-0.18	0.7384	1.44	0.0459	0.10
LEV	0.8170	2.51**	1.6187	6.10***	1.0541	3.56***	1.6233	5.77***
Risk	-10.5947	-2.38**	-2.5561	-0.74	-11.0221	-2.70***	-0.5124	-0.14
GOV	0.1772	1.46	-0.0612	-0.64	0.2259	2.02**	-0.1395	-1.38
Top1	-0.9592	-2.94***	-0.1728	-0.65	-0.9003	-3.01***	-0.1155	-0.41
Lnminindex	-0.2413	-1.30	0.1821	1.14	-0.0608	-0.35	0.0814	0.48
Year	Controlled		Controlled		Controlled		Controlled	
LR chi2		433.94***		446.63***		537.22***		356.75***
Pseudo R2		0.1314		0.0996		0.1400		0.0890
OBS		4217		4543		4356		4404

Note: the Z values are calculated using robust standard errors.

\*\*\* Indicates the coefficient is statistically significant at 1%.

\*\* Indicates the coefficient is statistically significant at 5%.

\* Indicates the coefficient is statistically significant at 10%.

Table 5a  
Effect of holding equity stakes in financial institutions on operating performance (dependent variable: CROA).

	(1)		(2)		(3)		(4)		(5)	
	Coef.	T value	Coef.	T value	Coef.	T value	Coef.	T value	Coef.	T value
Constant	0.1813	5.33***	0.1813	5.33***	0.1815	5.34***	0.1859	5.46***	0.1887	5.55***
Dfin	-0.0040	-1.63	-0.0044	-1.59	-0.0009	-0.29	-0.0012	-0.46	0.0010	0.36
Dfinb			0.0011	0.32						
Dfinr					-0.0059	-1.71*				
Ratio1							-0.0995	-2.81***		
Ratio2									-0.0853	-5.14***
Size	-0.0065	-3.96***	-0.0065	-3.96***	-0.0065	-3.97***	-0.0066	-4.07***	-0.0068	-4.15***
LEV	-0.0337	-5.68***	-0.0338	-5.69***	-0.0333	-5.62***	-0.0340	-5.74***	-0.0323	-5.46***
Q	0.0139	12.69***	0.0139	12.70***	0.0138	12.65***	0.0139	12.71***	0.0138	12.65***
Risk	-0.1179	-2.21**	-0.1178	-2.21**	-0.1172	-2.20**	-0.1159	-2.18**	-0.1150	-2.16**
Lnage	-0.0241	-5.93***	-0.0241	-5.92***	-0.0240	-5.92***	-0.0243	-5.98***	-0.0248	-6.11***
GOV	-0.0135	-4.70***	-0.0135	-4.68***	-0.0136	-4.73***	-0.0135	-4.70***	-0.0136	-4.72***
Top1	0.0931	11.15***	0.0932	11.15***	0.0928	11.11***	0.0923	11.05***	0.0919	11.02***
Lnindex	0.0002	0.13	0.0002	0.13	0.0002	0.14	0.0001	0.05	0.0000	0.01
Year	Controlled		Controlled		Controlled		Controlled		Controlled	
R <sup>2</sup> within		0.1082		0.1082		0.1086		0.1092		0.1116
F		38.11***		36.46***		36.59***		36.83***		37.74***
OBS		8113		8113		8113		8113		8113
No. of firms		1182		1182		1182		1182		1182

Note: the *t*-values are calculated using robust standard errors.

\*\*\* Indicates the coefficient is statistically significant at 1%.

\*\* Indicates the coefficient is statistically significant at 5%.

\* Indicates the coefficient is statistically significant at 10%.

in any regressions. Therefore, listed firms do not wait until investment opportunities in their own industry are exhausted before entering the financial sector. For state-controlled firms, and for determinants of equity investment in banks, the coefficients on internal cash-flow are positive and significant, possibly indicating a free cash-flow problem. The coefficients on uncertainty are significant for the state-controlled firms sample and on the determinants of equity investment in banks and in the strictly regulated financial sector, which is consistent with the real stock option theory of investment.

