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The effect of potential foreign entry in the banking sector

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Abstract

The existing literature ignores the effects of potential foreign entry on domestic banks in the process of financial liberalization. Empirical investigation of these effects is rare in practice due to the difficulties in observation and identification. Upon accession to the WTO, the China government committed to an opening timetable for the local-currency transactions. This timetable s an ideal setting to examine whether the potential entry of foreign banks has pro-competitive effects on the domestic banking market. Our empirical results show that domestic banks lower their interest margins in response to potential competition, and accordingly their before-tax profits decline. This signifies that efficiency gains in the banking sector also arise from potential foreign entry.

1. Introduction

The existing literature documents that the entry of foreign banks causes efficiency improvements in the banking sector of host countries (e.g., Claessens, Demirgüç-Kunt, and Huizinga, 2001).[1] However, it remains unclear whether potential entry of foreign banks has a similar effect.

Whether potential entry matters is a controversial topic in the theoretical literature on industrial organization, and it ultimately boils down to an empirical question. Capturing something merely *potential* is an empirical challenge; only a few papers have succeeded, primarily by ingeniously finding relevant real-world contexts. For instance, Bergman and Rudholm (2003) with regard to the Swedish pharmaceutical market, and Goolsbee and Syverson (2008) concerning the U.S. airline market.

The opening timetable for foreign entry into the Chinese banking sector, to which China committed upon its accession to the World Trade Organization (WTO), provides a suitable setting in which to investigate the potential-entry effect. Using this setting, we empirically identify the impact of foreign banks on domestic banks through potential competition.

2. Backdrop

Before accession to the WTO in 2001, foreign banks in China were allowed only to engage in limited foreign-exchange transactions with multinational enterprises in particular regions. As a result, foreign banks played no more than a peripheral role. In accordance with the commitments made by the Chinese government, all types of foreign-exchange transactions in China were immediately opened to foreign banks upon China's accession to the WTO in 2001, while local-currency transactions were derestricted step by step: four to seven cities per year from 2001 to 2005, and all remaining cities in 2006. As shown by the timetable in Figure 1, domestic banks faced competition from foreign banks in foreign-exchange business immediately, but did not face foreign competitors in local-currency business until the cities where they were located were opened up. During this grace period, the threat imposed by foreign banks was *potential* in nature.

The potential threat was credible and substantial. Foreign banks indeed entered into Chinese cities to commence local-currency business when restrictions were removed. At the end of 2003, 84 out of the 191 foreign banks in China held local-currency licenses. Having modern banking technology and high-quality management, foreign banks quickly achieved large shares in the banking market. For instance, foreign banks issued more than 40% of new local-currency loans in Shanghai during the first 11 months of 2006 (Xu and Lin, 2007). History of other transition economies also indicated the forthcoming keen competition at that time: in the 1990s, foreign banks provided more credit to the private sector than domestic banks in all central and eastern European countries except Slovenia (Naaborg,

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[1] For the references on the effects of banking deregulation, see Freeman (2002) and Wall (2004).

Scholtens, de Haan, Bol, and de Haas, 2004).

3. Data and Specification

Our data are primarily extracted from the BANKSCOPE, which is both a widely-used data source in banking literature, and the most comprehensive micro-level database of Chinese banks available to academia. Our dataset includes 22 domestic commercial banks in China that accounted for the majority of total assets in the Chinese banking sector during the period 2000–2006.[2]

To maintain comparability with the study of actual foreign entry, we focus on the same dependent variables as Claessens et al. (2001). *Net interest margin* is the difference between interest income and interest paid out in lending activities, and it reflects the market power of a bank, as well as the efficiency it contributes to the economy. Higher margin signifies a lack of competition and thus lower efficiency. *Non-interest income* is the income from a bank's non-lending business. *Before-tax profit* measures the profitability of a bank, *overhead expenses* represent the level of overhead costs, and *loan-loss provisions* refer to actual provisions for bad debts. Consistent with standard practice in the literature, all five variables are calculated as ratios over total assets. In addition, we incorporate bank-level control variables, including *leverage* (the ratio of equity to total assets) and *default risk* (the ratio of loan-loss provisions to loans) as well as regional GDP per capita and GDP growth rate.[3] Table 1 reports descriptive statistics for our dataset.

