EFFECTS OF SHADOW BANKING ON THE BANK LENDING CHANNEL OF MONETARY POLICY TRANSMISSION IN MAINLAND CHINA

Key points

- *Despite the swift rise of shadow banking in Mainland China over the last decade, the challenge it poses to the monetary policy effectiveness is understudied. Intuitively, shadow bank credit replaces part of the traditional bank loans, therefore dampening the effectiveness of monetary policy. However, this may not be the whole story.*

- *In this study, we explore how shadow banking affects the bank lending channel, which operates independently from the aforementioned substitution mechanism. We find that involvement in shadow banking activities of banks lowers the responsiveness of traditional bank lending to monetary policy, especially for joint-stock commercial banks. This is because by moving risky assets off balance sheet, banks improve their risk profiles perceived by lenders in the interbank market and lower the sensitivity of risk premia they face to monetary shock*

- *With the asset management regulation introduced in 2018 focusing on bank-issued WMPs, we expect the effectiveness of the transmission of the monetary policy to improve as banks gradually move off-balance WMPs back onto balance sheet.*

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I. INTRODUCTION

Shadow banking in Mainland China has grown rapidly in the past decade, rising from less than 5% of GDP in 2007 to nearly 25% at the end of 2018[1]. Unlike the market-based financial system such as in the U.S., shadow banking in Mainland China is bank-centric (i.e. bank's shadow) and is primarily aimed at creating credit money without inflating a bank's balance sheet. Consequently, as banks manage to channel a large amount of credit to borrowers through regulatory arbitrage, the share of traditional bank loans as a percentage of the aggregate financing to the real economy has declined (Figure 1), posing challenges to the monetary policy and its effectiveness.

Figure 1 Declining share of bank loans in aggregate financing to the real economy in Mainland China
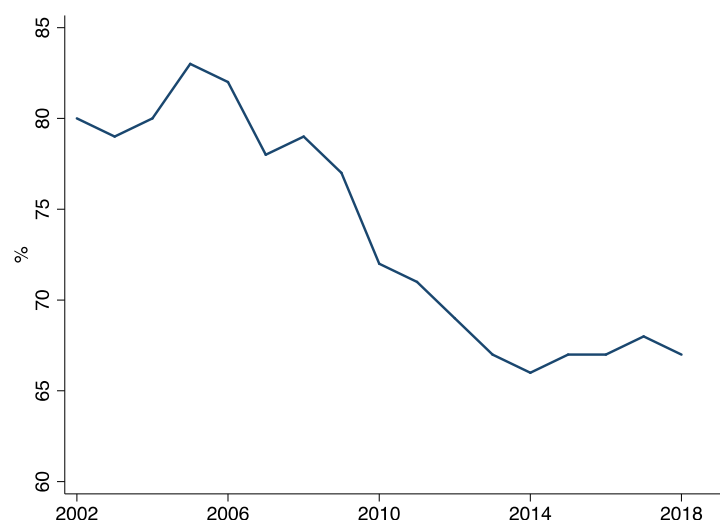
Notes: Aggregate financing to the real economy refers to the aggregate volume of financing provided by the financial system to the real economy, which includes RMB loans, trust loans, entrust loans, net financing of corporate bonds, equity financing on the stock market, among others.
Source: PBoC and CEIC.

Despite its important policy implication, there is rather limited study on the influence of shadow banking on the transmission of the monetary policy. The only attempt is Chen et al. (2018), which shows that shadow banking hampers the

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[1] In general, shadow banking is defined as "credit intermediation involving entities and activities (fully or partly) outside of the regular banking system" (the Financial Stability Board (2011)).

effectiveness of the monetary policy by substituting for traditional bank lending. Our study provides a novel finding that aggressive issuance of off-balance sheet wealth management products (WMPs) – the major funding source of shadow activities, directly impedes the effectiveness of the monetary policy on traditional bank lending. Such hampering effect arises from the fact that shadow banking helps banks move risky assets out of their balance sheet, thus improving their perceived risk profile and in turn lowering the sensitivity of banks' wholesale funding costs to monetary policy changes.   Our finding is in line with the view of Bernanke et al. (2007) and Disyatat (2011), and the underlying mechanism operates independently of the substitution effect between shadow bank loans and traditional bank loans.