Finally, the explanatory power of the corporate governance variables—the type of controlling shareholder (GOV), ownership concentration (Top1), and the marketization index (Lnindex)—also varies. First, government control is only important in determining equity investment in the strictly regulated financial sector, which may indicate that connection with the state is useful in obtaining entry permits in the highly regulated sector. Second, for determinants of equity investment in banks, in the highly regulated financial sector, and for the state-controlled sample, the coefficients on the ownership of the largest shareholder are negative, but positive for the non-state controlled sample. Therefore, the higher the ownership concentration, the less willing state-controlled firms are to invest in the financial sector, but the more willing non-state-controlled firms are to invest. Finally, the overall explanatory power of the extent of marketization is low.

### 5.3. Economic consequences of holding equity stakes in financial institutions: Effect on operating returns (CROA)

Tables 5a and 5b report firm- and year-fixed effect estimates of the effect on operating returns of holding equity stakes in financial institutions. The coefficients on indicators of equity investment in financial institutions and in banks are insignificant, but this does not mean there is no effect on operating returns. The coefficients on the indicator of equity investment in strictly regulated financial institutions and on the depth of investment are negative and statistically significant. Investing in strictly regulated financial

Table 5b

Effect of holding equity stakes in financial institutions on operating performance: The effects of government control (dependent variable: CROA).

	(6)		(7)		(8)		(9)		(10)	
	Coef.	T value	Coef.	T value	Coef.	T value	Coef.	T value	Coef.	T value
Constant	0.1812	5.32***	0.1808	5.31***	0.1825	5.36***	0.1858	5.45***	0.1886	5.55***
Dfin	-0.0037	-1.02	-0.0023	-0.52	0.0051	1.06	0.0000	-0.00	0.0010	0.26
Dfinb			-0.0033	-0.59						
Dfinr					-0.0161	-2.80***				
Ratio1							-0.1082	-2.54**		
Ratio2									-0.0697	-3.39***
Dfin * GOV	-0.0004	-0.09	-0.0030	-0.62	-0.0087	-1.57	-0.0017	-0.40	-0.0004	-0.08
Dfinb * GOV			0.0065	0.99						
Dfinr * GOV					0.0149	2.22**				
Ratio1 * GOV							0.0103	0.33		
Ratio2 * GOV									-0.0220	-1.35
Size	-0.0065	-3.96***	-0.0065	-3.95***	-0.0065	-4.00***	-0.0066	-4.07***	-0.0068	-4.16***
LEV	-0.0337	-5.68***	-0.0339	-5.71***	-0.0337	-5.67***	-0.0340	-5.72***	-0.0324	-5.46***
Q	0.0139	12.69***	0.0139	12.69***	0.0138	12.62***	0.0139	12.70***	0.0138	12.60***
Risk	-0.1179	-2.22**	-0.1180	-2.22**	-0.1169	-2.20**	-0.1163	-2.19**	-0.1139	-2.14**
Lnage	-0.0241	-5.93***	-0.0241	-5.94***	-0.0242	-5.95***	-0.0243	-5.99***	-0.0248	-6.10***
GOV	-0.0134	-4.29***	-0.0135	-4.32***	-0.0138	-4.40***	-0.0131	-4.19***	-0.0129	-4.13***
Top1	0.0931	11.14***	0.0934	11.16***	0.0926	11.08***	0.0922	11.03***	0.0918	11.00***
Lnmindex	0.0002	0.13	0.0002	0.15	0.0003	0.22	0.0001	0.04	0.0000	0.02
Year	Controlled		Controlled		Controlled		Controlled		Controlled	
R <sup>2</sup> within	0.1082		0.1084		0.1092		0.1093		0.1119	
F	36.45***		33.57**		33.88***		33.89***		34.80***	
OBS	8113		8113		8113		8113		8113	
No. of firms	1182		1182		1182		1182		1182	

Note: the *t*-values are calculated using robust standard errors.

