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ISSUANCE OF WEALTH MANAGEMENT PRODUCTS AND EXPECTED YIELDS; A SHADOW BANKING PERSPECTIVE

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ABSTRACT

In the last decade, shadow banking in China has expanded rapidly, driven predominantly by banking regulations and credit restrictions on specific industries. Wealth management products are considered the largest contributors to the overall shadow banking sector in China. The majority of these products are off the balance sheet and offer much higher yields than conventional deposit rates. This study aims to examine how commercial banks, more specifically small and medium-sized banks (SMBs), utilize wealth management products to offer higher yields on new products. This study comprises the top 30 Chinese banks from the first quarter of 2013 to the last quarter of 2019. A fixed-effects approach was adopted by implementing the panel corrected standard errors (PCSE) and Driscoll and Kraay standard errors (DKSE) models. This study found that for SMBs, the issuance of WMPs has a positive and significant impact on the yields of new products, but there is no such significant relationship exists for large four banks.

JEL classification: G21, G28, G32, C33

Key words: Wealth Management Products, Shadow Banking, Yields, Regulations, Panel data

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1. INTRODUCTION

The state-owned banking system has dominated the Chinese financial system. Despite the comprehensive regulations imposed by the regulators, this sector has undergone a gradual growth. Shadow banking is not seen as a defamed phenomenon in China; instead, it helps satisfy the high demand for capital flow. In the last decade, China's shadow banking has been rising significantly. According to (Moody's, 2020), the estimated generally specified shadow banking assets were listed as RMB 59 trillion as of the last quarter of 2019, compared to RMB 17.3 trillion in 2010.

In this study, we examine the wealth management products (WMPs) issued by China's top commercial banks; these products are considered an essential element of the shadow banking sector. These bank-issued WMPs are viewed as a competitive alternative to bank deposits. The WMPs, bundled with fixed maturities, also have higher yields than conventional deposit rates; ultimately, the WMPs can be financial instruments that reach the customers through banking networks. The non-guaranteed WMPs constitute a large portion of the total number of WMPs, which are off the balance sheet products with fixed maturities. The funds generated from WMPs can be invested in loan assets originating by banks and bundled by other financial intermediaries. Consequently, credit is provided without increasing the loan balance on-balance-sheet. On the liability side of their balance sheet, banks can offer higher rates to attract new financing, as the interest rates of WMPs are not regulated as deposits. The principal investment of WMPs could be either guaranteed or not. According to CBRC criteria, principal-guaranteed WMPs are often included as deposits on the balance sheet. While principal-non-guaranteed WMPs are viewed as off-balance sheet liabilities. Banks have the option to boost their deposit balances by changing the structure of these WMPs (Acharya et al., 2020).

By employing a comprehensive sample of the top 30 Chinese banks, these 30 banks are the leading issuers of WMPs and comprise 70% of the total commercial banking systems' assets. For a dataset from the first quarter of 2013 to the last quarter of 2019, this study performed fixed effects by empirically implementing the Panel Corrected standard error (PCSE) and Driscoll and Kraay standard errors (DKSE) models. Three vital conclusions were drawn from our analysis. First, the non-guaranteed WMPs and total WMPs have a positive and significant impact on the yields of newly issued WMPs by banks. Second, for SMBs, issuance of both non-guaranteed and total WMPs has a positive and significant impact on the yields of the new WMPs, but there is no such significant relationship exists for large four banks. Third, SHIBOR-d (the difference between SHIBOR and deposit rate) was positive and significant for large banks and SMBs, as both types of banks regularly tap the inter-bank market to fulfill their liquidity needs acquire funds to cover a portion of their maturing WMPs.

This study contributes to the growing literature on shadow banking in China's perspective by providing an empirical analysis of the relationship between the non-guaranteed WMPs and total WMPs and yield on new WMPs. In this study, the 1st section presents the introduction.

Section 2 contains the related literature. Section 3 is covering the methodology. Lastly, Results and discussion are accessible in section 4.

