The Effects Of Foreign Strategic Investors On Pricing Of Wealth Management Products Of Commercial Banks In China: Does Ownership Structure Matter?

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ABSTRACT

Allowing foreign strategic investors (FSIs) to hold minority stake in Chinese banks is very important for China's banking. Based on data of 221 commercial banks from 2007 to 2015, we use difference in differences (DID) and propensity score matching (PSM) to investigate the effects of shareholding of FSIs on pricing of wealth management products (WMPs) for banks in China from single product view and every bank view. Besides, we further investigate the effects of bank ownership on above relationship. We find that FSIs' acquisitions significantly enhance the expected rate of return of WMPs on both levels, however decrease the deviation of return of WMPs on single product level but have no evident effects on bank level. Finally, we find that the impact of acquisitions from foreign banks depend on Chinese banks' ownership structure. Specifically, the effects of FSIs' acquisitions on pricing of WMPs are positive for state-owned banks (SOBs), while are negative for city commercial banks.

Keywords: Wealth Management Products (WMPs); Foreign Strategic Investors (FSIs); Pricing; Expected Rate of Return; Deviation of Return

1. INTRODUCTION

*I*nterest rate reform and financial disintermediation are important drivers for China's banks to change their income structure (Cheng, Zhao, Zhou, 2016). In 1996, interbank lending rates were officially liberalized, marking the beginning of the marketization of interest rate. Then, in 2004, the ceiling limit of loan and the floor limit of deposit interest rate were respectively liberalized. However, the interest rate was still controlled before 2013 and Chinese banks can get monopolistic profits from the interest spread, and no impetus for them to increase other business. From July 2013, the People's Bank of China (PBOC) has begun to lift the interest rates controls gradually. Finally, in October 2015, deposit rates in China were set free. The process of ongoing interest rate liberalization narrows the interest spread, thus decreasing the main income from interest activities. Chinese banks have to resort to non-interest businesses (Li & Zhang, 2013; Cheng, Zhao & Zhang, 2014), and wealth management products (WMPs) particular. WMPs, also named as asset management products or financial products, are issued by banks in China, and may be based off stocks, bonds or loans, and shares, and can be sold to investors. They are similar to structured products (SPs) in other countries which was mentioned by Stoimenov and Wilkens (2005). And, most WMPs are off-balance sheet items, which can help banks to avoid the supervision from Chinese government, such as PBOC and China Banking Regulatory Commission (CBRC) to a great degree. By the end of June 2016, there were 68961 outstanding WMPs, valued at 26.28 trillion RMB (about $3.96 trillion), and the number of issuers were 454. In the first half of 2016, up to 97636 WMPs were issued in the banking financial markets, raising money 83.98 trillion RMB (about $12.66 trillion). WMPs constitute an important part of Chinese banks' non-income business evidently. Furthermore, with the development of economy, Chinese people are richer than before. As of late December 2015, China's GDP has reached 676708 billion RMB (about $102049.10), with GDP per capita about 52000 RMB ($ 7841.72). Urban residents per capita disposable income is about 31195 RMB ($4704.28), with rural residents per

capita disposable income about 11422 RMB ($1722.46), and individuals are looking for better options to invest their money.

Authors, such as Cheng et al. (2016); Berger, Hasan & Zhou, (2009); Firth, Lin, Liu & Wong (2009); Fu and Heffernan (2009) have mentioned that, from 2003, PBOC begins to implement a series of ownership reforms. Among all the measures, FSIs' acquisitions are very important. By the end of 2015, forty-three of China's banks have FSIs. All four state owned banks (SOBs), 11 joint-equity banks, and 28 other kinds of banks (mainly city or rural commercial banks) are in listed. Table A-1 lists the status of the Chinese banks that have FSIs. Our paper tries to study the impacts of FSIs on pricing of WMPs from 2007 to 2015 for banks in China.

Specifically, our paper tries to study the topic by answering three questions: (1) What is the impact of foreign banks' acquisitions on pricing of WMPs? (2) How about the relationship between the shareholding percentage of foreign banks and pricing of WMPs? (3) What is the different relationship among SOBs and other banks? In this paper, pricing of WMPs is measured by Average Expected Rate of Return(AER)and Average Margin of Return (AMR) following the research by Stoimenov and Wilkens (2005) to show expected rate of return of WMPs and the deviation of return of WMPs. Using data from 221 banks in China from 2007 to 2015, we combine the PSM and DID approaches (Cheng et al. 2016) to investigate the effects of FSIs on the pricing of WMPs and get the following findings. First of all, foreign banks' acquisitions have increased the expected rate of return of every single WMP and all WMPs for a bank. This is mainly due to the combined effects from technology spillover effects and supervisory effect. Second, FSIs' acquisitions have significantly narrowed the deviation of return of every single WMP but has no significant influence on all WMPs for a bank. These results indicate that Chinese banks that have FSIs pay more attention to the development of WMPs with high yields, which can bring more clients and cash into banks, thus improving the overall income of WMPs and bank performance. Then, with the increase of ownership shares of FSIs, expected rate of return of bank-level WMPs increases significantly, but there is no significant change in the deviation of return. Finally, the nature of bank ownership can also affect above relationship, we find that FSIs' acquisitions narrow the deviation of return of SOBs but opposite for city-commercial banks, this is possibly because SOBs are generally more skilled in personnel training and organization management, so they can absorb better from the technology spillover effects. This paper has four contributions. First, as one of the most important parts of non-interest income business, there is no research to report the impacts of FSIs on WMPs. We adopt DID method to enrich the relevant empirical research. Second, current literature about FSIs' acquisitions mainly focus on efficiency and performance of a bank or all banks on the country level. In this paper, we study the relationships on the single product level and bank level both. Finally, to detect true treatment impact of foreign banks on WMPs, we use DID and PSM to control endogeneity problem and selection bias.

Then, section 2 introduces research background. Section 3 presents the relevant literature. Section 4 is sample, models, and variables. Section 5 discusses the research findings, and Section 6 concludes.