\*\*\* Indicates the coefficient is statistically significant at 1%.

\*\* Indicates the coefficient is statistically significant at 5%.

\* Indicates the coefficient is statistically significant at 10%.

institutions is therefore negatively related to a firm's ability to acquire operating earnings. As the amount of investment in financial institutions increases, operating return on assets decrease.

Table 5b demonstrates the effect of government control when including the interactions of GOV and the depth variables of holding equity stakes in financial institutions. The results in Column (8) show that government control influences the effect of operating earnings when investing in strictly regulated financial institutions. For non-state-controlled listed firms, investing in strictly regulated financial institutions is associated with a decrease in operating performance. The coefficient on Dfinr is -0.0161, which is significant at less than 1%. For state-controlled listed firms, this investment is not associated with decreased operating performance and the coefficient on Dfinr \* GOV is 0.0149, significant at less than 5%. The aggregated effect of holding equity stakes in strictly regulated financial institutions is -0.0012 (-0.0161 + 0.0149). Non-state-controlled firms may place more importance on obtaining entry permits than on short-run economic returns.

#### 5.4. Economic consequences of holding equity stakes in financial institutions: Effect on investment income (IROA)

Here, we investigate the effect of holding equity stakes in financial institutions on the performance of external expansion. As one component of external expansion, investment in financial institutions can contribute to investment income, which we therefore expect to increase. The firm- and year-fixed effect estimates are reported in Tables 6a and 6b. In regression (11) of Table 6a, the coefficient on Dfin is positive and significant, indicating that holding equity stakes is positively related with investment income. In regression (12), the coef-

Table 6a

Effect of holding equity stakes in financial institutions on investment performance (dependent variable: IROA).

	(11)		(12)		(13)		(14)		(15)	
	Coef.	T value	Coef.	T value	Coef.	T value	Coef.	T value	Coef.	T value
Constant	0.0707	6.68***	0.0706	6.67	0.0706	6.67***	0.0688	6.50***	0.0694	6.56***
Dfin	0.0022	2.86***	0.0013	1.52	0.0015	1.59	0.0010	1.26	0.0014	1.67*
Dfinb			0.0023	2.14**						
Dfinr					0.0013	1.17				
Ratio1							0.0410	3.72***		
Ratio2									0.0140	2.71***
Size	-0.0034	-6.70***	-0.0034	-6.71***	-0.0034	-6.70***	-0.0033	-6.56***	-0.0034	-6.61***
LEV	0.0026	1.43	0.0025	1.36	0.0026	1.39	0.0028	1.51	0.0024	1.31
Q	0.0014	4.24***	0.0015	4.29***	0.0015	4.27***	0.0014	4.23***	0.0015	4.28***
Risk	-0.0054	-0.32	-0.0053	-0.32	-0.0055	-0.33	-0.0062	-0.37	-0.0058	-0.35
Lnage	0.0000	-0.03	0.0000	0.02	-0.0001	-0.04	0.0000	0.04	0.0001	0.06
GOV	-0.0003	-0.29	-0.0002	-0.21	-0.0002	-0.27	-0.0003	-0.30	-0.0003	-0.29
Top1	0.0033	1.25	0.0034	1.29	0.0033	1.28	0.0036	1.38	0.0035	1.33
Lnindex	0.0001	0.18	0.0001	0.17	0.0001	0.18	0.0001	0.30	0.0001	0.25
Year	Controlled		Controlled		Controlled		Controlled		Controlled	
R <sup>2</sup> within	0.0667		0.0673		0.0669		0.0686		0.0677	
F	22.45***		21.69***		21.54***		22.12***		21.82***	
OBS	8113		8113		8113		8113		8113	
No. of firms	1182		1182		1182		1182		1182	

Note: the *t*-values are calculated using robust standard errors.

