Macroprudential Policy and Spillovers: Evidence from Chinese Corporate Credit in Tax Havens

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Abstract

This article examines the spillover effects of a macroprudential policy in the Chinese bond market. My analysis reveals that the tightening of domestic credit regulations in 2018 generated unintended spillovers in tax haven countries through the international borrowing activities of large Chinese firms. These spillover effects are predominantly linked to non-state-owned enterprises (non-SOEs) in the real estate sector, which have been crowded out from the domestic credit market. The findings indicate that a 1% increase in private ownership corresponds to a 1% increase in bonds issued in tax havens for non-SOEs in the real estate sector.

1 Introduction

Recent evidence points to the growing importance of tax havens as conduits for Chinese firms to access the international capital market through foreign subsidiaries. Coppola et al. (2021) find that the amount of investments flowing from the US to China in corporate bonds, after adjusted reallocation from tax havens to its true destination, increases from $3 to $48 billion in 2017. While often overlooked in mainstream research, this amount of substantial capital involved in offshore financing activities by emerging market firms raises crucial questions for policymaking. A fundamental question is to understand the motivations that drive these firms to engage in offshore bond offerings in tax havens. Existing qualitative literature (Buckley et al. 2015) points out that the use of tax haven vehicles is not mainly for the purpose of tax avoidance for Chinese firms. In fact, a tax law back in 2008 discouraged enterprises from incorporating offshore and round-tripping investments by specifying that firms whose "de facto management body" is located in China are subject to Chinese taxation laws. My research offers the first empirical evidence on this issue by leveraging a macroprudential policy change in China and studying its link with the offshore financing behaviors of domestically credit-constrained firms.

I analyze the impact of a macroprudential policy on regulating wealth management products (WMPs) in China in 2018. This policy was intended to tighten the WMP market, reduce associated financial risks, and stabilize the credit market. WMPs were the main trading channel of corporate bonds and represented 64% of their investor base in 2016 (Miao 2019). By targeting WMPs, the policy adversely affected demand for corporate bonds. The reduction in corporate bond financing through domestic demand channel provides a unique opportunity to estimate if offshore corporate bond issuances in tax havens, a funding channel beyond regulation, are associated with domestic credit tightening. This points to the possibility that the main motivation for Chinese firms to engage in activities in tax havens comes from overcoming financing constraints in the domestic credit market. Incorporation in tax havens grants access to the capital market of advanced economies (Buckley et al. 2015). This corresponds to the growing body of literature documenting that macroprudential regulation in a domestic credit market can generate unintended spillovers through international borrowing of large firms (Forbes 2020)[1]. This paper intends to investigate if China's macroprudential regulation on domestic credit growth provokes spillovers of corporate debt in tax haven countries.

Although this policy does not single out non-state-owned enterprises (non-SOEs) in particular, the market witnesses a substantial decline in demand for their bonds. In contrast, bonds of state-

[1]Forbes (2020) differentiates spillovers from leakages of a macroprudential policy. He defines spillovers as cross-border exposures, compared to leakages which refer to credit shifting to other domestic entities not subject to regulations. This paper focuses on cross-border spillovers rather than leakages

owned enterprises (SOEs) remain relatively unaffected due to the implicit government guarantee. This sudden market exclusion of non-SOEs serves as the key treatment measure in my subsequent difference-in-differences (DID) analysis. Moreover, an additional layer of complexity introduced to the consequences of the policy is its impact on firms in the real estate sector, in particular the non-state-owned ones. These firms, characterized by high levels of indebtedness, have been subject to strict regulations in China since the early 2010s. This macroprudential policy further crowds them out in the domestic credit market and pushes them to seek alternative sources of financing that are beyond the supervision of Chinese regulatory agencies. This aspect of the policy is explored in a difference-in-difference-in-differences (DDD) setup.

I compile data from five commercially accessible databases to piece together the puzzle of Chinese corporate behaviors in tax havens. Bond-level data is sourced from Capital IQ and Refinitive Eikon, which is screened following Coppola et al. 2021 to identify bonds issued by Chinese firms incorporated in tax havens. Additionally, firm-level data is gathered from China Stock Market and Accounting Research (CSMAR), RESSET, and Worldscope. I combine bond-level data with firm-level data to obtain a sample from 2010 to 2020. Distinct from ibid., who estimate the total amount of capital flowing through tax havens to other destinations, my focus is on investigating firm-level motivation for offshore bond offerings. While my sample does not comprehensively cover all Chinese corporate activities in tax havens, it effectively serves the purpose of my analysis.

I begin my analysis with DID estimates of the effectiveness of the macroprudential reform. The findings indicate that the regulations targeting WMPs successfully reduce the borrowing activities of non-SOEs from the domestic credit market. As a result, credit-constrained non-SOEs turn to banks for additional loans to cover the financing gap on their balance sheets. Nevertheless, the extent of bank financing is not able to adequately address the funding gap. This indicates a compelling incentive for non-SOEs to explore alternative channels of financing. I don't identify a more pronounced impact specifically linked to the borrowing behaviors of non-SOEs in the real estate sector compared to other industries. However, it is revealed that non-SOEs in the real estate sector manage to sustain the accumulation of corporate net income, whereas non-SOEs in other sectors experience diminished retained earnings as they use internal funds to offset the external funding gap. This suggests that these firms in the real estate sector have alternative channels of funding to support corporate debt rollover and investments in new projects.

I continue to examine the spillovers of corporate borrowing in tax havens through bond issuances following the implementation of the macroprudential policy in 2018. My results confirm that non-SOEs when compared to their SOE counterparts, are more likely to offer bonds through shell companies in tax havens after the new regulation. The effects are predominantly driven by private firms within the real estate sector. My analysis indicates that a 1% increase in private ownership

corresponds to a 1% increase in bonds issued in tax havens for non-SOEs in the real estate sector after the regulatory changes. This substantiates the existence of spillover effects of Chinese corporate activities in tax havens following the credit tightening measures implemented in 2018.

The primary threat to my identification strategy is the potential endogeneity of the regulation's timing with changes in firm-level outcomes. To address this concern, I estimate a specification with leads and lags to verify that outcome variables for SOEs and non-SOEs do not trend differently prior to the implementation of the new regulation. In addition, existing literature has confirmed that this policy event stands as the key factor contributing to the surge in SOE premiums and the crowd-out of non-SOEs (Geng and Pan 2022). This mitigates the concerns that the observed spillover effects associated with non-SOEs could be attributed to other factors during the same period.

The article is organized as follows. Section 2 presents a detailed institutional background on the new macroprudential regulation. Section 3 discusses related literature. Section 4 describes the data. Section 5 provides the empirical analysis. Section 6 concludes.