2. LITERATURE REVIEW

2.1. Shadow banking and institutional background

Multiple concepts and interpretations have risen for shadow banking. The evolution of these non-traditional parallel intermediary institutions has drawn the interest of academic researchers and decision-makers around the world. (Allen & Gu, 2020) argued that Shadow banking is characterized generally as any type of credit intermediation that exists outside the financial system that is mainstream or regulated. China's shadow banking has been in excessive growth in the last decade, mainly motivated by regulatory arbitrage and constraints on specific sectors to achieve the requisite financing. Shadow finance refers in the broader context to non-bank financial institutions engaged in loan transformation and long-term loans securitization, such as mortgage-backed securities and short-term financial instruments (Acharya et al., 2013; Wu & Shen, 2018; Zoltan Pozsar et al., 2012). (Gabrieli et al., 2018) further explained that the notion of shadow banking in China is different from other countries, as China's banking sector plays a critical part in shaping shadow banking activities. Unlike shadow banking in the U.S, Chinese shadow banking is primarily dominated by commercial banks. A traditional Chinese shadow banking activity includes fully controlled commercial banks in which a shadow trust or a shell-company is formed to transfer savings and lending business out of the balance sheet.

2.2. Risk-Return perspective of wealth management products

China's shadow banking growth is the outcome of regulatory arbitrage; from this angle, the U.S. and China's shadow banking has a resemblance. Chinese banks are engaged in the issuance of non-guaranteed or principal floating WMPs, because of the regulatory constraints such as loan to deposit ratio and the deposit rate cap. The majority of these WMPs are off the balance sheet, which consequently helps banks escape regulatory restrictions. Growth in shadow banking is seen as the response of the Chinese banking sector to regulatory arbitrage. (Yang et al., 2019) concluded that a variety of regulations are being tried by the Chinese regulators to mitigate the rapidly rising shadow banking industry risks. However, banks could still find a way out by choosing or exploring another poorly controlled sector. As a result, regulators have failed to regulate shadow banking activities in China properly.

(Luo et al., 2019) investigated a maturity mismatch by analyzing the expected yields of newly issued wealth management products by the top 16 Chinese commercial banks. (Acharya et al., 2020) explained that issuing WMPs has a positive and substantial effect on the yields of new WMPs for the SMBs, but such association does not occur for the major four banks. They are not as active as SMBs in issuing WMPs, because the volume of WMPs maturing in each quarter does not require large-scale fundraising by issuing new products. These large banks are capable of raising funds from the interbank market. In comparison, SMBs face more significant liquidity deficits and offer substantially higher returns to attract more investors.

As discussed above, the studies have found that the shadow banking industry in China is driven primarily by regulatory arbitration, and WMPs play a significant role in shaping this sector. The current literature has shown that Chinese banks mainly have a specific connection with off-balance-sheet non-guaranteed WMPs. The yield on new WMPs and the issuance of non-guaranteed & guaranteed WMPs have a positive relationship. Based on this discussed literature, this study empirically examined the effect of the issuance of WMPs on the yields of new WMPs by Chinese commercial banks.

3. RESEARCH METHODOLOGY

3.1. Theoretical Framework

The wealth management products constitute a significant portion of overall shadow banking in China. These financial products offer higher yields than the conventional deposit rate. Having fixed maturities make these products more alike deposits, but regulatory authorities never treated them as deposits because non-guaranteed WMPs are leading contributors in total issued WMPs and totally off the balance sheet. The commercial banks involved in the wealth management business offer higher yields on new wealth management products. One important reason for offering higher yields is to raise funds for refinancing in terms of their long-term assets, i.e., the assets financed by the issuance of WMPs are long-term, but the maturities are often short-term (Acharya et al., 2020). With more WMPs maturing, banks would offer higher yields on new WMPs to attract more potential investors. This notation further elaborates on the relationship between issuance of WMPs and expected yields.

The non-guaranteed and total WMPs have different impacts on the yield of new WMPs for SMBs and large four banks. We expect this effect is significant and positive for small and medium-sized banks, but not for large four banks. First, these four large banks have a vast expanding network of branches across China, making the availability of funds more accessible. Second, these banks can tap the interbank market to arrange the required funding easily. Additionally, large four banks have alternate funding sources, so they do not entirely depend on the issuance of WMPs to raise funds. Conversely, small and medium-sized banks have higher liquidity demands and cannot be entirely fulfilled from the interbank market. As a result, SMBs offer higher yields on the new WMPs to attract more investors. For SMBs, both non-guaranteed and total WMPs have a positive effect on the yield of new WMPs.

