Empirical Study on Location Choice of Foreign Banks in China

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Abstract

Using the panel data from 2006 to 2010, this paper analyses the determinants of location choice of foreign banks in China with the amount of assets of foreign banks in different regions as dependant variables. The empirical results show that market opportunity and following clients factors are both important determinants for foreign banks location choice. Meanwhile the presence of foreign banks tends to be more in financial centers of China, holding everything else being equal. However, the non-performing loan ratio of commercial banks of one region is not important factor for foreign banks to consider for now.

Keywords Foreign Banks, China, Location Choice.

1   Introduction

With the complete liberalization of banking industry at the end of 2006, foreign banks accelerated the pace of entering into China. By 2010, 185 banks from 45 countries and regions set up 216 representative offices in China; 37 banks from 14 countries and regions were locally incorporated which maintained 223 branches. In addition, there were 90 foreign bank branches established by 74 banks from 25 countries and regions. And the total assets of foreign banking institutions in China increased 29.13 percent year-on-year to RMB1.74 trillion (China Banking Regulatory Commission (CBRC), 2010). According to the authors statistics, these foreign banks maintained business branches in 34 cities in China. Shanghai, Beijing, Shenzhen, Guangzhou and Tianjin have the largest number of business branches respectively, in which Shanghai is the top one and has 102 business branches, accounting for 30% of the number of business branches of foreign banks in China. It can be seen that there is an agglomeration effect in the location choice made by foreign banks in China, i.e. the offices of foreign banks concentrate in those more developed and first-deregulated cities, such as Shanghai, Beijing, etc. Therefore, what factors determine the location choice of foreign banks in China? And which regions can attract foreign banks to do more business? These are interesting problems worth concerning.

Among foreign literatures, in addition to the studies on the location choices among various host countries, there are some researches on the internal location choices in a host country, such as literature[1] and [2]. In China, some researchers made some descriptive analysis on the features of location choices of foreign banks in China (for example [3-5]) Using panel data, Zhang and Yang made the empirical analysis on the determinants of location of foreign banks in 16 cities in

China for the first time[6]. Li examined the determinants in 24 cities on the basis of Zhang and Yang[6-7]. He and Yeung[8] examined the locational distribution in 32 cities with conditional logit models. Existing studies, however, all took the number of institutions but not the amount of assets of foreign banks as the dependent variables, while the number of institutions cannot accurately reflect the business development status of foreign banks. This paper aims to contribute to the existing literature by using the amount of assets of foreign banks as the dependent variable to investigate the determinants of location choice of foreign banks in China.

2   Hypothesis Development

On the basis of previous studies and taking into account the availability of data, this paper empirically examines four factors that affect the location distribution of foreign banks in China.

2.1   Market opportunity

Existing literatures prove that market opportunity is one of the important factors that affect the location choice of foreign banks. The market opportunity is generally measured from two aspects, economic development level and size of financial sector.

The higher the level of economic development, (which is usually measured by GDP, GDP per capita or the growth rate of GDP), and the larger the financial markets, the demand of households and businesses for financial services is greater, which can bring more profit opportunity for foreign banks. Many studies have proved it. For example, Buch and Yamori proved that from the perspective of national level, the entry of foreign banks is positively related with the GDP or GDP per capita of host countries[9-10]. The further study by Focarelli and Pozzolo showed that profit opportunities resulting from a high expected economic growth and the prospect of competing with relatively less efficient banks appear to be a key factor affecting the expansion abroad[11]. Goldberg and Grosse found that foreign bank presence in various states in the U.S., as measured by assets or offices, is positively related with the size of the states banking market[2].

Studies on location distribution of foreign banks in China have the identical results. Zhang and Yang proved that disposable income per capita is positively related with the office number of that city[6]. Li proved that the office number of foreign banks is significantly positively related with both disposable income per capita and credit aggregates[7].

Therefore, based on the above discussion, the following are inferred:

H_1: Foreign bank presence is drawn to the economically developed areas.

H_2: Foreign bank presence is drawn to the areas with large banking market sizes.

2.2 "Follow-the-customer" factor

Theories on multinational banking indicated that one of the motives of multinational banks to go abroad is to follow the customers. Numerous empirical studies also proved that foreign banks presence is significantly correlated with the foreign trade or FDI volume between the home and host countries. Meanwhile, some studies showed the foreign trade or FDI volumes of one area play important role in location choice of foreign banks within one country. For example, Goldberg and Grosse proved that the amount of FDI in the state is a significant determinant for attracting foreign bank assets, while the foreign trade volume is not[2]. Studies on China made by Zhang and Yang and Li also proved that number of foreign banks' offices in one city is positively related with the foreign trade volume, while the amount of FDI is not a significant determinant[6-7]. Therefore, the following is speculated:

   H_3: Foreign bank presence is drawn to the areas with more foreign trade or FDI volume.

