
Locational Determinants of Outward Foreign Direct Investment of China's Banking Sector: Developed vs Developing Countries

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ABSTRACT: This paper investigates the empirical determinants of China banking sector outward foreign direct investment (OFDI) to developed and developing countries. The determinants include those drawn from extant theory on overseas investment and those deemed relevant to China's circumstances. Adopting country-wide bank FDI data from 2000-2015, a most updated panel dataset was constructed. By relying on zero inflated model, this paper finds that the standard determinants of OFDI flows established within the western context only provides partial explanation of Chinese banking sector's OFDI strategies and there are striking differences between developed and developing countries in their appeals to Chinese banking OFDI. Specifically speaking, the differences are: 1) Chinese OFDI to developing countries exhibit efficiency-seeking and market-seeking motives. 2) Inflation targeting regime in developed country encourages FDI while fixed exchange rate regime and monetary aggregate targeting in developing countries discourage FDI. 3) Macroeconomic environment and banking sector in developed country matter to the Chinese banking FDI, and those of developing countries do not matter. 4) Chinese banking OFDI tend to flow to developing countries with poor institutions but to developed countries with good institutions. 5) Capital openness in developing countries deter FDI and does not matter for developed countries.

Key Words: China, banking sector, outward FDI, locational determinants.
JEL Classification: F21 G21.



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1. Introduction

The foreign direct investment (FDI) is critical for the long-term economic growth. The flourishing of FDI activities by multinational corporations is one of the important representations of globalization. Since the implementation of the reform and opening up policy in 1978, China has been attracting FDI from the rest of the world and has become one of the world's largest FDI host country. In the past two decades, however, a new trend has emerged-- Chinese outward FDI (OFDI) has increased substantially and rose to the second largest source country. With the launching of "Belt and Road Initiative"¹ in 2013, the OFDI of China will reach to new high level. However, compared to studies on China as a host country of the FDI, studies on China as a source country is still scant. Why does China send its capital abroad? What are the host-country characteristics that attract China's capital? Are developed and developing countries attract Chinese capital for

¹ Belt and Road Initiative is a development strategy adopted by the Chinese government involving infrastructure development and investments in Europe, Asia and Africa.

different reasons? To date there are only a handful studies on these issues. The conclusion from this territory is far from settled.

The purpose of the paper is to explore the locational determinants driving Chinese OFDI in a specific sector -- the banking industry. There are two reasons of choosing banking sector in our study. First, banking industry is distinctive from other sectors in that almost all of its multinationals remain in state hands, even though it is corporatized in order to focus on commercial objectives. State directions means that, besides profit-maximization, these firms still align their operations with the national imperatives. Thus, it is an open question whether the locational determinants generalized in the main stream of literature still apply to China's banking sector? Second, China's banking sector has been growing steadily during the recent years. Measured in total assets, its size surpassed that of the US banking system in 2010, and even all euro area banking systems together in the last quarter of 2016. It is now clearly the largest banking system in the world, with \$35 trillion in total assets, about 300% of China's GDP (<https://voxeu.org/article/chinese-banking-system>). Third, the OFDI in banking sector is growing a lot recently. According to Statista 2018 (<https://www.statista.com/statistics/722150/china-outward-fdi-flows-by-industry>), banking sector boasts to have the second largest volume of OFDI of 24245.53 million, next to leasing and business services of 36257.88 million. To the best of our knowledge, this is the first study on OFDI in banking sector of China.

Another task of this paper is to examine if developed and developing countries differ significantly in their appeals to Chinese banking OFDI. One interesting feature emerging is that developing countries start to attract more capital in banking sector recently (please refer to Figure 1 of section 2). And the countries alongside the "Belt and Road" are mostly developing economies. Why developing country attract more of OFDI than developed country? Do Chinese banks have different motives in deploying capital to developed and developing countries? The questions can have specific and detailed implications for the developed and developing countries separately.

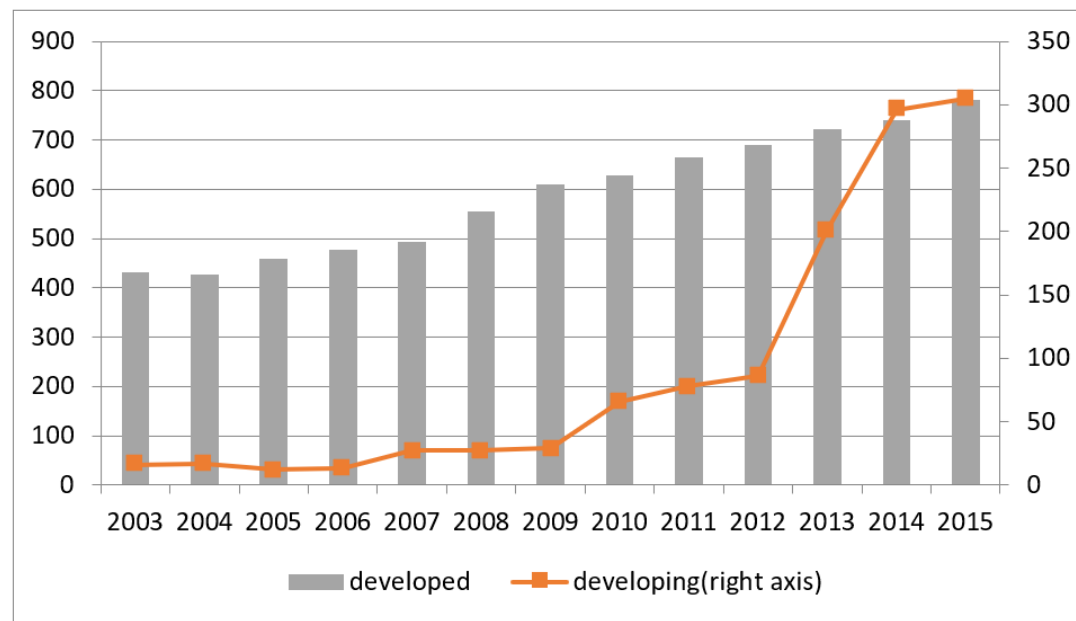


Figure 1. Organizational numbers in developing and developed countries.