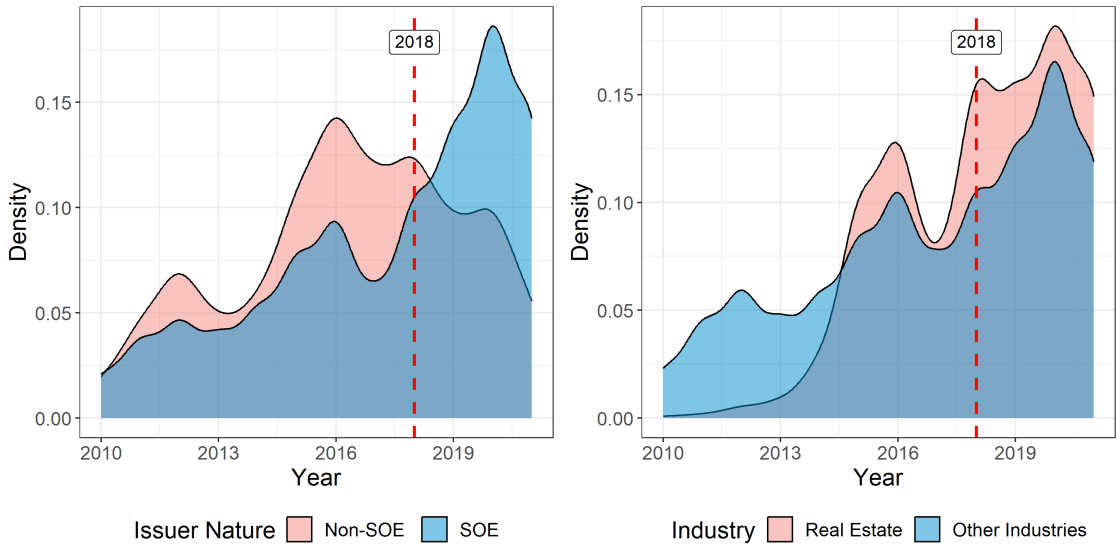
2 Policy Background

Chinese corporate bond market has expanded rapidly during the past decade. Domestic debt securities issued by non-financial companies have grown from 0.5 trillion USD in 2010 to 5.1 trillion in the first quarter of 2022, making it the second largest corporate bond market next to the US (BIS Debt Securities Statistics). It is worth noting that banks still dominate China's financing system. In fact, 70% of firm funding is sourced through bank loans. It is significantly larger than bond financing, which takes up only 10% (L. Zhang and Wu 2019). However, the rapid expansion suggests future growth potential and highlights the importance of evaluating the implications of the expanding corporate credit market.

Excessive credit expansion is often correlated with financial instability (Jordà, Schularick, and Taylor 2011). This particularly applies to the Chinese corporate bond market, which is largely fueled by shadow banking activity in recent years. Ehlers, Kong, and Zhu (2018) highlight the close financial linkage between the bond market and the shadow banking sector. They estimate that approximately 25% of corporate bonds were purchased by the proceeds of WMPs in 2016, which constituted the largest shadow banking component.

WMPs are issued by commercial banks as alternative saving instruments with higher investment returns than traditional bank deposits. It is used to attract funding from retail investors and wealthy individuals. They are considered a safe investment by households since they are sold at the bank

Figure 1: Chinese Onshore Bond Issuance Trend



Notes: This figure depicts the density of bond issuances in the domestic credit market since 2010. The left figure shows the evolution of bond issuances by SOEs and non-SOEs. The right figure demonstrates the trends by firms in real estate sector versus other sectors.

counter (A. Y. Ouyang and Wang 2022). However, WMPs are not explicitly guaranteed by banks, neither are they recorded on banks' balance sheets. Unlike deposits, WMP is not subject to banking regulations on interest rate ceilings and capital reserve requirements (Ehlers, Kong, and Zhu 2018). WMPs were loosely regulated before 2018. They could take up various product forms issued by different entities regulated by different authorities under different sets of rules before 2018. This left room for regulatory arbitrage and risk-taking behaviors (Miao 2019). The most notable risk is maturity mismatch. Most WMPs have maturities of three to six months, whereas the underlying investments in corporate bonds have maturity terms of two to four years (Ehlers, Kong, and Zhu 2018).

To stabilize the financial market, the authorities introduced new regulations to reign in the growth of WMPs in 2018, notably "The Guiding Opinions on Regulating the Asset Management Business of Financial Institutions". The draft of this regulation started to circulate in the market in November 2017 and the official regulations were announced in April 2018. This regulation intends to tighten the WMP market, reduce liquidity mismatches, and raise requirements for WMP issuers[2]. The tightened condition has severely shrunk the investor base and financing channels of corporate bonds, especially for non-SOEs. SOEs are barely affected owing to the implicit guarantee by the government. However, demand for non-SOEs bonds is significantly reduced, which resembles a market run. Tightened credit conditions have triggered investors' concerns over default and

[2]See Miao (2019) for detailed discussions on the regulation.

rollover risks in the corporate bond market for non-SOEs (Geng and Pan 2022). Figure 1 shows the market reactions to bonds issued by SOEs and non-SOEs after the announcement of the 2018 regulation. As the left figure demonstrates, the number of newly issued bonds by non-SOEs started to decline due to reduced market demand in 2018 whereas those of SOEs continued to rise with little influence from the regulation change. This is consistent with existing literature documenting this market event (ibid.). The right figure illustrates the changing trends between firms in the real estate sector and those in other sectors. As it shows, the policy announcement puts the sharp rise of the real estate sector to a transient decline and subsequently a much slower growing pace. In contrast, the number of bonds issued in other sectors demonstrates a continuous upward trajectory throughout the observed period. In Figure 6 in Appendix B, the four categories of firms (non-SOEs non-real-estate, non-SOEs real estate, SOEs non-real-estate, and SOEs real estate) are compared, showing trends consistent with those in 1. Examining their alternative funding sources of bank loans, as shown Figure 7 shows, there are no significant changes in the amount of borrowing from banks post-reform.

The onshore corporate bond market is closely linked to firms' offshore behaviors. This macro-prudential policy in 2018 carries important implications for firms' offshore bond financing, in particular for funding channels that are beyond regulation. This applies especially to firms that are crowded out from the domestic credit market, namely non-SOEs. They start to look for other financing sources to raise funding and roll over their current corporate debt. This will be explored in the empirical analysis.

3 Related Literature

This paper contributes to the small group of literature on the rising economic importance of tax havens in intermediating international capital flows. The recent seminal work by Coppola et al. 2021 redraws the map of capital flowing through tax havens based on the true economic destination of investments. Their research reveals the underestimated scale of bilateral investment from advanced economies to emerging market countries. It corresponds to the evolving role of offshore financial centers documented by a series of studies (Lane and Milesi-Ferretti 2007; Lane and Milesi-Ferretti 2011a; Lane and Milesi-Ferretti 2011b; Lane and Milesi-Ferretti 2018). Their role as banking centers subsides after the global crisis, whereas we observe a surge in their FDI positions. This is closely linked to the increasingly complicated corporate structures of multinationals and their intra-firm cross-border balance sheet operations.

This paper relates to the strand of literature focused on the international aspect of domestic macro-prudential policies, which have become common policy instruments to limit systemic financial

risks after the global financial crisis. There is subsequently a growing body of research on the effectiveness of different macroprudential tools and their unintended leakages. The strand of literature that is most relevant to this paper is those focused on the cross-border spillovers of macroprudential policy. Forbes (2020) provides a comprehensive review of various international aspects of macroprudential policies. Ahnert et al. (2021) focuses on domestic macroprudential foreign exchange (FX) regulation and its cross-border spillovers from the corporate sector. They find that FX regulations significantly reduce bank FX borrowing; however, firms increase their FX corporate bond issuance. Economists at the Bank for International Settlements (BIS) call for international policy coordination in view of the spillovers and spillbacks of macroprudential policy (Agénor and Silva 2018; Agénor and Silva 2019).