2. RESEARCH BACKGROUND

Berger et al. (2009) and Chen and Liao (2011) review China's banking reforms. And Cheng et al. (2016) reviews the history for FSIs to buy banks in China in detail. So, we only review the development of WMPs in China.

Industrial and Commercial Bank of China (ICBC) began to provide consulting and advisory services about WMPs to its customers at the end of last century, which can be taken as prototype of WMPs in China. In 2003, Bank of China (BOC) issued the first foreign currency-based WMP, namely "Treasure". After this, many other banks in China, such as Standard of Chartered Bank, China Merchants Bank, China Minsheng Banking Corporation, Guangdong Development Bank and so on, launched a lot of foreign currency-based WMPs quickly. In the following year, the first RMB-based WMP in China was issued, namely "Sunshine Finance Plan B" by China Everbright Bank, and the fund raised was invested in Chinese inter-bank bond market.

From 2003 to 2008, WMPs in China developed rapidly. During this phase, WMPs are mainly foreign currency based, such as US dollar, Hong Kong dollar and Euro. In 2005, the big four SOBs, that is BOC, Agricultural Bank of China (ABC), ICBC, and China Construction Bank (CCB) began to enter RMB WMPs market. In 2007, Bank of East Asia (BEA), the Hong Kong's largest independent local bank, launched its first RMB financial product in mainland of

China. Since then, the competition of China's WMPs became increasingly fierce. Correspondingly, CBRC issued "Interim measures on personal financing business of commercial banks" and "Guidelines on risk management of commercial banks", guiding the development of WMPs market in Chinese banking industry.

However, in 2008, the outbreak of global financial crisis, had a certain negative effect on Chinese banking WMPs market. For example, Shanghai Pudong Development Bank cannot pay the promised interest to its investors and some domestic and foreign banks in China even reported negative rate of returns for WMPs. Some cases of defaults have led government to face the risks of these financial instruments. Then, CBRC issued "Notice on standardizing personal financing business of commercial banks", emphasizing the assessment and control of the risks of WMPs. In addition, the promulgation of "Guideline on the cooperation between bank and trust company" by CBRC, offers a new idea for the development of WMPs, since 2009, the development speed of WMPs slowed gradually. Although the amount of WMPs issued in 2009 had a slight increase compared with year 2008, the average annual yield for WMPs in 2009 dropped dramatically. In July 2009, CBRC promulgated "Notice on the management of investment for personal financing business of commercial banks" to show the investment scope restrictions on funds raised by financial products, especially for complicated WMPs and specific equities etc.

Year 2013 to now is the specification development stage of WMPs. PBOC gradually strengthened the supervision for banks by loan-to-deposit ratio, limiting the expansion of the on-balance sheet assets. So, banks are driven to bypass regulations and develop WMPs financing. The rapid development of financial service business reflects the effects of the monetary policy, and, its opaque asset pool operation model brought liquidity risk, term mismatch risk and payment risk, which caused the attention of the authorities. Then, CBRC issued the "Notice on investment operation of WMPs of commercial banks" emphasizing the importance of WMPs risk prevention and control further. In 2014, CBRC regulated the entry of WMPs into bond market to solve the WMPs business risk transfer and rigid payment problems, and explored the new mode of WMPs business serving the real economy. In the meantime, promoting the WMPs business compliance and reasonable transformation of WMPs market in China.

With the marketization of interest rates and financial disintermediation, WMPs have become a new business profit point for banks of China. From the developing history of WMPs, we can find a fast increase in the number issued. By late December 2015, there were 60879 WMPs, and the number of issuing banks increased from 14 in 2004 to 127 in 2015. The number of Chinese banking WMPs issued is as shown in Figure 1.

**Figure 1.**   The amount of WMPs
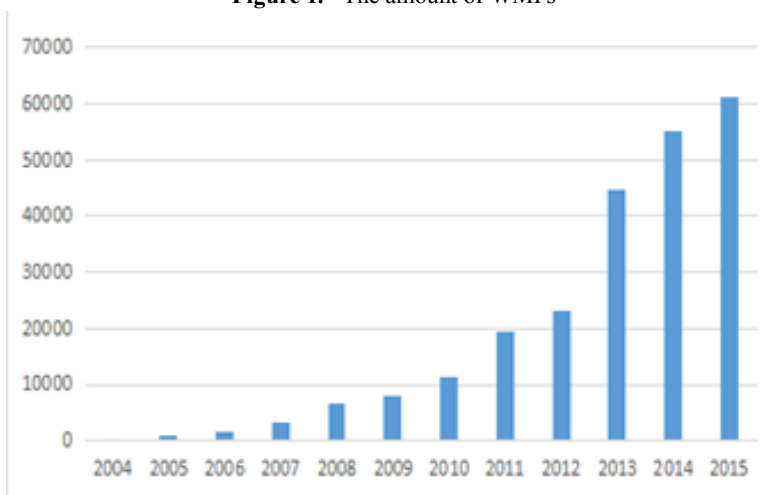
We notice that SOBs and joint-equity banks are main issuers. SOBs started to issue RMB WMPs in 2005, then maintain a high share in the market. However, since March 2015, the funds balance from the joint-equity commercial banks WMPs exceeded the five big SOBs. Money balances and market share of all banking financial institutions in 2013-2015 are as shown in Figure 2.