3.2. Empirical Design

The effect of bank-specific and other explanatory on the yield of new-issued wealth management products is estimated using data on 30 Chinese banks from the first quarter of 2013 to the last quarter of 2019. The panel regression models are as follows:

$$(WMPreturn_d)_{it} = \beta_0 + \beta_1(NG_WMP)_{it} + \beta_2SHIBOR_d_t + \beta_3DAR_{it} + \beta_4LDR_{it} + \beta_5Size_{it} + \varepsilon_{i,t} \quad (1)$$

$$(WMPreturn_d)_{it} = \beta_0 + \beta_1(T_WMP)_{it} + \beta_2SHIBOR_d_t + \beta_3DAR_{it} + \beta_4LDR_{it} + \beta_5Size_{it} + \varepsilon_{i,t} \quad (2)$$

The dependent variable is the difference between wealth management products' expected yield and deposit rate. The key independent variables are non-capital guaranteed WMPs and total WMPs issued by the bank i , in quarter t , and ε is the error term, expressed in equation (1) and (2), respectively. β_1 , β_2 , β_3 , β_4 , and β_5 are coefficients of non-capital guaranteed WMPs-&-total WMPs, the difference between Shanghai Interbank Offered Rate (SHIBOR) and deposit rate, Debt-to-Assets ratio (DAR), Loan-to-Debt ratio (LDR) and Size (total revenues), respectively. As suggested by (Changyong et al., 2014; Gabrieli et al., 2018), all the variables are log-transformed, as it is highly suggested for data normality. It further improves data validity in terms of possible sharpness.

3.3. Empirical Procedure

A large strand of the empirical literature on China's shadow banking, mostly related to wealth management products, adopted static panel models, i.e., fixed effects, random effects, and LSDV estimation techniques, such as (Acharya et al., 2020; An & Yu, 2018; Liao, 2020; Luo et al., 2019; Wu & Shen, 2018). In terms of panel data, fixed and random effects models are the two most important estimation methods, which statistically examine the group and time effects linked with panel data's individual and heterogeneity components (Park, 2011).

Consistent with equations (1) and (2) as discussed in the last section, first, this study performed (Hausman, 1978) specification test to determine between fixed and random effects models. The null hypothesis for this test is "no correlation between regressors and the individual effects." The rejection of the null hypothesis would result in the approval of the fixed-effects model.

To examine the issues of heteroskedasticity, this study performed two tests. First, as explained by (Greene, 2012), under the null hypothesis of homoscedasticity, a White's test for heteroskedasticity was executed. Second, as examined by (Greene, 2000), a modified Wald's test of heteroskedasticity was implemented after the fixed effects model. To examine the issue of serial correlation; First, this study performed a (Wooldridge, 2002) statistical procedure, as implemented by (Drukker, 2003). Lastly, a Breusch Pagan Godfrey test for panel data auto-correlation was executed as statistically explained by (Greene, 2012). After estimating the fixed effects model and confirmation of heteroskedasticity and auto-correlation from the diagnostic tests surfaced the way to undertake the Driscoll and Kraay standard errors (DKSE) model as corroborated by (Driscoll & Kraay, 1998; Hoechle, 2007), and Panel Corrected standard errors (PCSE) estimation model as statistically explained by (Beck & Katz, 1995; Moundigbaye et al., 2018).

4. RESULTS AND DISCUSSION

4.1. Data and summary statistics

This study covers a comprehensive sample of 30 top Chinese banks. These banks contain 70% assets of China's total banking system and the leading contributors in terms of issuance of wealth management products. The diversified sample of 30 banks comprises four large state-owned commercial banks, eleven joint-stock commercial banks, thirteen city commercial banks, and two rural commercial banks. Appendix A depicts the details. The four large state-owned commercial banks categorized as Big4 and other small and medium-sized banks as SMBs, over the period from the 1st quarter of 2013 to the last quarter of 2019.

This study utilized a wide range of sources to collect the data. In terms of bank-related data, i.e., financial ratios and other variables, the WIND financial database was used. The periodic financial statements and Bloomberg database were further employed; these additional resources helped us transcend the missing data and robustness. Finally, we collect non-guaranteed and total wealth management products from the WIND financial database. This includes issuing banks' details, the date of issuance, expected yield and the type and category, the maturity information, and underlying assets. Non-guaranteed wealth management products are off the balance sheet and are considered the leading contributor to China's shadow banking. Banks do not consolidate the amount of these products into their financial reports. As empirically utilized by (Cai et al., 2019; Luo et al., 2019), the number of WMPs serves as the best proxy for the banking sector's exposure to the financial products.

In Table 1, summary statistics and correlation matrix are presented. The non-guaranteed WMPs account for a substantial 78 percent of the cumulative WMPs released by all sample banks.