Alongside the impressive growth of overseas investment, the research on the growth in Chinese OFDI has attracted little limelight from scholars. As to the banking sector, there is an even larger void due to the paucity of the data. Our paper contributes to the literature in several aspects. First, this study is the first attempt that examines the internationalization of Chinese banking sector targeted to developed and developing countries separately. Second, our data set is by far the most comprehensive, ranging from 2000-2015. One common limitation of the literature is that many studies use relatively dated time series which inhibits analysis of the changed financial market conditions in the aftermath of the 07-08 global financial crisis. To take advantage of the data, we further include a dummy variable on financial crisis to study if the OFDI behavior is different during the financial crisis. Third, by utilizing count data, i.e., the number of branches and subsidiaries in host

countries, we avoid the tax heaven problem that has present in other similar studies (Cheng and Ma, 2008; Morck et al 2008). Fourth, previous papers with count data usually adopts poisson regression (Wu, 1999; Dreger et al, 2017), which does not account for the situation of failed attempts of Chinese banks sending capital abroad. To address this, we adopted zero-inflated model. Last, we extend the literature by incorporating five categories of determinants. Especially, the literature is quite silent on the impact of macroeconomic policy regime on FDI, we begin to fill this void by including monetary policy and exchange rate regime variables to examine if macroeconomic policy environment affect Chinese multinational banks' OFDI.

To preview the results, we have the following findings: First, the standard determinants of OFDI flows developed within the western context only provide partial explanation of Chinese OFDI strategies. Second, there are striking differences between developed and developing countries in their appeals to Chinese banking OFDI, which are the followings: 1) Chinese OFDI to developing countries exhibit efficiency-seeking and market-seeking motives. The market-seeking motive is more evident in developing than developed countries. 2) Inflation targeting regime in developed country encourages FDI while fixed exchange rate regime and monetary aggregate targeting in developing countries discourage FDI. 3) Macroeconomic environment and banking sector in developed country matters to the Chinese banking FDI, and those of developing countries do not matter. 4) Chinese banking OFDI tend to flow to developing countries with poor institutions but developed countries with good institutions. 5) Capital openness in developing countries deter FDI and does not matter for developed countries.

The paper is structured as follows. Section 2 provides a brief history of Chinese banking sector. Section 3 presents the methodological framework. Section 4 sets up the empirical model. Section 5 provides data description and discusses the results. Section 6 concludes and suggests avenues for future research.

2. A Brief History

The open door policy initiated in 1978 was a key defining event in contemporary Chinese economic policy. Ever since then, China has not only attracted FDI inflow from the world but also sent large volume of capital to the global market. The economic reform with the accompanying change in the FDI policy has greatly altered and shaped the economic scene.

China has experienced approximately 6 stages in promoting the FDI. And the banking sector FDI basically follows the 6 stages. The first stage was from 1979 to 1983 with cautious start. The Chinese government began allowing OFDI, Chinese state-owned firms started to establish their international operations. In 1979, Bank of China (BOC) has set up the first overseas branch in Luxembourg and then a New York branch in 1981. Indeed, the FDI activity in this period was quite minimal, and BOC is the only one Chinese bank going abroad.

The second stage was from 1984 to 1991. This period featured gradual and limited liberalization. Over this period, it is generally acknowledged that Chinese firms internationalized mainly in pursuit of certain national and provincial economic goals and policy objectives (Gang, 1992; Lu, 2002; Sauvart, 2005; Zhan, 1995). During this period, another bank, Communication Bank of China (BCM) also started to invest overseas.

The third stage is from 1992 to 1998. The FDI has increased significantly, encouraged by domestic liberalization initiated by “paramount leader” Deng Xiaoping’s tour to the South China. During this period, BOC continued to maintain its leading position in internationalization. BCM set up another Asian branch in Tokyo in 1996. Three other Chinese largest banks including, Industrial and Commercial Bank of China (ICBC), China Construction Bank (CCB) and Agricultural Bank of China (ABC), have also begun to explore overseas investment opportunities.

From 1999 to 2001 features the fourth stage. In 2001, this encouragement was formalized within the 10th five-year plan, which outlined the “going global” or “zou chu qu” directive. To support Chinese enterprises “going global”, BOC and ICBC restructure and strengthen their business in Hong Kong by conducting a series of mergers and acquisitions and the China Development Bank (one of three Chinese policy banks) established four industrial investment funds with other international or joint venture institutions.

From 2002 to 2013 is the post WTO period. During the interval, the OFDI has proliferated. Between 2002 and 2006, China's large state-owned Banks started to reform, converting from wholly state-owned commercial banks to modern financial enterprises. During this period, while the overseas investment still concentrated in



developed countries in Asia and international financial centers in Europe, the overseas locations are more diversified and more developing countries are involved. From 2005 to 2013, 19 new host countries were developed. The overseas assets of the banking industry increased from \$189318 million of 2005 to \$ 1152067 million of 2013, with the average annual rate of 25.32%.

In 2013, President Xi Jinping has proposed “the Belt and Road Initiative”, which focused on reviving the “silk road” and enhancing regional collaboration among economies in Asia and Europe. This marks the beginning of the 6th stage of Chinese FDI history. Chinese banking internationalization has been more active in this period. From 2013 to 2015, more countries along the Belt and Road, such as Philippines, Saudi Arabia, Kuwait, Turkey and Czech Republic, were targeted by China's banking sectors. The overseas assets maintains high growth speed at the annual growth rate of 20.36%. The asset reaches to \$1551678 million in 2015.

To have a visual inspection of the evolvement of the Chinese banking internationalization, Figure 1 presents the number of branches of Chinese banks in developing and developed countries from 2003 to 2015². From the figures, we can see that the OFDI of Chinese banking sector has increased steadily over time. And Chinese banks opened more branches in developing countries than developed countries in recent years.