\*\*\* Indicates the coefficient is statistically significant at 1%.

\*\* Indicates the coefficient is statistically significant at 5%.

\* Indicates the coefficient is statistically significant at 10%.

ficient on Dfin becomes insignificant, but the coefficient on Dfinb is significant. Therefore, only investment in banks can bring more investment income, which is also found in regression (13), where the coefficient on Dfin is not significant. Nevertheless, as regressions (14) and (15) show, investment income increases with the amount of investment in financial institutions.

The effect of government control is also considered, and the results are reported in Table 6b. As regressions (16) and (17) show, though non-state-controlled firms earn higher investment income by investing in financial institutions, particularly banks, the investment returns of state-controlled firms do not increase. The coefficients on Dfin \* GOV in regression (16) and on Dfinb \* GOV in regression (17) are negative and significant. Combined with the negatively significant coefficients on Dfin and Dfinb, the overall results become insignificant. However, as the amount of investment grows, state-controlled firms also increase their investment income, as shown in regression (19).

### 5.5. Economic consequences of holding equity stakes in financial institutions: Effect on net income (ROA)

We then investigate the economic consequences of holding equity stakes in financial institutions in terms of net income, which is the bottom line of the operating results reported in Tables 7a and 7b. The coefficients on Dfin, Dfinb, and Dfinr in Table 7a are not significant, so investing in financial institutions does not increase or decrease return on assets. However, the coefficients on Ratio1 and Ratio2 are both negative and significant at less than 1%. Therefore, as the amount of the investments increases, return on assets significantly decrease. To summarize the results across Tables 5a, 6a, and 7a, we find that as the depth of investing in financial institutions increases, performance from external investment improves. The gains in investment income cannot, however, make up for the losses in other operating earnings. The aggregated result is a decrease in the overall return on assets.

We again consider the interaction effects of government control and of holding equity stakes in financial institutions. Table 7b shows that the only significant effect is found in regression (28), where for non-state controlled listed firms, investment in strictly regulated financial institutions result in lower return on assets,

Table 6b

Effect of holding equity stakes in financial institutions on investment performance: The effects of government control (dependent variable: IROA).

	(16)		(17)		(18)		(19)		(20)	
	Coef.	T value	Coef.	T value	Coef.	T value	Coef.	T value	Coef.	T value
Constant	0.0694	6.56***	0.0697	6.59***	0.0691	6.53***	0.0685	6.48***	0.0684	6.46***
Dfin	0.0049	4.30***	0.0025	1.86*	0.0029	1.96*	0.0046	3.79***	0.0038	3.09***
Dfinb			0.0055	3.18***						
Dfinr					0.0035	1.96*				
Ratio1							0.0103	0.78		
Ratio2									0.0151	2.37**
Dfin * GOV	-0.0041	-3.21***	-0.0019	-1.22	-0.0022	-1.28	-0.0050	-3.83***	-0.0036	-2.70***
Dfinb * GOV			-0.0050	-2.46**						
Dfinr * GOV					-0.0033	-1.57				
Ratio1 * GOV							0.0372	3.87***		
Ratio2 * GOV									-0.0032	-0.62
Size	-0.0034	-6.65***	-0.0034	-6.68***	-0.0034	-6.62***	-0.0033	-6.61***	-0.0033	-6.57***
LEV	0.0027	1.46	0.0027	1.45	0.0027	1.45	0.0030	1.65*	0.0025	1.34
Q	0.0014	4.16***	0.0014	4.20***	0.0014	4.20***	0.0014	4.19***	0.0014	4.18***
Risk	-0.0059	-0.36	-0.0057	-0.35	-0.0061	-0.37	-0.0075	-0.45	-0.0061	-0.37
Lnage	-0.0002	-0.12	-0.0001	-0.04	-0.0001	-0.11	-0.0001	-0.11	0.0000	-0.03
GOV	0.0010	0.99	0.0011	1.14	0.0010	1.07	0.0008	0.86	0.0009	0.93
Top1	0.0030	1.17	0.0030	1.15	0.0032	1.21	0.0034	1.29	0.0032	1.25
Lnmindex	0.0000	0.11	0.0000	0.05	0.0000	0.05	0.0001	0.26	0.0001	0.17
Year	Controlled		Controlled		Controlled		Controlled		Controlled	
R <sup>2</sup> within		0.0681		0.0695		0.0686		0.0717		0.0690
F		21.95***		20.63***		20.36***		21.35***		20.47***
OBS		8113		8113		8113		8113		8113
No. of firms		1182		1182		1182		1182		1182