This paper is also closely related to the large body of literature on the surge of offshore bond issuance by emerging market economies (EMEs) in the international market after the global financial crisis. Shin (2013) describes it as the "second phase of global liquidity", where the main stage is the emerging market bond market open to international investors. It features a substantial retrenchment from cross-border banking to international bond issuance (Lane and Milesi-Ferretti 2018). A strand of literature focuses on the financial motive of non-financial EME firms that borrow internationally under a low US interest rate environment. Bruno and Shin (2017) note that non-US firms issue dollar-denominated bonds mostly to exploit favorable dollar carry trade based on evidence from 47 countries. Caballero, Panizza, and Powell (2016) emphasize the interaction between carry trade activities and capital account restrictions in 18 emerging market economies. Their evidence suggests that non-financial firms issue bonds through offshore affiliates and bring the proceeds of issuance into the home country via an inter-company loan to escape capital controls. Rodrigues-Bastos, Kamil, and Sutton (2015) document this bond issuance uptrend in five large Latin American economies and term it "Bon(d)anza". They corroborate Caballero, Panizza, and Powell (2016)'s finding on regulatory arbitrage through bond issuance by offshore vehicles. Huang, Panizza, and Portes (2018) focus on China and find that risky firms are more likely to do inter-firm lending in the face of prudential regulations on capital inflows.

This paper is broadly related to the large body of literature on Chinese SOEs and credit misallocation. The most closely related work is by Geng and Pan (2022). They study the extent of SOE premiums in the Chinese credit market due to perceived government support. Their analysis is based on the same policy event in 2018 used in this paper to study the domestic credit market segmentation between SOEs and non-SOEs.

4 Data

The main analysis of this paper is based on five commercially available databases. The pieces of the puzzle on Chinese corporate behaviors in tax havens are brought together through varying sources of information. The main dataset combines corporate bond-level data from the S&P Capital IQ platform (CIQ) and Refinitiv Eikon (Eikon) with firm-level data from China Stock Market & Accounting Research (CSMAR), RESSET, and Worldscope.

4.1 Bond-level Data (Offshore)

The sources for offshore bond data are CIQ and Eikon. The two sources cover partially overlapping but largely different sets of bond issuances. By combining the two, I am able to obtain a relatively comprehensive picture of Chinese bond issuance in tax haven countries.

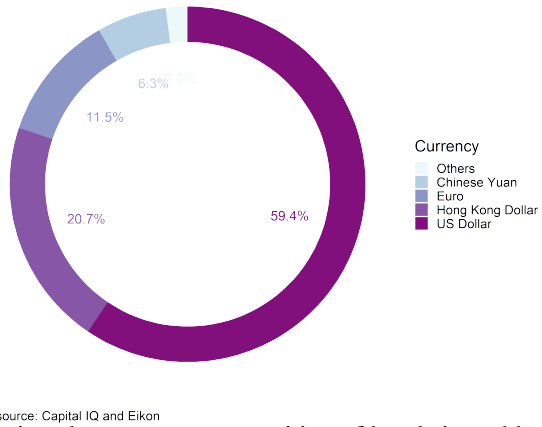
To retrieve the set of bonds issued by Chinese companies incorporated in tax havens, several steps are followed. As a first step, I gather all bonds issued by all firms incorporated in tax havens from CIQ and Eikon between 2010 and 2020. To consolidate the two sets of bond data from these two sources, I merge them by eliminating the duplicated bond-level entries.[3]. In total, CIQ lists 8842 bonds issued by firms in tax havens between 2010 and 2020, while Eikon reports 5041. After the merging procedure, the combined sample consists of 13701 distinct bond issuances, which indicates that only 182 bonds are repeatedly reported across the two data sources. This shows that the two databases rely on largely different sources to collect bond data.

As a second step, I focus on identifying bonds issued by shell companies of Chinese firms. Several criteria are applied to establish the company's connection with China including Hong Kong: (i) the headquarter of the bond issuer is located in China or Hong Kong; (ii) the name of the bond issuer or bond issuer's ultimate parent contains "China" or "Hong Kong"; (iii) the native language of the issuer company name or parent company name is Chinese; (iv) the website of the issuer or issuer's parent company ends with ".cn" or ".hk", which are the country codes of internet domains of Chinese entities. This is a round of coarse screening to identify Chinese companies, which could potentially include firms that are not Chinese but share those criteria (for example Singaporean or Japanese firms).

At a later stage of merging bond-level with firm-level data, this set of bond data will be screened to a finer extent by verifying if it can be matched to a publicly listed company in China. If a bond can be paired up with a parent company in China, I assume that it is issued offshore by a

[3]Overlap in bond data is identified by cross-referencing bond offering dates, maturity dates, and common firm identifiers (CIQ identifier, company name, and website) of the issuers. Bonds sharing identical characteristics across these variables are considered duplicates.

Figure 2: Currency Composition of Offshore Bonds Issued by Chinese Firms



Notes: This figure depicts the currency composition of bonds issued by Chinese firms incorporated in tax haven countries between 2010-2020. There are 2338 bonds with currency information out of a total number of 3723.

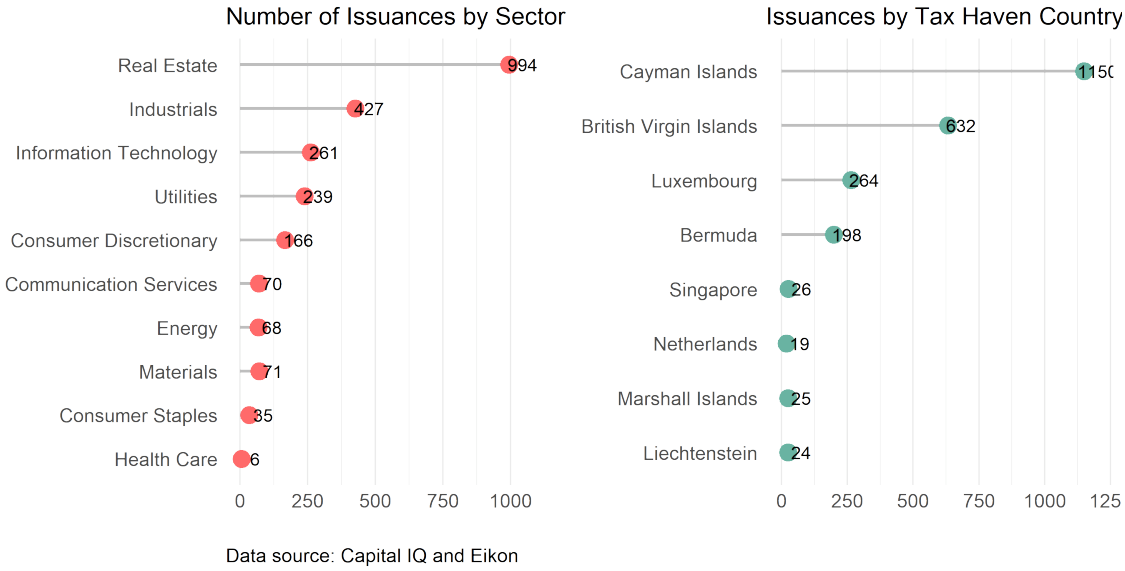
Chinese company. Otherwise, it is dropped out of the final sample. It is important to acknowledge the potential presence of false negatives in cases where an offshore firm is Chinese but remains unidentified in the screening process. This suggests that the estimated regression coefficient aligns with the lower boundary of the actual effects.

The final bond data consists of 3723 bonds issued by Chinese firms incorporated in tax havens for the period 2010-2020, issued by 592 firms. Figure 2 shows the currency composition of all the bonds. Nearly 60% of the bonds are issued in US dollars and about 20% are issued in HK dollars. Both are international currencies that are widely accepted in mainland China.