II.   DATA

Our study employs two novel datasets. The first dataset is bank-level data on shadow banking involvement at a yearly frequency, proxied by bank-issued off-balance sheet WMPs as a share of the bank's liability. The data is manually collected from 33 listed Chinese banks' annual reports over the period of 2011 to 2018. The second dataset is about bank-level wholesale funding costs, proxied by the issuance yields of bank-issued Negotiable Certificates of Deposit (NCD), which are monthly data and collected from WIND (see TableA1 in the Annex for a complete bank sample).

Off-balance sheet WMPs track closely two other often-used proxies of shadow banking activities: (1) shadow bank credit, as measured by the sum of trust loans and entrusted loans; and, (2) banks' claim on nonbank financial institutions, as measured by banks' purchase of nonbank financial institutions' investment products and banks' direct lending to nonbank financial institutions (Figure 2). This suggests that off-balance sheet WMPs[2] are a very good approximation of shadow loans extended by the whole banking system (Figure 2).

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[2] The figures of off-balance sheet WMPs in Figure 2 are taken from various issues of "China Banking Wealth Management Market Annual Report", and note that our manual-collect bank-level off-balance sheet WMPs from 33 listed banks account for 90% of the banking sectors' overall exposure on average.

**Figure 2: The RMB amount of outstanding shadow banking activities**
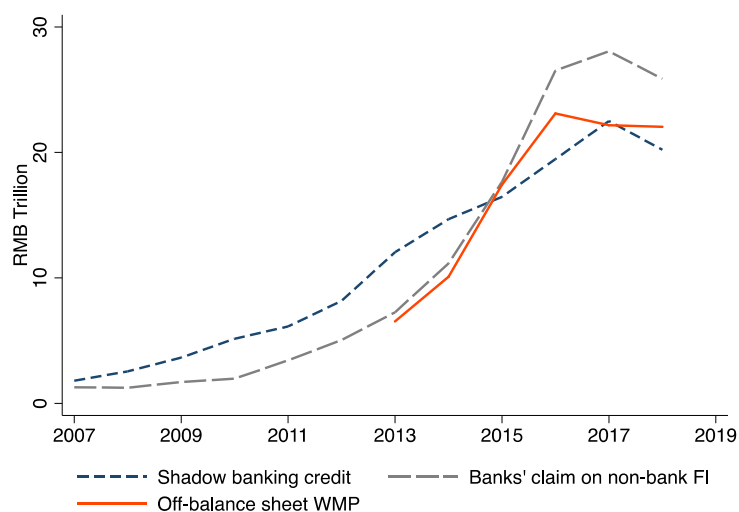
Source: Wind, CEIC and staff estimates.

We have some interesting observations of WMPs at the bank level. Non-state owned banks, i.e. joint-stock and city and rural commercial banks are much more aggressive in issuing off-balance sheet WMPs compared with state-owned big banks (Figure 3). The divergence is likely a reflection of the institutional division between state-owned and non-state owned banks in Mainland China. Lower WMP involvement in state-owned banks is consistent with the fact that state-owned banks are obliged to follow the central government's policy and adhere to the regulations for promoting the healthy banking system rather than undermining the soundness of the banking system (Chen et al. (2018)), therefore state-owned banks have less incentive to actively engage in shadow banking activities.

Similarly, banks' funding side also highlights important institutional division. The typical issuers of NCDs are non-state owned banks while normally the buyers are large state-owned banks (Amstad and He (2019)), though both state-owned banks and non-state owned banks are also active participants in the NCD market. Non-state owned banks offer higher issuance spread, i.e. the spread between NCD's issuance yield and the 6-month Treasury yield (Figure 4). The maturity of NCDs is on average 3.7 months for state-owned banks, and slightly longer at 5 months for joint-stock and city commercials.[3]
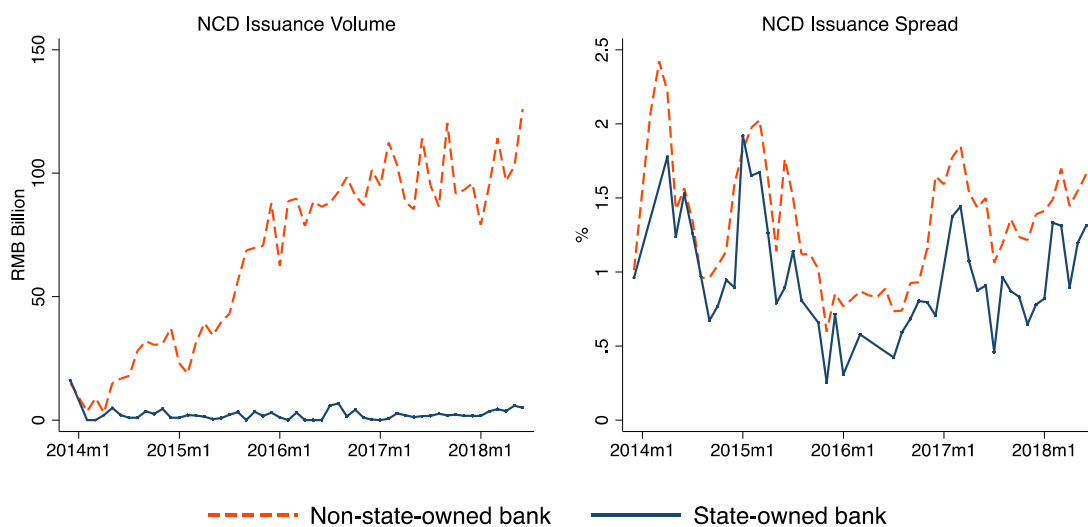
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[3] The Chinese NCD market has experienced dramatic growth since its official inception in December 2013.