Table 1 Summary statistics with the correlation matrix

Variables	N	Mean	SD	min	Median	max
WMP-yield	840	2.673	.608	.967	2.705	4.658
NG-WMPs	840	324.602	485.859	0	145	3789
T-WMPs	840	401.571	528.039	0	194.5	3892
SHIBOR-d	840	1.849	.65	.888	1.599	3.189
DAR%	840	64.165	8.35	43.198	63.636	82.656
LDR%	840	71.794	11.899	35.925	70.73	110.992
T-Rev Billions	840	82.012	137.791	.83	20.397	855.164
Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) WMP-yield	1.000					
(2) NG-WMPs	0.172	1.000				
(3) SHIBOR-d	0.425	0.158	1.000			
(4) DAR	-0.286	0.017	-0.130	1.000		
(5) LDR	0.210	0.066	0.055	-0.326	1.000	
(6) T-rev	-0.098	0.461	-0.045	0.169	0.385	1.000

4.2. Fixed-Effects model and diagnostic tests

The fixed-effects model results from our two main specifications in equation (1) and (2) are presented in Table 2, along with diagnostic tests. The dependent variable is WMPs-return (the difference between wealth management products' expected yield and deposit rate).

The Hausman test was performed to determine between random effects and fixed effects models. The null hypothesis was rejected, which resulted in the approval of the fixed-effects model. The fixed-effects model results confirm and support our hypothesis, but this study needs to perform diagnostic tests to investigate these results' reliability. The null hypothesis of "homoskedasticity" was rejected at a 1% significant level for both White's and Modified Wald tests. For auto-correlation, Both Wooldridge and Breusch Pagan Godfrey tests were found significant at the 1% level and rejected the null hypothesis of "no first-order panel auto-correlation."

The diagnostic tests approved the presence of heteroskedasticity and autocorrelation; the results of the fixed effects model are no longer reliable. As a remedial measure, this employed study panel corrected standard errors (PCSE) and Driscoll and Kraay standard errors (DKSE) models (Beck & Katz, 1995; Driscoll & Kraay, 1998; Hoechle, 2007; Moundigbaye et al., 2018).

Table 2 Fixed Effects Model and diagnostic tests

Variables	All Banks		Big4		SMBs	
	(1) FE	(2) FE	(3) FE	(4) FE	(5) FE	(6) FE
NG-WMPs	0.104*** (0.016)		0.017 (0.047)		0.105*** (0.017)	
Total WMPs		0.095*** (0.019)		-0.020 (0.063)		0.104*** (0.019)
SHIBOR-d	0.202*** (0.016)	0.206*** (0.016)	0.336*** (0.045)	0.350*** (0.047)	0.186*** (0.017)	0.188*** (0.017)
DAR	-0.166*** (0.029)	-0.167*** (0.030)	-0.968*** (0.270)	-0.947*** (0.275)	-0.162*** (0.028)	-0.159*** (0.029)
LDR	0.148*** (0.021)	0.144*** (0.021)	0.651*** (0.159)	0.671*** (0.159)	0.133*** (0.020)	0.129*** (0.020)
Size	0.169*** (0.042)	0.168*** (0.042)	-0.147 (0.117)	-0.146 (0.117)	0.175*** (0.043)	0.173*** (0.043)
Cons	-0.173** (0.081)	-0.162 (0.101)	1.113** (0.463)	1.318** (0.506)	-0.103 (0.079)	-0.132 (0.098)
Obs.	840	840	112	112	728	728

R ²	0.411	0.401	0.634	0.634	0.415	0.406
Tests	Chi2-Statistics		Hypothesis		Decision	
Hausman test	Chi2(5) 105.39***		Ho: Random effect model is appropriate Hi: Fixed-Effect model is appropriate		Ho: rejected Hi: accepted	
White's test for homoscedasticity	Chi ² (20) 147.64***		Ho: homoskedasticity Hi: unrestricted heteroskedasticity		Ho: rejected Hi: accepted	
Modified Wald test	Chi ² (30) 347.63***		Ho: homoskedasticity Hi: heteroskedasticity		Ho: rejected Hi: accepted	
Wooldridge test	F (1,29) 101.685***		Ho: No 1 st -order autocorrelation Hi: 1 st -order autocorrelation		Ho: rejected Hi: accepted	
Breusch-Pagan-Godfrey test	Panel rho 0.76***		Ho: No AR (1) autocorrelation Hi: AR (1) autocorrelation		Ho: rejected Hi: accepted	

The dependent variable is WMPs-yield (the difference between wealth management products' expected yield and deposit rate). Standard errors are in parenthesis *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