Figure 2. The balance and percentage of WMPs by different kinds of banks
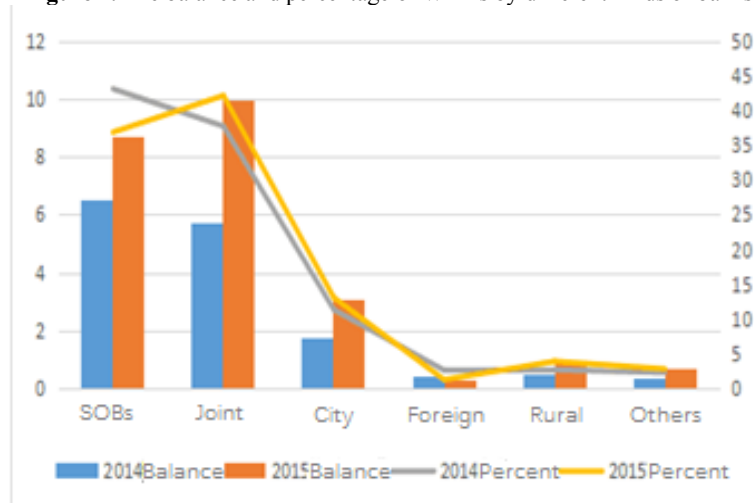
Furthermore, capital guaranteed WMPs is the mainstream. The market share of capital guaranteed WMPs is much higher than other kinds of WMPs. By the end of December 2015, the balances of non-capital guaranteed WMPs rose by 7% compared with year 2014, but the balances of capital guaranteed floating WMPs and income guaranteed products relatively fell by 6.2% and 0.8% respectively. Finally, investors prefer medium and long term WMPs. As of late December 2015, the balance of short-term WMPs within three months accounts for about 27.54% of enclosed products size, while the medium and long-term WMPs more than 3 months account for about 72.46% of enclosed products size. The cases of funds raised from WMPs with different durations from year 2013 to 2015 are shown in Figure 3.

Figure 3： The percentage of WMPs with different durations
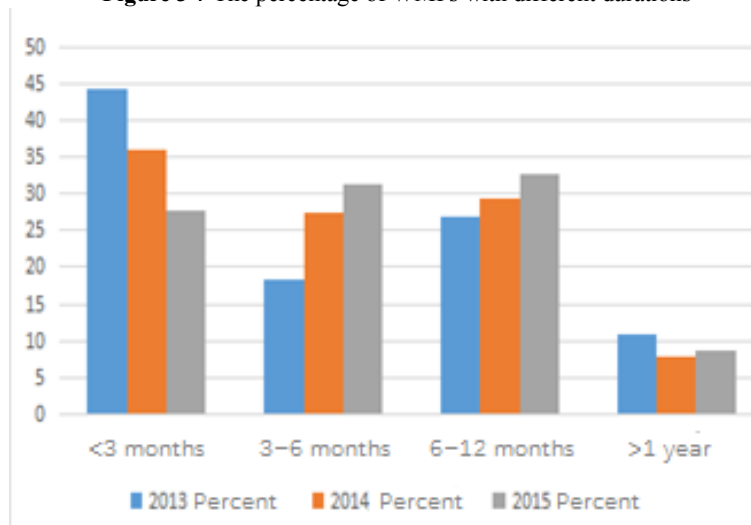
3. LITERATURE REVIEW

Cheng et al. (2016) review the literature on FSIs in financial sector in detail. We know that the similar studies mainly focused on the impact of foreign banks on efficiency, performance and risk of domestic banks in the research field of bank privatization with mixed results, such as Lin and Zhang (2009), Shen, Lu & Wu (2009), García-Herrero, Gavilá & Santabárbara (2009), Berger et al. (2009), Lu et al. (2010), Xu (2011), Jiang, Yao & Feng (2013), Sun, Harimaya

& Yamori (2013) and Hasan and Xie (2013). Some papers focus on the measures beside bank performance or risk. For example, Zhao et al. (2014) study the impact of foreign banks' acquisitions on NIM (net interest margins) from 1995 to 2010, and notice that foreign banks' acquisitions reduce NIM in China. Wu, Shen & Lu (2012) and Wu, Shen & Lu (2015) examine how FSIs affect earnings management. Here, we just focus on the studies on WMPs in banking.

Research on pricing of WMPs is mainly focused on SPs. And relevant studies are mostly concentrate on pricing for SPs. Almost all pricing model studies are based on capital asset pricing (CAMP) model (Sharpe, 1964; Lintner, 1965; Mossin, 1966) and Black - Sholes option pricing model (1973). Such as Chen and Kensinger (1990), Chen and Sears (1990), Brown and Davis (2004), Benet, Giannetti & Pissaris (2006), Stoimenov and Wilkens (2005) and Burtschell and Gregory (2009).

Besides, some literature studies the investment decision making process for SPs from investors' behavior. Such as Fischer (2007); Ofir and Wiener (2012); Dobeli and Vanini (2010); Erner, Klos, & Langer, (2013); Sanjiv and Statman (2013).

From above on, we know that the literature concerning about FSIs mainly focuses on performance and risk of a single bank or the stability for the banking industry. And the literature of WMPs' has not examined the relationship between FSIs and WMPs yet. We predict FSIs could affect the pricing of WMPs because of spillover effect and supervisory effect.

4. SAMPLE, METHODS, AND VARIABLES

4.1 Sample and Data

For WMPs, we collect data from Wind database, and we get statutory statements by hand collecting from banks. Some information is from website of CBRC's and National Bureau of Statistics of China. We start with 56172 WMPs issued from January 1, 2007 to December 31, 2015 by 221 banks. After sample selection process, we get 221 commercial banks and 42350 efficient WMPs observations. Among above banks, there is 1 foreign banks, 5 SOBs, 12 joint-stock banks, 122 city commercial banks and 81 rural financial institutions. By the end of year 2015, 40 banks have had the FSIs' acquisitions, 19 of which have been listed on the exchanges. The distribution of observations is shown in Table 1.

Table 1. Distribution of Observations

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
No. of WMPs	8	74	413	1743	3722	5613	7753	15598	7426
ER(%)	11.00	5.21	1.90	2.11	4.07	4.29	4.60	5.04	4.69
AER(%)	7.95	6.38	3.12	2.83	4.71	4.74	4.84	5.19	4.78

Note: This table is summarized and computed from Wind Database; The No. of WMPs in 2015 is less because many WMPs issued are outstanding by the year end.