Figure 3: Outstanding off-balance sheet WMPs as percentage of banks' liabilities
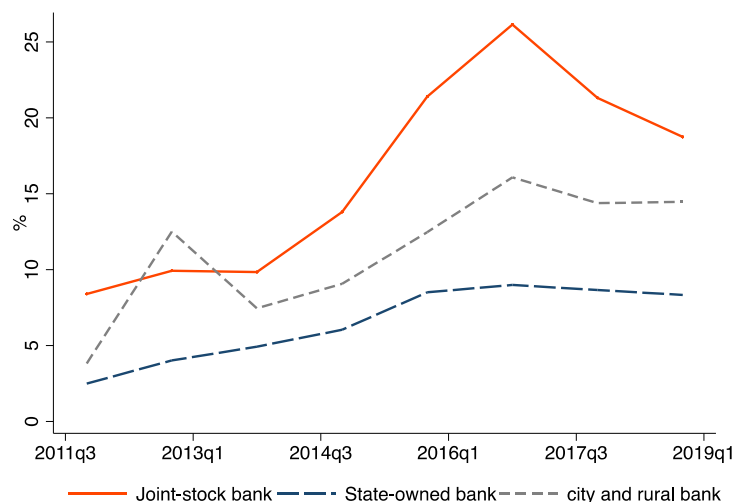
Source: Bank Annual Report, Bank Quarter Report and staff estimates

Figure 4: NCD issuance volume and spread

Source: Wind and staff estimates

The Chinese NCDs have high credit quality, as guaranteed by issuing banks, high secondary market liquidity and reasonable premium over the risk-free benchmark offered by government bonds. Despite the fast development, the relative size of the NCD market is still not comparable to that in the U.S. For instance, in our sample, NCDs account for 4% of total deposits on average, while jumbo CDs account for 14.06% of total deposits on average in the U.S. (Breitenlechner and Scharler (2016)).

III. METHODOLOGY AND RESULTS

In this section, we test the hypothesis that greater involvement in off-balance sheet activities would lower the funding cost sensitivity of banks to monetary policy changes, which in turn results in a lower sensitivity of bank lending as well. More specifically, we first look at the lending side of banks, examining whether bank lending would become less sensitive to the monetary policy if there is a greater involvement in shadow banking activities. We then move to the funding side to study whether indeed the sensitivity of funding costs facing banks also displays a similar pattern in response to monetary policy changes.

i. LENDING SIDE - SHADOW BANKING AND BANK LENDING CHANNEL

We implement a within-bank estimation strategy to control for differential changes in banks' lending opportunities by including bank fixed effects (λ_i). To account for shifts in credit demand, we control for unobserved time-varying demand shocks that are common to all firms by including year fixed effects. Our baseline specification is the following panel regression,

$$Loan\ growth_{i,t} = \alpha \Delta mp_t + \boldsymbol{\beta} X_{i,t-1} + \boldsymbol{\delta} X_{i,t-1} \Delta mp_t + \lambda_i + Year\ FE + \varepsilon_{i,t} \quad (1)$$

We use quarterly data except for the measure of banks' involvement in shadow banking activities (i.e. off-balance sheet WMPs over liabilities) where only yearly observations are available. The dependent variable $Loan\ growth_{i,t}$ is the log change in bank i's loans between quarter t in current year and the same quarter in the previous year. We use year-over-year loan growth to mitigate seasonality effects. Δmp_t is the contemporaneous change in the corresponding monetary policy measure in the quarter t from the previous quarter $t-1$. Coefficient α captures the average sensitivity of bank loan growth to changes in the monetary policy.

