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Are Foreign Banks Disadvantaged Vis-À-Vis Domestic Banks in China?

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Abstract: Do foreign banks enjoy a competitive edge in the Chinese banking market or are they disadvantaged vis-à-vis domestic banks? This is the question that the present paper seeks to answer. The issue is important since on the one hand, these banks face the challenges the liability of foreignness brings, but at the same time, they have bank-specific advantages. We examine this issue in light of the literature of the liability of foreignness. In our path-breaking study, we found that due to the cost of foreignness, foreign banks' performance was not as good as that of the local banks. Furthermore, despite the same amount of location- and bank-specific advantages, they performed badly as compared to their local counterparts. It was found that the cost of location-based disadvantages outweighed the cost of bank-specific disadvantages for foreign banks, and recent policy changes may help them overcome some of the cost of foreignness.

Keywords: liability of foreignness; transitional banking sector; location-based advantages; firm-specific advantages

JEL Classification: G21; M16; N45

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1. Introduction

Nearly four decades ago, China opened its banking market for foreign banks. It was envisaged that with their superior efficiency and institution-specific advantages, these foreign banks would be able to make successful in-roads in the local banking market. Yet their performance has been far from satisfactory. These banks had to battle with the capital, liquidity, and administrative requirements, along with other regulatory hurdles unique to the Chinese market. Given the different institutional settings of China's financial system, would these banks be able to improve their performance and embrace the challenges and opportunities in the current millennium? We use the liability of foreignness literature to examine this issue.

Liability of foreignness (LOF) refers to "all additional costs a firm operating in a market overseas incurs that a local firm would not incur" (Zaheer 1995, pp. 342–43). The literature on the liability of foreignness is largely confined to product and consumer markets. In recent years, attempts have been made to apply the LOF to financial markets, such as asset management industry (Yu and Kim 2013), international venture capital (Lu and Hwang 2010), private equity (Taussig 2017), capital market (Baik et al. 2013; Bell et al. 2012), financial services (Zaheer and Mosakowski 1997; Nachum 2003, 2010), and foreign currency trading (Zaheer 1995). Despite this, its application to the banking sector has received limited attention. For example, Miller and Parkhe (2002) examined the liability of foreignness in a global banking setting. They found that X-efficiency of a foreign-owned bank was influenced by its competitiveness in the home country. The study included

13 host countries, but China was excluded from the study. Claessens and Van Horen (2012) found that foreign banks with a bigger market share in the home market tend to perform better in the host country, where regulation is relatively weak.

Banks are different from product manufacturers in many ways. For example, product manufacturers produce and sell physical or tangible products, while banks deal in financial services—mainly borrowing and lending money. Furthermore, banks are the heart of any economic system. They facilitate the flow of funds, and promote investment and growth. The monetary policy transmission takes place through banks. Therefore, for any country, opening the banking sector to foreign participants requires serious consideration. We have seen that over the last four decades, the Chinese banking sector has undergone significant changes, but at a slow pace.

Prior studies have revealed that foreign banks possess some superior competitive advantages over local domestic banks in emerging and transitional markets, such as large asset base from the parent company, an international branch network, easy access to euro-currencies market, modern banking technology, credit management practice, highly qualified human capital, and a better global platform (Elyasiani and Rezvanian 2002; Okuda and Rungsomboon 2006). However, unlike the product markets where foreign firms outperform local Chinese firms (Jiang et al. 2014), for years, the performance of foreign banks has been less than satisfactory. Therefore, despite the superior firm-specific advantages, foreign banks continue to face various strategic challenges that may be resulting from the heavy influence of policy constraints and local idiosyncrasies in China. These challenges may not only come from barriers such as language and culture, but more so from the market environment and regulatory structure. Consequently, foreign banks incur additional costs which outweigh the advantages.

The arguments elaborated above depict a rather complex operating context in which the foreign banks have to perform. In a way, it could be consistent or contrary to the liability of foreignness in general. This leads to our primary research question formally stated as: "To what extent does the liability of foreignness impact foreign bank performance in the Chinese banking market? More specifically, how do foreign banks' interactions with the host country's institutional environment affect the foreign banks' performance in the Chinese market?" To address these research questions, we proceed as follows. First, we examine the fundamental question of whether foreign banks outperform local Chinese banks. Second, we examine the institutional dynamics that may affect the competitiveness of foreign banks in the context of the Chinese business environment. Lastly, we examine a dynamic model of liability of foreignness in the host country banking sector given the rapid economic development, changes in business environment, and changes in banking regulation in China.

Our study provides a new insight to the current literature. First, we extend the literature on the LOF beyond the product market to a more specific yet vital banking sector in an emerging market. Second, we elaborate LOF from the perspective of a firm–location interaction dynamic approach. Third, we examine the dynamics of LOF, suggesting that cost of foreignness can be reduced by exploiting bank-specific advantages.

2. Theory and Hypotheses Development

2.1. Conceptual Framework

Just like any other multinational enterprises, multinational banks will face the LOF and will have higher additional costs to conduct business in a foreign country such as China.

One of the most important features of China's banking sector is the government's involvement. Not only does the government hold assets of banks, but it also interferes in the business of the banks. For example, many state-owned enterprises with low productivity receive extra corporate credit and low cost of credit from banks, which is a reflection of the government's intervention to spur investment-led economic growth and employment. Private firms have been highly discriminated against and cannot access bank credit, even

though the government acknowledged the private sector as an integral part of the economy. Further, years of directed lending and administered interest rates result in large non-performing loans and poor profitability for Chinese banks, especially for the four largest state-owned commercial banks, which results in low efficiency of their financial operations (Leung and Young 2002). To respond to these institutional constraints and to promote trade and foreign direct investment in the country, the Chinese government has gradually opened its doors to foreign banks, but with great caution.

Overall, foreign banks' entry has promoted efficiency in China's banking sector. For example, foreign banks have improved access to local financial services in China and further diversified competition in the financial markets (Leung 1997). It has been shown that large, financially sound foreign banks have helped to stimulate trade and investment in China. Claessens et al. (2001) conducted a study using cross-sectional data from 80 countries, and the results show that the efficiency of the foreign banks is usually lower than that of domestic banks, while in developing countries, the results were reversed. Demirgüç-Kunt et al. (1998) show that foreign bank participation lowers the possibility that a country will experience a banking crisis. Foreign banks also increase overall economic growth by raising the efficiency of domestic banks. Lin's (2011) study suggests that less-opaque banking firms and non-state-owned firms benefit more from foreign bank entry. Berger (2007) and Kumbhakar and Wang (2007) found that the participation of minority foreign ownership contributes significantly to improving the efficiency of Chinese banks.

Therefore, the competitive effects brought by foreign banks will reduce the local banking market shares and profits. The increasing number and degree of foreign banks' entry will break the monopoly of local banks through competition. However, the asset share of foreign banks in China remains low. As of December 2015, foreign bank assets in China were 2.68 trillion Yuan, accounting for 1.38% of the total banking assets in China. Despite the small size, foreign banks' profits in China kept growing. The expansion of foreign banks is limited by the relevant laws and regulations of the supervisory and regulatory institutions of China. There is still a high barrier to entry given the regulations on minimum registered capital and administrative requirements that constrain foreign banks from growing their network and profitability. For example, in late 2013, China proposed to more than triple the minimum registered capital for newly incorporated foreign banks from RMB 300 million ($48 million) to RMB 1 billion. Additionally, new international rules under Basel III make it expensive to hold significant stakes in other lenders. Banks have to face severe competition, and coupled with the increased capital requirements and liquidity constraints, some banks have chosen to focus on other opportunities.

However, new regulations are continuously coming out, which have lowered the threshold for foreign banks to access certain business areas. For example, the Shanghai Free Trade Zone (SFTA) established at the end of November 2014 has attracted 23 foreign banks to settle down inside its perimeter. The SFTA has decreed many policies, including RMB internationalization, capital account convertibility, interest rate liberalization, etc. The exchange of RMB is liberal and there is no limit of maximum deposit rate of the foreign currency below 3 million USD in the territory of SFTA, which is a huge convenience for the banks and enterprises. These policies enhance the competitiveness and profitability of foreign banks in the Chinese market, and provide new opportunities. Therefore, the opening of the Chinese banking sector will provide high potential to enhance the overall operational quality of foreign banks.

In synergizing the discussion above, we propose a bank-specific advantage and location-based advantage framework to understand the extent of LOF on foreign banks' performance. Though the downsides of LOF may exist, its negative impact on foreign banks' performance may be offset by the superior firm-specific and global-outreach advantages that foreign banks enjoy over local Chinese banks.

Figure 1 depicts the main factors that may affect bank performance and the moderating roles of liability of foreignness.

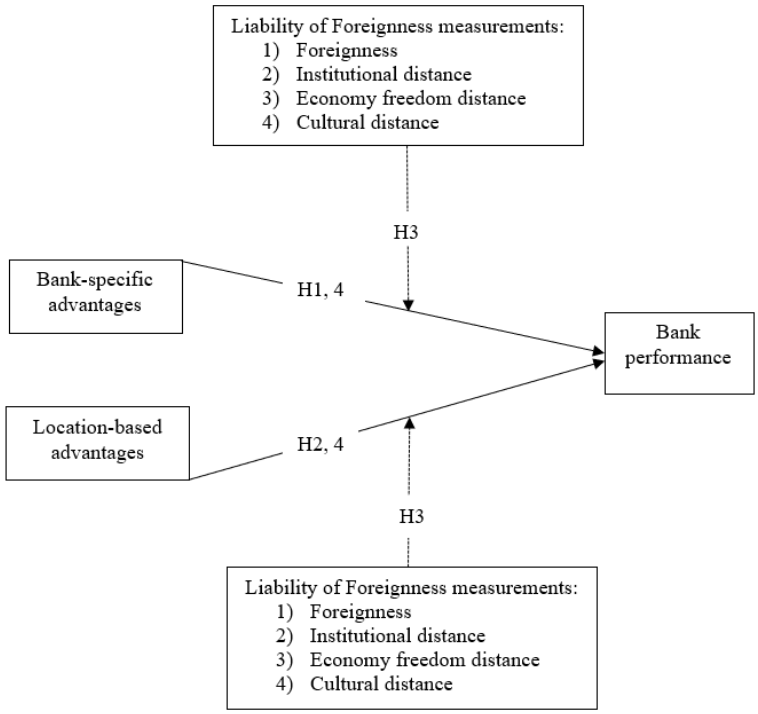

Figure 1. Conceptual framework.

2.2. Hypothesis Development

2.2.1. Foreign Bank-Specific Advantage Hypothesis

While domestic banks and foreign banks are both engaged in financial intermediation, business practices of foreign banks may differ from those of domestic banks. It could be because of differences in management strategies, clientele, and knowledge of the local market, international regulatory arbitrage, and international business platform. They have an edge of competitiveness and business operations in the host banking market (Elyasiani and Rezvanian 2002). Specifically, compared to emerging and transitional markets, foreign banks have a competitive advantage in terms of management processes, quality support, qualified human capital, advanced technology, and a better global platform (Okuda and Rungsomboon 2006). For example, foreign banks in China are not only involved in deposit and lending business with a strong position in foreign currency lending and trade financing, but are also active in high value-added investment banking business such as derivatives trading, M&A advisory, and asset management. Chinese local banks bear the risk of the loss of business opportunities in cross-sector services offered by foreign banks.

Apparently, the then rapid and now steady economic growth in China has been fostered by the expansion of trade and direct investment, which results in plenty of business opportunities for foreign banks who provide trade financing and loans to investors from home countries (Leung 1997). Overall, the competitive effects brought by foreign banks will reduce the local banking market shares and profits. Furthermore, it would result in improving the banking market functions and enhancing the overall social-economic benefits. Therefore, the first hypothesis is proposed as follows:

Hypothesis 1. *Foreign banks outperform local Chinese banks in terms of bank-specific advantages.*

2.2.2. Location-Based Advantage Hypothesis

Although local Chinese banks lack technology on par with the foreign banks, as well as their corporate governance structure and management skills which are needed to assess risk management and competition (Foo and Witkowska 2014), the local banks possess some unique advantages compared to their foreign counterparts.

First, local Chinese banks enjoy familiarity with the language, culture, and the economic system. Moreover, foreign banks' parent companies' lack of familiarity with the local market knowledge and difficulties in applying home country strategies to emerging market economies hinder their efforts to penetrate markets and earn profits. Therefore, foreign and domestic banks are likely to share different market roles rather than intensively competing.