2.3 Institutional factors

Institutional factors are also important for location distribution of foreign banks. Numerous studies found that foreign banks tend to enter the financial centers of one country, which result in agglomeration effect. Setting up offices in financial center makes it convenient for foreign banks to establish good relationships with regulatory authorities and other financial institutions. It is also convenient to gain funds and information with low cost and to receive specialized services from other companies. Studies made by Bagchi-Sen and O hUallachin all showed foreign banks in the U.S. concentrated in the financial centers[1,12]. He and Yeung showed that foreign banks agglomerate in Beijing, Shanghai, and cities hosting the regional branches of the People's Bank of China (central bank of China)[8]. Based on the above discussion, it is reasonable to deduce the following:

   H_4: Foreign bank presence agglomerates in financial centers in China.

2.4 Risk factor

In consideration of risk control, foreign banks usually make the regional risk assessments for location choice. Therefore, financial risk status of one region is also one of factors affecting the location distribution. Empirical study made by Li used weighted average nonperforming loan ratios of 24 cities as independent variable. But the coefficient was not significant[7]. This paper tries to study whether the asset distribution of foreign banks is related with the risk status of one region and thus the following hypothesis is proposed:

   H_5: Foreign bank presence is negatively related with the financial risk level of one region.

3 Methodology and Data Sources

3.1 Dependent variable

As mentioned before, different from the previous studies on China, this paper uses the amount of assets of foreign banks but not the number of offices in different regions as the dependent variable. However, due to the availability of data, the amount of assets of foreign banks in different provinces, autonomous regions, or municipalities but not in different cities is used, which is denoted as FBASSET (in natural logarithmic form). The data is from *Financial Performance Report* of each region from 2006 to 2010. Since foreign banks did not enter some provinces until recently, this paper selects 20 among 31 provinces, autonomous regions, or municipalities which have foreign bank presence at least after 2008[1].

3.2 Explanatory variables

Based on the previous studies and the availability of data, definitions of explanatory variables are as follows:

(1) The natural logarithmic form of GDP and the growth rate of GDP are introduced to measure the level of economic development, which are denoted as GDP and GDPGROWTH respectively and the data are from *China Statistical Yearbook*.

(2) The ratio of total banking loan or total amount of banking assets to GDP are introduced to measure the banking market sizes of one region. The reason is that compared with provinces and autonomous regions, municipalities are much smaller with respect to area and population. Then it is biased to use the absolute value of total banking loan or banking assets to measure the banking market sizes. Two variables are denoted as LOAN and ASSET respectively and the data are from *Financial Performance Report*.

(3) To test the "follow-the-customer" hypothesis (H_3), the natural logarithmic form of volume of foreign trade (TRADE) and the natural logarithmic form of realized amount of foreign direct investment (FDI) are included as explanatory variables. The data are from *China Statistical Yearbook*.

(4) Dummy variable (CENTER) is introduced to test whether foreign bank presence agglomerates in financial centers in China (H_4), which represents the locations of regional branches of the central bank, assigning a value of "1" for Beijing, Shanghai, Tianjin, Chongqin, Guangdong, Liaoning, Shandong, Sichuan, Jiangsu, Hubei and Shanxi, and zero for other provinces.

(5) The nonperforming loan ratios of commercial banks of each region (NPL) are introduced to measure the financial risk status. The data are from *Distribution of NPLs of Commercial Banks by Region* , *Annual Report of China Banking Reg-*

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[1]Twenty provinces, autonomous regions, or municipalities include Beijing, Shanghai, Tianjin, Chongqin, Guangdong, Fujian, Liaoning, Shandong, Sichuan, Jiangsu, Hubei, Hunan, Jiangxi, Anhui, Shanxi, Guangxi, Yunnan, Heilongjiang, Zhejiang, Hainan.

ulatory Commission of each year.

In summary, regression model based on panel data is as follows:

$$FBASSET_{it} = c_{it} + \beta_1 OPPOTUNITY_{it} + \beta_2 FOLLOW_{it} +$$
$$\beta_3 CENTER_i + \beta_4 NPL_{it} + \varepsilon_{it}$$
$$Where\ i = 1, ...N, t = 1, ..., T$$

4   Regression Results

First, the correlation test of all variables except dummy variable is made and the result is shown in table 1.