The model is specified as

$$y_{ijt} = \alpha + \delta' PRE_{jt} + \beta' B_{it} + \gamma' X_{jt} + \mu C_i + \psi T_t + \varepsilon_{ijt}, \qquad (1)$$

where y_{ijt} is the variable of interest—including net interest margin, non-interest income, before-tax profit, overhead expenses, and loan-loss provisions—for domestic bank i in city j at time t, PRE_{jt} is a vector of potential-threat indicators in city j at time t, B_{it} is a vector of bank-level control variables at time t which would be discussed later, X_{jt} is a vector of region-level control variables at time t, C_i is a bank dummy, and T_t is a time dummy. The error term, ε_{ijt}, is assumed to satisfy classical assumptions. We employ the weighted-least-squares technique to estimate the model, with the weights being the inverse of the number of domestic banks in the given city and year. Observations are at the year-bank level. Notably, covariates of y_{ijt} that change over years but do not vary across firms would be absorbed by the time dummy.

Potential-threat indicators are dummy variables that indicate the chronological distance between the year to which a given observation belongs and the year in which local-currency business in city j is opened to foreign banks; PRE = (PRE4, PRE3, PRE2, PRE1). PREn is equal to 1 if the city to which an observation belongs is n

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[2] Foreign banks in a few cities were allowed to do foreign-currency transactions before 2001, but they were not allowed to embark on local-currency transactions until the opening year stipulated in the official timetable. Thus, we also include the observations for 2000.
[3] Region-level variables are reported in or calculated based on the statistical yearbooks published by the Chinese government. Coccorese (2008) discusses the role of environmental variables on banks' conducts.

years away from being opened.

What PRE captures is the heterogeneity among cities caused by the varying chronological distance between the current year and the opening year. This effect will not be contaminated by a second effect so long as the second effect does not generate city-level heterogeneity. For example, consider that in 2003 city A is one year away from opening, while city B is two years away: $PRE_{A,2003} = (0,0,0,1)$ and $PRE_{B,2003} = (0,0,1,0)$. Suppose that another reform is undertaken in these two cities in 2003. The heterogeneity caused by the chronological order—the effect of being one year away from opening—will be captured by the coefficient of PRE1; the effect of the contemporary reform will not affect this coefficient, because the reform does not differentiate these two cities, and thus it will be absorbed by the time dummy. Other reforms in China during the studied period proceeded on a nationwide basis, rather than following the timetable; therefore, the effects of other reforms would not confound the captured potential-entry effect.

4. Results

The results are reported in Table 2. Column (1) shows a substantial decline in net interest margin when domestic banks face potential entry by foreign banks. All four PRE-coefficients are statistically significant at conventional levels. The average coefficient is −0.415. Considering that the average of net interest margin is 2.034, we find that an average bank will lower its margin by approximately 20% (0.415/2.034≈ 0.204).[4] Lower margin suggests that domestic banks adjust their loan pricing in order to retain existing clients or to increase market share.

The positive correlation between net interest margin and overhead expenses is consistent with the findings by Claessens et al. (2001). One intuitive interpretation is that banks pass the burden stemming from potential entry to depositors and borrowers. The positive correlation between net interest margin and default risk signifies the tradeoff faced by domestic banks. Higher default risk causes banks to raise interest rate and thus margin rises; at the same time, higher interest rate results in higher default risk because of adverse selection (Stiglitz and Weiss, 1981).

Column (2) reports an increase in non-interest income on the eve of opening (coefficient=0.148, s.e.=0.055). This effect is significant only when time gets close to the opening. A natural explanation is that banks strengthen their non-lending business in response to their future foreign competitors, who have already been more developed and experienced in non-lending business. An alternative explanation is that domestic banks charge higher service fees in their non-lending business. The former explanation is more likely to apply, in that the effect of potential entry is, if not pro-competitive, at least not counter-competitive in theory. Furthermore, the positive coefficient of overhead expenses in Column (2), though only significant at the 10% level, also lends support to the former explanation, because non-lending business usually involves additional staff training and equipment purchases.

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[4] It is noteworthy that each of the PREs is exclusive of the others; hence, the coefficients of PREs are not additive.

The effect of potential foreign entry on before-tax profit is reported in Column (3). All four PREs have negative coefficients, and the first three depress profit significantly, suggesting that the decrease in net interest margin is still nontrivial even though it is partially offset by the increase in non-interest income.