Second, in response to foreign banks' entry as well as the phasing-in of market liberalizations under the WTO agreement and China's efforts to have RMB internationalism, not only the Chinese banks but also the Chinese government have taken various measures. For the Chinese banks, the measures included having foreign ownership, improving the quality of the assets, having strategic partners or alliances in deposit-taking and settlement, credit management, and product innovations, and the like. While competing and cooperating with foreign banks, systems of risk assessment and customer credit evaluation in Chinese banks further improved. Improvement of customer credit evaluation systems is expected to improve the credit assessment and credit provision to the private sector. The changing banking environment, such as competition from foreign banks, forced local Chinese banks to improve efficiency, reduce operating costs, enhance the domestic financial service quality, accelerate the establishment of the legal framework and the banking supervision, increase the host country's capability to procure capital from the international capital market, lower the possibility that a country will experience a banking crisis, and promote efficiency and fairness of the entire banking industry (Claessens et al. 2001; Demirgüç-Kunt et al. 1998), leading to increased profitability in China's bank sector (Levine 1996). Claessens et al. (2001) conducted a study using cross-sectional data from 80 countries (a total number of 5 banks from China was included in the study), and the results show that the efficiency of foreign banks is usually lower than domestic banks.

Third, the host country's heavy government intervention and even discriminatory treatment will add to the cost of foreign banks. For example, China allowed only limited foreign bank expansion, and consequently, their retail presence was trivial. Foreign banks are forced to build their networks from scratch. Further, the Chinese government imposed high entry costs on foreign banks—RMB 100 million capital to obtain a branch license, with an additional RMB 100 million if the branch office desired to conduct RMB business. With RMB 300 million capital, foreign banks could conduct RMB business for Chinese enterprises after December 2003. With RMB 500 million capital, foreign banks could engage in conducting business with individual Chinese clients as well. Meanwhile, Chinese capital control also prevented banks from exploiting their expertise in cross-border services when serving high net-worth individuals. The global financial crisis in 2008 worsened the situation, while foreign banks were busy downsizing and rebuilding their balance sheet. Furthermore, many state-owned enterprises (SOEs), despite low productivity, receive extra corporate credit and low-cost credit from banks, reflecting the government's intervention to spur investment-led economic growth and employment. It results in better local bank performance compared to foreign banks.

Therefore, the second hypothesis is:

Hypothesis 2. *Local Chinese banks outperform foreign banks in terms of location-based advantages.*

2.2.3. Mediating Effects of Liability of Foreignness

In their conceptual study of capital market LOF (CMLOF), Bell et al. (2012) identify the possible factors that may be particularly important sources of CMLOF, namely: institutional distance, difficulties in information gathering, unfamiliarity, and cultural distance. In line with the LOF, the institutional and cultural differences as well as the degree of economic freedom in China and other developed countries may create significant challenges or barriers for the foreign banks to take advantage of their more advanced bank management skills. At the same time, foreign firms have to depend on the host country's environment, which makes the LOF an important moderator of the foreign firms' competitive strategies

(Yu and Kim 2013). Subsequent empirical and conceptual work on LOF assumed the costs of LOF to be dynamic in nature, but amenable to mitigation by various firm- and environment-specific factors (Gaur et al. 2011).

Foreignness

Previous literature on the LOF suggests that multinational enterprises (MNEs) can overcome disadvantages resulting from "foreignness", substantially through strategic and managerial efforts to increase their familiarity with the local environment and to strengthen their local embeddedness. Luo et al. (2002, p. 283) report that in China, MNEs actively develop local business networks (i.e., *guanxi*) to mitigate LOF effectively by "increasing indigenous adaptability, improving organizational legitimacy and heightening cooperation with the local business community". Mitigating LOF can also be ensured from cost-sharing with parent firms, economy of scale and scope, and diversification. However, Tschoegl (1983) found no evidence for such economies among international banks. Benston et al. (1982) did find evidence for branch-level economies of scale in US banking. Shaffer (1989), using US data, argued that banks of different sizes could coexist through specialization in different activities, each of which might exhibit some economies of scale. These factors would permit foreign banks to survive as small entrants relative to larger domestic banks, but it is unclear how important these factors are. Goldberg's (1983) comparative study of the costs of US banks and foreign-owned banks in the US found that the foreign banks had higher costs because of their tendency to be more dependent than their US competitors on interbank funding instead of low-cost deposits. Walker (1983) found no differences in the growth of any balance sheet category for foreign-owned subsidiary banks and domestically owned banks in the US, and that foreign-owned banks did not appear to operate differently from domestically owned banks. Further, Nachum (2003) found that foreign MNEs in London's financial markets offset their "foreignness" disadvantages through their advantages, such as superior intangible assets and economies of scale and scope, which leads to the following hypothesis:

Hypothesis 3.1. *Foreign banks' competitive advantage is associated with foreignness for improved performance.*

Institutional Distance

Institutionally, since 1978 when China opened its economy and began the process of economic reforms, foreign banks witnessed a major wave of deregulation. By making the market more open and competitive, the deregulation may have levelled the playing field to some extent for foreign banks compared to their local counterparts. The legal framework for foreign investment, for instance, has gone from a virtual void to one of the most complete legal systems in any transitional economy, and the economy has gradually been converted from one that was centrally planned to a market system (Walder 1996), albeit with Chinese characteristics. In recent years, the regulatory treatment of foreign and local firms has progressively converged, and many entries and operational barriers to foreign direct investment (FDI) have been removed or significantly reduced. Some industries that were previously closed to foreign investors, especially in the service sector, such as retailing, insurance, and banking, have now been opened (Luo 2007), largely as a consequence of China's admission to the World Trade Organization in 2001. Such market liberalization can be expected to decrease the negative effects of the LOF (Nachum 2003; Zaheer and Mosakowski 1997).

Nevertheless, foreign banks operate under local institutional environments. The Chinese government is determined towards more market reforms rather than less. However, these policies seem to be a bit controversial. For example, unlike some emerging markets, the restriction on foreign investors on bank ownership in China is very severe. China limits the share of a single foreign investor in a Chinese bank to 20 percent and will treat the entire bank as foreign if more than 25 percent is in non-Chinese hands (Liu and Sathye

2019). Further, the expansion of foreign banks is limited by relevant laws and regulations of the supervisory and regulatory institutions of China. Foreign banks are not always the winner in post-WTO China (Leung and Chan 2006). Although the geography, clients, and currency restrictions were all removed completely by 11 December 2006, foreign banks still face difficulties in establishing branches in China (Evans 2008). For example, in late 2013, China proposed to more than triple the minimum registered capital for newly incorporated foreign banks from RMB 300 million ($48 million) to RMB 1 billion. This high entry barrier, along with administrative constraints, act as barriers for foreign banks from growing their network and profitability. Meanwhile, new international rules under Basel III make it expensive to hold significant stakes in other lenders (Saluja 2015). As foreign banks need to face severe competition, coupled with increased capital requirements and liquidity constraints, some banks have chosen to focus on other opportunities. We developed our hypothesis as follows:

Hypothesis 3.2. *Institutional distance moderates the relationship between bank- and location-based advantage and banks' performance.*

A priori, it is expected to have a negative effect on foreign banks' relative performance.

Economic Freedom Distance

In recent years, foreign banks are losing the edge they had in banking technology and innovations in the Chinese banking market. In China, the rise of Fintech has been underpinned by China's e-commerce sector. It is commonly accepted that 2013 is the Year One of China's Internet finance era, with the blockbuster launch of Yu'eBao and WeChat payment. The other sectors adopting the innovative Fintech are the third-party payment, wealth management, and personal financing. China's Fintech is dominated by Alibaba Group Holding Ltd., Baidu, JD, and Tencent Holdings Limited. By the end of 2015, the market size for the country's Internet Finance Sector was more than 12 trillion RMB ($1.8 trillion), largely dominated by the payment sector (Ngai et al. 2016). Therefore, credit card payment as one of the targeted businesses for foreign banks in China became stranded before it could really take off, as more and more Chinese consumers are using local third-party payments without even experiencing credit card payment, especially for rural areas. We developed our sub-hypothesis as follows:

Hypothesis 3.3. *Economy freedom distance moderates the relationship between bank- and location-based advantages and banks' performance.*

A priori, it is expected to have a negative effect on foreign banks' relative performance.

Cultural Distance

Culture is defined as a system of shared values, beliefs, attitudes, and behaviors that influences individual decisions (Bell et al. 2012). The cost of the LOF also arises from the unfamiliarity of the environment encountered by foreign firms (Hymer [1960] 1976). Furthermore, cultural distance impedes the information flow between foreign firms and the new market, which gives the local firms a significant advantage compared to well-established and well-refined routines of organizational practices (Eden and Miller 2004). However, Miller and Parkhe (2002) and Zaheer and Mosakowski (1997) suggested that the LOF will diminish over time once the foreign firms become more familiar with the host country culture and environment.

Therefore, we develop our sub-hypothesis as:

Hypothesis 3.4. *Cultural distance moderates the relationship between bank- and location-based advantages and banks' performance.*

A priori, it is expected to have a negative effect on foreign banks' relative performance.

Dynamics of the LOF

The original theory of MNE assumed a state of static equilibrium, and did not discuss how the costs of conducting business abroad might change over time. However, when we examine the factors that contribute to the LOF, some of these factors are changing over time, while others may not.

Foreign banks' operation in China started in the early 1980s. These banks were permitted to engage in liaison services by setting up representative offices in Beijing. Starting from 1985, foreign banks were allowed to engage in foreign currency business. The Asian financial crisis in 1997 held back foreign banks' development pace in China due to its sluggish trade and the financial crisis fallout. China's entry to the World Trade Organization in 2001 allowed foreign banks to gradually access the vast local currency market, resulting in substantial bank ownership changes (Berger et al. 2009), and more than 400 foreign financial institutions have established their offices in China since then. Since December 2003, the China Regulatory Commission has allowed foreign banks to own up to 25% of a Chinese financial institution, but if their equity participation exceeds 25%, they are considered as foreign/joint-venture banks (CBRC 2003). After 2006, foreign banks were granted the right to offer services both in RMB and foreign currencies to local retail clients throughout China. On 22 December 2014, the State Council announced the modification of the Regulation of the People's Republic of China on the Administration of Foreign-funded Banks, which came into effect on 1 January 2015, to further open up the domestic banking sector and ease market access for foreign banks. With the establishment of the Shanghai Pilot Free-Trade Zone (SFTA) in September 2013, 23 foreign banks have already opened subsidiaries in the Shanghai free-trade zone.

At the same time, foreign banks have been progressively and effectively developing their location-based advantage in China. This is reflected in the increased level of their resource commitments to China-based operations (for example, the increased total assets of foreign affiliates, the number and value of mergers and acquisitions by foreign affiliates, and the level of research and development (R&D) of foreign firms) and the impressive performance of foreign firms in China in recent years (UNCTAD 2005–2010). Similarly, the level of a foreign firm's pool of local knowledge and operational experience is positively related to the level of its resource commitment in FDI (Johanson and Vahlne 1977).

We, therefore, argue that the dramatic improvement in the overall banking business environment in China over the past four decades, along with the continuous changing policy scheme, will keep lowering the threshold for foreign banks to access certain businesses. It may have significantly reduced the cost of the LOF but may still persist relatively longer. Formally, the fourth hypothesis is proposed as follows:

Hypothesis 4. *Over a longer timeframe, though foreign banks may demonstrate lower performance compared to local banks, the trend of the cost of the LOF would show a decline.*

3. Data and Methodology, Variables

3.1. Data and Methodology

A panel dataset was used in this study. The study contains annual data for 190 banks over the period 1988–2015. It includes 5 large state-owned banks (SOBs), 32 joint-stock commercial banks, 80 urban commercial banks, 32 rural commercial banks, and 41 foreign banks.

The main data source is Bankscope from Bureau van Dijk, which compiles data mostly from the balance sheets and income statements. Industry and macroeconomic variables are obtained from the websites of the China Banking Regulatory Commission and the World Bank database.

3.2. Variables

Performance measurements (dependent variable)

To determine the performance or the profitability of banks, simply looking at the earnings is not quite enough. It is also important to know how efficiently a bank is using its assets and equity to generate profits. Following relevant literature, we used the following three key profitability ratios to assess the performance of banks.

Net interest margin: It is an indicator of operational performance. It is the ratio of net interest income as a percentage of total assets. The higher the margin the bank is generating, the better its asset utilization.

Return on assets (ROA): It is the single most important ratio and commonly used measure for the assessment of the performance of financial institutions, in both financial and strategic management research (Mehra 1996; Miller and Eden 2006). However, it could be misleading due to off-balance sheet activities conducted by banks.