4.2 Methods

This paper employs DID (See Roberts and Whited, 2012) to test the effects of FSIs on the pricing of WMPs. The processes of DID can be seen in Cheng et al. (2016). Based on the technology spillover effect and supervisory effect, we first examine the effect of FSIs' acquisitions on Expected Rate of Return of every single WMP.

$$ER_{ijt}= Constant + a_1*FSI + a_2* FSI\_T + b*Control + r*Year +\varepsilon_{ijt} \qquad \text{Model (1)}$$

Then, according to the research of pricing deviation by Stoimenov and Wilkens (2005), we put forward Model (2) to examine the impact of FSIs on Margin of Return of every single WMP.

$$MR_{ijt}=Constant + a_1* FSI + a_2 FSI\_T + b*Control + r*Year +\varepsilon_{ijt} \qquad \text{Model (2)}$$

Furthermore, based on Model (1), taking the funds raised from different WMPs as the weight, we further analyze the effect of FSIs on AER for all WMPs issued by every bank in each year.

$$AER_{it} = Constant + a_1 * FSI + a_2\ FSI\_T + b*Control + r*Year + \varepsilon_{it} \qquad \text{Model (3)}$$

Similarly, based on Model (2), we further analyze the impact of FSIs on WMPs on the bank level.

$$AMR_{it} = Constant + a_1 * FSI + a_2\ FSI\_T + b*Control + r*Year + \varepsilon_{it} \qquad \text{Model (4)}$$

Finally, this paper also studies the effects of FSIs' shareholding on the AER and AMR of banks which have already had FSIs' acquisitions from the bank level.

$$AER_{it} = Constant + a_1 FSIS_{it} + b*Control + r*Year + \varepsilon \qquad \text{Model (5)}$$

$$AMR_{it} = Constant + a_1 FSISit + b*Control + r*Year + \varepsilon \qquad \text{Model (6)}$$

4.3 Variables

4.3.1 Pricing

This paper employs ER (Expected Rate of Return) and AER (Average Expected Rate of Return) to measure the pricing level of WMPs, in addition, we also adopt two indicators of MR (Margin of Return) and AMR (Average Margin of Return) to measure the deviation from actual rate of return. For example, ER_{ijt} measures the expected return of single WMP j of Bank i issued in the Year t, correspondingly, AER_{it} measures the expected return of all WMPs of Bank i issued in the Year t, that is $AER_{it} = \sum \alpha_{jt} ER_{ijt}$; Similarly, MR_{ijt} measures the deviation of ER_{ijt} from actual return and AMR_{it} measures the deviation of AER_{it} from actual return.

4.3.2 FSIs

FSI equals 1 if banks has FSIs and 0 otherwise. T equals 1 after a bank has FSIs (the second year after acquisition) and 0 before this bank has FSIs. We employ FSI_T as the interaction variable. Additionally, following the papers by Berger et al. (2009) and Wu, Shen & Lu (2015), we employ FSIS (FSI Share) to further explore the impact of ownership shares of FSIs on the return of WMPs.

4.3.3 Control Variables

First, we employ different characteristics of WMPs as control variables, including Duration period of WMPs (DAY), The cash starting point of purchase (CS), Percentage protected of WMPs (PER), Logarithm of capital raised (CAP), Area (A), Gainway (WAY), Product Structure (PS), Currency (CUR), and Customer Type (CT).

Then, based on the research by Cheng et al. (2014), we also employ bank comprehensive indicators and detailed financial indicators as control variables, including Asset Size (SIZE), Return on Assets (ROA), Spread (SP), Bank Efficiency (EFF), Loan to Deposit Ratio (LD), Non-Interest Income (NII), List (LIST) and Ownership (OW). Finally, we summarize all variables into the following table.

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Table 2. Variable Measures

Variables	Definitions
ER	Taking the average when it is an interval
AER	Taking funds raised as weight α, $AER_{it}=\sum\alpha ER_{ijt}$ (i: bank t:year, j:WMP)
MR	[(Actual return-Expected return) /Expected return]*100%
AMR	(Actual average return-Expected Average Return)/Expected Average Return)*100%
FSI	Equals 1 if banks had FSIs and 0 otherwise
T	Equals 1 after a bank had FSIs (the second year after acquisition) and 0 before this bank had FSIs
FSIS	Ownership shares of FSIs
DAY	Duration period of WMPs, counted by "day"
CS	Cash starting point of purchase
PER	Percentage protected of WMPs
CAP	Logarithm of capital raised
A	Equals 1 if WMPs are issued nationwide and 0 otherwise
WAY	Equals 1 for floating return and 0 for fixed return
PS	Equal 1 for structured products and 0 for non-structured products
CUR	Equals 1 for foreign currency and 0 for RMB
CT	Equals 0 for individual, 1for organization, 2 for individual and organization,3 for VIP
SIZE	Logarithm of bank's total assets
ROA	ROA=Net Profit/Total Assets
EFF	Bank relative efficiency, computed from DEA model taking operating expenditure and net non-current assets as inputs, and interest and non-interest income as outputs, ranging from 0 to 1
LD	LD=Loan/Deposit
SP	Spread=(Interest income-Interest expenditure)/total assets
NII	Percentage of non-interest income, that is (fees and commissions)/[(fees and commissions)+interest income]
LIST	Equals 1 if banks are listed and 0 otherwise
DLIST	Equals 1 after a bank listed (the second year after listing) and 0 before this bank is not listed
OW	Equals 0 for SOBs, 1 for joint-stock banks, 2 for city commercial banks, 3 for rural financial institutions

5. EMPIRICAL RESULTS

In this session, we first study the effects of FSIs on pricing of every single WMP, including expected rate of return (ER) and the deviation of rate of return (MR). Then, we explore the effects of FSIs on pricing of all WMPs for every bank, because different banks issue different numbers of WMPs. Finally, this paper studies the interaction effects between FSIs and ownership, including ownership nature and FSIs shareholding, on AER and AMR of every single WMP and bank level WMPs.

5.1 Descriptive Statistics

For Models (1) - (2), we have 42350 WMPs of 221 Chinese banks. To further explore the impact of FSIs' acquisitions on the pricing of WMPs on every bank, our new observations are 341 after weighted average summation. Because one bank could issue a number of WMPs in one year. Tables 3 and 4 report the descriptive statistics for all the variables.

In Table 3, the max value of ER, 6.4, with min value 1.43 shows that there are apparent differences of expectation of rate of return for different WMPs. And the descriptive statistics of FSI and T show that the volume of WMPs has witnessed a rise after FSIs' acquisitions.