The regression controls for a set of bank characteristics lagged for one quarter ($X_{i,t-1}$) to control for endogeneity. These include balance sheet variables, such as bank's size, capital ratio and liquidity that are traditionally used in studies on

the bank lending channel (e.g. Kashyap and Stein (2000) and Kishan and Opiela (2006)). Our study extends the standard framework by including in $X_{i,t-1}$ also an off-balance sheet indicator – our proxy for bank's involvement in shadow banking activities, i.e. off-balance sheet WMP over total liabilities (in this case lagged for one year instead of one quarter). The key estimate δ_{wmp} in the coefficient vector δ is the coefficient of the interaction term between banks' involvement in shadow banking activities and the monetary policy, which captures how shadow banking involvement changes the sensitivity of bank loan growth to the monetary policy. We run separate regressions for a battery of four primary monetary policy measures: RRR, a quantity-based policy tool, and three price-based tool including 7-day repo rate, 7-day Shibor, and the effective lending rate. Baseline results are reported in Table A2.

Figure 5 visualises the key result. The majority of policy tools are found to be effective (corresponding to most bars located in negative territory, and plotted using statistically significant coefficients α). Further, the gaps between the light and dark blue bars indicate the reduction in the effectiveness of monetary policy on bank loans when banks' shadow banking involvement (WMP/liability) increases from zero (light blue bar) to 5% (dark blue bar). Quantitatively, this translates to a decline in the monetary policy effectiveness on loan growth of around 0.4-0.7 percentage points among the different policy tools. For example, other things being equal, if the central bank cuts 1% of RRR, the loan growth rate of a bank without off-balance sheet WMPs will increase 1.7 percentage points, while the loan growth rate of a similar bank with 5% of off-balance WMPs over total liability will increase less by 1.2 percentage points.

To examine whether the baseline results mask any heterogeneity across different types of banks, we rerun the regression separately for state-owned banks, joint-stock commercial banks and city and rural commercial banks (Results are reported in Table A3). We find that our earlier results are mainly driven by joint-stock commercial banks: only in this subsample would off-balance sheet WMPs dampen the effectiveness of monetary policy across all four policy instruments (at

significance levels between 1% and 5%).

Figure 5: Estimated impacts of monetary policy on bank loan growth: with vs without off-balance sheet WMPs
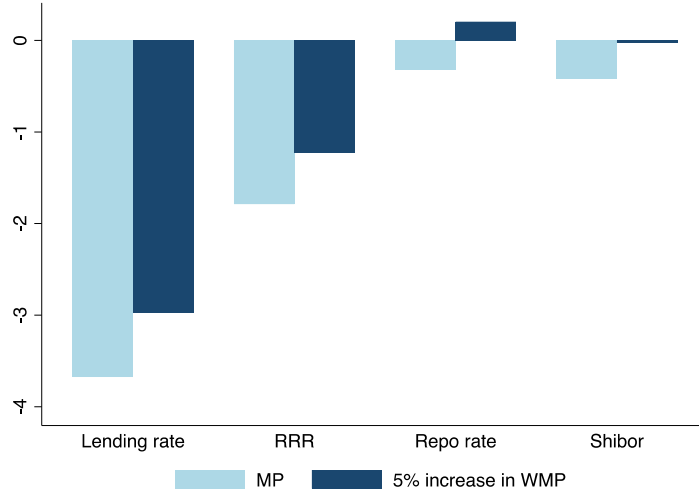
Note: Figure 5 plots the estimated results from baseline regression (Table A2 in the Annex). Light blue bars plot the effect of 1-unit increase in MP with 0% holding of WMP, and the dark blue bars plot the effect of 1 unit increase in MP with 5% holding of WMP relative to liabilities. The differences between the two bars represent the dampened effect of MP.

ii.   FUNDING SIDE – SHADOW BANKING AND BANKS' FINANCING PREMIA

To establish the linkage between the weakened effectiveness of the monetary policy and banks' external financing premia, we turn to the funding side of banks. We examine whether the wholesale funding risk premia of banks holding more off-balance sheet WMPs are less responsive to the monetary policy. We use an almost identical specification to our lending side regression,

$$Spread_{i,t} = \gamma mp_t + \boldsymbol{\eta} X_{i,t-1} + \boldsymbol{\theta} X_{i,t-1} mp_t + \alpha Z_{i,t} + \lambda_i + Year\ FE + \ \varepsilon_{i,t} \qquad (2)$$