Return on equity (ROE): It is a measure of the return on shareholders' funds.

Independent variables

Independent variables include control variables, bank-specific advantage-related variables, location-based advantage-related variables, the variables of the cost of the LOF, and interaction terms.

Control variables

Bank size: We control for the effect of bank size measured by a bank's total assets. It is computed as the log of total assets.

Bank age: We also control the effect of the tenure of a bank in the host country market by measuring the difference between the current year and the year when the bank started to operate in China, as suggested by Yu and Kim (2013).

Other independent variables

Bank-specific advantage-related variables

Financial strength: The indicators of financial strength used are as follows:

Capital strength: This is the primary yardstick employed by regulators to measure a bank's strength or soundness. It is measured by the Tier 1 Capital ratio.

Liquidity risk: It is measured by the ratio of loans to assets. A high ratio indicates that the bank is loaned up and its liquidity is low.

Credit risk: Loan loss provisions/total loans. A higher ratio indicates higher risk.

Solvency risk: Measured by the ratio of equities to assets. A higher ratio indicates greater solvency.

Impaired loan ratio: Measured by the ratio of impaired loans to gross loans, which again measures credit risk exposure.

Non-traditional activity: Non-interest income/gross revenues indicates economies of scope.

The intensity of international activity: Other business activities rather than traditional borrowing and lending. It is measured either by the derivatives and asset management business or by the number of services offered by banks (Nachum 2010). It is measured as the ratio of off-balance-sheet activities to total assets in the present study.

Scale and productivity benefits: It is believed that foreign banks operating abroad may have more diversified funding bases, including access to liquidity from their parent banks, which may lower their funding costs. Further, being larger, they may also achieve other scale advantages. They may be able to afford more sophisticated risk management models, giving them superior risk management skills, and by spreading best-practice policies and procedures over more than one country, they may achieve productivity benefits (Claessens and Van Horen 2012). This variable is measured by the ratio of overhead expenses to total assets.

Location-Based Advantages (or Home-Based Advantages)

Access to local information and preference of local customers: Zaheer and Mosakowski (1997) argue that the main type of home-based advantages for financial service firms are those related to local customers, other firms in the industry, and national central banks.

Shukla and van Inwegen (1995) believe that foreign firms are likely to face considerable disadvantage vis-à-vis local banks on this front. Hymer ([1960] 1976) highlights the importance of the preference of local customers as one of the sources of the LOF. Typically, local customers would have a long-established trustful relationship with local banks. This variable is proxied by the total number of branches of the bank in the host country, that is, China.

Market share: Market share represents monopolistic behavior in the industry. It is measured as the assets of that particular bank in relation to the total assets of all banks in the country. Higher market share means higher monopolistic power in the industry.

Market concentration: Competition is measured by the Hirschmann–Herfindhal Index HHI), an indicator of the degree of concentration in the banking industry. The market concentration indices exhibit the general form as below:

$$HHI_i = \sum_{i=1}^{n} s_i w_i$$

where HHI_i is the market concentration index for bank i, s_i is the market share of bank i, w_i is the weight attached to the market share, and n is the number of banks in the market in question.

Variables of the Cost of the LOF Characteristics (Moderators)

Foreignness: Just like the other governments, the Chinese government does have concerns about foreign ownership of banks. Therefore, we define foreignness by reference to the controlling ownership. If the majority of the controlling shareholding of the bank is held by entities other than those from the country of location, then that bank is a foreign bank. Local bank equals 0, otherwise 1 for a foreign bank. Foreignness is the proxy measure of the LOF.

Cultural distance: Kogut and Singh's (1988) index of cultural distance. The index is based on the differences in scores along each of Hofstede's (2001) four cultural dimensions: power distance, uncertainty avoidance, individualism, and masculinity. Specifically,

$$CD_j = \sum_{i=1}^{4} \frac{\left[\frac{(I_{ij} - I_{China})^2}{V_i}\right]}{4}$$

where CD_j is the cultural distance between country j and China, I_{ij} is country j's score on the i-th cultural dimension, I_{China} is the score of China on this dimension, and V_i is the variance of the score on the dimension.

By using the same method, we calculate the other distances as below.

Institutional distance: Institutional distance is derived from the Worldwide Governance Indicators. The Worldwide Governance Indicators report aggregates the individual governance indicators from six dimensions of governance: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. This composite Worldwide Governance Indicator is useful for broad cross-country comparisons. The six aggregate indicators are reported in percentile rank terms from 0 to 100, with higher values corresponding to better outcomes.

Economic freedom distance: Economic freedom is used as a composite variable and measured by the Index of Economic Freedom (Heritage Foundation 2013). This data source provides information about a broad range of economic regulatory regimes, focusing on the freedom of individuals and companies in a country to pursue business interests, and is extensively used in the literature (Meyer et al. 2009). The economic freedom measurement is based on 10 quantitative and qualitative factors, grouped into 4 broad categories which include rule of law, limited government, regulatory efficiency, and open markets. Each of the 10 economic freedoms within these categories is graded on a scale of 0 to 100.

Interaction Terms:

To test these hypotheses, we created eight sets of interaction terms between bank-specific advantages variables with the cost of LOF variables, and the location-based advantage variables with the cost of LOF variables.

The three distance variables (institutional distance, economic freedom distance, cultural distance) along with the foreignness are the moderators. We adopted this approach as Nachum (2010, p. 729) stated that this is the "most common way to compare two groups in terms of some relationships of interest".

Bank-specific advantage × *Foreignness*
Location-based advantage × *Foreignness*
Bank-specific advantage × *Cultural Distance*
Location-based advantage × *Cultural Distance*
Bank-specific advantage × *Institutional distance*
Location-based advantage × *Institutional distance*
Bank-specific advantage × *Economic freedom distance*
Location-based advantage × *Economic freedom distance*

Two approaches are employed in order to test the fourth hypothesis of persistence and additional costs of conducting banking business in China. The first approach is to test this hypothesis by using interaction terms with the LOF variables. The second approach is that we divide the dataset into two groups: the group with data from the years 2000 to 2009, and the group with data from the years 2010 to 2015. The reason to choose 2000 and 2009 as the cut-off points is due to the commitments that China had to meet for accession to WTO at the end of 2001. It required that the geographic and client restrictions on local-currency business of foreign banks should be completely lifted by the end of 2006. After 2009, foreign banks could compete with local banks in a fairer environment.

Table 1 provides a description of all variables.

Table 1. Summary description of variables.

Variables	Descriptions
Dependent Variables:	
Net-interest Margin	Interest incomes to total assets
ROA	Return on assets
ROE	Return on equity
Control Variables:	
Bank size	Natural logarithm of total assets
Bank age	Years of operation since establishment
Location-based advantage (home-based advantage) variables:	
Bank Branches	Total number of branches of the bank in China.
Market Concentration	Measured by HHI
Market Share	Bank assets to total assets of all banks in the industry
Bank-specific advantage variables:	
Financial strength:	
Capital Strength	Tier 1 Capital Ratio
Liquidity risk	Total loans to Assets
Credit Risk	Loan loss provisions to total loans.
Solvency Risk	Total equities to total assets
Impaired Loan Ratio	Impaired loans to gross loans
Scale and Productivity Benefit	Overhead expenses to total assets
Non-Traditional Activity	Non-interest income to gross revenues
Intensity of International Activity	Off-balance-sheet activities to total assets
Liability of foreignness characteristics variable:	
Foreignness:	
Local or Foreign Bank	1 for foreign banks, otherwise 0
Cultural Distance	The difference between the host country (China) to the other 14 foreign countries and districts
Institutional Distance	The difference between the host country's (China) governance index to the other 14 foreign countries and districts
Economic Freedom Distance	The difference between the host country's (China) economic freedom index and the other 14 foreign countries and districts

3.3. Method

The following model was developed for testing the hypotheses:

$$\begin{aligned} Bank\ performance_{i,t} &= \alpha_0 + \sum_{k=1}^{2} \beta\ Control\ Variables_{k,it} \\ &+ \sum_{l=1}^{3} \beta\ Location-specific\ Advantages_{l,it} \\ &+ \sum_{m=1}^{8} \beta\ Bank-specific\ Advantages_{m,it} + \sum_{n=1}^{1} \beta\ Moderator_{n,it} \\ &+ \sum_{o=1}^{11} \beta\ Interaction\ terms_{o,it} + u_i + \varepsilon_{it} \end{aligned} \quad (1)$$

where $i = 1, 2, \ldots, n$, refers to banks, and $t = 1, 2, \ldots, T$, refers to the time period in years during the period 1988–2015. $Bank\ performance_{it}$ is defined as the net interest margin for bank i at year t, α_0 is the constant term, and u_i is the time effects.

Due to the potential endogeneity of regressors, we estimated the above equation using the system GMM estimator of Arellano and Bover (1995). This dynamic model specification accommodates the tendency for bank variables to persist over time and be serially corrected.

4. Empirical Test Results and Discussion

4.1. Summary Statistics

A number of statistical techniques were used for testing the hypotheses. Table 2 shows the descriptive statistics for the full sample (190 banks), large state-controlled commercial banks (5 banks), joint-stock commercial banks (32 banks), urban commercial banks (80 banks), rural commercial banks (32 banks), and foreign-owned banks (41 banks), respectively. The following interesting findings were noticed.

Overall, the mean value of the net interest margin for all the banks was approximately 2.708 percent, and ranged from −1.415 to 8.56 percent. The negative net interest margin was recorded in the group of joint-stock commercial banks. Solvency risk, which is measured by the total equities to total assets, exhibited negative numbers too. The negative equity and net interest margin condition could be traced to banks making losses year after year and borrowed to fund non-performing loans (Liu and Sathye 2019).

Group summary statistics for the five large state-controlled commercial banks imply the dominance of these five banks in China's bank-based financial system in terms of the bank age, bank size, bank branches, and market share. As of the end of 2015, these five banks accounted for 40.5% of the banking industry in terms of total assets (Allen et al. 2017).

Over the years, the high level of non-performed loans has become a severe problem for the banking sector, and even the entire financial system in China. The mean value of the impaired loan ratio for the five largest state-controlled commercial banks was 9.478, far higher than the other types of banks. As discussed in the literature, some of the banks have even been partially privatized in recent years, though with the government still being the largest shareholder and remaining in control. One of the roles for those state-controlled banks is to provide credit to state-owned enterprises and large government projects, such as infrastructure. However, those large banks normally made poor lending decisions for state-owned enterprises (Allen et al. 2017), which resulted in higher non-performed loans.

Table 2. Group Summary Statistics.