The max value of AER, 11.740, with min value 1.760 in Table 4 shows that banks have different level of rate of return for the WMPs they have issued for every year. Mean value of FSI, 0.469, with median value, 0, shows that there are more Chinese banks which have no FSIs partners.

Table 3. Summary of Descriptive Statistics for every WMP

Variables	N.	Mean	Std. Dev.	Min	Med.	Max
ER	42350	4.560	1.060	1.430	4.8	6.400
FSI	42350	0.649	0.477	0	1	1
T	42350	0.626	0.484	0	1	1
DAY	42350	98.010	82.812	7	73	365
CS	42350	11.415	1.414	8.987	10.820	17.217
PER	42350	56.624	50.761	0	100	105.600
CAP	42350	7.103	15.409	0.010	2.15	100.500
A	42350	0.764	0.425	0	1	1
WAY	42350	0.707	0.455	0	1	1
PS	42350	0.070	0.255	0	0	1
M	42350	0.030	0.172	0	0	1
CT	42350	0.726	0.981	0	0	3

Note: See Table 2 for the variable definitions.

Table 4. Summary of Descriptive Statistics for WMPs of Different Banks in One Year

Variables	N.	Mean	Std. Dev.	Mini.	Med.	Max.
AER	341	4.828	1.474	1.760	4.910	11.740
FSI	341	0.469	0.500	0	0	1
T	341	0.411	0.493	0	0	1
SIZE	341	17.195	1.805	14.490	16.613	21.323
ROA	341	0.010	0.003	0.002	0.010	0.019
SP	341	2.360	0.718	0.802	2.378	4.342
EFF	341	0.629	0.203	0.265	0.607	1.000
LD	341	0.110	0.050	0.000	0.104	0.295
NII	341	0.061	0.041	0.007	0.049	0.179
DLIST	341	0.290	0.455	0	0	1
LIST	341	0.334	0.472	0	0	1
OW	341	1.745	0.838	0	2	3

Note: See Table 2 for the variable definitions.

5.2 FSIs and Pricing of Single WMP

We study the impact of foreign banks on ER and MR of every single WMP according to Models (1) - (2). The results are seen in Table 5.

Table 5. Effects of FSIs on ER&MR

Variables	ER	MR	MR
	(1)	(2)	(2) Sub-sample
FSI	0.238***	-0.063	-0.055
	(12.750)	(-1.180)	(-1.025)
FSI_T	1.377***	-0.231	-0.037
	(22.660)	(-0.296)	(-0.047)
FSI_TOP	-	-	-0.035
			(-0.384)
FSI_T_TOP	-	-	-0.536***
			(-2.717)
DAY	0.002***	0.005	-0.001
	(48.030)	(0.177)	(-0.633)
CS	0.036***	0.028	0.019
	(12.280)	(0.918)	(0.635)
PER	-0.006***	-0.002***	-0.003***
	(-78.030)	(-3.622)	(-4.143)
CAP	-0.005***	0	0
	(-21.670)	(-0.760)	(-0.664)
A	-0.263	0.262***	0.249***
	(-1.034)	(4.477)	(4.195)
WAY	0.037***	0.319***	0.325***
	(3.610)	(3.688)	(3.763)
PS	-0.887***	16.640***	16.600***
	(-68.200)	(38.730)	(38.580)
M	-1.435***	-	-
	(-70.560)		
CT	Control	Control	Control
Year	Control	Control	Control
Constant	4.462***	9.357***	9.392***
	(19.790)	(14.430)	(14.490)
N	42,350	6,295	6,295
F	3823.04	109.85	99.35
P	0.000	0.000	0.000
Adjusted R^2	0.655	0.238	0.238

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. See Table 2 for variable measurements.

As shown in Table 5, we find that the effect of FSI and FSI_T on the expected return of WMPs is positively significant at 1% level, that is, FSIs' acquisitions can significantly improve the expected return of every single WMP of Chinese banks. We can explain this with spillover effect and supervisory effect. First, with experienced skills, FSIs can guide Chinese banks to carry out adequate investigation of target markets for every WMP and set an attractive high yield. And Chinese banks will be more talented in pricing of WMPs with the help of FSIs. Second, in the management practice, FSIs to hold minority stake can exert more effective supervision on WMPs of Chinese banks to avoid high risks, including issue risk. A number of studies have supported that the FSIs' acquisitions is conducive to the improvement of corporate governance and risk control ability (Aggarwal, Erel & Ferreira, 2011; Blomström, 1986; 137; Zhang & Li, 2010). At the same time, the supervisory effect of FSIs is conducive to the prevention of moral hazard in China's banks (Tirole, 2001), promoting the healthy development of China's banking WMPs business and improving the pricing of WMPs.

It also can be seen from Table 5 that FSI and FSI_T in the regression model (2) are negatively correlated with MR of WMPs, indicating that FSIs' acquisitions can reduce the gap between actual yield deviation and expected rate of return, but this relationship is not significant, so we set up a dummy variable TOP, which equals 1 when ER of WMPs are in the first 50% of all products, and 0 otherwise. Then, we set the interaction variable of FSI and FSI_T with TOP. Results show that FSI_T_TOP and MR of WMPs are negatively significant at 1% level, indicating that the yield deviation of the WMPs has been significantly narrowed after FSIs' acquisitions, whose returns rank first 50% of all

products. Besides, this also implies that the Chinese banks which have FSIs partners focus more on development of high yield products, mainly because those products can keep more customers and raise more funds, thus increasing the overall yield level of WMPs and banks' performance.

5.3 FSIs and Pricing of WMPs on Bank Level

Every bank could issue different kinds of WMPs. We calculate AER and AMR based on the funds raised by different WPMs in one year. Then, we explore the impacts of FSIs and the shareholding of FSIs on AER and AMR of WMPs for every sample bank according to Models (3) – (4). The results can be seen in Table 6.