Note: the *t*-values are calculated using robust standard errors.

\*\*\* Indicates the coefficient is statistically significant at 1%.

\*\* Indicates the coefficient is statistically significant at 5%.

\* Indicates the coefficient is statistically significant at 10%.

but this is not the case for state controlled listed firms, where the coefficient on Dfinr is insignificant at  $-0.0015$  ( $-0.0133 + 0.0118$ ).

In summary, holding equity stakes in financial institutions does not improve firm performance. As these firms are larger, more profitable, and have abundant cash before becoming involved in the financial sector, their actual performance deteriorates.

## 5.6. Additional tests

### 5.6.1. Other dimensions of firm performance

We further investigate the economic consequences of holding equity stakes in financial institutions by testing the effect on other dimensions of firm performance apart from profitability; transaction costs (Debtcost), market performance (stock returns), and cash-holdings.<sup>13</sup>

First, we test changes in transaction costs around investing in the financial sector and find the investment to be associated with a higher cost of debt, as the coefficient on Dfin is positive and significant. Investing in financial institutions raises leverage and overdrawing financial capacity, which may increase the cost of debt. The coefficient on Ratio1 \* GOV is also positive and significant, so the effects on the cost of debt for state-controlled firms are therefore even higher.

Second, by using the mean of weekly market adjusted idiosyncratic stock returns during a year, *Rw*, to represent the stock price performance, we find that this is not influenced by holding equity stakes in financial

<sup>13</sup> To save space, the empirical results are not reported but are available upon request.



Table 7a  
Effect of holding equity stakes in financial institutions on firm performance (dependent variable: ROA).

	(21)		(22)		(23)		(24)		(25)	
	Coef.	T value	Coef.	T value	Coef.	T value	Coef.	T value	Coef.	T value
Constant	0.2208	6.84***	0.2209	6.84***	0.2210	6.85***	0.2250	6.97***	0.2276	7.06***
Dfin	-0.0021	-0.92	-0.0018	-0.69	0.0006	0.22	0.0004	0.15	0.0024	0.98
Dfinb			-0.0009	-0.28						
Dfinr					-0.0053	-1.61				
Ratio1							-0.0905	-2.69***		
Ratio2									-0.0787	-5.01***
Size	-0.0089	-5.73***	-0.0089	-5.73***	-0.0089	-5.73***	-0.0090	-5.83***	-0.0091	-5.91***
LEV	-0.0174	-3.09***	-0.0173	-3.08***	-0.0170	-3.03***	-0.0177	-3.14***	-0.0161	-2.87***
Q	0.0128	12.33***	0.0128	12.32***	0.0127	12.28***	0.0128	12.35***	0.0127	12.29***
Risk	-0.1176	-2.33**	-0.1176	-2.33**	-0.1170	-2.32**	-0.1158	-2.29**	-0.1149	-2.28**
Lnage	-0.0213	-5.53***	-0.0213	-5.54***	-0.0213	-5.52***	-0.0215	-5.58***	-0.0219	-5.71***
GOV	-0.0121	-4.44***	-0.0122	-4.45***	-0.0122	-4.47***	-0.0121	-4.44***	-0.0121	-4.45***
Top1	0.0792	9.99***	0.0792	9.98***	0.0789	9.96***	0.0785	9.90***	0.0781	9.86***
Lnindex	0.0012	0.93	0.0012	0.93	0.0012	0.93	0.0011	0.85	0.0011	0.81
Year	Controlled		Controlled		Controlled		Controlled		Controlled	
R <sup>2</sup> within		0.1043		0.1043		0.1047		0.1053		0.1076
F		36.58***		34.99***		35.11***		35.34***		36.20***
OBS		8113		8113		8113		8113		8113
No. of firms		1182		1182		1182		1182		1182