	Net Interest Margin	Bank Age	Bank Size (Million CNY)	Bank Branches	Market Share	Market Concentration	Capital Strength	Liquidity Risk	Credit Risk	Solvency Risk	Impaired Loan Ratio	Non-Traditional Activity	Scale and Productivity Benefit	Intensity of International Activity
5 Large State-Controlled Commercial Banks														
Mean	2.398	38.378	5,665,252.000	17,024.560	0.105	1307.016	9.067	0.556	0.007	5.151	9.478	16.350	0.013	0.143
Standard Deviation	0.689	29.563	5,326,544.000	9000.379	0.037	382.247	2.332	0.068	0.003	2.845	10.941	14.156	0.011	0.075
Minimum	0.963	2.000	38,511.500	105.000	0.034	420.632	4.770	0.442	0.001	−13.710	0.860	−19.220	0.004	0.025
Maximum	6.941	104.000	22,200,000.000	36,138.000	0.189	1794.081	13.480	0.732	0.016	10.190	39.600	56.920	0.070	0.322
Count	112	119	119	52	63	63	44	119	87	119	66	112	116	84
32 Joint-Stock Commercial Banks														
Mean	2.522	14.282	716,341.100	337.066	0.010	1341.417	21.515	0.496	0.006	7.710	3.928	14.642	0.014	0.223
Standard Deviation	1.018	10.655	1,205,403.000	349.235	0.010	358.022	61.245	0.129	0.041	8.412	9.656	48.286	0.013	0.135
Minimum	−1.415	0.000	476.514	1.000	0.000	420.632	−1.470	0.091	−0.692	−1.320	0.000	−829.550	0.001	0.000
Maximum	8.102	61.000	6,298,325.000	1787.000	0.037	1794.081	446.000	0.793	0.069	64.800	99.300	124.720	0.105	1.175
Count	382	401	401	168	282	282	204	401	296	401	257	382	384	256
80 Urban Commercial Banks														
Mean	2.964	12.135	102,896.000	87.045	0.001	1291.627	10.596	0.485	0.009	6.276	2.764	14.420	0.011	0.185
Standard Deviation	1.125	5.269	176,587.400	63.601	0.001	368.140	3.453	0.111	0.007	2.374	6.925	14.372	0.004	0.115
Minimum	0.396	1.000	20.213	4.000	0.000	420.632	0.780	0.168	−0.002	−6.420	0.000	−5.640	0.004	0.000
Maximum	8.560	30.000	1,844,909.000	362.000	0.009	1794.081	39.150	0.792	0.059	23.590	100.000	79.430	0.037	0.872
Count	767	786	786	289	717	717	525	786	704	785	557	767	768	530
32 Rural Commercial Banks														
Mean	3.107	7.600	135,646.900	317.831	0.001	1189.962	11.544	0.499	0.009	7.021	3.276	15.206	0.011	0.065
Standard Deviation	0.853	9.374	148,645.100	444.878	0.001	346.254	2.357	0.080	0.008	2.140	4.586	14.434	0.003	0.085
Minimum	1.098	0.000	2559.946	16.000	0.000	420.632	3.180	0.235	−0.008	0.530	0.130	0.000	0.005	0.000
Maximum	5.597	65.000	716,805.200	1771.000	0.004	1794.081	16.260	0.667	0.066	12.220	22.990	71.280	0.021	0.506
Count	166	170	170	71	170	170	97	170	156	170	112	166	168	104
41 Foreign-Owned Banks														
Mean	2.210	11.269	45,137.290	23.866	0.000	1233.323	35.800	0.477	0.004	20.922	1.793	24.783	0.015	0.200
Standard Deviation	0.959	10.952	62,832.110	62.894	0.001	378.065	45.450	0.188	0.011	16.919	7.533	52.017	0.008	0.158
Minimum	0.026	1.000	68.900	1.000	0.000	420.632	10.500	0.000	−0.075	4.740	0.000	−85.090	0.000	0.000
Maximum	7.244	58.000	425,764.000	504.000	0.003	1794.081	394.000	0.891	0.076	94.710	79.890	833.330	0.053	0.949
Count	313	316	316	231	303	303	209	315	303	316	212	313	312	257
Total 190 Banks														
Mean	2.708	13.775	602,465.100	1227.052	0.007	1278.637	17.565	0.492	0.007	9.177	3.257	16.532	0.013	0.183
Standard Deviation	1.073	13.064	2,025,150.000	4720.142	0.022	368.924	34.766	0.129	0.020	9.983	7.942	33.690	0.008	0.131
Minimum	−1.415	0.000	20.213	1.000	0.000	420.632	−1.470	0.000	−0.692	−13.710	0.000	−829.550	0.000	0.000
Maximum	8.560	104.000	22,200,000.000	36,138.000	0.189	1794.081	446.000	0.891	0.076	94.710	100.000	833.330	0.105	1.175
Count	1740	1792	1792	811	1535	1535	1079	1791	1546	1791	1204	1740	1748	1231

Further, an analysis of variance (ANOVA) on the bank-specific and location-based variables yielded significant variation among groups, as indicated in Table 3. A post hoc Tukey test showed that groups between foreign banks and other types of banks differed significantly at $p < 0.05$ in many areas, except market concentration. For example, the one-way ANOVA results among groups of banks indicate that there is a statistically significant difference in the mean of intensity of international activity between different bank groups, with $p = 0.00$. However, no difference was found between foreign banks and joint-stock commercial banks. Overall, no difference was found between the "urban commercial banks and rural commercial banks" in most of the areas, except intensity of international activity.

Pairwise correlations between all variables are presented in Table 4. It is noteworthy that foreign banks (*Foreignness*) are highly correlated with *Cultural Distance* (0.763), *Institutional Distance* (0.942), and *Economic Freedom Distance* (0.804), which is natural as foreign banks enjoy a higher degree of economic freedom, and institutional and cultural distance. *Bank Branch* is highly correlated with *Bank Size* (0.816). Lastly, *Solvency Risk* is highly correlated with *Capital Strength* (0.797), which indicates that large banks have a better capital reserve.

4.2. Main GMM Analysis Findings

As a next step, we conducted GMM analysis to test the hypotheses. We estimated six models in Table 5: the model containing controls and location-based advantage variables (Model 1), the model containing controls and bank-specific advantage variables (Model 2), and the model containing all independent variables and moderators of the cost of LOF (Models 3, 4, 5, and 6). Model 1 in Tables 6–9 contains all independent variables, and the main effects of the moderator and interaction terms with location-based advantage variables. Model 2 in Tables 6–9 contains all independent variables, and the main effects of the moderator and interaction terms with bank-specific advantage variables. Wald Chi-square test statistic, significance of Hansen test, and AR (1) and AR (2) tests results are reported in all tables. In all cases, the Hansen test and AR (2) test results were larger than 0.05, which indicates a failure to reject the null hypothesis of over-identification and second-order serial correlation of error terms.

Results from Models 3, 4, and 5 in Table 5 show a negative and significant relationship between the three cost of LOF variables and bank performance. The negative and significant *Foreignness* variable alone indicates that foreign banks have underperformed compared to local banks. These results enforce the fact that local banks have better bank performance. The variables *institutional distance* and *economic freedom distance* separate foreign banks and local banks in terms of bank performance. Hence, Hypothesis 1 is rejected.

Model 1 in Table 5 shows that *Market Concentration* is an important location-based factor that influences the bank performance for all types of banks, which is consistent with prior findings of a significant and positive relationship between bank performance and market power (Gischer and Juttner 2003; Williams 2007).

Model 2 in Table 5 shows that bank-specific factors such as *Credit risk* and *Scale and Productivity Benefit* have a significant positive association with banks' performance. However, *Non-Traditional Activity* has a significantly negative relationship with bank's performance. This result suggests that banks in China are not performing well from non-traditional banking business. Hypothesis 2 is supported. This is consistent with the current situation faced by foreign banks in China as foreign banks are still restricted to provide trade financing and loans to investors from their own countries. Further growth of foreign banks still depends on other factors, such as liberalization of the foreign exchange market and the interbank market in RMB for foreign banks in order to have the foreign banks compete with local banks for retail business.

Table 3. Bank groups' pairwise comparison—Tukey post hoc test results.

Pairwise Groups	Net Interest Margin	Bank Size (Million CNY)	Bank Branches	Market Share	Market Concentration	Capital Strength	Liquidity Risk	Credit Risk	Solvency Risk	Impaired Loan Ratio	Non-Traditional Activity	Scale and Productivity Benefit	Intensity of International Activity
Joint stock vs. State-controlled	1.16	−31.48 ***	−46.05 ***	−78.75 ***	0.27	2.28	−4.55 ***	−0.54	3.09 **	−5.24 ***	−0.41	0.5	5.05 ***
Urban vs. State-controlled	5.45 ***	−38.05 ***	−49.39 ***	−92.05 ***	−0.25	0.29	−5.67 ***	1.09	1.37	−6.61 ***	−0.56	−3.2	2.9 **
Rural vs. State-controlled	5.19 ***	−31.98 ***	−41.35 ***	−83.23 ***	−1.57	0.39	−3.86 **	0.9	1.67	−5.12 ***	−0.45	−2.2	−4.18 ***
Foreign vs. State-controlled	−1.67	−35.16 ***	−48.71 ***	−87.87 ***	−1.45	4.83 ***	−5.74 ***	−1.32	17.56 ***	−7 ***	2.29	2.28	3.63 **
Urban vs. Joint stock	6.7 ***	−7.04 ***	−1.1	−14.67 ***	−0.98	−4.02 **	−1.29	2.71	−3.04 **	−1.78	−0.19	−5.86 ***	−3.86 **
Rural vs. Joint stock	5.51 ***	−4.76 ***	−0.06	−10.92 ***	−2.79	−2.58	0.32	1.9	−1.48	−0.5	−0.11	−3.5 **	−10.81 ***
Foreign vs. Joint stock	−4 **	−6.27 ***	−1.33	−13.36 ***	−2.82	4.25 ***	−1.83	−1.16	20.57 ***	−2.81 **	3.84 **	2.53	−2.03
Rural vs. Urban	0.83	0.25	0.8	0.28	−2.39	0.23	1.35	−0.06	0.74	0.81	0.03	0.75	−8.95 ***
Foreign vs. Urban	−10.95 ***	−0.55	−0.31	−0.98	−2.44	9.22 ***	−0.89	−4.14 ***	26.3 ***	−1.57	4.59 ***	8.44 ***	1.5
Foreign vs. Rural	−8.71 ***	−0.62	−0.99	−0.98	0.29	6.13 ***	−1.83	−2.91	18.58 ***	−1.84	3.32 **	5.52 ***	9.25 ***

*** $p < 0.01$, ** $p < 0.05$.

Table 4. Correlation coefficients between variables.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Net Interest Margin	(1)	1																	
Bank Age	(2)	−0.046	1																
Bank Size	(3)	−0.122 *	0.480 *	1															
Bank Branches	(4)	0.007	0.484 *	0.816 *	1														
Market Share	(5)	−0.060 *	0.566 *	0.583 *	0.673 *	1													
Market Concentration	(6)	−0.108 *	−0.142 *	−0.259 *	0.027	0.032	1												
Capital Strength	(7)	0.018	−0.052	−0.324 *	−0.391 *	−0.071 *	−0.031	1											
Liquidity Risk	(8)	0.177 *	0.008	−0.062 *	0.209 *	0.066 *	0.364 *	−0.370 *	1										
Credit Risk	(9)	0.066 *	−0.008	0.051 *	0.106 *	−0.008	−0.045	−0.355 *	0.088 *	1									
Solvency Risk	(10)	0.029	−0.095 *	−0.480 *	−0.571 *	−0.120 *	−0.045	0.797 *	−0.173 *	−0.206 *	1								
Impaired Loan Ratio	(11)	−0.120 *	0.058 *	0.017	0.193 *	0.116 *	0.107 *	−0.082 *	0.142 *	0.082 *	−0.037	1							
Scale and Productivity Benefit	(12)	0.173 *	−0.040	−0.151 *	−0.355 *	−0.037	0.029	0.351 *	−0.013	−0.018	0.262 *	0.018	1						
Intensity of International Activity	(13)	0.010	0.078 *	0.043	−0.034	−0.043	−0.018	−0.173 *	0.094 *	0.008	−0.071 *	−0.096 *	−0.014	1					
Non-traditional Activity	(14)	−0.226 *	0.046	−0.054 *	−0.132 *	0.007	−0.068 *	0.073 *	−0.078 *	−0.053 *	0.140 *	0.023	0.241 *	0.017	1				
Cultural Distance	(15)	−0.157 *	−0.084 *	−0.298 *	−0.561 *	−0.1079 *	−0.062 *	0.294 *	−0.182 *	−0.081 *	0.528 *	−0.060 *	0.210 *	−0.018	0.181 *	1			
Institutional Distance	(16)	−0.210 *	−0.071 *	−0.264 *	−0.544 *	−0.1302 *	−0.059 *	0.207 *	−0.063 *	−0.086 *	0.410 *	−0.116 *	0.170 *	0.078 *	0.132 *	0.713 *	1		
Economic Freedom Distance	(17)	−0.160 *	−0.056 *	−0.207 *	−0.393 *	−0.1096 *	−0.048	0.115 *	0.027	−0.060 *	0.269 *	−0.106 *	0.114 *	0.115 *	0.059 *	0.390 *	0.887 *	1	
Foreignness	(18)	−0.218 *	−0.085 *	−0.326 *	−0.621 *	−0.1393 *	−0.063 *	0.253 *	−0.050 *	−0.085 *	0.520 *	−0.085 *	0.160 *	0.068 *	0.115 *	0.763 *	0.942 *	0.804 *	1

* Correlation is significant at the 0.05 level (two-tailed).

Table 5. Panel GMM model estimates (H1, H2, H3).