3. Methodological Framework

According to Shen et al (2009), three different measures for Chinese bank penetration in host countries can be used, i.e., the percentage of Chinese bank's assets in host country over total bank assets, the dollar amount of financial FDI, and the number of Chinese bank's branches and subsidiaries in the local market. We adopt the third measure to proxy the Chinese bank penetration due to the data availability.

Since the dependent variable is classified as count data time series, i.e., the number of branches and subsidiaries, we follow the count data regression model (Greene, 2003). In this paper, we aim to build a regression model depicting the variations in the number of branches and/or subsidiaries set up by Chinese banks in the host countries. Count data regression has several practical and technical appeal (Greene, 2003, Wooldridge, 2002, Ramasamy et al, 2012). First, many studies using the value of OFDI as the dependent variable suffer from potential extreme values, which will not only affect the model fit and estimation but also inflate the true attractiveness of the recipient countries in terms of their general FDI performance. Second, count data regression models are technically designed for modeling dependent variable that takes zero. This is very appealing feature since we do not need to disregard the potential sample selection bias resulting from the exclusion of countries that host no branches/subsidiaries from Chinese multinational banks. Third, if we use the value of OFDI as the dependent variable, a highly skewed distribution can be expected; especially when countries that host no branches at all, the statistical tests based on the OLS estimation can be problematic. And most count data regression models are designed for modeling skewed dependent variable. Previous literature mostly use Possion regression, however, that does not account for the situation of failed attempt of banks sending capital abroad. Some countries without hosting any branches/subsidiaries from Chinese multinational banks does not mean that the Chinese bank have no intention or make no attempt to invest in these countries, but just that they have made attempts without success due to the censorship in the host countries. To account for these situation, we adopted zero inflated model (ZIP) proposed by Lambert (1992).

The ZIP model has two components: One component models the probability of being structural zeros. The other component models the count response. The ZIP model enables us to better understand the effect of covariates by distinguishing the effects of each specific covariate on structural zeros and on the count response.

The model mixes a distribution degenerate at zero with a Poisson distribution by allowing the incorporation of the explanatory variables in both the zero process and the Poisson.

Let Y_i denote a vector of count variable—the branches/subsidiaries—in our case.

The zero-inflated Poisson (ZIP) distribution is given below:

$$\Pr(Y_i = y_i | \mu_i, \omega_i) = \begin{cases} \omega_i + (1 - \omega_i) \exp(-\mu_i), & \text{if } y_i = 0 \\ (1 - \omega_i) \frac{\mu_i^{y_i}}{y_i!} \exp(-\mu_i), & \text{if } y_i > 0 \end{cases} \quad (1)$$

where $0 \leq \omega_i < 1$ and $\mu_i > 0$,

² China's financial OFDI statistics in different countries are firstly published in year 2003, so the year 2003 is chosen as the starting point of our research.

with mean $E(Y_i) = (1 - \omega_i)\mu_i$ and variance $Var(Y_i) = (1 - \omega_i)\mu_i(1 + \omega_i\mu_i)$.

Based on Equation (1), the model reduces to the Poisson when $\omega_i = 0$, and exhibits over dispersion when $\omega_i > 0$. The parameters ω_i and μ_i depend on x_i and z_i given by the equations below.

$$\log(\mu_i) = x_i^T \beta \quad (2)$$

$$\log\left(\frac{\omega_i}{1-\omega_i}\right) = x_i^T \gamma \quad (3)$$

where β and γ are estimated by maximum likelihood method. For details see Zulfiki and Noriszura (2011).

In sum, we will test the motivation of Chinese multinational banks for having subsidiaries and branches abroad by ZIP.

4. Empirical Setup

In the following, we will detail the locational factors driving the Chinese OFDI in banking sector. Besides testing the four motivations of Dunning (1998) - market-seeking, resource-seeking, efficiency-seeking and strategic-asset seeking, we also examine the impact of the following five categories of factors: macroeconomic policy regime, macroeconomic environment, local institutional quality and political risk, local banking sector indicators and country characteristics.

4.1. Benchmark Specification

Our basic specification is to test only the four traditional motives, ie., marketing-seeking, resource-seeking, efficiency-seeking and strategic-asset seeking, in the literature.

Market-seeking motivation indicates that multinational enterprises invest in a foreign country in order to reach new markets. To test if Chinese banks are market-seeking motivated, we include four proxies for market opportunity, i.e., GDP, GDP per capita, trade volume with host countries and general OFDI stocks from China to host countries.

As GDP is a good approximation of the size of an economy, our paper adopt real GDP as an indicator of market size. As the size of the host country market increases, so does the number of customers and opportunities for foreign investor, FDI inflow will increase.

In addition to the market size, the growth prospect of the host country is seen as an important ‘pull’ factor and positively influence the level of FDI flows since more growth means more potential profit (Dunning, 1993 and Chandprapalert, 2000). GDP per capita (GDPPER) is used as proxy for market growth potential as well as a proxy for purchasing power. Multinational banks tend to seek locations that are close to a large concentration of affluent consumers (Dunning, 1998).

Trade volume (TRADE) with host countries can measure the business strength of the two countries, with higher volumes indicate closer connections. Banks typically will open branches in locations with high trade volume since they have larger customer bases from home countries, and the investment is made to support the economic link that already exists with the host countries (Ramasamy et al 2012).

“Outward” measures the general OFDI from China to host economies. We include this variable to test the concept of “follow the crowd”, meaning that foreign banks set up their branches where their home and global competitor are also located. So we want to formulate that “bank FDI follows general FDI” for Chinese multinational banks. In addition, agglomeration effect is a well- established motivation for investment (Chakrabarti, 2001). Ramasamy et al (2012) also include a similar variable.

In sum, four variables-GDP, GDPPER, TRADE, OUTWARD—are included to test the market-seeking hypothesis.

Multinationals with resource-seeking motivation want to acquire particular types of resources not available at home or that are available at a lower cost, such as natural resources or raw materials, unskilled labor that is offered at a cheaper price with respect to the home country. China growing at double digits for more than a decade requires large, cheap and easy access to natural resources. More trade with natural-resource rich countries means more branches in those countries to facilitate the trade. As with most other studies, we test the attraction of natural resources by using the host location’s exports of iron ore and metal as a proxy. Variable “OREMETAL” is included to test the hypothesis.