The variable $Spread_{i,t}$ is the monthly difference between the NCD issuance yield and the yield on the 6-month Treasury bill. mp_t is one of the four monetary policy measures in month t in each separate regression.[4] $X_{i,t-1}$ is defined

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[4] Note that different from the baseline, here we test a level-on-level effect, i.e. the effect of the level of monetary policy rate on the level of NCD's spread. This is because in the primary market banks do not issue NCD every month and that makes constructing a continuous issuance spread impossible. We also test for unit root hypothesis for all the rates variables, and we reject the existence of unit roots and confirm all the variables

in the same ways as in the lending side equation, among which the one-year lagged WMP/liability is included. We add additional explanatory variables in $Z_{i,t}$ that contribute to the determination of NCD yields, namely the log level of NCD issuance amount and the NCD maturity. We expect higher monetary policy rate would increase the NCD spread ($\gamma > 0$). Our main parameter of interest is $\boldsymbol{\theta}_{\text{wmp}}$, which is the interaction term between the involvement of banks in shadow banking activities and the monetary policy.

Indeed, we find that the estimated coefficient $\boldsymbol{\theta}_{\text{wmp}}$ on the interaction term is negative and statistically significant: the financing premia for banks holding more off-balance sheet WMPs are less sensitive to monetary policy changes (Table A4). Further subsample analysis suggests that the dampening effects are stronger among non-state owned banks, i.e. joint-stock and city and rural commercial banks.

iii. RESULTS DISCUSSION

Our results suggest that the recent fast development of shadow banking activities would dampen the transmission of the monetary policy to both traditional lending and wholesale funding of banks. This conforms with the view that shadow banking affects the bank lending channel of monetary policy in part by altering the risk profiles of banks (Bernanke et al. (2007) and Disyatat (2011)), even in a developing financial system such as Mainland China's.

Our results are especially pronounced for joint-stock commercial banks. For city and rural commercial banks, although the funding side results also point to a hampering effect, we do not find similar hampering effect on the lending side of these banks. This is probably due to the fact that city and rural commercial banks are usually much smaller compared with joint-stock or state-owned banks, and therefore do not have the same level of market power as larger banks, resulting in an incomplete pass-through of their funding costs to their lending rates.[5]

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are stationary.

[5] Despite being non-state banks, joint-stock banks and city and rural commercial banks are still different along many dimensions, such as the loan demand or mark-ups they face.

While we find that larger size of banks would also dampen the bank lending channel based on evidence from the loan volume, most classical bank characteristics in the bank lending literature do not seem to be operative in Mainland China. A large size may give banks more flexibility in responding to the monetary policy likely because of their better diversification of income and funding sources, stronger market power of pricing loans, or simply an implicit too-big-to-fail guarantee. In comparison, other traditional bank soundness indicators such as liquidity and capitalisation may contain limited information on the riskiness of banks in Mainland China, as they are found to have no effects on the sensitivity of bank loans to the monetary policy.

IV. ROBUSTNESS CHECK

For robustness check, we exploit a special feature of the current Chinese banking system, that is, banks also issue on-balance sheet WMPs (i.e. principal-guaranteed WMPs) as a means of shoring up funding sources. This provides a natural falsification test for our aforementioned findings --- if it is indeed the off-balance sheet activities that allow banks to alter their risk profiles, then on-balance sheet WMPs issued by banks should not matter. Comparing with Figure 3 which shows the pattern of off-balance sheet WMPs, Figure 6 suggests that the relative size of the outstanding on-balance sheet WMPs issued by banks is much smaller and the dynamics are also different. We then carry out the falsification test by rerunning the lending side regression, with the off-balance sheet WMPs replaced by on-balance sheet WMPs. As expected, holding on-balance sheet WMPs is found to have no effect on the responsiveness of bank loan growth to the monetary policy.