Table 6. Effects of FSIs on AER&AMR of Bank Level

Variables	AER	AMR	AER	AMR
FSI	-0.0820	2.988		
	(-0.496)	(1.045)		
FSI_T	1.225**	-6.970		
	(1.983)	(-0.896)		
FSIS			0.0357**	-0.187
			(2.134)	(-0.448)
SIZE	-0.173*	-1.698	0.245	0.609
	(-1.787)	(-0.985)	(1.057)	(0.115)
ROA	-41.12	-135.8	-322.7***	-8,279**
	(-1.626)	(-0.375)	(-3.984)	(-2.288)
SP	0.293**	-3.622**	2.806***	30.01
	(2.564)	(-2.073)	(6.449)	(1.666)
EFF	1.098**	8.303	3.990***	59.88*
	(2.578)	(1.158)	(3.677)	(1.787)
LD	0.881	-14.33	-4.896	67.32
	(0.599)	(-0.492)	(-1.563)	(1.068)
NII	-1.901	-75.70***	-13.00**	-340.0
	(-0.726)	(-2.784)	(-1.982)	(-1.553)
DLIST	-0.696*	20.83**	-1.367**	16.88
	(-1.752)	(2.476)	(-2.109)	(0.663)
LIST	0.905**	-7.551	1.936***	14.58
	(2.179)	(-1.145)	(2.647)	(0.707)
OW	Control	Control	Control	Control
Year	Control	Control	Control	Control
Constant	9.104***	84.79**	-6.344	-11.88
	(4.812)	(2.520)	(-1.343)	(-0.097)
N	341	89	143	31
F	16.88	4.71	7.22	2.84
P	0.000	0.000	0.000	0.022
Adjusted R^2	0.495	0.458	0.345	0.424

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. See Table 2 for variable measurements.

Table 6 shows that the expected return of WMPs of Chinese banks with FSIs will be higher than that of Chinese banks without FSIs, but this gap is not significant. However, the impact of FSI_T on the expected return of WMPs on bank level is positively at 5% level significantly, this means that the banks will issue WMPs with higher AER after they have foreign partners compared with that before FSIs' acquisitions, and banks without foreign partners. That is, foreign financial institutions will significantly increase the AER of WMPs of their Chinese partners. We also find that from Table 6, the acquisition of FSIs doesn't significantly affect AMR, this may be due to the limited disclosure of actual yield to maturity of financial products and limited sample number. Furthermore, in Table 6, the FSIS has positive effects on the AER, indicating that the higher shareholding of FSIs, the higher expected yield of WMPs on bank level. The result supports Fries and Taci (2005) and Berger et al. (2009). But the effect of FSIS on AMR is not significant, that is, the share of FSIs has no significant effect on the deviation of return of bank-level WMPs. The limited disclosure of actual yield to maturity and sample number may be the possible reasons.

5.4 FSIs, Ownership Structure, and Pricing of WMPs

OLS regression estimates for Models (5) - (6) with AER and AMR as the dependent variables are shown in Table 7. Here, we pay attention to the interaction variables (FSI_T_BIG, FSI_T_JIO, FSI_T_CITY), so we set three dummy variables: BIG, JIO and CITY to represent SOBs, joint-stock banks and city commercial banks respectively. We do not include rural financial institutions because they have no FSIs partners yet.

Table 7. Interaction Effects between FSIs and Ownership Nature on AER and AMR of Bank-Level WMPs

Variables	AER	AMR	AER	AMR	AER	AMR
FSI	-0.091	2.988	-0.090	2.578	-0.116	2.377
	(-0.550)	(1.045)	(-0.541)	(0.892)	(-0.695)	(0.803)
FSI_T	1.307**	9.029	1.140*	6.867	1.375**	10.06
	(2.107)	(1.140)	(1.814)	(0.883)	(2.202)	(1.164)
FSI_T_BIG	1.827	22.910	-	-	-	-
	(1.278)	(1.541)				
FSI_T_JIO	-	-	1.016	41.540	-	-
			(0.759)	(1.006)		
FSI_T_CITY	-	-	-	-	-1.578*	-22.370
					(-1.909)	(-0.827)
SIZE	-0.158	-1.698	-0.157	-1.348	-0.136	-1.260
	(-1.620)	(-0.985)	(-1.574)	(-0.767)	(-1.365)	(-0.697)
ROA	-44.240*	-135.800	-38.530	-148.200	-39.560	-151.800
	(-1.743)	(-0.375)	(-1.509)	(-0.409)	(-1.567)	(-0.418)
SP	0.310***	-3.622**	0.291**	-3.387*	0.300***	-3.520**
	(2.692)	(-2.073)	(2.537)	(-1.922)	(2.625)	(-2.005)
EFF	1.085**	8.303	1.090**	7.795	1.078**	7.223
	(2.547)	(1.158)	(2.556)	(1.085)	(2.534)	(0.989)
LD	0.854	-14.330	1.010	-11.670	1.049	-10.340
	(0.581)	(-0.492)	(0.682)	(-0.400)	(0.713)	(-0.350)
NII	-1.928	-75.700***	-2.099	-75.150***	-2.279	-75.830***
	(-0.737)	(-2.784)	(-0.797)	(-2.763)	(-0.868)	(-2.782)
DLIST	-0.897**	20.830**	-0.625	19.820**	-0.752*	21.320**
	(-2.101)	(2.476)	(-1.528)	(2.340)	(-1.889)	(2.522)
LIST	1.045**	-7.551	0.819*	-7.965	0.898**	-8.246
	(2.435)	(-1.145)	(1.900)	(-1.206)	(2.167)	(-1.238)
OW	Control	Control	Control	Control	Control	Control
Year	Control	Control	Control	Control	Control	Control
Constant	8.312***	75.440**	8.902***	80.040**	8.162***	69.190*
	(4.179)	(2.461)	(4.657)	(2.356)	(4.107)	(1.791)
N	341	89	341	89	341	89
F	16.88	4.71	16.11	4.54	16.28	4.50
P	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted R^2	0.496	0.458	0.494	0.458	0.497	0.455

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. See Table 2 for variable measurements.