Efficiency-seeking is considered to occur when firms want to “take advantage of differences in the availability and costs of traditional factor endowments in different countries”, and when they intend to “take advantage of the economies of scale and scope and of differences in consumer tastes and supply capabilities” (Dunning, 1993). We include the overhead expense to capture efficiency-seeking motivation. Overhead expense is a ratio of operating expenses to total revenue, reflecting the ability of the firm to generate revenue from its expenditures. Typically, the higher operating efficiency, the lower overhead expense ratio.

Strategic-asset-seeking is that of acquiring and complementing a new technological base rather than exploiting the existing assets. We use the number of patents registered in host countries to test the strategic intent of Chinese banks.

The benchmark specification is:

$$Y_{it} = f(LGDP_{it}, LGDPPER_{it}, LTRADE_{it}, LOUTWARD_{it}, LOREMETAL_{it}, OVERHEAD_{it}, LPATENT_{it}) + e_{it} \quad (1)$$

4.2. Extended Analysis

While the four motivations above are frequently discussed in previous literature, they may not capture all the locational motives of a large emerging market like China. In this section, we will extend the analysis by incorporating five categories of determinants: 1) macroeconomic policy regime, 2) macroeconomic environment, 3) local banking sector indicators, 4) institutional quality and political risk, and 5) country characteristics.

There is very limited literature studying the impact of macroeconomic policy regime on OFDI. Macroeconomic policy regime, particularly, exchange rate regime and monetary policy regime, can affect exchange rate, trade, price levels and growth, all of which affects FDI. In this paper, we will investigate if exchange rate regime and monetary policy regime have any explanatory power on Chinese banking OFDI, and whether the pattern differs for developed and developing countries.

Exchange rate regime is viewed as being directly related to exchange rate volatility or the synonym to it. For example, the textbook discussions often present the argument that flexible rate regime will discourage international trade and investment due to higher exchange rate volatility (e.g. Krugman and Obstfeld 2009). However, the exchange rate regime effects of FDI can involve more than just influencing the exchange rate volatility. For example, Schiavo's (2007) suggests that a currency union could reduce “transactional and informational barriers” and exchange rate regime has an effect distinct from that of reducing volatility. Abbott et al (2012) suggest a possible correlation between exchange rate volatility and FDI under a flexible exchange rate regime. In addition, exchange rate regimes not only determines current value of exchange rate, but also shapes expectations about the future values (Duffy and Giddy, 1975 and Reitz, Stadtmann, and Taylor, 2010). Considering the fact that FDIs are long term commitments than hot money flows, investors pay attention to both current and future values. We thus create a dummy variable (EXT), with 1 being exchange rate anchor, and 0 being other (floating). This contrasts with the more typical approach of just examining the effect of exchange rate value and volatility on FDI.

The similar spirit goes with monetary policy regime. Monetary policy regime determines factors that are influential on bank performances such as interest rates³ or macro volatility⁴ (Walsh, 1982, Libich, 2006). Among developing countries, inflation targeting helps to reduce volatility in output growth and output gap (Batini and Laxton 2007). As in the case of exchange rate regime, monetary policy regime determines not only the current values of these factors, but also shapes expectations. We expect prudent foreign investment will take into account of monetary policy regime. Two dummy variables are created. MT equals to 1 when it is monetary aggregate targeting, 0 otherwise. IT equals to one when it is inflation targeting, 0 otherwise.

The specification is:

$$Y_{it} = f(LGDP_{it}, LGDPPER_{it}, LTRADE_{it}, LOUTWARD_{it}, LOREMETAL_{it}, OVERHEAD_{it}, LPATENT_{it}, EXC_{it}, MT_{it}, IT_{it}) + e_{it} \quad (2)$$

³ Claessens et al (2017) and Jobst and Lin (2016) show that low interest rates negatively affect bank profitability. English (2002) discusses different ways of interest volatility could impact bank performances.

⁴ Sufian and Habibullah (2009) shows that bank profits decline in volatile economic growth because of lower demand for financial services and more loan defaults.

Inflation level, current account deficit and crisis are included to measure the macroeconomic environment. Current account balance is used here to measure the strength of the host countries' balance of payment positions. When a country runs current account deficit, it is building up liabilities to the rest of the world which eventually needs to be paid back. To be solvent, the deficit countries need to eventually generate sufficient current account surpluses to repay what it has borrowed to finance the current account deficits (IMF, 2017). So high current account deficit might deter FDI. We also want to examine the impact of financial crisis on the OFDI. We create the dummy variable: crisis. Crisis equal to 1 if it is the year 2008, 2009, 2010, and 0 otherwise.

The specification for Macroeconomic environment is as follows:

$$Y_{it} = f(LGDP_{it}, LGDPPER_{it}, LTRADE_{it}, LOUTWARD_{it}, LOREMOTAL_{it}, OVERHEAD_{it}, LPATENT, CURRENT_{it}, LCPI_{it}, CRISIS_{it}) + e_{it} \quad (3)$$

The main characteristics of host countries' banking sector is also important in attracting FDI. To measure the banking sector indicators, we include capital ratio (CAPITAL), nonperforming loans (NONPER), return on assets (ROA), and "branch per 10,000 adults in host country" (Branchper). The ratio of bank capital to assets, a measure of bank solvency and resiliency, shows the extent to which banks can deal with unexpected losses. The ratio of bank nonperforming loans to total gross loans measures bank health and efficiency by identifying problems with asset quality in the loan portfolio. A high ratio may signal deterioration of the credit portfolio. Both capital ratio and nonperforming loans can indicate the strength of banking sector. Robust financial systems can increase economic activity and welfare. ROA illustrates the ability of a bank to generate profits from the asset and it is an overall indicator of a banking organization's performance. The variable "branch per 10,000 adults in host country" measures the competitiveness of the banking sector of the host country. The more branches exist, the higher the competition and less opportunities available.