Column (4) reveals weak evidence that domestic banks raise overhead expenses in response to potential foreign entry. Sachs and Woo (2003) mention that domestic banking technologies may be improved when the entry of foreign banks makes advanced banking technologies available. In our case, overhead expenses increase even prior to actual entry of foreign banks. Our results imply that the technology improvement is not only attributable to spillover, but also to voluntary self-development, since spillover is absent prior to actual foreign entry. The positive coefficient of regional GDP per capita also supports this technology explanation, because the rise in overhead expenses is higher in richer regions; in other words, the banks located where economic performances are not good would be less likely to incur the additional expenses to improve their technologies.

The effect of potential foreign entry on loan-loss provisions is unclear, as shown by Column (5). In fact, the total effect of potential entry on loan-loss provisions is theoretically ambiguous. On the one hand, domestic banks may become more cautious at launching loans in the periods prior to opening; thus, the quality of loans rises. On the other hand, future availability of loans provided by foreign banks may encourage local firms with low risk to postpone borrowing from domestic banks. Finally, as expected, default risk is shown to be close associated with loan-loss provisions.

5. Conclusion

In addition to the known foreign-entry effect, this paper finds another channel through which derestricting the domestic banking sector improves social efficiency. The net interest margin and before-tax profit of domestic banks decline in response to the potential threat imposed by foreign banks in the process of banking liberalization. We also find weak evidence that potential entry causes the non-interest income and overhead expenses of domestic banks to rise, which is possibly because of technological improvements in non-lending business. As a result, the benefits of opening the banking sector are stronger than conventionally expected.

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Table 1

Descriptive Statistics

	Mean	Std. Dev.	Min	Max
Net interest margin	2.034	0.499	0.948	4.161
Non-interest income	0.278	0.293	-0.020	1.475
Before-tax income	0.737	0.313	0.194	1.691
Overhead expenses	1.055	0.223	0.586	1.793
Loan-loss provisions	0.483	0.310	0.033	2.467
Leverage	3.753	2.492	-11.7	8.767
Default risk	0.905	0.544	0.061	4.048
Regional GDP per capita (1,000 Yuan)	27.91	13.70	5.54	55.04
Regional growth rate of GDP (%)	12.28	1.45	8.99	15.35

Notes: Bank-level variables are extracted from the BANKSCOPE. Regional variables are reported in or calculated based on the statistical yearbooks published by the Chinese government.

Table 2
Potential-entry Effects of Foreign Banks

	(1) Net Interest Margin	(2) Non-interest Income	(3) Before-Tax Profit	(4) Overhead Expenses	(5) Loan-loss Provisions
PRE4	-0.577***	0.081	-0.520**	0.161	0.029
	(0.211)	(0.107)	(0.218)	(0.112)	(0.053)
PRE3	-0.499***	0.105	-0.395**	0.127*	-0.031
	(0.155)	(0.076)	(0.162)	(0.072)	(0.052)
PRE2	-0.280**	0.091	-0.223*	-0.006	-0.021
	(0.117)	(0.064)	(0.127)	(0.069)	(0.041)
PRE1	-0.304**	0.148***	-0.136	0.026	-0.044
	(0.136)	(0.055)	(0.129)	(0.061)	(0.040)
Leverage	0.000	0.011	0.016	0.008	-0.003
	(0.016)	(0.010)	(0.021)	(0.011)	(0.005)
Overhead expenses	1.338***	0.209*	0.403*		0.121
	(0.227)	(0.121)	(0.212)		(0.085)
Default risk	0.502***	-0.087*	-0.083	0.006	0.566***
	(0.081)	(0.044)	(0.063)	(0.051)	(0.031)
Regional GDP per capita	-0.005	-0.002	-0.002	0.020***	-0.001
	(0.010)	(0.009)	(0.013)	(0.006)	(0.005)
Regional Growth rate of GDP	-0.012	-0.004	-0.003	0.038	0.011
	(0.037)	(0.019)	(0.038)	(0.024)	(0.013)
Constant	0.571	0.045	0.007	-0.239	-0.173
	(0.709)	(0.544)	(0.796)	(0.529)	(0.295)
Joint Sig. Test of PREs	2.74**	2.03	2.17*	2.50*	1.01
R^2	0.93	0.91	0.70	0.81	0.98
Observations	105	105	105	105	105

Notes: Robust standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%

2001 2002 2003 2004 2005 2006

Remove all geographical restrictions

Open up local-currency transactions in Shantou, Ningbo, Harbin, Changchun, Lanzhou, Yinchuan, and Nanning (7 cities)