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5	(6) Model 6
Lag Net Interest Margin	0.673 ***	0.568 ***	0.432 ***	0.478 ***	0.534 ***	0.557 ***
	(0.103)	(0.0568)	(0.0795)	(0.0764)	(0.0634)	(0.0744)
Control Variables						
Bank Age	−0.00316	0.00431	0.00103	0.00103	−0.00129	-9.27×10^{-5}
	(0.00571)	(0.00300)	(0.00498)	(0.00437)	(0.00447)	(0.00489)
Bank Size	−0.0595	−0.00115	−0.0814 *	−0.0753 *	−0.0643	−0.0246
	(0.0436)	(0.0349)	(0.0463)	(0.0403)	(0.0477)	(0.0354)
Location-Based Advantages						
Bank Branches	−0.0366		0.0488	0.0682 **	0.0803 **	0.0866 **
	(0.0782)		(0.0468)	(0.0300)	(0.0403)	(0.0356)
Market Share	4.323		1.019	−0.203	0.384	−1.856
	(3.158)		(2.690)	(2.596)	(2.660)	(2.343)
Market Concentration	0.00101 ***		0.000563	0.000786 **	0.000856	0.00153
	(0.000343)		(0.00283)	(0.000308)	(0.00208)	(0.00303)
Bank-Specific Advantages						
Capital Strength		−0.00869	−0.0241 ***	−0.0259 ***	−0.0268 ***	−0.0306 ***
		(0.00811)	(0.00629)	(0.00660)	(0.00636)	(0.00674)
Liquidity Risk		0.674	0.505	0.266	0.00105	−0.413
		(0.486)	(0.448)	(0.451)	(0.457)	(0.485)
Credit Risk		24.56 ***	15.43 **	15.83 **	17.65 ***	19.88 ***
		(8.735)	(6.717)	(6.463)	(5.936)	(6.492)
Solvency Risk		0.0254	0.0638 ***	0.0541 ***	0.0565 ***	0.0720 ***
		(0.0163)	(0.0155)	(0.0165)	(0.0164)	(0.0193)
Impaired Loan Ratio		−0.00906	−0.00352	−0.00208	−0.00459	−0.00526
		(0.0130)	(0.00711)	(0.00649)	(0.00905)	(0.00837)
Non-Traditional Activity		−0.0245 ***	−0.0217 ***	−0.0207 ***	−0.0225 ***	−0.0227 ***
		(0.00405)	(0.00389)	(0.00432)	(0.00377)	(0.00348)
Scale and Productivity Benefit		33.09 **	55.45 ***	53.07 ***	49.77 ***	44.41 **
		(14.24)	(19.47)	(19.43)	(16.96)	(17.18)
Intensity of International Activity		0.0929	−0.110	−0.0508	−0.0977	−0.169
		(0.324)	(0.376)	(0.246)	(0.360)	(0.264)
Cost of LOF						
Foreignness			−0.614 ***			
			(0.168)			
Institutional Distance				−0.104 ***		
				(0.0323)		
Economic Freedom Distance					−0.0347 **	
					(0.0135)	
Cultural Distance						−0.0398
						(0.0973)
Constant	0	0.0790	0.495	0	−0.446	0
	(0)	(0.630)	(5.115)	(0)	(3.048)	(0)
Observations	711	723	433	433	433	433
Number of Banks	153	140	110	110	110	110
p-Value of AR (1) test	0.004	0.000	0.001	0.001	0.000	0.001
p-Value of AR (2) test	0.895	0.860	0.771	0.901	0.911	0.940
p-Value of Hansen test	0.032	1.000	1.000	1.000	1.000	1.000

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6. Panel GMM model estimates (H3.1).

Variables	(1) Model 1	(2) Model 2
Lag Net Interest Margin	0.400 ***	0.337 ***
	(0.0688)	(0.0798)
Control Variables		
Bank Age	−0.00249	0.00301
	(0.00386)	(0.00491)
Bank Size	−0.0932 *	−0.0860 *
	(0.0535)	(0.0493)
Location-Based Advantages		
Bank Branches	0.0385	0.0669
	(0.0555)	(0.0490)
Market Share	3.286	−0.800
	(2.783)	(2.971)
Market Concentration	0.00149	−0.000572
	(0.00367)	(0.000940)
Bank-Specific Advantages		
Capital Strength	−0.0221 ***	−0.0267
	(0.00636)	(0.0510)
Liquidity Risk	0.473	1.016
	(0.658)	(0.777)
Credit Risk	14.41 **	28.49 ***
	(6.933)	(6.745)
Solvency Risk	0.0662 ***	0.117 *
	(0.0113)	(0.0590)
Impaired Loan Ratio	−0.00750	−0.00863
	(0.00993)	(0.0161)
Non-Traditional Activity	−0.0229 ***	−0.0213 ***
	(0.00308)	(0.00616)
Scale and Productivity Benefit	59.78 ***	80.44 **
	(13.15)	(35.31)
Intensity of International Activity	−0.146	−0.0313
	(0.278)	(0.554)
Moderator		
Foreignness	−0.893 **	0.481
	(0.438)	(0.725)
Interaction Terms		
Bank Branches × Foreignness	−0.0172	
	(0.103)	
Market Share × Foreignness	348.0 *	
	(181.0)	
Market Concentration × Foreignness	3.75×10^{-5}	
	(0.000173)	
Capital Strength × Foreignness		0.0158
		(0.0515)
Liquidity Risk × Foreignness		−0.487
		(0.753)
Credit Risk × Foreignness		−21.94
		(13.23)
Solvency Risk × Foreignness		−0.0826
		(0.0606)
Impaired Loan Ratio × Foreignness		−0.0466
		(0.0536)
Scale and Productivity Benefit × Foreignness		−36.01
		(38.38)
Non-traditional Activity × Foreignness		0.00389
		(0.00767)
Intensity of International Activity × Foreignness		−0.296
		(0.786)
Constant	0	0
	(0)	(0)
Observations	433	433
Number of Banks	110	110
p-Value of AR (1) test	0.000	0.000
p-Value of AR (2) test	0.915	0.902
p-Value of Hansen test	1.000	1.000

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 7. Panel GMM model estimates (H3.2).

Variables	(1) Model 1	(2) Model 2
Lag Net Interest Margin	0.455 ***	0.445 ***
	(0.0709)	(0.0726)
Control Variables		
Bank Age	−0.000928	0.000601
	(0.00457)	(0.00496)
Bank Size	−0.0913 *	−0.0680
	(0.0491)	(0.0506)
Location-Based Advantages		
Bank Branches	0.0757	0.0646
	(0.0481)	(0.0517)
Market Share	2.213	0.0823
	(4.318)	(3.594)
Market Concentration	0.000552	0.000365
	(0.00281)	(0.00260)
Bank-Specific Advantages		
Capital Strength	−0.0269 ***	−0.0341 ***
	(0.00713)	(0.0109)
Liquidity Risk	0.430	0.677
	(0.432)	(0.816)
Credit Risk	17.55 ***	29.52 ***
	(5.800)	(7.198)
Solvency Risk	0.0576 ***	0.0997 ***
	(0.0179)	(0.0259)
Impaired Loan Ratio	−0.00341	−0.00413
	(0.00889)	(0.0135)
Non-Traditional Activity	−0.0220 ***	−0.0245 ***
	(0.00272)	(0.00497)
Scale and Productivity Benefit	61.88 ***	44.89
	(17.89)	(30.81)
Intensity of International Activity	−0.152	−0.00923
	(0.257)	(0.511)
Moderator		
Institutional Distance	−0.0413	0.108
	(0.105)	(0.154)
Interaction Terms		
Bank Branches × Institutional Distance	−0.0417 **	
	(0.0209)	
Market Share × Institutional Distance	120.8 **	
	(47.30)	
Market Concentration × Institutional Distance	-3.08×10^{-5}	
	(4.66×10^{-5})	
Capital Strength × Institutional Distance		0.00355
		(0.00421)
Liquidity Risk × Institutional Distance		−0.198
		(0.228)
Credit Risk × Institutional Distance		−8.166 **
		(3.872)
Solvency Risk × Institutional Distance		−0.0172 *
		(0.00966)
Impaired Loan Ratio × Institutional Distance		−0.000636
		(0.0168)
Scale and Productivity Benefit × Institutional Distance		−1.002
		(6.829)
Non-traditional Activity × Institutional Distance		0.00237
		(0.00157)
Intensity of International Activity × Institutional Distance		−0.0792
		(0.192)
Constant	0	0.430
	(0)	(4.386)
Observations	433	433
Number of Banks	110	110
p-Value of AR (1) test	0.001	0.000
p-Value of AR (2) test	0.982	0.645
p-Value of Hansen test	1.000	1.000

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 8. Panel GMM model estimates (H3.3).

Variables	(1) Model 1	(2) Model 2
Lag Net Interest Margin	0.508 ***	0.566 ***
	(0.0683)	(0.0851)
Control Variables		
Bank Age	0.000188	0.00377
	(0.00319)	(0.00404)
Bank Size	−0.0692	−0.0194
	(0.0524)	(0.0533)
Location-Based Advantages		
Bank Branches	0.0743 **	0.0440
	(0.0305)	(0.0396)
Market Share	0.800	−1.697
	(3.459)	(3.695)
Market Concentration	-8.52×10^{-5}	−0.000413
	(0.00123)	(0.000776)
Bank-Specific Advantages		
Capital Strength	−0.0239 ***	−0.0317 ***
	(0.00630)	(0.0106)
Liquidity Risk	0.367	0.377
	(0.494)	(0.713)
Credit Risk	18.56 ***	30.38 ***
	(5.298)	(6.723)
Solvency Risk	0.0460 ***	0.0622 ***
	(0.0172)	(0.0139)
Impaired Loan Ratio	−0.00168	−0.0133
	(0.00980)	(0.0170)
Non-Traditional Activity	−0.0222 ***	−0.0267 ***
	(0.00364)	(0.00467)
Scale and Productivity Benefit	53.74 ***	30.69
	(17.65)	(26.42)
Intensity of International Activity	0.00141	0.363
	(0.343)	(0.476)
Moderator		
Economic Freedom Distance	0.0360	−0.0257
	(0.0516)	(0.0758)
Interaction Terms		
Bank Branches × Economic Freedom Distance	−0.0246 **	
	(0.0116)	
Market Share × Economic Freedom Distance	49.03 **	
	(19.38)	
Market Concentration × Economic Freedom Distance	-2.86×10^{-5}	
	(2.28×10^{-5})	
Capital Strength × Economic Freedom Distance		0.000871
		(0.00201)
Liquidity Risk × Economic Freedom Distance		−0.0418
		(0.116)
Credit Risk × Economic Freedom Distance		−1.189
		(1.754)
Solvency Risk × Economic Freedom Distance		0.000681
		(0.00425)
Impaired Loan Ratio × Economic Freedom Distance		−0.0115
		(0.00817)
Scale and Productivity Benefit × Economic Freedom Distance		1.146
		(3.948)
Non-traditional Activity × Economic Freedom Distance		0.00169 **
		(0.000732)
Intensity of International Activity × Economic Freedom Distance		−0.0826
		(0.0550)
Constant	0	1.339
	(0)	(1.567)
Observations	433	433
Number of Banks	110	110
p-Value of AR (1) test	0.000	0.000
p-Value of AR (2) test	0.999	0.646
p-Value of Hansen test	1.000	1.000

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$.

Table 9. Panel GMM model estimates (H3.4).

Variables	(1) Model 1	(2) Model 2
Lag Net Interest Margin	0.498 ***	0.528 ***
	(0.0622)	(0.0663)
Control Variables		
Bank Age	−0.000699	0.000746
	(0.00419)	(0.00860)
Bank Size	−0.0386	−0.0358
	(0.0463)	(0.0968)
Location-Based Advantages		
Bank Branches	0.106 *	0.0737
	(0.0607)	(0.0774)
Market Share	0.918	−1.050
	(3.409)	(4.732)
Market Concentration	−0.000166	9.28×10^{-5}
	(0.00294)	(0.00669)
Bank-Specific Advantages		
Capital Strength	−0.0307 ***	−0.0479 ***
	(0.00604)	(0.0153)
Liquidity Risk	−0.139	0.378
	(0.555)	(1.150)
Credit Risk	23.06 ***	25.54 **
	(6.172)	(11.60)
Solvency Risk	0.0819 ***	0.109 **
	(0.0151)	(0.0520)
Impaired Loan Ratio	−0.00417	−0.00819
	(0.00929)	(0.0194)
Non-Traditional Activity	−0.0238 ***	−0.0245 ***
	(0.00337)	(0.00638)
Scale and Productivity Benefit	35.98 **	42.47
	(14.02)	(34.74)
Intensity of International Activity	−0.138	−0.246
	(0.270)	(0.691)
Moderator		
Cultural Distance	−0.0525	−0.0127
	(0.138)	(0.495)
Interaction Terms		
Bank Branches × Cultural Distance	−0.0702 **	
	(0.0282)	
Market Share × Cultural Distance	298.1 ***	
	(87.67)	
Market Concentration × Cultural Distance	2.84×10^{-5}	
	(7.61×10^{-5})	
Capital Strength × Cultural Distance		0.0164 *
		(0.00843)
Liquidity Risk × Cultural Distance		−0.109
		(0.638)
Credit Risk × Cultural Distance		−6.720
		(11.18)
Solvency Risk × Cultural Distance		−0.0325
		(0.0197)
Impaired Loan Ratio × Cultural Distance		−0.00307
		(0.0661)
Scale and Productivity Benefit × Cultural Distance		−6.010
		(14.24)
Non-traditional Activity × Cultural Distance		0.00493
		(0.00496)
Intensity of International Activity × Cultural Distance		0.0293
		(0.586)
Constant	0	0
	(0)	(0)
Observations	433	433
Number of Banks	110	110
p-Value of AR (1) test	0.000	0.000
p-Value of AR (2) test	0.704	0.680
p-Value of Hansen test	1.000	1.000

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

When a location-based advantage variable such as *Market Share* interacts with *Foreignness*, *Institutional Distance*, *Economic Freedom Distance*, and *Cultural Distance*, the coefficients for these four interaction terms have a positive and significant association with performance. Empirical results from Tables 6–9 suggest that foreign banks coming from higher levels of institutional and economic freedom environments perform better than local banks with the same market power. Put differently, the cost of doing banking business in China for foreign banks will be reduced compared to local banks and will help improve performance through their location-based advantages.