Figure 3 demonstrates the industry composition and number of issuances by originating countries. Nearly 42% of firms are in the real estate industry, which highlights that real-estate firms tend to use tax havens as a channel to absorb international capital and round-trip it back to China. This corresponds to the reality that real-estate firms in mainland China are highly indebted and strictly regulated due to the government's fears of the housing bubble. Consequently, they escape domestic regulations to raise international capital offshore. In terms of country composition, Cayman Island is the most popular destination owing to its large financial sector and its close ties with the US capital market. British Virgin Island is the second most popular destination due to its historic link with Hong Kong.

The dataset covers basic information about bonds (coupon rate, offering date, maturity date, amount, currency, etc) and their issuers (residence country, parent company, headquarter, date of incorporation, etc). While it is true that CIQ and Eikon do not cover all bonds issued between 2010 and 2020, this coverage limitation does not impede the explorations of firm-level motivations for

Figure 3: Industry and Country Compositions of Offshore Bonds Issued by Chinese Firms



Notes: The left figure demonstrates the sector composition of bonds issued by Chinese firms incorporated in tax haven countries. The right figure shows the composition of the originating countries. There are 2340 bonds with this information out of 3723.

offshore bond issuance. Thus, the representative sample from CIQ and Eikon serves this purpose.

4.2 Firm-level Data

The firm-level balance sheet data is sourced from CSMAR and RESSET from 2010 to 2020. The focus of the study is on publicly listed Chinese companies in the Shanghai, Shenzhen, and Hong Kong Stock Exchanges. This choice is based on the assumption that listed firms represent the primary group capable of establishing shell companies and raising funding through this channel. CSMAR covers all the listed companies in mainland China in the Shanghai and Shenzhen Stock Exchange, while RESSET provides information on Hong Kong-based listed companies. I include only non-financial corporations.

The final firm sample consists of 5677 firms. Summary statistics are reported in Table 1. Panel A reports relevant firm-level financial variables from the balance sheet. The key variables of bank borrowing and cash inflow from the market indicate two major sources of funding for publicly listed firms. The other financial variables included in the summary statistics are control variables. The selection of control variables follows Yuan, D. Ouyang, and Z. Zhang (2022) and covers variables that affect corporate borrowing structure. It includes the log of total assets, profitability (the ratio of net profits over total assets), tangibility (the ratio of fixed assets over total assets), and liability (the ratio of total liability over total assets). Financial variables are winsorized at 1% and 99% level by year. The final sample is restricted to firms with reported borrowing activities from

the credit market.

Table 1: Summary Statistics

Panel A: Publicly Listed Company Financial Variables (CSMAR and RESSET)						
Statistic	N	Mean	St. Dev.	Pctl(25)	Median	Pctl(75)
(Cash Inflow from Market/Total Assets)$_{it}$	31,812	0.08	0.78	0.00	0.004	0.08
(Bank Borrowing/Total Assets)$_{it}$	29,576	0.18	0.43	0.03	0.13	0.26
ln(Total Assets)$_{it}$	31,812	21.99	1.62	20.94	21.85	22.94
(Net Profit/Total Assets)$_{it}$	31,072	0.03	0.32	0.01	0.04	0.07
(Total Liability/Total Assets)$_{it}$	31,811	0.46	0.39	0.26	0.43	0.61
(Fixed Assets/Total Assets)$_{it}$	31,798	0.20	0.17	0.06	0.16	0.29
Panel B: Dummy Variable						
Statistic	N	1	0			
State-owned Enterprise (SOE)	31,812	10,233	21,579			
Issuance in Tax Haven	31,812	384	31,428			

Note: This table reports the summary statistics of variables used in regressions.

Another important aspect of firm-level data is the nature of a firm, specifically if it is state-owned or privately owned. The two key variables of defining the SOE nature of a firm are selected based on Geng and Pan (2022). The first one is an SOE dummy variable furnished by CSMAR and RESSET, indicating if the ultimate control of a firm belongs to the government. This is a piece of information that a publicly listed company has to disclose in its annual financial report. A second measure gauging the SOE nature is the share of ownership that belongs to the government. This is based on the top ten shareholders' information (ownership share and owner's nature) of a publicly listed company, which is also required for disclosure. The top ten shareholders, even though not covering the full picture of the ownership nature, provide a representative proxy to compare the relative difference in shares of a firm owned by the state or private entities. In the firm sample, the average holding percentage for the top ten shareholders is 59%, similar to what is reported in Geng and Pan (ibid.), which uses a different data source (Wind Financial Information Database) and reports 61.2%. Based on the provided ownership information, I calculate the ratio of private ownership share to the total reported share to rescale it.

4.3 Merging Offshore Bond-level Data with Firm-level Data

The final sample is constructed by merging bond-level data with firm balance sheet data. Several company identifiers are used to match bond entries with its issuing firms.[4] Most bonds issued offshore can be paired with their parent firms based in China within this step using firm identifiers.

[4]Company identifiers used are Legal Entity Identifier (LEI), CUSIP, Stock Ticker Symbol, SEDOL, ISIN, and company website.

For those in the sample that cannot be paired with an issuing firm, I resort to manual merging. The main source of information for manual inspection is the website associated with the bond provided by CIQ and Eikon. I glean information on parent-child firm relationships, and mergers and acquisitions from company websites to verify if it can be identified with any firm in CSMAR and RESSET. This manual checking step also complements the previous coarse screening to exclude bonds issued by non-Chinese firms. In the end, 22 bonds are excluded from the sample. They are not issued by Chinese companies, or issued by companies that are not publicly listed, have been delisted, or are publicly listed outside China.

These stages of merging and filtering result in a final merged sample of 6946 firms (104278 firm-year observations) where 155 firms have issued bonds in tax havens in different years (384 firm-year observations). This represents approximately 3% of the entire firm sample.

4.4 Tax Haven Countries

The list of tax haven countries follows Coppola et al. (2021). Hong Kong is excluded, thus not being considered a tax haven. The main assumption of doing so is that publicly listed Chinese firms in Hong Kong are also affected by the new regulation, therefore not being considered as a destination of macroprudential spillover. This is based on the fact that many Hong Kong firms conduct their main business activities in mainland China and share close links with the credit market and local banks. When the new regulation on WMPs was implemented in 2018, Hong Kong firms were impacted in the same way as firms in mainland China.

5 Results

5.1 Effectiveness of macroprudential regulation (onshore)

I begin the analysis by examining if the regulation on WMPs has effectively reduced the firm's domestic borrowing through bond issuances and if it aligns with its objective. The empirical strategy is a DID setup that exploits the policy experiment in 2018. I intend to use this policy change as a source of shock to the availability of domestic credit for SOEs and non-SOEs. I estimate the following equation for each firm i in year t:

$$\mathrm{Y}_{it} = \beta_0 + \beta_1 \mathrm{NSOE}_i \times \mathrm{Post}_t + \delta_i + \delta_t + \Gamma X_{it} + \epsilon_{it}, \tag{1}$$

where Y_{it} represents a set of outcome variables related to a firm i's borrowing or financing through different channels in year t: bank borrowing, cash inflow from the market, total borrowing, and retained earnings. The first two variables represent flow concepts from a firm's cash flow statement,

indicating funding sourced from banks and the domestic credit market. Bank borrowing refers to the loans obtained from banks. Cash inflow from the market represents the funding raised through the issuance of bonds and stocks in the domestic credit market. Even though this variable covers both bonds and equities, I use it to measure the changes in bond issuance before and after the new regulation in 2018. This choice is based on two reasons. First, it is due to data limitation that firms in the dataset do not report borrowing from bonds and equity separately. Second, there are no major reforms in the stock market that have coincided with the new regulation in 2018. Hence, substantial changes in cash inflow from the market are likely the result of variations in bond issuance. Total borrowing is the sum of market and bank borrowing, indicating a firm's external financing from banks and credit market. Retained earnings represent the profits held back by the company rather than distributed as dividends and can therefore be considered as an internal source of financing for investment activities.