As shown in column 5, only FSI_T_CITY is significant at 10% level, which means, the ownership nature of the city commercial banks will have a negative effect on FSIs' improving AER of WMPs. This is due to the market structure view. City commercial banks have inherent disadvantage in non-income activities market in China. In order to compete for market share, the city commercial banks tend to issue WMPs with higher ER than the other banks. But after FSIs' acquisitions, pricing rationality is important either. Chinese city commercial banks will price WMPs more carefully. FSI_T_CITY and FSI_T_JIO are not significant with AER, but their coefficients are positive, indicating that SOBs and joint-stock banks have positive impact on the relationship between FSIs and AER of WMPs.

We can also see that from Table 7, the coefficients of the explanatory variables, FSI, FSI_T, FSI_T_BIG, FSI_T_JIO, and FSI_T_CITY are all not significant. This means that the entry of FSIs cannot significantly narrow the deviation

of the weighted average return of WMPs of banks, and the ownership nature of banks has no significant impact on this relationship.

Then, we study the interaction effects of FSIs and Ownership structure on AER and AMR of bank-level WMPs. We present the results in Table 8.

Table 8. Interaction Effects between FSIs and Ownership Structure on AER &AMR of Bank-Level WMPs

Variables	AER	AMR	AER	AMR	AER	AMR
FSIS	0.028*	0.0074	0.029**	0.268	0.032**	-0.129
	(1.897)	(0.018)	(2.051)	(0.683)	(2.087)	(-0.297)
FSIS_BIG	0.001	-2.110*				
	(0.035)	(-1.773)	-		-	
FSIS_JIO			0.021	2.503		
	-		(0.707)	(0.629)	-	
FSIS_CITY					-0.021	2.110*
	-		-		(-0.622)	(1.773)
SIZE	0.119	0.943	0.122	0.609	0.113	0.943
	(0.588)	(0.188)	(0.605)	(0.115)	(0.561)	(0.188)
ROA	-173.300**	-8,606**	-174.900**	-8,279**	-165.700**	-8,606**
	(-2.212)	(-2.512)	(-2.274)	(-2.288)	(-2.131)	(-2.512)
SP	1.810***	28.780	1.836***	30.010	1.804***	28.780
	(4.261)	(1.689)	(4.340)	(1.666)	(4.281)	(1.689)
EFF	1.781	41.810	1.754	59.880*	1.833	41.810
	(1.579)	(1.256)	(1.568)	(1.787)	(1.635)	(1.256)
LD	0.549	74.400	0.804	67.320	1.146	74.400
	(0.168)	(1.246)	(0.247)	(1.068)	(0.340)	(1.246)
NII	-3.735	-398.900*	-3.244	-340.000	-4.139	-398.900*
	(-0.549)	(-1.903)	(-0.486)	(-1.553)	(-0.622)	(-1.903)
DLIST	-0.986	23.150	-1.013*	16.880	-0.929	23.150
	(-1.633)	(0.951)	(-1.714)	(0.663)	(-1.560)	(0.951)
LIST	1.407**	13.200	1.388**	14.580	1.352**	13.200
	(2.129)	(0.677)	(2.110)	(0.707)	(2.038)	(0.677)
OW	Control	Control	Control	Control	Control	Control
Year	Control	Control	Control	Control	Control	Control
Constant	-0.440	33.990	-0.604	-13.640	-0.439	36.970
	(-0.103)	(0.285)	(-0.142)	(-0.112)	(-0.103)	(0.309)
No	143	31	143	31	143	31
F	9.40	3.17	9.46	2.84	9.45	3.17
P	0.000	0.013	0.000	0.022	0.000	0.014
Adjusted R^2	0.554	0.485	0.556	0.424	0.555	0.485

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. See Table 2 for variable measurements.

As shown in Table 8, FSIS has a positive effect on AER of WMPs on bank level, that is, with the increase of FSIs' shareholding, the expected return of WMPs on bank level will increase accordingly. However, the coefficients of FSIS_BIG, FSIS_JIO and FSIS_CITY are all not significant with AER. That means that ownership nature cannot moderate the relationship between FSIs and AER of WMPs.

Also, as shown in Table 8, the explanatory variable FSIS has no significant effect on AMR of WMPs, that is, with the increase of the shareholding of FISs, the yield deviation of WMPs will not change significantly correspondingly. However, the effect of the explanatory variables FSIS_BIG and FSIS_CITY on the proportion of FSIs and yield deviation of bank-level WMPs is significant. This means that if foreign partners hold more shares of SOBs, the yield deviation of SOBs' WMPs will be narrower; but this is contrary for city commercial banks. We can explain it by the fact that SOBs are more mature in terms of personnel training and organization management, that is, SOBs have stronger learning ability than city commercial banks, thus absorbing technological spillover effect of FSIs better.

5.5 Robustness Test

In order to eliminate the sample selection error and ensure the reliability of the causal conclusion, this paper uses the propensity score matching (PSM) to match the sample to get the net effect of FSIs on pricing of WMPs. According to Abadie and Imbens (2008), this paper will take whether taking on FSIs into Chinese banks as an experiment. The banks that have FSIs will be used as the experiment group, and banks that don't have FSIs as the control group. According to the bank characteristics (such as ROA, the size of bank assets, the proportion of non-interest income, LD and the nature of ownership), we calculate the propensity score of each sample, then we match the banks that have FSIs and not have FSIs correspondingly, excluding the unsuccessful samples. Finally, we get 4902 observations for every WMP, and 320 observations for WMPs for a single bank as the treatment group. This paper uses the nearest neighbor method in Stata to match a bank that has not taken on FSIs for each bank in the experimental group. Such matching makes the experimental and control group most similar in propensity score, then two test groups with the same probability of taking on FSIs can be considered "randomly" assigned to the experimental and control group. The results are consistent with our former findings, but not tabulated for brevity.