The specification for banking indicators is as follows:

$$Y_{it} = f(LGDP_{it}, LGDPPER_{it}, LTRADE_{it}, LOUTWARD_{it}, LOREMOTAL_{it}, OVERHEAD_{it}, LPATENT_{it}, CAPITALRATIO_{it}, NONPERFORMING_{it}, ROA_{it}) + e_{it} \quad (4)$$

Buckley et al (2007) find that most Chinese OFDI was less risk averse. Since they were mostly government led, OFDI tend to be promoted by political affiliations and connections between China and other developing host country government. As such, China's foreign investment decisions reflect political objectives, and not just profit-maximization as in the case of privately owned multinationals from other countries. Kolstad and Wiig (2012) state that China has a quite different institutional environment than other developed countries, the corruption level in China is much higher than in the major industrialized source countries of FDI. So China is likely to invest in countries with similar institutions. All the arguments point to a hypothesis that Chinese FDI may be attracted to countries with poor institution/governance and high political risk. To test the impact of host countries' institutional/country risk on China's banking sector FDI, we include "rule of law" (ROL) and "political risk" (Politicalsta). "Rule of law" measures "the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence". It ranges from approximately -2.5 (weak governance performance) to 2.5 (strong governance performance). "Politicalstability" measures perceptions of the likelihood of political instability, which also ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance.

The specification is:

$$Y_{it} = f(LGDP_{it}, LGDPPER_{it}, LTRADE_{it}, LOUTWARD_{it}, LOREMOTAL_{it}, OVERHEAD_{it}, LPATENT_{it}, CAPITALRATIO_{it}, ROL_{it}, POLITICALSTABILITY_{it}) + e_{it} \quad (5)$$

In addition, we include distance and capital openness (Ka_Open) to represent the host countries' characteristics. According to the gravity model, the further it is geographically, the higher the expenses incurred to set up a branch or subsidiary. Therefore, we expect negative relationship between OFDI and distance. Capital openness measures host countries' degree of capital account openness, the more open it is, the more likely to attract Chinese capital. We expect Chinese banking OFDI is sensitive to this variable.

$$Y_{it} = f(LGDP_{it}, LGDPPER_{it}, LTRADE_{it}, LOUTWARD_{it}, LOREMETAL_{it}, OVERHEAD_{it}, LPATENT_{it}, KA_OPEN_{it}, LDISTANCE_{it}) + e_{it} \quad (6)$$

5. Data Description and Results

The summary statistics of variables are presented in Table 1a, 1b and 1c. The number of overseas branches and subsidiaries are from each bank's annual reports and Almanac of China's Finance and Banking. The host country's exports of iron ores are from World Steel Association Statistics and WIND Economic Database. The OFDI from China to host country and the trade between China and host countries are from Statistical Bulletin of China's Outward Foreign Direct Investment and General Administration of Customs. The number of registered patents in the host country are from World Intellectual Property Organization. The Host country's banking operating expenses/revenues and ROA are from EIU Financial services indicators and Forecasts. Other indicators are from World Bank development indicator and governance indicator. We use the IMF's country classification in separating developed countries from developing countries which is a standard practice among empirical analysis like ours.

Table 1a: Summary Statistics for the Full Sample.

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
bs2	481	14.18	65.71	0.00	523.00
gdp	481	1.06E+12	2.32E+12	4.29E+09	1.66E+13
gdpper	481	27191.32	23094.05	505	110001.1
trade	481	4804928.00	7941603.00	8310.4	5.58E+07
outward	481	110391.50	649045.80	1145317	8978978
oremetal	481	1.12E+10	1.49E+10	204241	9.99E+10
overhead	481	57.70	21.79	22.3	412.2
patent	481	41598.84	105464.50	1	530005
Ext	481	0.21	0.41	0	1
It	481	0.38	0.49	0	1
Mt	481	0.07	0.25	0	1
Cpi	481	3.99	3.89	4.86	25.29637
current	481	2.50	9.68	15.74	45.45416
crisis	481	0.23	0.42	0	1
capitalratio	481	8.32	3.11	3	20.12169
nonperforming	481	4.20	4.25	0.082	25.71
branchper	481	24.60	20.38	2.15	110.94
roa	481	1.10	1.60	-24.4	11.9
Rol	481	0.70	0.86	-1.40	2.26
politicalstability	481	0.28	0.87	-2.81	1.52
ka_open	481	0.73	0.33	0	1
distance	481	7435.18	4399.68	956.17	19261



Table 1b. Summary Statistics for the Developing Countries.

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
bs2	225	3.88	12.55	0	106
gdp	225	4.65E+11	6.21E+11	4.29E+09	5.50E+12
gdpper	225	9188.25	9595.25	505	50467.84
trade	225	2475094.00	3038532.00	8310.40	2.98E+07
outward	225	29468.81	53232.97	10	480786
oremetal	225	7.91E+09	1.06E+10	204241	5.07E+10
overhead	225	54.64	15.40	22.3	187
patent	225	6442.22	31895.90	1	468417
Ext	225	0.24	0.43	0.00	1
It	225	0.42	0.49	0.00	1
Mt	225	0.09	0.29	0.00	1
Cpi	225	5.76	4.32	-0.99	25.30
Current	225	1.11	9.63	-15.74	45.45
Crisis	225	0.23	0.42	0.00	1.00
Capitalratio	225	9.96	2.47	5.00	20.12
nonperforming	225	5.09	4.07	0.70	21.20
Branchper	225	14.55	12.56	2.15	70.74
Roa	225	1.65	2.08	-24.40	11.90
Rol	225	0.04	0.64	-1.40	1.97
politicalstability	225	-0.29	0.83	-2.81	1.38
ka_open	225	0.52	0.31	0.00	1.00
Distance	225	8070.90	5484.86	956.17	19261.00



Table 1c. Summary Statistics for the Developed Countries.