When *Bank Branches* interacts with *Institutional Distance*, *Economic Freedom Distance*, and *Cultural Distance* variables (refer to Tables 7–9), the coefficients are negative and have a significant association with performance. This result indicates that foreign banks will incur higher costs than local banks given the latter's market concentration and branch network.

The location-based advantage stated above causes an offsetting effect for foreign banks. Foreign banks can improve their performance through approaches to gaining more market share, however, running local operations such as the establishment of more bank branches would result in higher costs.

To further visualize the implications of the interaction effects and the implications of our hypotheses, we plotted the relationships of location- and bank-specific advantages respectively, and net interest margin as the proxy of bank performance over the local versus foreign banks, with separate regression lines (please refer to Figures 2–8).

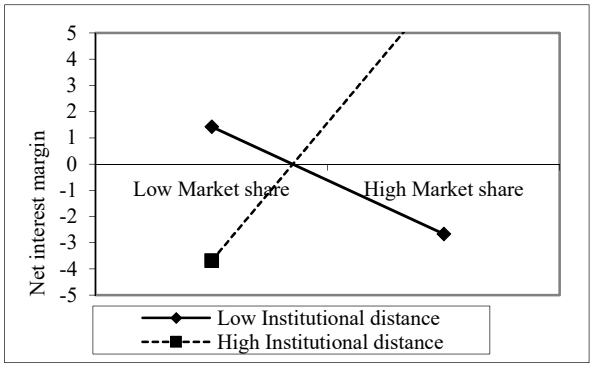

Figure 2. Market Share × Institutional Distance.

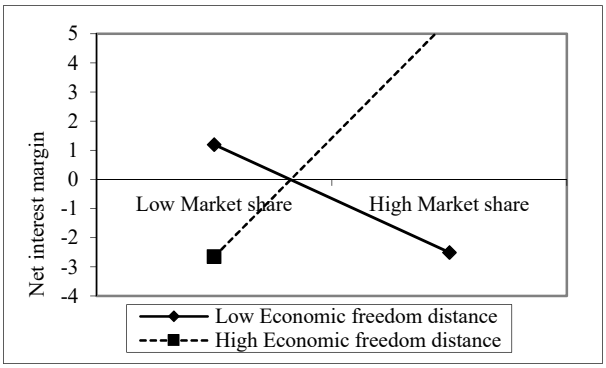

Figure 3. Market Share × Economic Freedom Distance.

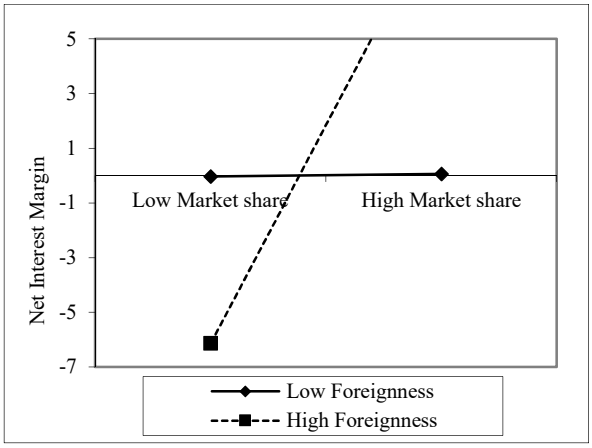

Figure 4. Market Share × Foreignness.

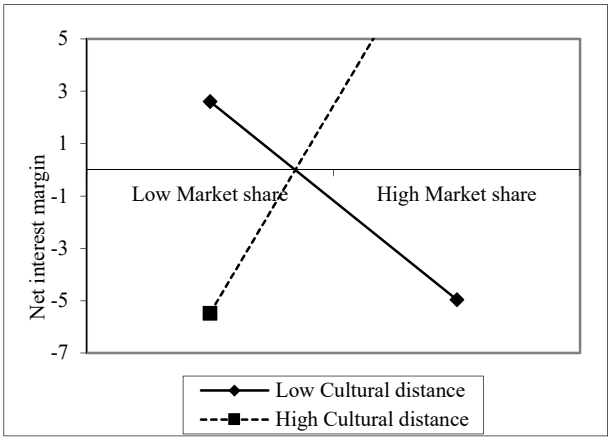

Figure 5. Market Share × Cultural Distance.

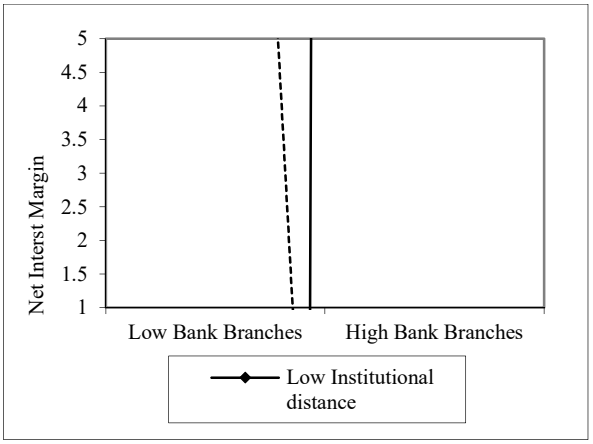

Figure 6. Bank Branch × Institutional Distance.

When bank-specific advantage variables such as *Credit Risk* and *Solvency Risk* interact with *Institutional Distance*, the coefficients have a significant but negative association with performance. These results from Model 2 in Table 7 suggest that due to the cost involved in transferring bank-specific advantages across borders, foreign banks will have less performance edge over local banks from exploiting these bank-specific advantages. Foreign banks could perform better than local banks with their bank-specific advantages if institutional constraints are few (please refer to Figures 9–12).

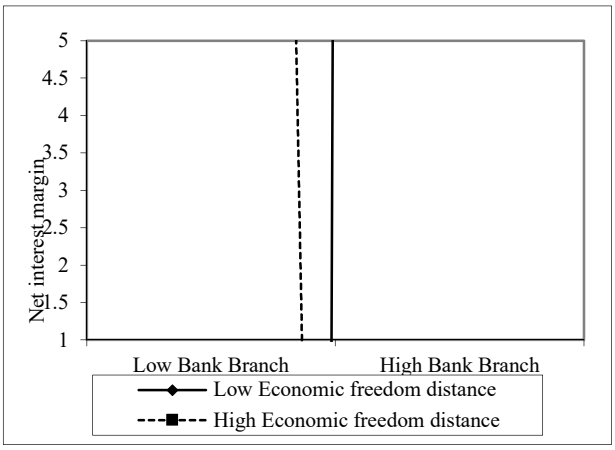

Figure 7. Bank Branch × Economic Freedom Distance.

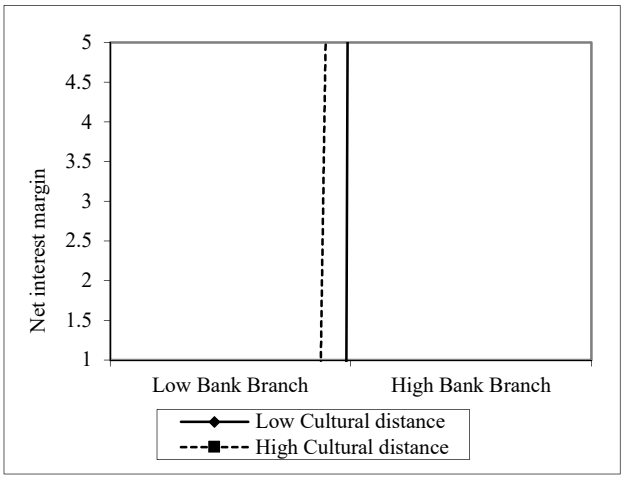

Figure 8. Bank Branch × Cultural Distance.

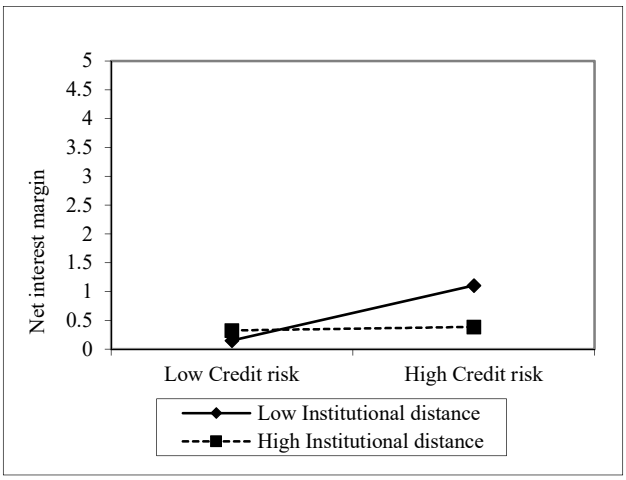

Figure 9. Credit Risk × Institutional Distance.

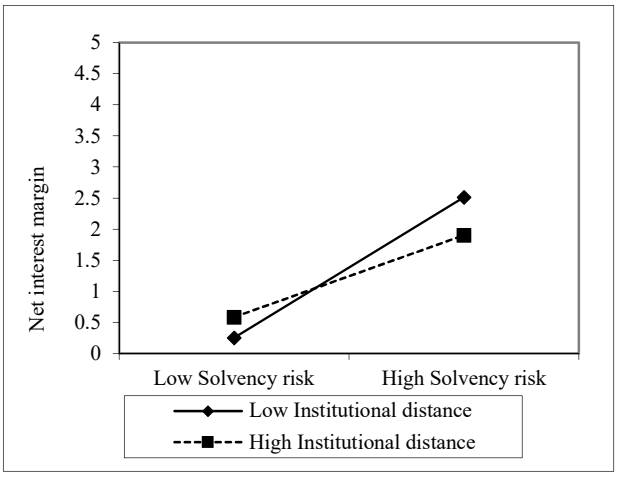

Figure 10. Solvency Risk × Institutional Distance.

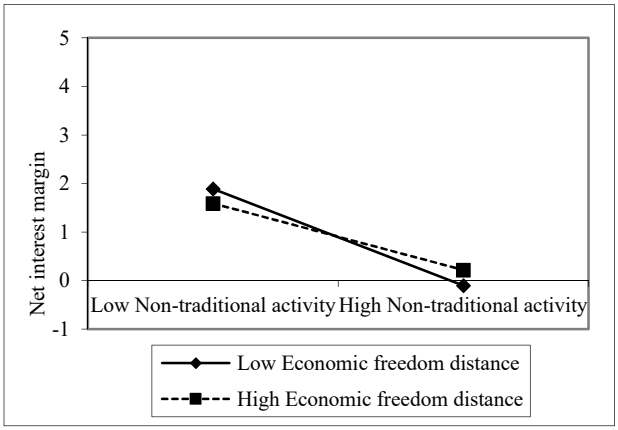

Figure 11. Non-Traditional Activity × Economic Freedom Distance.

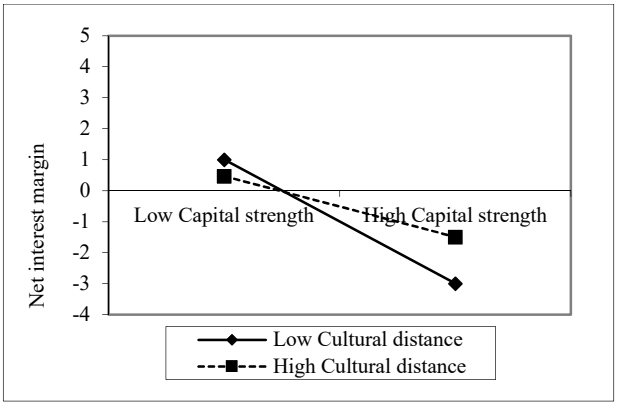

Figure 12. Capital Strength × Cultural Distance.