Note: the *t*-values are calculated using robust standard errors.

\*\*\* Indicates the coefficient is statistically significant at 1%.

\*\* Indicates the coefficient is statistically significant at 5%.

\* Indicates the coefficient is statistically significant at 10%.

institutions. In regressions of Model 2, the coefficients on indicators of holding equity stakes in financial institutions are all insignificant at a 5% level. Decreases in the accounting performance are therefore not reflected or identified by the market.

Third, we find that as its holding of equity stakes in the financial sector deepens, a firm's cash-holding decreases, so investing in financial institutions consumes cash reserves. The coefficient on Ratio1 \* GOV is also negative and significant, indicating that this effect is even greater for state-controlled firms. This of course can be a mixed blessing, as it also reduces free cash flow.

### 5.6.2. Robustness checks

To reinforce our empirical results we conduct four types of robustness checks.<sup>14</sup>

First, we check the robustness of the influence of government control through the interaction of GOV and the determining variables of exploring the motivations. In the main tests, we conduct regressions for state-controlled and non-state-controlled samples separately, and when using the interactions of GOV and the determinants (HHI, Q, ROA, Debtcost, Size, Lnage, and Cashholding), the results are consistent with those in Table 5a.

Second, we repeat the tests using only Group 3 firms to examine the influence on profitability of holding equity stakes in financial institutions. These firms did not invest in financial institutions at the beginning of the research period, but made later investments, which they held to the end of the research period. The results are essentially the same as those in the main tests.

Third, we redo the tests after excluding equity investments in finance firms, which are established to serve the financial matters within a group, and therefore internalize transaction costs. The results are consistent with those including finance firms.

<sup>14</sup> To save space, the empirical results are not reported but are available upon request.

Table 7b

Effect of holding equity stakes in financial institutions on firm performance: effects of government control (dependent variable: ROA).

	(26)		(27)		(28)		(29)		(30)	
	Coef.	T value	Coef.	T value	Coef.	T value	Coef.	T value	Coef.	T value
Constant	0.2210	6.84***	0.2207	6.83***	0.2220	6.87***	0.2250	6.96***	0.2277	7.06***
Dfin	-0.0024	-0.70	-0.0005	-0.13	0.0049	1.07	0.0008	0.22	0.0019	0.50
Dfinb			-0.0043	-0.82						
Dfinr					-0.0133	-2.44**				
Ratio1							-0.0949	-2.35**		
Ratio2									-0.0630	-3.23***
Dfin * GOV	0.0004	0.11	-0.0018	-0.38	-0.0062	-1.18	-0.0006	-0.16	0.0006	0.14
Dfinb * GOV			0.0051	0.83						
Dfinr * GOV					0.0118	1.85*				
Ratio1 * GOV							0.0054	0.18		
Ratio2 * GOV									-0.0218	-1.41
Size	-0.0089	-5.73***	-0.0089	-5.72***	-0.0089	-5.76***	-0.0090	-5.83***	-0.0092	-5.92***
LEV	-0.0174	-3.09***	-0.0174	-3.10***	-0.0173	-3.07***	-0.0176	-3.13***	-0.0162	-2.87***
Q	0.0128	12.33***	0.0128	12.32***	0.0127	12.27***	0.0128	12.34***	0.0127	12.24***
Risk	-0.1175	-2.33**	-0.1177	-2.33**	-0.1166	-2.31**	-0.1160	-2.30**	-0.1138	-2.26**
Lnage	-0.0213	-5.53***	-0.0214	-5.54***	-0.0213	-5.54***	-0.0215	-5.58***	-0.0219	-5.69***
GOV	-0.0123	-4.12***	-0.0124	-4.16***	-0.0126	-4.22***	-0.0120	-4.03***	-0.0118	-3.97***
Top1	0.0792	9.99***	0.0793	10.00***	0.0788	9.94***	0.0784	9.89***	0.0780	9.85***
Lnmindex	0.0012	0.94	0.0012	0.95	0.0013	1.01	0.0011	0.85	0.0010	0.78
Year	Controlled		Controlled		Controlled		Controlled		Controlled	
R <sup>2</sup> within	0.1043		0.1044		0.1051		0.1053		0.1078	
F	34.99***		32.21***		32.45***		32.50***		33.39***	
OBS	8113		8113		8113		8113		8113	
No. of firms	1182		1182		1182		1182		1182	