4.3. Yield on new WMPs and WMPs issuance

For all the 30 banks in the sample, Table 3 shows the results based on panel corrected standard errors (PCSE) and Driscoll and Kraay standard errors (DKSE) models, respectively. The results from both PCSE and DKSE estimation models are consistent with our hypothesis. The non-guaranteed WMPs and total WMPs have a positive and significant impact on the yields of newly issued WMPs by banks. Similar results were reported by (Acharya et al., 2020). This positive and significant relationship further approves the earlier discussion that the issuance of WMPs is directly linked with the spread between the expected yield of new WMPs and the deposit rate. This makes sense, as an increase in the spread would attract more potential investors, and the deposit rate always remained lower than the yields of wealth management products. The majority of these WMPs have short maturities; our results confirm that banks tend to offer higher yield on the new WMPs if more products are approaching their maturities.

Table 3 PCSE and DKSE models for all banks

Variables	PCSE		DKSE	
	(1)	(2)	(3)	(4)
NG-WMPs	0.083*** (0.014)		0.104*** (0.037)	
Total WMPs		0.057*** (0.016)		0.095* (0.047)
SHIBOR-d	0.209*** (0.018)	0.218*** (0.018)	0.202*** (0.066)	0.206*** (0.067)
DAR	-0.067*** (0.017)	-0.070*** (0.017)	-0.166** (0.078)	-0.167** (0.075)
LDR	0.110*** (0.017)	0.101*** (0.017)	0.148** (0.056)	0.144** (0.055)
Size	-0.128*** (0.021)	-0.109*** (0.022)	0.169 (0.131)	0.168 (0.131)
Cons	0.006 (0.069)	0.109 (0.086)	-0.173 (0.253)	-0.162 (0.306)
Obs.	840	840	840	840
R ² & Wald Chi ²	340.03***	303.61***	0.41	0.40

The models control for common auto-regressive parameter and panel level heteroscedasticity. The dependent variable is WMPs-yield (the difference between wealth management products' expected yield and deposit rate). PCSE and DKSE represent panel corrected standard errors and Driscoll and Kraay standard errors, respectively. Coefficients with standard errors are in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The magnitude of this impact is also economically significant. In columns (1) and (2); for PCSE estimation models, a 1% increase in the issuance of non-guaranteed WMPs and total WMPs would lead to an increase in the yield of WMPs by 0.08% and 0.05%, respectively. Similarly, for DKSE estimation models in columns (3) and (4), a 1% increase in the issuance

of non-guaranteed WMPs and total WMPs would lead to an increase in the yield of WMPs by 0.10% and 0.09%, respectively.

As discussed earlier, banks also can tap the interbank market to improve liquidity and manage their maturing WMPs. The effect of SHIBOR-d (the difference between SHIBOR and deposit rate) on the yield of newly issued WMPs is positive and significant at a 1% level for all the PCSE, and DKSE estimated models. These results are in line with (Acharya et al., 2019). The deposits and yield of newly issued WMPs have a negative and significant relationship for both PCSE and DKSE models, further confirming that banks with lower deposit levels would offer higher yield on the WMPs to improve and control their deposit levels. For other control variables, LDR and size were significant in most of the models under PCSE and DKSE.

4.4. Yield on new WMPs sub-groups

Based on panel corrected standard errors (PCSE) and Driscoll and Kraay standard errors (DKSE) models, Table 4 presents the results for sub-groups, i.e., big four banks and small & medium-sized banks. For SMBs, issuance of both non-guaranteed and total WMPs has a positive and significant impact on the yields of the new WMPs, but there is no such significant relationship exists for large four banks. These results further confirm our earlier discussion that banks have different financing needs in terms of WMPs issuance. These different results for four large banks and SMBs have two implications; first, the large four banks can raise sufficient funds from the interbank market. Second, the large banks are less aggressive than the SMBs in terms of issuing the WMPs. Conversely, the SMBs are small in size, and they need to manage their liquidity channels; because of this disadvantage, SMBs offer substantially higher yields on the new WMPs to attract more investors. (Acharya et al., 2020) have also obtained similar results for SMBs.