Table 1 Correlation Coefficients among Variables

	FBASSET	GDP	GDPGROWTH	LOAN	ASSET	TRADE	FDI	NPL
FBASSET	1.000							
GDP	0.564	1.000						
	(0.000)							
GDPGROWTH	-0.060	-0.050	1.000					
	(0.552)	(0.615)						
LOAN	0.529	-0.006	-0.335	1.000				
	(0.000)	(0.952)	(0.001)					
ASSET	0.540	0.010	-0.326	0.926	1.000			
	(0.000)	(0.919)	(0.001)	(0.000)				
TRADE	0.831	0.789	-0.158	0.374	0.372	1.000		
	(0.000)	(0.000)	(0.114)	(0.000)	(0.000)			
FDI	0.713	0.790	0.072	0.121	0.127	0.866	1.000	
	(0.000)	(0.000)	(0.471)	(0.228)	(0.204)	(0.000)		
NPL	-0.217	-0.427	0.234	-0.476	-0.479	-0.335	-0.354	1.000
	(0.043)	(0.000)	(0.029)	(0.000)	(0.000)	(0.002)	(0.001)	

Notes: p values are in parentheses.

As the table 1 shows, among the explanatory variables, LOAN and ASSET are highly correlated and the correlation coefficient is 0.926. TRADE and FDI are also highly correlated with the coefficient being 0.866. To mitigate the multi-collinearity issue of estimates, the interaction of LOAN and ASSET, and TRADE and FDI are introduced in the model, to show the effect of banking market sizes and "follow-the-customer" factor on the location choice respectively. Besides, GDP is also highly correlated with TRADE and FDI. So the significance of GDP and TRADE*FDI is tested separately.

Table 2 Regression Results on Location Choice of Foreign Banks in China (2006-2010)

Variable	(1)	(2)
GDPGROWTH	0.0630*	
	(1.66)	
GDP		1.5105***
		(5.37)
ASSET*LOAN	0.1550***	0.1112**
	(2.97)	(2.13)
FDI*TRADE	0.1054***	
	(5.45)	
CENTER	1.7155***	2.0640***
	(3.57)	(3.26)
NPL	-0.0143	0.0099
	(-0.76)	(0.51)
Adjusted R^2	0.5830	0.4990
Number of observation	82	89
Hausman test(P value)	2.05	6.18
	(0.73)	(0.10)
Estimation Metho	Random effects	Random effects

Notes: (1) The sample period is from 2006 to 2010 and the number of cross-section is 20. The actual sample is less than 100 because some data are default or wrong.
(2) The constants are left out in the results.
(3) *Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level, t values are in parentheses.
(4) Hausman-test statistic shows whether the random effects method is suitable.

The empirical results of table 2 show that the asset distribution of foreign banks in China is significantly positively related with GDP or GDP growth rate of that region, demonstrating that the level of economic development is one of important determinants for foreign banks presence. Thus, H_1 is supported. In addition, the disposable income per capita is also introduced into the model instead of GDP and the result is similar. This is slightly different from the results of Zhang and Yang and Li which showed the number of offices of foreign banks is positively related with the disposable income per capita but not GDP[6-7].

Both of results (1) and (2) verify that the foreign bank presence is significantly positively related with the total banking loan or total amount of banking assets, proving foreign bank presence is drawn to the areas with large banking market sizes (H_2). This is consistent with Li[7].

The coefficient of TRADE*FDI is significantly positive, proving that foreign bank presence is drawn to the areas with more foreign trade or FDI volume (H_3). Foreign banks may follow their customers and enter the area with more international trade or FDI, providing financial services to those customers. This result is consistent with other studies on China.

The coefficient of CENTER is significantly positive and thus H_4 is supported very well, showing that holding everything else being equal, foreign banks tend to operate in financial centers to obtain the advantages in funds, information and others. This result is consistent with He and Yeung[8].

H_5 is not proved since the coefficient of NPL is positive or negative but not significant, showing that the foreign bank presence is not significantly related with the nonperforming loan ratios of commercial banks, which is consistent with Li[7]. This indicates that foreign banks do not take the nonperforming loan ratios as an important factor when making location choice. One of reasons may be that foreign banks do not consider the nonperforming loan ratios of commercial banks equivalently with the financial risk status of that region.

5   Conclusion

Based on the previous studies and using the panel data from 2006 to 2010, this paper analyses the determinants of location choice of foreign banks in China with the amount of assets of foreign banks in different regions as dependant variables. Market opportunity, "follow-the-customer", institution factor and risk factor are all included.

The empirical results show that when foreign banks make the location choice, market opportunity is one of the important factors so that the economically developed regions with large banking sizes are more attractive to foreign banks. On the other hand, foreign bank also consider "follow-the-customer" strategy so that foreign bank presence is drawn to the areas with more foreign trade or FDI volume. Meanwhile the presence of foreign banks tends to be more in financial centers of China, holding everything else being equal. However, the non-performing loan ratio of commercial banks of one region is not important factor for foreign banks to consider for now.

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