Note: the *t*-values are calculated using robust standard errors.

\*\*\* Indicates the coefficient is statistically significant at 1%.

\*\* Indicates the coefficient is statistically significant at 5%.

\* Indicates the coefficient is statistically significant at 10%.

Finally, we explore any possible non-linear relationship between investing in the financial sector and firm performance by introducing the square terms of Ratio1 and Ratio2. No non-linear relationships are found in regressions on CROA, ROA, Debtcost, Rw, and Cashholding, but may exist for regressions of IROA. The square terms of Ratio1 and Ratio2 are positive and significant at a 1% level, so as the investment level in financial institutions increases, the investment income may first decrease and then increase. The relation is U-shaped. However, to conform to other regressions, we do not include the square item in the main tests.

## 6. Conclusions and future research

An increasing number of commercial firms have become involved in the financial sector during the process of establishing multi-layered capital markets in China. These firms are keen to obtain equity stakes in banks and firms dealing in securities, venture capital and private equity, insurance, finance, investment and trusts, guarantees, futures, asset management, investment funds, and pawnshops, etc. Integrating banking (finance) and commerce has been the subject of debate in both practice and in theory for many years, but empirical evidence on the commercial ownership of banks (and/or financial firms) is scarce. In this study, we provide evidence by comprehensively investigating the motivations and economic consequences of commercial firms entering the financial sector.

From a sample of Chinese nonfinancial listed A-share firms from 1999 to 2012, we find that there are numerous motivations for them to hold equity stakes in financial firms. They may be alleviating the competition pressure in the commercial sector, reducing transaction costs, diversifying operations, or obtaining precious permits.

We also find that investment income can increase after a firm holds equity stakes in financial institutions, but this is only the case for non-state-controlled firms, and overall operating income decreases, which cannot be offset by the increase in investment income. The return on assets declines as a result. Furthermore, after investing in financial institutions the cost of debt rises, cash-holding falls, and stock returns do not improve.

In summary, investing in financial institutions does not result in improvements in operating performance, nor does it reduce transaction costs. Given that these firms are larger, more profitable, and possess abundant cash reserves before becoming involved in the financial industry, their overall performance does in fact deteriorate. This contrasts with the view that the large-scale investment of capital from the commercial sector is chasing opportunities in the financial sector. Our empirical results caution regulators in the financial sector and decision-makers in the commercial sector when considering or allowing entry into the financial sector.

The empirical tests in this study are comprehensive but general. Research can further examine the integration of finance and commerce. Deeper insights can be gained on the effects on both the financial and the commercial sectors. The effects of holding equity stakes in financial institutions on investment and financing decision-making processes of firms in the commercial sector can, for example, be investigated further. In general, more studies on commercial firms' ownership in financial firms would be of benefit, as the current evidence is slim.

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