6. CONCLUSIONS

To examine the links between FSIs and WMPs, this paper uses 42350 WMPs issued by 221 commercial banks (1 foreign bank, 5 SOBs, 12 joint-stock banks, 124 urban commercial banks and 81 rural financial institutions) from 2007 to 2015, and get the following findings. First, the entry of FSIs has improved the expected return of WMP both on single level and bank level significantly. Then, the entry of FSIs has narrowed the yield deviation of high-yield WMPs of commercial banks in China, but has no significant effect on the yield deviation of WMPs on bank level. Finally, with the increase of the shareholding proportion of FSIs, the expected return of WMPs on bank level has increased significantly, but the yield deviation has not changed significantly. Our finding is meaningful for the banking ownership reforms in China and the development strategy of Chinese banks.

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APPENDIX

Table A-1. The Status of China's Banks taking on FSIs

Chinese banks	FSIs	Acquisition Year	Ownership Shares of FSIs (%)	Exit Time	Nature of Chinese Banks
Bank of China	Royal Bank of Scotland	2005	10	2009	SOBs
	Fullerton Financial Holdings	2005	5	2007	
	Swiss bank	2005	1.55	2008	
	Asian Development Bank	2005	0.24	2012	
	The Bank of Tokyo-Mitsubishi UFJ	2006	0.19	—	
China Construction Bank	Bank of America	2005	9.1	2009	SOBs
	Bank of America	2008		2011	
	Fullerton Financial Holdings	2005	5.1	—	
Industrial and Commercial Bank of China	Goldman Sachs Group	2006	6.05	2010	SOBs
	Allianz Group	2006	2.36	2009	
	American Express Company	2006	0.47	2011	
Agricultural Bank of China	Standard Chartered Bank	2010	0.37	—	SOBs
The Bank of Communications	Hongkong Bank	2004	19.9	—	Other
China Minsheng Bank	International Finance Corporation	2003	1.22	—	Other
	Asia Financial Holdings	2004	4.55	2007	
Shanghai Pudong Development Bank	Citigroup	2003	4.62	2012	Other
Industrial Bank	Deal TEDA Investment	2004	5	—	Other
	International Finance Corporation	2004	4	2012	
	Hang Seng Bank Limited	2004	15.98	—	
Shenzhen Development Bank	U.S. Newbridge Capital Group	2004	17.89	2010	Other
	GE Capital	2004	7	2010	
Ping An Bank	U.S. Newbridge Capital Group	2004	17.89	2010	Other
Everbright Bank	Asian Development Bank	1996	1.9	2007	Other
	International Finance Corporation	1999	7	2007	
China Guangfa Bank	Citibank	2006	20	—	Other
	Waterhouse Investment	2006	8	2013	
	IBM Credit	2006	4.74	—	
CITIC Bank	Banco Bilbao Vizcaya Argentaria	2007	4.83	—	Other
Huaxia Bank	Pangu Bank	2005	6.88	2007	Other
	Deutsche Bank	2006	7.02	—	
	Germany and Luxembourg Companies	2006	2.88	—	
	Sal. Oppenheim Company	2006	4.08	—	
Evergrowing Bank	Singapore's United Overseas Bank	2008	15.38	—	Other
Bohai Bank	Standard Chartered Bank	2005	19.99	—	Other
Bank of Shanghai	International Finance Corporation	1999	5	—	Other
	International Finance Corporation	2001	2	2011	
	Hongkong Bank	2001	8	—	
	Hong Kong Commercial Bank	2001	3	—	
Bank of Nanjing	International Finance Corporation	2001	15	2005	Other
	BNP Paribas	2005	19.2	—	

(Appendix continued on next page)

(Appendix continued)

Chinese banks	FSIs	Acquisition Year	Ownership Shares of FSIs (%)	Exit Time	Nature of Chinese Banks
Bank of Beijing	China Merchants Securities Standard Chartered-ING BANK N.V	2005	19.9	—	Other
	International Finance Corporation	2005	5	—	
Xi'an City Commercial Bank	International Finance Corporation	2004	2.5	—	Other
	Bank of Nova Scotia	2004	2.5	—	
Qilu Bank	Commonwealth Bank of Australia	2004	10.68	—	Other
Hangzhou City Commercial Bank	Commonwealth Bank of Australia	2005	19.92	—	Other
	Asian Development Bank	2006	5	—	
Nanchong City Commercial Bank	BNP Paribas	2005	19.2	—	Other
	German Investment and Development Co.	2005	10	—	
	German Savings bank	2005	3.3	—	
Changsha City Commercial Bank	International Finance Corporation	2004	20	2008	Other
Bank of Ningbo	Singapore's OCBC Bank	2006	12.2	—	Other
Bank of Tianjin	ANZ Bank	2006	19.9	—	Other
Chongqing City Commercial Bank	U.S. Investment Fund Carlyle	2006	7.99	—	Other
	Dah Sing Bank, Hong Kong	2006	17	—	
Qingdao Bank	Intesa Sanpaolo, Italy	2007	19.99	—	Other
	Rothschild Financial Group Holding Co.	2007	4.98	—	
Yantai Bank	Hang Seng Bank	2008	20	—	Other
	Wing Lung Bank	2008	4.98	—	
Xiamen Bank	Fubon Bank (Hong Kong) Ltd.	2009	19.99	—	Other
Chengdu Bank	Malaysia Hong Leong Bank	2007	19.99	—	Other
Bank of Yingkou	Malaysia CIMB Bank Group	2008	19.99	—	Other
Union Bank of Hangzhou	Rabobank	2006	10	—	Other
	International Finance Corporation	2006	5	—	
Harbin Bank	International Financial Institutions	2005		—	Other
Bank of Jilin	Hana Bank	2010	18	—	Other
Shenzhen City Commercial Bank	Bank of East Asia	2003	15	—	Other
Deyang Bank	International Finance Corporation	2009	15	—	Other
Tianjin Binhai Rural Commercial Bank	International Finance Corporation	2008	10	—	Other
Shanghai Rural Commercial Bank	ANZ Bank	2006	19.99	—	Other
Dalian Bank	Tian An Investment	2003	10	—	Other
Bank of Ningxia	The Bocg Investment Co.	2010	11	—	Other
Jiaozuo City Commercial Bank	HK CTS	2012	19.99	—	Other
Huishang Bank	Wkland Investment Co.	2013	16	—	Other

Note: These materials were collected from the banks' public reports, relevant newspapers, and financial magazines.