NSOE_i is a dummy variable of one if the firm is private (non-state owned) and Post_t is a dummy variable of one if it is the year of 2018 or afterward. The regression controls for firm and year fixed effects (δ_i and δ_t). Control variables are denoted by X_{it}, which includes firm-level characteristics that are related to corporate borrowing structure, i.e. firm size (the log of total assets), profitability (net profits/total assets), tangibility (fixed assets/total assets), liability (total liability/total assets). The standard errors are clustered at a city level given that local bank branches and local credit markets are important sources of financing for firms.

Table 12 summarizes results on a firm's cash inflow from market and bank borrowing in the domestic credit market. Both outcome variables are log-transformed. The sample is restricted to firms that engaged in both bank borrowing and bond/equity issuance between 2010 and 2020. Firms that have not participated in either activity during this period are excluded.

The first column provides raw results on cash inflow from market without control variables. The coefficient is significantly negative, confirming that the regulation has taken effect for non-SOEs. Compared to their state-owned peers, they have experienced unfavorable market reactions. Consequently, they have reduced their borrowing from the credit market after the regulation. When control variables are added in the second column, the significance of the coefficient further increases, underlining the importance of controlling for corporate borrowing structure to obtain a more precise estimation. This result underlines the effectiveness of the regulation, in particular for non-SOEs. It is consistent with anecdotal evidence and previous literature on SOE premium and market discrimination against non-SOEs (Geng and Pan 2022; Bai et al. 2020; Dollar and Wei 2007).

Results on domestic bank borrowing are summarized in Columns 3 and 4. Column 3 shows estima-

Table 2: Onshore Effects on Market and Bank Borrowing

	(1)	(2)	(3)	(4)
	ln(Cash Inflow from Market)		ln(Bank Borrowing)	
$NSOE_i \times Post_t$	-0.802*	-1.143***	1.205***	0.793***
	(0.315)	(0.307)	(0.340)	(0.220)
$\ln(\text{Total Assets})_{it}$		2.420***		1.783***
		(0.340)		(0.119)
$(\text{Net Profits/Total Assets})_{it}$		-0.662+		-0.188
		(0.384)		(0.389)
$(\text{Fixed Assets/Total Assets})_{it}$		-10.678***		2.966***
		(1.461)		(0.334)
$(\text{Total liability/Total Assets})_{it}$		-3.323***		2.334***
		(0.846)		(0.629)
N	26673	26191	26673	26191
adj. R^2	0.338	0.379	0.519	0.547
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (10). Outcome variables are the log of cash inflow from market and bank borrowing for firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

tion results without control variables, which indicate an increase in bank loans in the post-reform period on a firm level for non-SOEs. Results in Column 4 are with control variables and confirm what we observe in Column 3. The estimation implies that private firms, faced with funding cuts in the credit market, resort back to bank lending to finance their activities.

Table 21 summarizes results on a firm's total borrowing and retained earnings. The first two columns present results on the total borrowing, with and without control variables. The coefficient in the first column is not significant. However, when we impose control variables in the second column, the coefficient becomes significantly negative, indicating an 11% drop in a non-SOE's total borrowing compared to its SOE peers. This attests to the effectiveness of the macroprudential policy and shows that non-SOEs have taken on less debt since the reform. Together with results from Table 12, it reveals that they are not able to fully recover the reduction in cash inflow from the credit market despite an increase in bank loans. There is a potential funding gap on their balance sheet, suggesting crowd-out effects from the domestic market and the possibility of looking for alternative financing sources.

Results in Columns 3 and 4 present changes in retained earnings, a firm's internal channel of adjustment after macroprudential policies. Both coefficients are significantly negative, confirming the deteriorated financial position of non-SOEs.

Table 3: Onshore Effects on Total Borrowing and Retained Earning

	(1)	(2)	(3)	(4)
	ln(Total Borrowing)		ln(Retained Earnings)	
$\text{NSOE}_i \times \text{Post}_t$	0.093	-0.115***	-2.280***	-2.485***
	(0.089)	(0.033)	(0.515)	(0.382)
$\ln(\text{Total Assets})_{it}$		1.205***		3.279***
		(0.071)		(0.205)
$(\text{Net Profits/Total Assets})_{it}$		0.044		2.423**
		(0.057)		(0.886)
$(\text{Fixed Assets/Total Assets})_{it}$		-0.919***		-2.302**
		(0.178)		(0.851)
$(\text{Total liability/Total Assets})_{it}$		0.603***		-5.055***
		(0.146)		(0.959)
N	26673	26191	26537	26084
adj. R^2	0.713	0.777	0.634	0.665
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (10). Outcome variables are the log of total borrowing and retained earnings by firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.2 Effectiveness of macroprudential regulation for real estate sector (onshore)

To look at heterogeneous effects on a sector level and focus on firms in real estate, I extend the DID setup to a DDD specification by interacting the Post and NSOE dummies with a sector dummy of Real Estate, which indicates if a firm i is in the real estate sector. The regression I run is:

$$\begin{aligned} \text{Y}_{it} = \beta_0 + \beta_1 \text{NSOE}_i \times \text{Post}_t \times \text{Real Estate}_i + \beta_2 \text{NSOE}_i \times \text{Real Estate}_i + \beta_3 \text{Post}_t \times \text{Real Estate}_i \\ + \beta_4 \text{NSOE}_i \times \text{Post}_t + \delta_i + \delta_t + \Gamma X_{it} + \epsilon_{it}, \quad (2) \end{aligned}$$

where the set of outcome variables, independent variables, and control variables are the same as in Regression (10). This setup corresponds to the exploratory analysis in Figure 3 where real estate firms account for the majority of entities issuing fixed-income securities through tax havens.

Table 14 illustrates the outcomes of corporate borrowing within the real estate sector through the domestic credit market and banking institutions. The principal coefficients related to the triple interaction in Columns 1 and 2 are insignificant. This suggests that non-SOEs in the real estate sector did not further cut their borrowing from the credit market compared to SOEs in other sectors post-reform. Considering the already stringent borrowing conditions proceeding 2018 for firms in the real estate sector, the macroprudential policy did not invoke any particular market effects targeting non-SOEs in the real estate sector.