**Figure 6: Outstanding on-balance sheet WMPs as percentage of banks' liabilities**
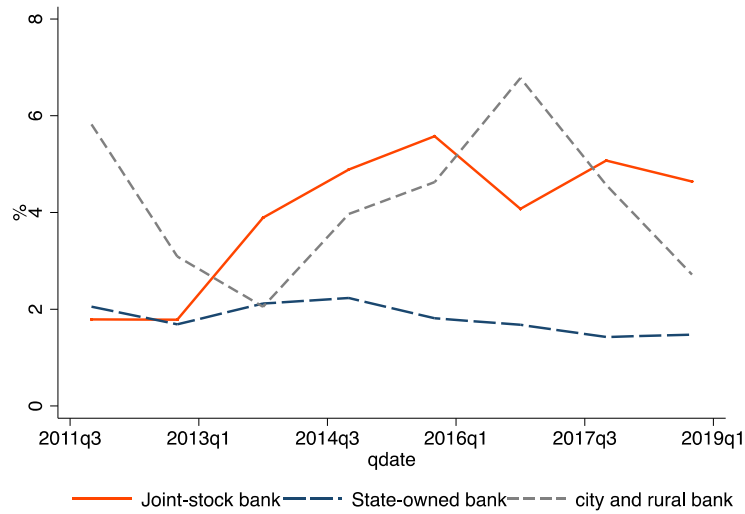
Source: Bank Annual Report, Bank Quarter Report and staff estimates

V.   TRADITIONAL LOANS, SHADOW LOANS AND THE TOTAL CREDITS

Finally, we look into the substitution mechanism documented in Chen et al. (2018) using our bank-level data. That is, how shadow banking may affect the sensitivity of total credit extended by the banking system to the monetary policy. Total credit is defined as the sum of bank loans and the less liquid and less transparent part of the "account receivable investment" (ARI) on the balance sheet of banks.[6] We further manually collect the bank-level ARI data and show that the growth of off-balance sheet WMP went hand-in-hand with the growth of shadow credits ARI, especially for non-state owned banks (Figure 7). Using the similar specification as the lending side regression, we find that the majority of monetary policy tools would lose their effectiveness when we take ARI credits into account. For some non-state-owned banks, contractionary monetary policy may even lead to an increase in total credit if they engage in shadow banking activities.

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[6] The ARI comprises trust beneficiary rights and directed asset management products recorded on banks' balance sheet. Depending on the underlying asset, some of the ARI receives lower risk weight on balance sheet than general loans.

Figure 7: Loans, shadow loans and off-balance sheet WMPs of banks
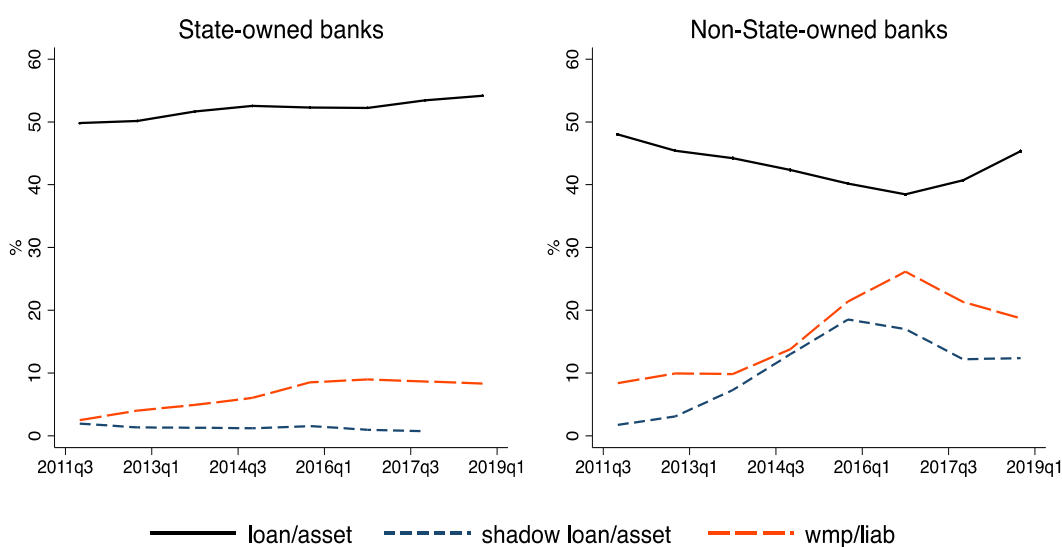
Source: Wind and staff estimates

VI. CONCLUSION

The swift rise of shadow banking in Mainland China after the GFC poses challenges not only to financial stability but also to the effectiveness of the monetary policy. Using novel bank-level datasets, we find that greater involvement of banks in shadow banking activities would impede the transmission of the monetary policy in Mainland China, especially for joint-stock banks. It is because shadow banking such as issuing off-balance sheet WMPs lowers the responsiveness of the marketable funding costs facing banks to monetary policy changes.