Variable	Obs.	Mean	Std. Dev.	Min	Max
bs2	256	24.10	90.19	0.00	523.00
gdp	256	1.66E+12	3.12E+12	1.21E+10	1.66E+13
gdpper	256	44458.42	18634.74	9585.71	110001.10
trade	256	7010211.00	10200000.00	35488.00	55800000.00
outward	256	191159.00	900705.20	-1145317.00	8978978.00
oremetal	256	1.45E+10	1.77E+10	8.02E+06	9.99E+10
overhead	256	60.33	25.80	35.90	412.20
patent	256	76479.72	136893.50	71.00	530005.00
Ext	256	0.19	0.39	0.00	1.00
It	256	0.34	0.47	0.00	1.00
Mt	256	0.04	0.21	0.00	1.00
Cpi	256	2.16	2.20	-4.86	15.05
current	256	4.00	9.53	-9.90	40.99
crisis	256	0.23	0.42	0.00	1.00
capitalratio	256	6.67	2.80	3.00	17.70
nonperforming	256	3.34	4.24	0.08	25.71
branchper	256	34.22	21.76	3.33	110.94
roa	256	0.62	0.70	-3.30	2.80
Rol	256	1.36	0.44	-0.24	2.26
politicalstability	256	0.86	0.40	-0.47	1.53
ka_open	256	0.97	0.11	0.17	1.00
distance	256	6823.45	2886.56	956.17	11154.31

Results for above specifications for whole sample, developed countries and developing countries are presented in Table 2, 3, 4, respectively. “*” indicates significant at 10% level, “**” indicates significant at 5% level, “***” indicates significant at 1% level. Column (1) in these tables present the baseline results, while column (2) to (6) present the results for macroeconomic policy, macroeconomic environment, bank characteristics, rule of law and political stability and country characteristics respectively.

One can tell that estimates are supportive of the conjecture that factors determining Chinese capital going into developed and developing countries are not the same. Using the whole sample can lead to misleading inferences. Therefore, we separately examine the estimates from developing and developed countries, and present the results for whole sample for the purpose of references.

For developed countries, among baseline variables only *LOUTWARD_{it}* is significant, indicating Chinese banks are market-seeking, but not as strong as developing countries, in which the three variables (*LGDP*, *LGPPER_{it}*, *LOUTWARD_{it}*) are all positive and significant at 1%. We do not have evidence for resource-seeking, strategic-asset-seeking, nor efficiency-seeking for developed countries.

For developing countries, the coefficient associated with *LOREMETAL_{it}*, *OVERHEAD_{it}*, *LPATENT_{it}* are all significant. It is interesting to notice that *LOREMETAL_{it}* is actually negative, meaning that resource-rich countries actually deter bank FDI. The results sounds bizarre at the first glance but is reasonable after research. Poelhekke et al (2000), by using an extensive panel of OFDI at the sector level of China, find that natural resource endowment in host countries boost resource FDI, but crowd out non-resource FDI. The effect on non-resource FDI dominates, so that aggregate FDI is less in resource-rich countries. Based on this, the coefficient is negative for two reasons: first, bank FDI is non-resource FDI, it is crowded out in developing countries as indicated. Second, the aggregate FDI is less in resource-rich countries, and Chinese bank FDI follows aggregate FDI as we tested in benchmark model, so bank FDI is less in resource-rich countries. *OVERHEAD_{it}* carries a negative sign, indicating the higher the overhead expense, the lower the efficiency, the less the branches and subsidiaries set up by Chinese banks. This implies that Chinese banking sector are efficiency-seeking in developing countries.

Table 2.
Full sample Results.

	(1)		(2)		(3)		(4)		(5)		(6)	
	Coef	se	Coef	se	Coef	se	Coef	se	Coef	se	Coef	se
lgdp	0.82*	(0.38)	0.76**	(0.26)	0.58	(0.31)	0.82***	(0.21)	0.60*	(0.23)	1.37***	(0.31)
lgdpper	0.29	(0.26)	0.44*	(0.21)	0.32	(0.32)	0.20	(0.22)	0.80**	(0.29)	1.06***	(0.26)
ltrade	0.06	(0.32)	0.24	(0.27)	0.30	(0.28)	0.06	(0.37)	0.24	(0.26)	-0.08	(0.23)
loutward	0.40***	(0.12)	0.42***	(0.12)	0.31***	(0.08)	0.33***	(0.06)	0.34***	(0.07)	0.34***	(0.05)
loremetal	-0.31	(0.21)	-0.49**	(0.16)	-0.24	(0.22)	-0.32*	(0.14)	-0.23	(0.14)	-0.30*	(0.14)
overhead	-0.01	(0.02)	-0.02	(0.02)	-0.02	(0.02)	-0.01	(0.03)	-0.02	(0.02)	-0.01	(0.02)
lpatent	-0.43	(0.25)	-0.46*	(0.19)	-0.36	(0.21)	-0.32	(0.22)	-0.38*	(0.18)	-0.67**	(0.20)
ext			-1.22**	(0.46)								
it			0.24	(0.29)								
mt			-3.01	(1.89)								
lcpi					0.04	(0.06)						
current					-0.01	(0.02)						
crisis					-0.34*	(0.16)						
capitalratio							-0.05	(0.08)				
nonperforming							-0.10**	(0.04)				
branchper							-0.01	(0.01)				
roa							0.33*	(0.15)				
rol									-0.79**	(0.27)		
politicalstability									0.02	(0.30)		
ka_open											-2.37***	(0.52)
ldistance											-0.69*	(0.31)
_cons	-16.92*	(6.83)	-14.78**	(5.06)	-15.35*	(6.37)	-15.66*	(6.55)	-18.99***	(4.93)	-27.17***	(5.45)
Pseudo R^2	0.358		0.409		0.342		0.452		0.416		0.462	
Pseudo Adj R^2	0.353		0.402		0.334		0.444		0.41		0.456	

Table 3.
Developed Country Results.