Table 4: Onshore Effects on Market and Bank Borrowing of Firms in Real Estate Sector

	(1)	(2)	(3)	(4)
	ln(Cash Inflow from Market)		ln(Bank Borrowing)	
$\text{NSOE}_i \times \text{Post}_t$	-0.877**	-1.118***	1.286***	0.868***
	(0.291)	(0.301)	(0.333)	(0.213)
$\text{Post}_t \times \text{Real Estate}_i$	0.659	0.467	-0.183	-0.428**
	(0.698)	(0.851)	(0.207)	(0.164)
$\text{NSOE}_i \times \text{Post}_t \times \text{Real Estate}_i$	0.676	-0.275	-0.767*	-0.721**
	(0.536)	(0.600)	(0.322)	(0.261)
$\ln(\text{Total Assets})_{it}$		2.416***		1.795***
		(0.336)		(0.118)
$(\text{Net Profits/Total Assets})_{it}$		-0.663$^+$		-0.185
		(0.383)		(0.389)
$(\text{Fixed Assets/Total Assets})_{it}$		-10.688***		2.996***
		(1.476)		(0.338)
$(\text{Total liability/Total Assets})_{it}$		-3.321***		2.314***
		(0.842)		(0.626)
N	26673	26191	26673	26191
adj. R^2	0.338	0.379	0.519	0.548
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (2). Outcome variables are the log of cash inflow from market and bank borrowing by firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^+$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 5: Onshore Effects on Total Borrowing and Retained Earnings of Firms in Real Estate Sector

	(1)	(2)	(3)	(4)
	ln(Total Borrowing)		ln(Retained Earnings)	
$NSOE_i \times Post_t$	0.093	-0.105**	-2.586***	-2.700***
	(0.097)	(0.037)	(0.617)	(0.464)
$Post_t \times$Real Estate$_i$	0.165	0.030	0.108	-0.184
	(0.108)	(0.058)	(0.671)	(0.620)
$NSOE_i \times Post_t \times$Real Estate$_i$	-0.007	-0.102	2.969***	2.152**
	(0.115)	(0.072)	(0.740)	(0.677)
ln(Total Assets)$_{it}$		1.206***		3.260***
		(0.071)		(0.209)
(Net Profits/Total Assets)$_{it}$		0.044		2.419**
		(0.057)		(0.887)
(Fixed Assets/Total Assets)$_{it}$		-0.918***		-2.344**
		(0.178)		(0.849)
(Total liability/Total Assets)$_{it}$		0.602***		-5.020***
		(0.145)		(0.959)
N	26673	26191	26537	26084
adj. R^2	0.713	0.777	0.634	0.666
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (2). Outcome variables are the log of total borrowing and retained earnings for firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

As shown in Columns 3 and 4, banks demonstrate an even more heightened aversion towards real estate firms' loan requests after the policy announcement. The triple interaction coefficient for bank borrowing is significantly negative, while it registers a positive significance for overall non-SOEs. This indicates that banks display an increased reluctance to lend to the real estate sector post-policy announcement.

The results of total borrowing and retained earnings are presented in Table 15. The lack of significance in the triple interaction term for total borrowing mirrors the findings observed in cash inflow from market in Table 14. This implies that the regulation did not generate any significantly different borrowing constraints for non-SOEs within the real estate sector compared to SOE firms in other industries.

The key coefficients on retained earnings for the triple interaction in Columns 3 and 4 are significantly positive, suggesting that non-SOEs in the real estate sector were able to accumulate their net income, even as other non-SOEs had to reinvest this internal funding to offset diminished borrowing from other sources. This outcome may be attributed to the potential capital raised by subsidiaries located outside of China.

5.3 Spillovers of macroprudential regulation in tax havens (offshore)

I now examine if the implementation of the new regulation on WMPs generates spillovers of corporate bond issuance in tax havens for non-SOEs post-reform. I evaluate the spillover effects through the following equation:

$$\text{TH}_{it} = \beta_0 + \beta_1 \text{NSOE}_i \times \text{Post}_t + \delta_i + \delta_t + \Gamma X_{it} + \epsilon_{it}, \tag{3}$$

where TH_{it} represents a dummy variable of one if a firm i issues bonds in tax havens in year t. The independent variables remain the same as in Regression 10. The only change is the addition of two more control variables: the log of cash inflow from market from year t and year $t-1$. They reflect the onshore borrowing activities for each firm and, therefore are essential to be controlled to obtain a relatively precise estimation of a firm's offshore borrowing behavior.

Table 16 summarizes the main results. The first column provides the estimation results for the full firm sample without any control variables. The estimate is positive but not significant. This may represent an underestimate of the spillover effect considering that a number of firms in the full sample do not report borrowing from the domestic credit market and the new regulation would not affect their bond-issuing behavior. In the second column, I restrict the sample to firms with activities related to cash inflow from the market only. As expected, the point estimate increases to 0.7%, statistically significant at 5% level. It indicates that a private firm, compared to a state-owned one, is 0.7% more likely to finance bonds through shell companies in tax havens after the 2018 new macroprudential regulation. In the third column, I add control variables. The coefficient increases to 0.9%, significant at 5% level, confirming the unintended spillover effects.

5.4 Spillovers from real estate sector (offshore)

To examine the spillover effects from non-SOEs in the real estate sector, I extend the DID setup to a DDD specification:

$$\begin{aligned}\text{TH}_{it} = \beta_0 + \beta_1 \text{NSOE}_i \times \text{Post}_t \times \text{Real Estate}_i + \beta_2 \text{NSOE}_i \times \text{Real Estate}_i + \beta_3 \text{Post}_t \times \text{Real Estate}_i \\ + \beta_4 \text{NSOE}_i \times \text{Post}_t + \delta_i + \delta_t + \Gamma X_{it} + \epsilon_{it}. \end{aligned} \tag{4}$$

The results are provided in Table 17. Column 1 summarizes the results without any control variables. β_1 evaluates the mean difference in the likelihood of issuing bonds in tax havens between an SOE in non-real estate sectors and a non-SOE in the real estate sector before and after the new macroprudential regulation. The coefficient is 9.7% and statistically significant at 1% level. Compared to the results from the previous specification Equation (3), the emphasis on private firms

Table 6: Spillovers of Macroprudential Regulation in Tax Havens

	Issuance in Tax Haven$_{it}$		
	Full sample	Restricted	Restricted
	(1)	(2)	(3)
NSOE$_i$ × Post$_t$	0.002	0.007*	0.009*
	(0.002)	(0.003)	(0.004)
ln(Total Assets)$_{it}$			0.011***
			(0.002)
(Net Profits/Total Assets)$_{it}$			0.002
			(0.003)
(Fixed Assets/Total Assets)$_{it}$			0.016$^+$
			(0.010)
(Total liability/Total Assets)$_{it}$			0.002
			(0.003)
ln(Cash Inflow from Market)$_{it}$			-0.000
			(0.000)
ln(Cash Inflow from Market)$_{it-1}$			-0.000**
			(0.000)
N	43890	30979	23097
adj. R^2	0.319	0.314	0.335
Firm and Year FE	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (3). The outcome variable is a dummy variable of one if a firm i issues at least one bond in tax haven countries in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^+$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 7: Spillovers from Firms in Real Estate Sector

	(1)	(2)	(3)
	Issuance in Tax Haven$_{it}$		
NSOE$_i$×Post$_t$	-0.006**	-0.011**	-0.011*
	(0.002)	(0.004)	(0.005)
Post$_t$×Real Estate$_i$	0.033***	0.055***	0.055
	(0.006)	(0.010)	(0.035)
NSOE$_i$×Post$_t$×Real Estate$_i$	0.097***	0.187***	0.187***
	(0.007)	(0.012)	(0.022)
ln(Total Assets)$_{it}$		0.008***	0.008
		(0.002)	(0.005)
(Net Profits/Total Assets)$_{it}$		0.002	0.002**
		(0.003)	(0.001)
(Fixed Assets/Total Assets)$_{it}$		0.013	0.013
		(0.009)	(0.017)
(Total liability/Total Assets)$_{it}$		0.004	0.004$^+$
		(0.003)	(0.003)
ln(Cash Inflow from Market)$_{it}$		-0.000	-0.000**
		(0.000)	(0.000)
ln(Cash Inflow from Market)$_{it-1}$		-0.000**	-0.000$^+$
		(0.000)	(0.000)
N	43890	23097	23097
adj. R^2	0.339	0.371	0.371
Firm and Year FE	Yes	Yes	Yes
SE clustered	Yes	No	Yes

Note: This table reports the coefficients from the DID regression (4). The outcome variable is a dummy variable of one if a firm i issues at least one bond in tax haven countries in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^+$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

in the real estate sector brings about a significant upward shift in coefficient scale on a stricter significance level. β_3 looks at the mean difference in spillover effects between firms in real estate and non-real estate sectors. It is positively significant and confirms that spillovers are more likely associated with firms in the real estate sector despite the private or public nature of the firm. In addition, what is interesting to observe is that the spillover effects for non-SOEs after the reform (β_4) now become negatively significant after the strong effects from the real estate sector are purged out. It underscores a potential double "crowd-out" effect, where non-SOEs in the non-real estate sector are pushed away both in the domestic and offshore credit market.