Open up local-currency transactions in Kunming, Beijing, Xiamen, Xian, and Shenyang (5 cities)

Open up local-currency transactions in Jinan, Fuzhou, Chengdu, and Chongqing (4 cities)

Open up local-currency transactions in Guangzhou, Qingdao, Zhuhai, Nanjing, and Wuhan (5 cities)

- Open up foreign-exchange transactions in all the cities.
- Open up local-currency transactions in Shanghai, Shenzhen, Tianjin, and Dalian (4 cities)
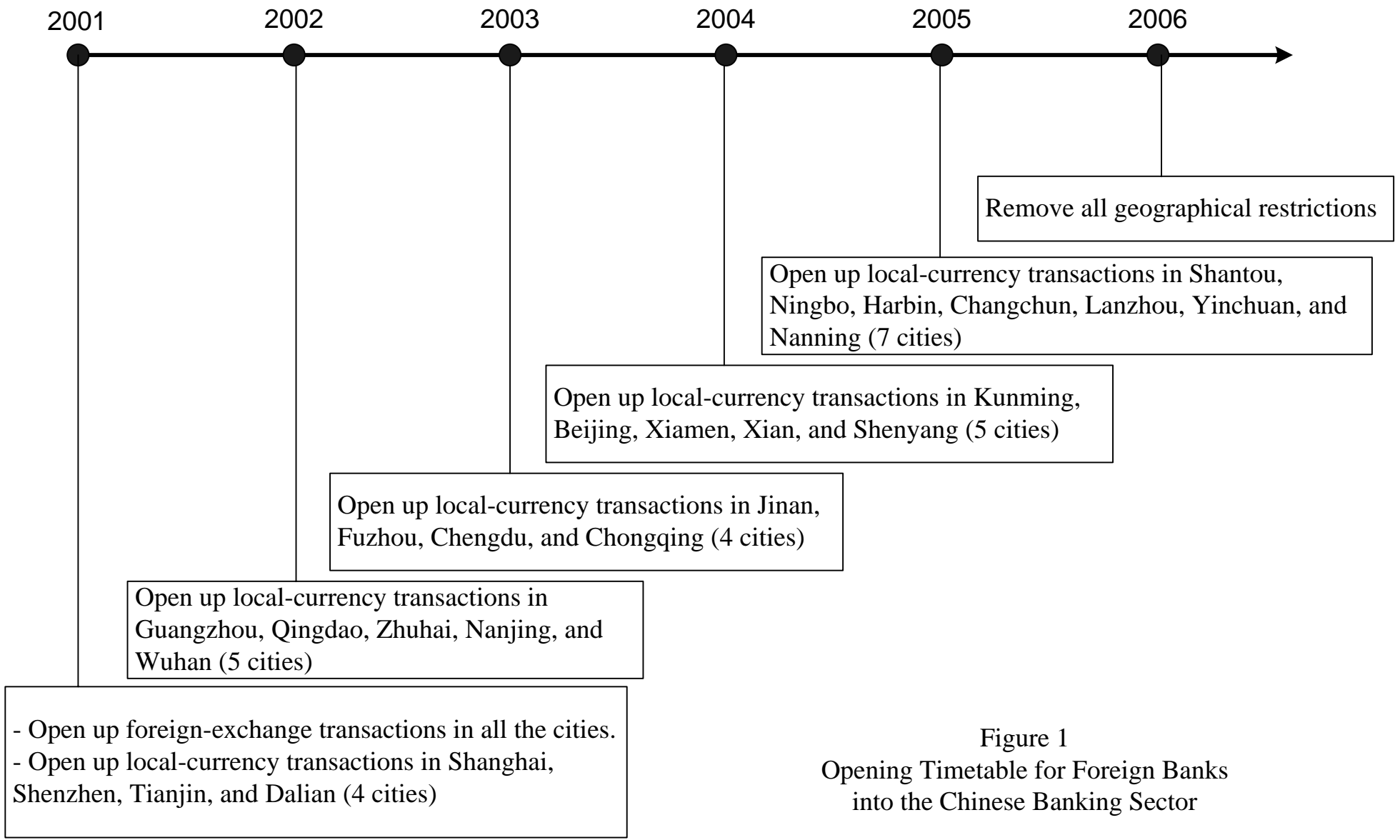
Figure 1
Opening Timetable for Foreign Banks
into the Chinese Banking Sector