	(1)		(2)		(3)		(4)		(5)		(6)	
	Coef	se	Coef	se	Coef	se	Coef	se	Coef	se	Coef	se
lgdp	0.20	(0.16)	0.31*	(0.13)	0.21	(0.16)	0.57***	(0.17)	0.21	(0.14)	0.54***	(0.13)
lgdpper	-0.24	(0.23)	0.07	(0.23)	-0.40	(0.26)	-0.42	(0.35)	-1.10**	(0.38)	-0.01	(0.23)
ltrade	0.43	(0.24)	0.51*	(0.22)	0.44	(0.22)	0.68***	(0.14)	0.45*	(0.22)	0.16	(0.22)
loutward	0.19***	(0.06)	0.15***	(0.04)	0.18***	(0.05)	0.20***	(0.05)	0.17**	(0.06)	0.24***	(0.05)
loremetal	0.11	(0.11)	0.01	(0.12)	0.16	(0.11)	-0.09	(0.07)	0.14	(0.09)	0.21	(0.12)
overhead	-0.00	(0.00)	0.00	(0.00)	-0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	-0.00	(0.00)
lpatent	-0.18	(0.13)	-0.19	(0.16)	-0.22	(0.14)	-0.45***	(0.14)	-0.09	(0.14)	-0.35**	(0.12)
ext			0.59	(0.38)								
it			0.65**	(0.22)								
mt			0.00	(.)								
cpi					-0.08*	(0.04)						
current					0.00	(0.01)						
crisis					-0.27**	(0.09)						
capitalratio							-0.11**	(0.04)				
nonperforming							-0.04	(0.04)				
branchper							-0.02**	(0.01)				
roa							0.12	(0.18)				
rol									0.86**	(0.32)		
politicalstability									0.37	(0.44)		
ka_open											0.77	(0.60)
ldistance											-0.65***	(0.13)
_cons	-10.62**	(3.41)	-16.17***	(2.63)	-9.84**	(3.44)	-14.71***	(3.87)	-5.23	(3.74)	-14.46***	(1.79)
Pseudo R^2	0.41		0.438		0.424		0.496		0.432		0.44	
Pseudo Adj R^2	0.395		0.419		0.405		0.471		0.415		0.422	

Table 4.
Developing Country Results.

	(1)		(2)		(3)		(4)		(5)		(6)	
	Coef	se	Coef	se	Coef	se	Coef	se	Coef	se	Coef	se
lgdp	1.21***	(0.28)	1.07***	(0.24)	1.10***	(0.29)	1.11***	(0.25)	0.67*	(0.31)	1.96***	(0.27)
lgdpper	0.80***	(0.23)	1.12***	(0.24)	0.80**	(0.30)	0.61**	(0.23)	0.96**	(0.32)	1.77***	(0.30)
ltrade	-0.08	(0.25)	0.14	(0.12)	0.11	(0.27)	0.10	(0.22)	0.22	(0.32)	-0.39	(0.20)
loutward	0.61***	(0.12)	0.57***	(0.13)	0.55***	(0.12)	0.46***	(0.14)	0.56***	(0.12)	0.45***	(0.12)
loremetal	-0.39*	(0.19)	-0.55***	(0.15)	-0.35	(0.21)	-0.53***	(0.16)	-0.16	(0.18)	0.00	(0.18)
overhead	-0.04**	(0.01)	-0.04***	(0.01)	-0.04**	(0.01)	-0.05***	(0.01)	-0.06***	(0.02)	-0.05***	(0.01)
lpatent	-0.67***	(0.11)	-0.69***	(0.12)	-0.66***	(0.14)	-0.75***	(0.17)	-0.57***	(0.12)	-1.16***	(0.18)
ext			-1.96**	(0.67)								
it			0.13	(0.20)								
mt			-1.60*	(0.70)								
cpi					0.04	(0.04)						
current					-0.00	(0.03)						
crisis					-0.18	(0.33)						
capitalratio							-0.18	(0.12)				
nonperforming							-0.13	(0.07)				
branchper							0.07	(0.04)				
roa							0.35	(0.23)				
rol									-0.81*	(0.37)		
politicalstability									-0.01	(0.26)		
ka_open											-3.20***	(0.74)
ldistance											-1.32***	(0.36)
_cons	-27.10***	(5.81)	-24.67***	(5.79)	-27.60***	(5.69)	-18.31**	(5.91)	-22.74***	(5.47)	-41.51***	(5.84)
Pseudo R ²	0.567		0.634		0.501		0.615		0.587		0.643	
Pseudo Adj R ²	0.558		0.623		0.488		0.602		0.577		0.633	

Although the coefficient for $LPATENT_{it}$ is significant at 10% level, it carries a negative sign, implying Chinese banking FDI is actually averse to strategic asset seeking in developing countries. The results may sound very counter-intuitive but is plausible. Wang and Yu (2014) find that China's OFDI increases if the host country's technology is more backward, indicating that Chinese investors might be taking advantage of their technology gap relative to the local firms. The high-speed rail industry of China is an example of point. Chinese companies are currently carrying out more than 20 railway projects overseas, many of which are in developing countries, such as Laos, Hungary, Serbian and etc (<https://gbtimes.com/china-invests-in-more-than-20-overseas-railway-projects>).

Among policy regime variables, inflation targeting regime in developed countries encourage Chinese banking FDI significantly. We find similar effect for developing countries though it is not significant. One of the main benefits of the inflation targeting regimes is that it increases anchoring of inflation expectations (Kohn 2007, Swanson et al 2006). The fact that monetary policy makers becomes more credible in inflation targeting regime could be the main reason why it attracts Chinese OFDI. Moreover, inflationary impact of shocks are naturally reduced in inflation targeting countries (Mishkin 2004), making bank revenues more stable. On the other hand, our results suggest that monetary aggregate targeting regime in developing countries deter FDI significantly. Monetary aggregate targeting regimes are known for the variability they create in the interest rates (Antonicic, 1986). Understandably, interest rate volatility discourages OFDI since it indicates unstable profits for banks. When it comes to the exchange rate regime, we find a positive effect of fixed rates on FDI among developed countries though not significantly, while a significant negative effect of fixed exchange rate regime on FDI among developing countries. These results are in line with Busse et al (2010). Two reasons are possible. First, developing countries with fixed exchange rate is typically subject to the credibility issue and sometimes find it hard to maintain the de jure peg (Agenor, 1994; Sarno and Taylor, 2001). When the public suspect that the country's ability to defend a fixed rate, exchange rate crisis is likely to happen. Thus, the disadvantage of exchange rate crisis outweighs the advantage of stable rate associated with fixed regime in developing countries. Second, real exchange rate stability in developing countries is not as strongly correlated with nominal exchange rate stability as in developed countries due to more variable inflation rate, and the value of FDI is affected by real exchange rates. If real rates of fixed exchange rate regime in developing countries are more variable, the fixed rate regime loses its predictive power (Busse, 2010). The two reasons explain why fixed exchange rate regime in developing countries deters FDI. In contrast, Abbot et al (2012) find that fixed exchange rate regime significantly outperforms flexible exchange rate system in attracting FDI flows.