In Column 2 where control variables are added, the key coefficient β_4 associated with the triple interaction item increases to 18.7%, doubling the previous coefficient scale. This result is consistent

with Table 16 where the coefficient scale increases after the control of firm-level characteristics. In the third column, I cluster standard errors at a city level given that local bank branches are important sources of financing. The point estimate remains similar to Column 2, and the standard errors are larger, as expected. However, the coefficient still stays significant at 1% level, underlining the robustness of this result. This estimation result points to the fact that the spillovers of this macroprudential policy are mostly driven by non-SOEs in the real estate sector, whose domestic financing sources are severely shrunk after the new regulation of WMPs.

5.5 Leads and lags

I estimate a specification with leads and lags to measure pre-reform and post-reform trends:

$$\text{TH}_{it} = \beta_0 + \sum_{k=2011}^{2020} \beta_k \text{NSOE}_i \times \text{Year}_k + \delta_i + \delta_t + \Gamma X_{it} + \epsilon_{it}, \tag{5}$$

where Year_k is a year indicator variable. The reference year is 2017, the year before the reform. The specification includes six lags and three leads, corresponding to the studied period of 2011-2020. Figure 4 plots the β_k coefficients and its 95% confidence intervals. As it shows, there is no obvious trend before the new regulation in 2018. The spillovers slowly take effect in the year after the announcement of the new regulation and become more significant in the second year as non-SOEs are more likely to issue bonds in tax havens post-reform.

A similar coefficient plot featuring non-SOEs in the real estate sector is provided as Figure 5. The specification is as follows:

$$\begin{aligned}\text{TH}_{it} = \beta_0 + \sum_{k=2011}^{2020} \beta_k^1 \text{NSOE}_i \times \text{Real Estate}_i \times \text{Year}_k + \sum_{k=2011}^{2020} \beta_k^2 \text{NSOE}_i \times \text{Year}_k + \\ \sum_{k=2011}^{2020} \beta_k^3 \text{Real Estate}_i \times \text{Year}_k + \delta_i + \delta_t + \Gamma X_{it} + \epsilon_{it}\end{aligned} \tag{6}$$

Aligned with the DDD regression estimations, the post-reform trend exhibits increased bond issuances among non-SOEs within the real estate sector. Notably, the confidence intervals have narrowed indicating a higher level of statistical significance. Furthermore, it is noteworthy that the pre-reform coefficients are negative, suggesting that non-SOEs in the real estate sector were less likely to issue offshore bonds in tax havens prior to the implementation of the new regulation. This highlights the post-reform spillover effects for non-SOEs within the real estate sector as identified in the previous estimations.

Figure 4: Leads and Lags of Spillover Effects

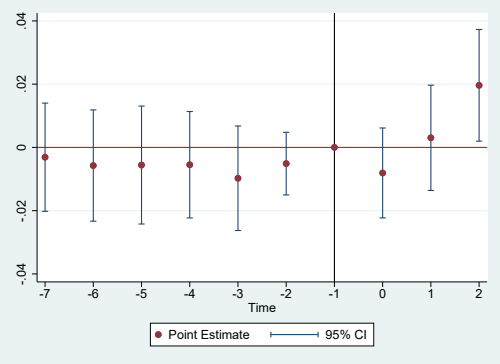
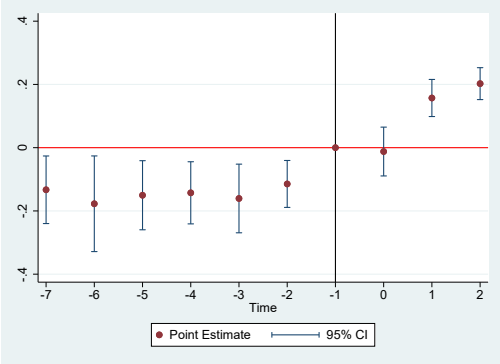


Figure 5: Leads and Lags of Spillover Effects of Firms in Real Estate Sector



Note: These two figures plot the coefficients of β_k in Regressions (5) and (6). The reference year is 2017, the year before the implementation of the macroprudential policy.

5.6 Spillovers linked to firm's private ownership

Geng and Pan (2021) argue that not all SOEs are the same and the market has grown more sensitive to the percentage of government holdings in SOEs and non-SOEs. In the following specification, I replace the NSOE_i dummy with the percentage of equity owned by private entities in a company, as mentioned in Section 4. It provides a yearly representation of the share of private ownership in a company. Instead of treating all non-SOEs as one dummy group, this variable provides a way to continuously measure the spillovers associated with the percentage of private ownership. The outcome variable is the log of the total amount of offshore bond funding for firm i in year t.

$$\ln(\text{Offshore Bond Amount})_{it} = \beta_0 + \beta_1 \text{Private Percent}_{it} \times \text{Post}_t \times \text{Real Estate}_i + \beta_2 \text{Post}_t \times \text{Real Estate}_i + \beta_3 \text{Private Percent}_{it} \times \text{Real Estate}_i + \beta_4 \text{Private Percent}_{it} \times \text{Post}_t + \delta_i + \delta_t + \Gamma X_{it} + \epsilon_{it}. \quad (7)$$

Table 18 provides the estimation results. Column 1 summarizes the results without any control variables. The point estimate of β_1 suggests that a 1% increase in private ownership for a firm in the real estate sector leads to a 0.67% increase in the amount of funding raised through bond issuance by shell companies in tax havens. In Column 2 where control variables are specified, the coefficient rises to 1% and is significant at 1% level. In Column 3 where standard errors are clustered on a city level, the point estimate stays the same and is statistically significant at a 10% level.

This result is also economically significant, indicating that a 1% rise in private ownership is associated with a 1% increase in bonds issued in tax havens by non-SOEs in the real estate sector. This highlights the substantial spillover effects attributed to the macroprudential policy from private enterprises within the real estate sector, compared to its SOE peers across other industries.