Indeed, the asset management regulation implemented in 2018 was a signal that the authorities have been moving towards the direction to pose stricter requirements on bank-issued WMPs, and to draw a clear distinction between the risks associated with on- and off-balance sheet WMPs. As a result, over the past few years, the growth of bank-issued off-balance-sheet WMPs has slowed noticeably, partially due to the fact that some of them were moved back on balance sheet. However, as the process of such transition takes time, the total amount of outstanding off-balance sheet WMPs issued by banks was still large and stood at more than RMB 20 trillion

at the end of 2019, a great majority of which were issued by joint-stock commercial banks. Although we believe that the introduction of the 2018 regulation reflected mainly financial stability concerns of the authorities on the rise of off-balance sheet activities of banks, the effectiveness of the transmission of the monetary policy should also improve along the way.

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ANNEX

TableA1: Summary of Bank Sample: Unbalanced Panel of 33 Banks 2011-2018

	First obs date (1)	WMP > 1 trillion rmb in 2018 (2)	WMP > 100 billion rmb in 2018 (3)
State-owned (4)			
Agricultural Bank of China	2012	Y	
Bank of China	2013	Y	
China Construction Bank	2012	Y	
Industrial and Commercial Bank of China	2013	Y	
Joint-stock commercial bank (10)			
Bank of Communications	2014	Y	
China CITIC Bank	2014	Y	
China Everbright Bank	2012		Y
China Merchant Bank	2012	Y	
China Minsheng Bank	2014		Y
Huaxia Bank	2013		Y
Ping An Bank	2013		Y
Postal Savings Bank of China	2016		Y
Shanghai Pudong Development Bank	2013	Y	
Xingye Bank	2014	Y	
City and rural commercial bank (19)			
Beijing Bank	2012		Y
Chongqing Bank	2014		
Guiyang Bank	2016		
Haerbin Bank	2013		
Hangzhou Bank	2016		Y
Huishang Bank	2014		
Jiangsu Bank	2016		Y
Ningbo Bank	2013		Y
Qingdao Bank	2015		
Shanghai Bank	2016		Y
Shengjing Bank	2014		
Tianjin Bank	2015		
Zhengzhou Bank	2015		
Zhongyuan Bank	2017		
Changshu Bank	2016		
Chongqing Nongshang Bank	2016		
Guangzhou Nongshang Bank	2015		
Wujiang Bank	2016		
Wuxi Bank	2016		

Note: The table summarises all the banks included in our data. WMP balances are manually collected and compiled from various years of banks' annual and quarterly report. Column (1) indicates the year that the bank starts reporting its off-balance sheet WMP balance in its financial report. Column (2) lists banks with WMP balance exceeds 1 trillion RMB at the end of 2018. Column (3) lists banks with WMP balance exceeds 100 billion RMB (and below 1 trillion RMB) at the end of 2018.

Table A2: Baseline Results on Dampened Monetary Policy Effectiveness

	Quantity-based MP	Price-based MP		
	RRR (1)	Repo rate (2)	Shibor7d (3)	Lending rate (4)
Dependent var: bank loan growth rate				
Δmp	-1.788***	-0.320	-0.420**	-3.676***
	(0.558)	(0.220)	(0.201)	(1.053)
wmp #Δmp	0.113**	0.105**	0.0796*	0.141
	(0.0555)	(0.0471)	(0.0451)	(0.119)
wmp	0.116**	0.0944*	0.100*	0.104*
	(0.0532)	(0.0570)	(0.0575)	(0.0577)
size#Δmp	1.096***	0.507***	0.466***	2.118***
	(0.251)	(0.141)	(0.139)	(0.445)
size	7.251***	7.606***	7.562***	8.572***
	(2.149)	(2.333)	(2.354)	(2.242)
capital ratio#Δmp	0.604	0.0648	-0.116	0.369
	(0.484)	(0.273)	(0.266)	(0.863)
capital ratio	0.911	0.690	0.661	0.691
	(0.553)	(0.553)	(0.557)	(0.561)
liquidity#Δmp	0.130	0.0774	0.0805	0.0422
	(0.114)	(0.0553)	(0.0554)	(0.168)
liquidity	0.0538	0.0289	0.0315	0.0155
	(0.0614)	(0.0581)	(0.0582)	(0.0577)
Observations	633	633	633	633
R-squared	0.579	0.562	0.559	0.574

Note: This table reports estimates from the baseline specification (1). The dependent variable for all columns is the year-on-year growth rate of bank loans over 2011-2018 for 33 listed commercial banks in China. Different columns report results from using 4 different measures of monetary policy changes. All banks' characteristics are lagged by one quarter. All regressions control for traditional bank lending channel variables including year FE and bank FE. Standard errors are clustered at the bank-year level and reported in brackets. Significance: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A3: Dampened Monetary Policy Effectiveness Mainly Comes from JSCB