Macroeconomic environments of developed countries impact Chinese OFDI significantly. Inflation in developed countries discourage FDI significantly. Because volatile and unpredictable inflation rates can create uncertainty and make long-range corporate planning problematic, especially in terms of price-setting and profit management. In addition, high rates of inflation may lead to domestic currency devaluation, which in turn reduces the real value of earning in local currency for market-seeking firms. As to the impact of financial crisis, the Chinese banking OFDI to developed countries decreases significantly during the crisis period. As a comparison, macroeconomic environment of developing countries does not impact Chinese OFDI significantly.

Banking sector indicators in developed countries impact Chinese banking OFDI significantly. $CAPITALRATIO_{it}$, $Branchper_{it}$, all exert negative impact. It is intuitive that the higher the capital ratio, the more stringent the regulation, which will reduce attraction of FDI. The more branches exists in the developed host countries, the more competition and less market opportunities, thus less branches set up by the Chinese banks. Chinese banking OFDI seems insensitive to the banking sector indicators in developing countries.

It is interesting to note that institutional quality affects OFDI differently in developed and developing countries. In developed countries, ROL carries a significant positive sign while in developing country, it carries a significant negative sign, suggesting that Chinese banking OFDI are attracted to countries with poor institutions in developing countries and good institutions in developed countries. This is supported by the reality. Many developing countries share similar political environment and ideology with China. According to Child and Rodrigues (2005), Chinese firms are experienced in "navigating complex patron-client relationships and personal and institutional favors in relatively opaque and difficult business environments" and more comfortable and familiar with the workings of governments that are not truly democratic, and Chinese firms



face a smaller liability of foreignness in such nontransparent political environment. In addition, some developing countries with poor institution and China may have bilateral political agreements that help reduce the risks of Chinese investment in those countries (Shan and Lin, 2018). This can actually explain why macroeconomic environment and banking sector indicators in developing countries do not matter for FDI. Chinese banking OFDI attracted to developed countries with good institution is reasonable as one of the appealing factors to Chinese international banks in developed countries is just the sound institutional quality.

In terms of country features, capital openness of developed countries has minimal impact on OFDI, while that of developing countries deters the OFDI from China. This is reasonable. For developing countries without well-rounded financial system but high capital openness, the financial system is likely to succumb to financial crisis. Thailand in the 1997 financial crisis is an example of point of view. $LDISTANCE_{it}$ is negatively related with the number of branches and subsidiaries set up and is highly significant, implying that OFDI is drawn to host countries that is geographically closer, which is in line with the gravity model.

The results overall suggest two points. First, the adjusted R square of estimation of the extended analysis are higher than the baseline regression, indicating that the standard determinants of OFDI flows developed within the western context only provide partial explanation of Chinese OFDI strategies. Second, there are striking differences between developed and developing countries in their appeals to Chinese banking OFDI, which are the followings: 1) Chinese OFDI to developing countries exhibit efficiency-seeking and market-seeking motives. The market-seeking motive is more evident in developing than developed countries. 2) Inflation targeting regime in developed country encourages FDI while fixed exchange rate regime and monetary aggregate targeting in developing countries discourage FDI. 3) Macroeconomic environment and banking sector in developed country matter to the Chinese banking FDI, and those of developing countries do not matter. 4) Chinese banking OFDI tend to flow to developing countries with poor institutions but to developed countries with good institutions. 5) Capital openness in developing countries deter FDI and does not matter for developed countries.

6. Conclusion

Given the fact that China is the second largest economy and is more and more integrated in the globalization, understanding the locational factors driving the growth of Chinese OFDI from both economic and strategic background is important for domestic and regional policy implications. Domestic policy makers need to take into account the factors driving OFDI when setting policies. At regional level, the understanding of the issues can provide direct references on tools local government can employ to facilitate OFDI and design policies to attract Chinese FDI.

The focus of this paper is to investigate the empirical determinants of China banking sector OFDI to developed and developing countries. The determinants include those drawn from extant theory on overseas investment and those deemed relevant to China's circumstances. Adopting country-wide bank FDI data from 2003-2015, a most updated panel dataset was constructed. By relying on zero inflated model with panel data, this paper finds that the standard determinants of OFDI flows developed within the western context only provides partial explanation of Chinese OFDI strategies. There are striking differences between developed and developing countries in their appeals to Chinese banking OFDI.

The policy implications from our findings can apply to host governments that desire to attract Chinese banking FDI. Especially, with the launching of "Belt and Road Initiative", the OFDI of China is expected to reach to an unprecedented large scale. The paper provides some insights on how to attract Chinese FDI in banking sector for participating economies along the "Belt" and the "Road".

The theoretical implications of our findings are that, while the existing theories do not need an overhaul since the locational determinants of Chinese companies partly follow the mainstream literature, adjustments are needed. For example, Chinese banking sectors FDI typically will go to developing countries with poor institutions. And developed countries and developing countries differ significantly in their appeal to Chinese FDI, so lump the two groups to study will lead to misleading results.

There is one limitation of the paper. This paper only examines the determinants from host countries perspective, while ignores the home country drivers of OFDI. To study the home country determinants, regional-level data in China can be used. While country-level analysis ignores heterogeneity across Chinese regions, a regional-level study would enable us to examine whether such heterogeneity had contributed to



various level of OFDI across regions and the home country drivers of OFDI. Future research attempts in this regard could progress along this line.

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