When another bank-specific advantage variable such as *Non-Traditional Activity* interacts with *Economic Freedom Distance* (Model 2, Table 8), and *Capital Strength* interacts with *Cultural Distance* (Model 2, Table 9), the coefficients display a significant and positive association with banks' performance. In this case, foreign banks' capital strength, their international experience relating to the non-traditional banking business, and their ability to manage risks will help them to offset the cost of foreignness in China. The rationale behind this result finds support as economic freedom captures the impact of components such as business freedom, trade freedom, fiscal freedom, monetary freedom, investment

freedom, financial freedom, etc. Therefore, if the host country, such as China, can offer such freedom, foreign banks' performance would be enhanced.

The results above signal a mixed situation. Foreign banks have their relative firm-specific advantage, which is reflected in international banking activities such as off-balance-sheet activities. However, the expansion of foreign banks is limited by relevant laws and regulations of the supervisory and regulatory institutions presented in the host country. Although the geography, clients, and currency restrictions were all removed completely by 11 December 2006, foreign banks still face hurdles in establishing branches in China, such as branch-level capital reserve, liquidity, deposit requirement, foreign exchange deposit/foreign exchange asset ratio limitations, and lengthy branch application procedures, etc. (Howson and Ross 2003). Therefore, we conclude that Hypothesis 3 is partially supported.

Hypothesis 4 is about the dynamics of LOF for foreign banks operating in China.

Table 10 demonstrates that the interaction terms of the location-based advantage of *Market Share* with *Foreignness*, *Institutional Distance*, *Economic Freedom Distance*, and *Cultural Distance* were not significant during the period of 2001–2009, but became positive and significant in the period of 2010–2015 (Table 11), suggesting that the relatively lower performance increase of foreign banks in terms of exploiting location-based advantages gradually changed over time (from 2000 to 2015). When another location-based variable of *Bank Branches* interacts with the four costs of LOF variables, the coefficients were not significant in the period of 2001–2009 but became negative and significant in the period of 2010–2015 (Table 11), indicating that the cost of doing business in China increased in the later period.

Results from Tables 12 and 13 reveal that the interaction terms *Liquidity Risk* and *Credit Risk*, with *Foreignness* and *Institutional Distance,* in the period 2010–2015 were negative and significant compared to the earlier period of 2001–2009, which indicates that foreign banks' bank-specific advantages in these two areas are disappearing more quickly than those involved in exploiting bank-specific advantages.

The interaction terms of bank-specific advantages such as *Non-Traditional Activity* with *Foreignness, Institutional Distance*, and *Economic Freedom Distance*, and the interaction term of *Capital Strength* with *Economic Freedom Distance,* became significant and positive in the period from 2010 to 2015, which indicates the lower performance gain by foreign banks over local banks with respect to developing bank-specific advantages. Based on these results, we conclude that Hypothesis 4 is supported.

Table 10. Model of comparing dynamic cost of foreign liability with location-specific advantages (H4) in period: 2000–2009.

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Lag Net Interest Margin	0.369 **	0.418 ***	0.342	0.405 *
	(0.139)	(0.128)	(0.281)	(0.210)
Control Variables				
Bank Age	0.00339	0.00420	0.000923	0.00553
	(0.00722)	(0.00708)	(0.0107)	(0.00745)
Bank Size	−0.193	−0.166 *	−0.108	−0.148
	(0.126)	(0.0912)	(0.281)	(0.106)
Location-Based Advantages				
Bank Branches	0.0990	0.0435	0.0240	0.0317
	(0.188)	(0.0927)	(0.427)	(0.121)
Market Share	0.337	2.086	2.852	1.616
	(7.231)	(5.423)	(14.09)	(5.895)
Market Concentration	0.00190 **	0.00139 *	0.00136	0.00162
	(0.000736)	(0.000799)	(0.00196)	(0.00111)
Bank-Specific Advantages				
Capital Strength	−0.0221	0.000130	−0.0151	0.00126
	(0.0446)	(0.0569)	(0.152)	(0.0591)

Table 10. *Cont.*

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Liquidity Risk	−0.229	0.645	0.692	−0.0702
	(1.731)	(2.422)	(3.946)	(2.582)
Credit Risk	11.59	8.048	10.27	7.348
	(11.58)	(12.23)	(22.29)	(15.44)
Solvency Risk	0.0460	0.00121	0.0294	−0.0199
	(0.0824)	(0.0745)	(0.193)	(0.110)
Impaired Loan Ratio	−0.00443	−0.00262	−0.0194	−0.0139
	(0.0424)	(0.0523)	(0.0533)	(0.0545)
Non-Traditional Activity	−0.00620	−0.00815	−0.0161	−0.00936
	(0.00931)	(0.00753)	(0.0151)	(0.00958)
Scale and Productivity Benefit	25.33	51.26	35.47	47.42
	(51.24)	(43.84)	(81.25)	(41.53)
Intensity of International Activity	0.151	0.463	0.182	0.234
	(0.582)	(0.625)	(0.611)	(0.600)
Moderator				
Foreignness	1.934			
	(6.650)			
Institutional Distance		0.760		
		(1.671)		
Economic Freedom Distance			2.038	
			(3.557)	
Cultural Distance				1.905
				(1.720)
Interaction Terms				
Bank Branches × Foreignness	−0.230			
	(0.323)			
Market Share × Foreignness	−111.2			
	(461.0)			
Market Concentration × Foreignness	−0.00101			
	(0.00387)			
Bank Branches × Institutional Distance		−0.0814		
		(0.0882)		
Market Share × Institutional Distance		11.13		
		(98.43)		
Market Concentration × Institutional Distance		−0.000428		
		(0.00106)		
Bank Branches × Economic Freedom Distance			−0.234	
			(0.333)	
Market Share × Economic Freedom Distance			180.4	
			(282.2)	
Market Concentration × Economic Freedom Distance			−0.00103	
			(0.00196)	
Bank Branches × Cultural Distance				−0.338
				(0.385)
Market Share × Cultural Distance				−176.5
				(354.6)
Market Concentration × Cultural Distance				−0.000636
				(0.000935)
Constant	0	0	0	0
	(0)	(0)	(0)	(0)
Observations	100	100	100	100
Number of Banks	39	39	39	39
p-Value of AR (1) test	0.062	0.058	0.103	0.112
p-Value of AR (2) test	0.831	0.960	0.955	0.953
p-Value of Hansen test	1.000	1.000	1.000	1.000

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 11. Model of comparing dynamic cost of foreign liability with location-specific advantages (H4) in period: 2010–2015.

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Lag Net Interest Margin	0.318 ***	0.339 ***	0.358 ***	0.381 ***
	(0.0790)	(0.0953)	(0.0973)	(0.0706)
Control Variables				
Bank Age	0.000991	0.00134	0.00253	−0.00740
	(0.00496)	(0.00425)	(0.00633)	(0.00550)
Bank Size	−0.0394	−0.0510	0.138	−0.00979
	(0.0651)	(0.0679)	(0.0939)	(0.0745)
Location-Based Advantages				
Bank Branches	0.136	0.167	0.183 **	0.201 **
	(0.103)	(0.101)	(0.0842)	(0.0784)
Market Share	−4.477	−6.045	−16.31 **	−2.327
	(6.226)	(6.513)	(7.493)	(4.637)
Market Concentration	0.000508	0.000450	0.000213	0.000644
	(0.00129)	(0.00111)	(0.00101)	(0.00151)
Bank-Specific Advantages				
Capital Strength	−0.0197 ***	−0.0232 ***	−0.00816	−0.0305 ***
	(0.00706)	(0.00805)	(0.0141)	(0.00740)
Liquidity Risk	1.453 *	1.042	1.801 **	−0.294
	(0.855)	(0.875)	(0.878)	(0.825)
Credit Risk	6.762	8.307	26.06 **	7.975
	(9.396)	(9.246)	(11.13)	(8.337)
Solvency Risk	0.0728 ***	0.0655 ***	0.0684 **	0.0923 ***
	(0.0188)	(0.0206)	(0.0293)	(0.0199)
Impaired Loan Ratio	0.0455	0.0369	−0.0826	0.0546
	(0.0655)	(0.0641)	(0.0624)	(0.0460)
Non-Traditional Activity	−0.0291 ***	−0.0259 ***	−0.0261 ***	−0.0332 ***
	(0.00458)	(0.00442)	(0.00564)	(0.00408)
Scale and Productivity Benefit	59.80 ***	62.80 **	55.08 **	49.53 ***
	(17.13)	(23.95)	(24.05)	(16.66)
Intensity of International Activity	0.490	0.482	0.225	0.379
	(0.320)	(0.310)	(0.567)	(0.348)
Moderator				
Foreignness	−0.288			
	(0.601)			
Institutional Distance		−0.0131		
		(0.170)		
Economic Freedom Distance			0.143 *	
			(0.0805)	
Cultural Distance				0.108
				(0.184)
Interaction Terms				
Bank Branches × Foreignness	−0.192			
	(0.150)			
Market Share × Foreignness	508.4 **			
	(233.8)			
Market Concentration × Foreignness	4.35×10^{-6}			
	(0.000212)			
Bank Branches × Institutional Distance		−0.0668		
		(0.0439)		
Market Share × Institutional Distance		145.4 *		
		(84.60)		
Market Concentration × Institutional Distance		1.95×10^{-6}		
		(7.32×10^{-5})		
Bank Branches × Economic Freedom Distance			−0.0578 **	
			(0.0232)	

Table 11. *Cont.*

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Market Share × Economic Freedom Distance			85.93 **	
			(43.03)	
Market Concentration × Economic Freedom Distance			-5.20×10^{-5}	
			(3.62×10^{-5})	
Bank Branches × Cultural Distance				−0.111**
				(0.0430)
Market Share × Cultural Distance				410.3 ***
				(136.0)
Market Concentration × Cultural Distance				-4.10×10^{-5}
				(0.000111)
Constant	0	0	−2.079	0.264
	(0)	(0)	(1.308)	(1.985)
Observations	288	288	288	288
Number of Banks	104	104	104	104
p-Value of AR (1) test	0.016	0.018	0.007	0.015
p-Value of AR (2) test	0.953	0.942	0.866	0.937
p-Value of Hansen test	0.905	0.934	0.570	0.975

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 12. Model of comparing dynamic cost of foreign liability with firm-specific advantages (H4) in period: 2000–2009.

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Lag Net Interest Margin	0.379 **	0.437 ***	0.400	0.222
	(0.140)	(0.107)	(0.241)	(7.530)
Control Variables				
Bank Age	0.00137	0.00294	0.00722	0.00103
	(0.00809)	(0.00900)	(0.00883)	(0.0825)
Bank Size	−0.170	−0.168	−0.148	−0.190
	(0.130)	(0.107)	(0.128)	(4.057)
Location-Based Advantages				
Bank Branches	0.0577	0.114	0.0854	0.0643
	(0.0706)	(0.113)	(0.122)	(1.816)
Market Share	4.705	1.528	0.516	4.200
	(5.714)	(6.127)	(6.816)	(113.7)
Market Concentration	0.00115	0.000959	0.00112	0.00176
	(0.00110)	(0.000980)	(0.00115)	(0.0343)
Bank-Specific Advantages				
Capital Strength	−0.0463	−0.0580	0.00314	−0.0617
	(0.0764)	(0.109)	(0.163)	(2.399)
Liquidity Risk	3.254	2.920	1.498	1.280
	(1.948)	(2.132)	(2.251)	(23.13)
Credit Risk	15.24	17.67	26.73	14.39
	(18.94)	(19.20)	(23.19)	(475.2)
Solvency Risk	0.0473	0.0651	−0.0127	0.114
	(0.148)	(0.198)	(0.293)	(4.194)
Impaired Loan Ratio	−0.0353	−0.0300	−0.0114	−0.00654
	(0.0508)	(0.0574)	(0.0612)	(0.997)
Non-Traditional Activity	−0.00660	−0.00682	−0.0155	−0.0127
	(0.00892)	(0.0110)	(0.0102)	(0.0650)
Scale and Productivity Benefit	−3.937	−3.893	13.34	35.55
	(51.44)	(36.39)	(44.85)	(648.5)
Intensity of International Activity	−0.190	−0.121	−0.0188	−0.115
	(0.441)	(0.544)	(0.859)	(14.71)