Table 4. PCSE and DKSE models for large four and small & medium-sized banks

Variables	Big4				SMBs			
	PCSE		DKSE		PCSE		DKSE	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
NG-WMPs	-0.049		0.017		0.099***		0.105**	
	(0.058)		(0.040)		(0.014)		(0.044)	
T-WMPs		-0.124*		-0.020		0.081***		0.104*
		(0.064)		(0.073)		(0.017)		(0.055)
SHIBOR-d	0.385***	0.407***	0.336***	0.350***	0.191***	0.197***	0.186***	0.188***
	(0.058)	(0.057)	(0.061)	(0.060)	(0.018)	(0.019)	(0.065)	(0.066)
DAR	-0.425*	-0.296	-0.968*	-0.947**	-0.050***	-0.052***	-0.162**	-0.159**
	(0.225)	(0.230)	(0.268)	(0.267)	(0.018)	(0.019)	(0.074)	(0.072)
LDR	0.054	0.163	0.651*	0.671*	0.115***	0.106***	0.133**	0.129**
	(0.166)	(0.172)	(0.198)	(0.190)	(0.017)	(0.017)	(0.054)	(0.053)
Size	0.175	0.155	-0.147	-0.146	-0.132***	-0.120***	0.175	0.173
	(0.135)	(0.132)	(0.122)	(0.119)	(0.023)	(0.025)	(0.125)	(0.125)
Cons	0.545	0.937*	1.113**	1.318**	-0.056	0.003	-0.103	-0.132
	(0.494)	(0.484)	(0.486)	(0.599)	(0.071)	(0.089)	(0.263)	(0.325)
Obs.	112	112	112	112	728	728	728	728
R ² &Wald Chi ²	59.69***	64.13***	0.63	0.63	298.75***	258.32***	0.42	0.41

The models control for common auto-regressive parameter and panel level heteroscedasticity. The dependent variable is WMPs-yield (the difference between wealth management products' expected yield and deposit rate). PCSE and DKSE represent panel corrected standard errors and Driscoll and Kraay standard errors, respectively. Coefficients with standard errors are in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The small & medium-sized banks have an economically significant effect. In columns (5) and (6); for panel corrected standard errors (PCSE) estimation models, a 1% increase in the issuance of non-guaranteed WMPs and total WMPs would lead to an increase in the yield of WMPs by 0.09% and 0.08%, respectively. Similarly, for DKSE estimation models in columns (3) and (4), a 1% increase in the issuance of non-guaranteed WMPs and total WMPs would lead to an increase in the yield of WMPs by 0.10% and 0.11%, respectively. These economic significance levels (from columns 5 to 8) also show that non-guaranteed and total WMPs issuance is positive and significant at a 1% level for PCSE, 5%, and 10% for DKSE estimation models, respectively. The SHIBOR-d (the difference between SHIBOR and deposit rate) was positive and significant for large banks and SMBs, as both types of banks regularly tap the inter-bank market to fulfill their liquidity needs acquire funds to cover a portion of their maturing WMPs. The SHIBOR-d is significant and positive at a 1% level for all PCSE and DKSE estimations models.

5. CONCLUSION

This study empirically investigated the relationship between yields on new products and the issuance of wealth management products. WMPs arise as a competitive alternative for deposits mainly because relative to traditional deposit rates; these products carry higher returns and have no regulatory caps or interest rate limits. The off the balance sheet attribute of these products makes them more lucrative to the profit-seeking banking industry. The issuance of WMPs makes it easier for banks to conceal their assets' real risks, and it also helps them attract more investors. In both medium to long-term periods, a significant fraction of the assets funded by WMPs pay off, but many investors prefer short-term investment products, as do other involved banks and institutions. The WMPs originating banks often prefer short maturities to pass the WMP funds to deposit accounts of investors at maturity (even for just a few days), which can help raise the balance of deposits. To achieve the repayment of mature WMPs, banks can reach into the inter-bank market or start issuing WMPs. However, small and medium-sized banks rely more on WMPs by offering higher yields.

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APPENDIX

S.N.	Bank names	Bank type
1	Agricultural Bank of China; Industrial and Commercial Bank of China; Bank of China; China Construction Bank	04- State-owned Big Four banks
2	Bank of Communications; China Bohai Bank; China Zheshang Bank; Hua Xia Bank; China CITIC Bank; Shanghai Pudong Development Bank; China Everbright Bank; China Merchants Bank; China Minsheng Banking; Industrial Bank; Ping-An Bank	11- Joint-stock commercial banks
3	Bank of Beijing; Bank of Chongqing; Bank of Dongguan; Bank of Hangzhou; Bank of Hebei; Bank of Nanjing; Bank of Ningbo Bank of Ningxia; Bank of Shanghai; Bank of Tianjin; Harbin Bank; Zhejiang Chouzhou Commercial Bank; Hankou Bank HKB	13- City commercial banks
4	Guangzhou Rural Commercial Bank; Shanghai Rural Commercial Bank	02- Rural commercial banks

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