	State-owned bank (1)	Joint-stock commercial bank (2)	City + rural commercial bank (3)
Dependent var: bank loan growth rate			
Quantity-based MP			
ΔRRR	8.254	-2.891	-1.880**
	(12.37)	(2.642)	(0.740)
wmp#ΔRRR	-0.186	0.259**	-0.00892
	(0.403)	(0.0993)	(0.108)
Price-based MP			
$\Delta R007$	-1.318	-3.825**	-0.717
	(5.756)	(1.868)	(0.545)
wmp#$\Delta R007$	-0.159	0.191***	-0.00746
	(0.236)	(0.0715)	(0.0528)
$\Delta Shibor7d$	-3.475	-4.620*	-0.821
	(5.423)	(2.308)	(0.544)
wmp #$\Delta Shibor7d$	-0.288	0.177**	-0.0175
	(0.226)	(0.0754)	(0.0539)
$\Delta Lendrate$	-14.95	-10.39**	-3.788*
	(22.54)	(4.230)	(2.273)
wmp#$\Delta Lendrate$	-1.212*	0.500**	-0.0876
	(0.709)	(0.197)	(0.234)
Observations	104	220	309

Note: This table reports estimates from baseline specification (1) using subsamples divided by ownership types of bank. The dependent variable for all columns is the year-on-year growth rate of bank loans over 2011-2018 for corresponding type of listed commercial banks in China. For each column, estimates of interested parameters from using four different monetary policy instruments are reported. All regressions control for traditional bank lending channel variables including banks' size, capital ratio, liquidity and their interactions with the monetary policy change variable. Year FE and bank FE are controlled for. Standard errors are clustered at the bank-year level and reported in brackets. Significance: *** p<0.01, ** p<0.05, * p<0.1.

Table A4: Off-Balance Sheet WMP Mitigates the Sensitivity of Bank's Wholesale Funding Premia to MP

	Quantity-based MP	Price-based MP		
	RRR	Repo rate	Shibor7d	Lending rate
	(1)	(2)	(3)	(4)
Dependent var: NCD issuance yield spread				
mp	0.304***	0.291***	0.305***	0.327***
	(0.0325)	(0.0289)	(0.0470)	(0.101)
wmp # mp	-0.011***	-0.013***	-0.018***	-0.025***
	(0.0027)	(0.0032)	(0.0048)	(0.0077)
wmp	0.158***	0.041***	0.051**	0.146***
	(0.0407)	(0.0102)	(0.0136)	(0.0448)
size # mp	-0.016	0.032	0.042	0.062
	(0.0186)	(0.0220)	(0.0342)	(0.0518)
size	0.294	-0.260	-0.294	-0.513*
	(0.392)	(0.187)	(0.184)	(0.287)
capital ratio # mp	-0.037	-0.043	-0.043	-0.019
	(0.0289)	(0.0430)	(0.0521)	(0.0754)
capital ratio	0.569	0.119	0.106	0.090
	(0.438)	(0.132)	(0.151)	(0.432)
liquidity # mp	-0.002	0.008	0.012	0.008
	(0.0038)	(0.0052)	(0.0086)	(0.0112)
liquidity	0.0286	-0.022	-0.030	-0.042
	(0.0561)	(0.0145)	(0.0224)	(0.0613)
log(issue vol)	0.014***	0.016***	0.015***	0.0134***
	(0.0033)	(0.0032)	(0.0033)	(0.0035)
maturity	0.251***	0.236***	0.240***	0.249***
	(0.0236)	(0.0232)	(0.0233)	(0.0252)
Observations	20,291	20,291	20,291	20,291
R-squared	0.470	0.481	0.485	0.447

Note: This table reports estimates from the funding side regression (2). The dependent variable for all columns is the issuance NCD yield spread, which is constructed as the difference between issuance NCD yield and the 6-month Treasury bill. The sample covers 33 listed commercial banks as in the baseline regression. Data is at monthly frequency over 2013-2018. Each column reports results from using one of the four monetary policy instruments. All rates variables including the NCD spread and the monetary policy rates are stationary. WMP is lagged by one period. All regressions control for year FE and bank FE. Standard errors are clustered at the bank level and reported in brackets. Significance: *** $p<0.01$, ** $p<0.05$, * $p<0.1$.