Table 12. *Cont.*

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Moderator				
Foreignness	2.791			
	(3.731)			
Institutional Distance		0.989		
		(1.646)		
Economic Freedom Distance			0.634	
			(4.980)	
Cultural Distance				−2.058
				(39.99)
Interaction Terms				
Capital Strength × Foreignness	0.0157			
	(0.136)			
Liquidity Risk × Foreignness	−7.709			
	(5.664)			
Credit Risk × Foreignness	−45.51			
	(63.57)			
Solvency Risk × Foreignness	0.0664			
	(0.287)			
Impaired Loan Ratio × Foreignness	−0.216			
	(0.331)			
Scale and Productivity Benefit × Foreignness	97.39			
	(159.3)			
Non-traditional Activity × Foreignness	−0.0213			
	(0.0569)			
Intensity of International Activity × Foreignness	−0.0354			
	(4.542)			
Capital Strength × Institutional Distance		0.0116		
		(0.0726)		
Liquidity Risk × Institutional Distance		−2.198		
		(2.556)		
Credit Risk × Institutional Distance		−16.00		
		(21.43)		
Solvency Risk × Institutional Distance		0.00979		
		(0.139)		
Impaired Loan Ratio × Institutional Distance		−0.0877		
		(0.131)		
Scale and Productivity Benefit × Institutional Distance		22.04		
		(51.00)		
Non-traditional Activity × Institutional Distance		−0.00724		
		(0.0201)		
Intensity of International Activity × Institutional Distance		0.0550		
		(1.423)		
Capital Strength × Economic Freedom Distance			−0.0205	
			(0.133)	
Liquidity Risk × Economic Freedom Distance			−0.964	
			(7.152)	
Credit Risk × Economic Freedom Distance			−20.61	
			(46.44)	
Solvency Risk × Economic Freedom Distance			0.0442	
			(0.251)	
Impaired Loan Ratio × Economic Freedom Distance			−0.0610	
			(0.346)	
Scale and Productivity Benefit × Economic Freedom Distance			4.524	
			(50.49)	

Table 12. *Cont.*

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Non-traditional Activity × Economic Freedom Distance			−0.00219	
			(0.0418)	
Intensity of International Activity × Economic Freedom Distance			−0.116	
			(0.637)	
Capital Strength × Cultural Distance				−0.0887
				(2.498)
Liquidity Risk × Cultural Distance				−1.153
				(26.85)
Credit Risk × Cultural Distance				68.37
				(733.1)
Solvency Risk × Cultural Distance				0.0634
				(5.115)
Impaired Loan Ratio × Cultural Distance				−0.377
				(1.512)
Scale and Productivity Benefit × Cultural Distance				315.0
				(3641)
Non-traditional Activity × Cultural Distance				0.00182
				(1.017)
Intensity of International Activity × Cultural Distance				−12.17
				(56.56)
Constant	0	0	0	0
	(0)	(0)	(0)	(0)
Observations	100	100	100	100
Number of Banks	39	39	39	39
p-Value of AR (1) test	0.132	0.115	0.085	0.875
p-Value of AR (2) test	0.764	0.725	0.859	1.000
p-Value of Hansen test	1.000	1.000	1.000	1.000

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$.

Table 13. Model of comparing dynamic cost of foreign liability with firm-specific advantages (H4) in period: 2010–2015.

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
L.Net Interest Margin	0.260 ***	0.380 ***	0.362 ***	0.443 ***
	(0.0718)	(0.110)	(0.0834)	(0.111)
Control Variables				
Bank Age	0.0131 *	0.0145 *	0.00758	0.00156
	(0.00747)	(0.00806)	(0.00736)	(0.00923)
Bank Size	0.0328	0.0655	0.00527	−0.0119
	(0.0776)	(0.0877)	(0.0777)	(0.0841)
Location-Based Advantages				
Bank Branches	0.103	0.0796	0.105	0.107
	(0.0662)	(0.0669)	(0.0680)	(0.0774)
Market Share	−12.67 **	−9.990	−6.108	−3.083
	(5.301)	(8.158)	(10.75)	(5.161)
Market Concentration	0.000177	−0.000786	−0.000228	−0.000342
	(0.000866)	(0.000893)	(0.00102)	(0.000851)

Table 13. *Cont.*

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Bank-Specific Advantages				
Capital Strength	0.0806	−0.0231	−0.0365 ***	−0.0511 **
	(0.0590)	(0.0278)	(0.0133)	(0.0224)
Liquidity Risk	2.214 ***	1.607	1.547	1.450
	(0.684)	(0.997)	(1.092)	(0.931)
Credit Risk	25.97 ***	28.33 **	34.37 ***	32.59 *
	(8.468)	(13.50)	(11.74)	(16.61)
Solvency Risk	7.20×10^{-5}	0.0742 *	0.0851 ***	0.137 **
	(0.0783)	(0.0422)	(0.0253)	(0.0560)
Impaired Loan Ratio	0.00654	0.0128	−0.0228	−0.0657
	(0.0920)	(0.101)	(0.0782)	(0.0971)
Non-Traditional Activity	−0.0406 ***	−0.0413 ***	−0.0376 ***	−0.0296 ***
	(0.00971)	(0.00845)	(0.00572)	(0.00702)
Scale and Productivity Benefit	54.72	35.84	24.03	32.22
	(37.76)	(26.92)	(25.33)	(36.34)
Intensity of International Activity	0.443	0.129	−0.0678	−0.327
	(0.564)	(0.708)	(0.906)	(0.561)
Moderator				
Foreignness	1.615			
	(1.003)			
Institutional Distance		0.100		
		(0.232)		
Economic Freedom Distance			−0.0692	
			(0.190)	
Cultural Distance				0.295
				(0.677)
Interaction Terms				
Capital Strength × Foreignness	−0.0808			
	(0.0607)			
Liquidity Risk × Foreignness	−3.013 **			
	(1.453)			
Credit Risk × Foreignness	−40.74 **			
	(18.54)			
Solvency Risk × Foreignness	0.0102			
	(0.0868)			
Impaired Loan Ratio × Foreignness	0.0241			
	(0.129)			
Scale and Productivity Benefit × Foreignness	−22.53			
	(38.15)			
Non-traditional Activity × Foreignness	0.0277 **			
	(0.0134)			
Intensity of International Activity × Foreignness	−0.0799			
	(0.824)			
Capital Strength × Institutional Distance		0.00462		
		(0.00838)		
Liquidity Risk × Institutional Distance		−0.426		
		(0.402)		
Credit Risk × Institutional Distance		−10.31 *		
		(6.199)		
Solvency Risk × Institutional Distance		−0.0114		
		(0.0140)		
Impaired Loan Ratio × Institutional Distance		0.00656		
		(0.0352)		
Scale and Productivity Benefit × Institutional Distance		−3.352		
		(7.777)		

Table 13. *Cont.*

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Non-traditional Activity × Institutional Distance		0.00767 ***		
		(0.00286)		
Intensity of International Activity × Institutional Distance		0.00551		
		(0.214)		
Capital Strength × Economic Freedom Distance			0.00417 **	
			(0.00189)	
Liquidity Risk × Economic Freedom Distance			−0.235	
			(0.259)	
Credit Risk × Economic Freedom Distance			−3.374	
			(2.473)	
Solvency Risk × Economic Freedom Distance			−0.00199	
			(0.00574)	
Impaired Loan Ratio × Economic Freedom Distance			0.00497	
			(0.0114)	
Scale and Productivity Benefit × Economic Freedom Distance			3.785	
			(4.408)	
Non-traditional Activity × Economic Freedom Distance			0.00259 **	
			(0.00128)	
Intensity of International Activity × Economic Freedom Distance			0.0653	
			(0.0884)	
Capital Strength × Cultural Distance				0.0184
				(0.0119)
Liquidity Risk × Cultural Distance				−0.828
				(0.940)
Credit Risk × Cultural Distance				−13.45
				(11.36)
Solvency Risk × Cultural Distance				−0.0420 **
				(0.0193)
Impaired Loan Ratio × Cultural Distance				0.0357
				(0.0478)
Scale and Productivity Benefit × Cultural Distance				−8.403
				(12.36)
Non-traditional Activity × Cultural Distance				0.00703
				(0.00616)
Intensity of International Activity × Cultural Distance				0.263
				(0.417)
Constant	0	0.767	0	0
	(0)	(1.943)	(0)	(0)
Observations	288	288	288	288
Number of Banks	104	104	104	104
p-Value of AR (1) test	0.015	0.009	0.002	0.019
p-Value of AR (2) test	0.356	0.337	0.634	0.800
p-Value of Hansen test	1.000	0.999	1.000	1.000

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.3. Further Analysis

To test the robustness of our results, we undertook further analysis. We repeated the empirical analysis fully but with different dependent variables, which were *Return on Asset* and *Return on Equity*. Overall, the examination of interaction terms or moderating effects with different dependent variables yielded very similar results.

Moreover, due to the sophistication of international banking activities, the 32 Chinese Rural Commercial Banks appear to have a lower mean value (0.065) for the *Intensity of International Activity* compared to the other four groups. We dropped this group in our further analysis to obtain a more robust outcome. The main results of the relationship between the cost of LOF and bank performance remained the same. The interaction terms between *Market Share* and *Foreignness*, *Credit Risk* and *Institutional Distance*, *Bank Branches* and *Economic Freedom Distance*, *Market Share* and *Economic Freedom Distance*, *Market Share* and *Cultural Distance*, and *Bank Branches* and *Cultural Distance* were very similar.

The robustness test results are available upon request from the authors.

5. Conclusions

This study aimed to answer the research question of whether foreign banks enjoy a competitive edge in the Chinese banking market or are they disadvantaged vis-à-vis domestic banks? The major hypotheses we examined included (a) foreign banks outperform local Chinese banks in terms of bank-specific advantages, (b) local Chinese banks outperform foreign banks in terms of location-based advantages, (c) foreign banks' competitive advantage is associated with foreignness for improved performance, and institutional distance, economic freedom distance, and cultural distance moderate the relationship between bank- and location-based advantages and banks' performance, and (d) over a longer timeframe, though foreign banks may demonstrate lower performance compared to local banks, the trend of the cost of the LOF would show a decline.

We found that hypotheses (b) and (d) above were supported, hypothesis (a) was rejected, and hypothesis (c) was partially supported.

In this study, we have examined the cost of foreignness from the perspective of location- and bank-specific advantages in an emerging economy and searched for the environmental characteristics that would affect foreign bank-specific advantages. Empirically, the alleged superior firm-specific advantage possessed by the foreign banks has been tapered down by institutional constraints in the host country. The four moderators as the proxy of cost of LOF clearly showed their mediation effects on different types of location- and firm-specific advantages, though in different directions.

The major findings of the study can be summarized as follows. First, the cost of foreignness does exist in the banking sector in China. Due to these costs, foreign banks' performance is not as good as that of the local banks. Furthermore, these banks demonstrated lower performance outcomes than their local counterparts despite the same amount of location- and bank-specific advantages. There was one type of advantage for which foreign banks were hypothesized to outperform local banks, which is to gain more market power. However, the cost of location-based disadvantages outlasts the cost of bank-specific disadvantages for foreign banks, which makes it more difficult for foreign banks to overcome the location-based disadvantages. Second, the LOF is persistent in an emerging banking market such as China. It prohibits foreign banks from realizing the benefits of their bank-specific advantages. However, policy changes could enhance the bank-specific advantages possessed by foreign banks and help them to overcome some of the costs of foreignness.

Amid the trade war and the challenges brought by COVID-19, the Chinese government has committed to further opening up the Chinese financial sector, allowing majority foreign ownership in securities, fund management, futures, life insurance, and currency brokerage. Foreign players are allowed to participate in pension fund management, credit rating agencies, and domestic bond underwriting. Limits to ownership or participation in other areas have also been raised, including foreign-invested insurance companies, insurance asset management, wealth management, and pension fund management (China Banking News, July 2020). Further development of China's capital market will result in losing household wealth away from bank deposits, intensifying competition from foreign financial institutions, and reductions in net interest margin and non-interest incomes for banks.

The banking sector holds a vital position in the Chinese economy. This research provides a complementary strategy for foreign banks. It suggests that foreign banks could keep working on their bank-specific advantages, such as international banking operations, to exploit their advantages in this particular setting. The results contribute to the extant literature by developing our understanding of why foreign banks struggle in emerging economies such as China. A more liberal Chinese banking sector will provide high potential to enhance the overall operational performance of foreign banks. The challenges facing China's banking system in the future also present opportunities for international banks.

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