Table 8: Spillovers Linked to Private Ownership

	(1)	(2)	(3)
	ln(Issuance Amount in Tax Haven)$_{it}$		
Private ownership$_{it}$	-0.004	-0.024	-0.024
	(0.026)	(0.047)	(0.068)
Post$_t$×Private Ownership$_{it}$	-0.049**	-0.088**	-0.088
	(0.015)	(0.032)	(0.054)
Real Estate$_i$×Private Ownership$_{it}$	-0.375**	-0.550**	-0.550*
	(0.115)	(0.201)	(0.255)
Post$_t$×Real Estate$_i$	-0.100**	-0.155*	-0.155
	(0.037)	(0.068)	(0.144)
Post$_t$×Real Estate$_i$×Private Ownership$_{it}$	0.675***	1.033***	1.033$^+$
	(0.063)	(0.112)	(0.530)
ln(Total Assets)$_{it}$		-0.003	-0.003
		(0.012)	(0.016)
(Net Profits/Total Assets)$_{it}$		-0.002	-0.002
		(0.014)	(0.003)
(Fixed Assets/Total Assets)$_{it}$		-0.098	-0.098$^+$
		(0.062)	(0.056)
(Total liability/Total Assets)$_{it}$		-0.013	-0.013
		(0.026)	(0.011)
ln(Cash Inflow from Market)$_{it}$		-0.001	-0.001
		(0.001)	(0.001)
ln(Cash Inflow from Market)$_{it-1}$		-0.001	-0.001
		(0.001)	(0.000)
N	19777	10923	10923
adj. R^2	0.241	0.236	0.236
Firm and Year FE	Yes	Yes	Yes
SE clustered	Yes	No	Yes

Note: This table reports the coefficients from the DID regression (7). The outcome variable is the log of the total amount of offshore bond funding for firm i in year t. The variable "Private ownership" refers to the share of private ownership of firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^+$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.7 Real effects and risk implication

To examine the impact of offshore financing on a firm's balance sheet, I run the following regression:

$$\mathrm{Y}_{it} = \beta_0 + \beta_1 \mathrm{TH}_{it} \times \mathrm{Post}_t + \delta_i + \delta_t + \Gamma X_{it} + \epsilon_{it}, \tag{8}$$

where $\mathrm{Y_{it}}$ represents the log of fixed assets, sales, cash, and costs of employees. The other variables in the regression are as defined in previous estimations. The results are shown in Table 9. The coefficients β_1 for the log of fixed assets and sales are not significant, suggesting that financing through offshore sources does not significantly impact the firm's investment and revenue. However, the coefficients for the log of cash and wage are significantly positive. This indicates that firms incorporated in tax havens mostly round-trip funds from offshore to stock up cash reserves and expand employment.

I extend the previous regression setup to a triple interaction including a real estate sector dummy as shown below:

$$\begin{aligned}\mathrm{Y}_{it} = \beta_0 + \beta_1 \mathrm{TH}_{it} \times \mathrm{Post}_t \times \text{Real Estate}_i + \beta_2 \mathrm{TH}_{it} \times \text{Real Estate}_i + \beta_3 \mathrm{Post}_t \times \text{Real Estate}_i \\ + \beta_4 \mathrm{TH}_{it} \times \mathrm{Post}_t + \delta_i + \delta_t + \Gamma X_{it} + \epsilon_{it}. \end{aligned} \tag{9}$$

Table 10 reports the estimation results. Notably, the coefficient for fixed assets is positive and significant. It indicates that real estate firms, compared to firms in other sectors, invest their offshore funding into tangible properties. This finding underscores the spillover effects of real estate firms seeking alternative funding sources beyond regulation when domestic credit restrictions aim to reduce the housing bubbles and high leverage in the real estate sector. In addition, the results for sales and cash are not significant for real estate firms, while the coefficient for wage cost is significantly negative.

An important question to ask is whether firms issuing bonds offshore are more financially unstable and riskier, give that they circumvent regulations to obtain funding outside the authorities' supervision. To analyze the risk profiles of these offshore companies, I calculate the Altman's Z-score [5] to access the likelihood of insolvency, using this z-score as an outcome variable in regressions 8 and 9. A lower z-score indicates higher financial risk.

The estimation results are reported in Table 11. The coefficient in Column 1 with no control variables is positive and significant, but it becomes insignificant after controlling for a firm's corporate

[5] I use the Altman z-score model for emerging market firms. As in Altman (2005), EM Score = 6.56(X_1) + 3.26(X_2) + 6.72(X_3) + 1.05(X_4)+ 3.25, where X_1 = working capital/total assets, X_2 = retained earnings/total assets, X_3 = operating income/total assets, X_4 = book value of equity/total liabilities.

Table 9: Effects on Fixed Assets, Sales, Cash and Wage

	(1) $\ln(\text{Fixed Assets})_{it}$	(2) $\ln(\text{Sales})_{it}$	(3) $\ln(\text{Cash})_{it}$	(4) $\ln(\text{Wage})_{it}$
Tax Haven_{it}	0.090^{***}	0.056^{***}	0.096^{***}	-0.090^{+}
	(0.006)	(0.014)	(0.022)	(0.046)
$\text{Tax Haven}_{it} \times \text{Post}_{t}$	0.007	-0.003	0.155^{**}	0.128^{+}
	(0.012)	(0.038)	(0.055)	(0.076)
$\ln(\text{Total Assets})_{it}$	1.029^{***}	0.865^{***}	0.901^{***}	0.726^{***}
	(0.017)	(0.046)	(0.015)	(0.023)
$(\text{Net Profits/Total Assets})_{it}$	-0.023^{*}	0.061^{+}	0.004	-0.033
	(0.011)	(0.031)	(0.013)	(0.045)
$(\text{Fixed Assets/Total Assets})_{it}$	5.917^{***}	0.333^{***}	-1.871^{***}	0.652^{***}
	(0.315)	(0.050)	(0.192)	(0.093)
$(\text{Total liability/Total Assets})_{it}$	-0.004	0.021^{*}	-0.028^{**}	0.033
	(0.004)	(0.010)	(0.009)	(0.038)
N	42449	42439	42403	29663
adj. R^2	0.952	0.934	0.869	0.985
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (10). Outcome variables are the log of fixed assets, sales, cash, and wage by firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 10: Effects on Fixed Assets, Sales, Cash and Wage

	(1) $\ln(\text{Fixed Assets})_{it}$	(2) $\ln(\text{Sales})_{it}$	(3) $\ln(\text{Cash})_{it}$	(4) $\ln(\text{Wage})_{it}$
Tax Haven_{it}	0.145***	0.018*	0.069	-0.115**
	(0.021)	(0.008)	(0.044)	(0.042)
$\text{Tax Haven}_{it} \times \text{Post}_t$	-0.067*	-0.021	0.044	0.145
	(0.029)	(0.026)	(0.053)	(0.089)
$\text{Tax Haven}_{it} \times \text{Real Estate}_i$	-0.117***	0.085***	0.084*	0.265***
	(0.022)	(0.023)	(0.042)	(0.042)
$\text{Post}_t \times \text{Real Estate}_i$	0.045	-0.008	0.147*	0.130*
	(0.030)	(0.025)	(0.059)	(0.059)
$\text{Tax Haven}_{it} \times \text{Post}_t \times \text{Real Estate}_i$	0.114**	0.029	0.067	-0.343+
	(0.042)	(0.036)	(0.052)	(0.191)
$\ln(\text{Total Assets})_{it}$	1.028***	0.865***	0.900***	0.725***
	(0.016)	(0.046)	(0.015)	(0.023)
$(\text{Net Profits/Total Assets})_{it}$	-0.023*	0.061+	0.004	-0.032
	(0.011)	(0.031)	(0.013)	(0.045)
$(\text{Fixed Assets/Total Assets})_{it}$	5.917***	0.333***	-1.871***	0.649***
	(0.316)	(0.050)	(0.194)	(0.093)
$(\text{Total liability/Total Assets})_{it}$	-0.004	0.021*	-0.028**	0.034
	(0.004)	(0.010)	(0.009)	(0.038)
N	42449	42439	42403	29663
adj. R^2	0.952	0.934	0.869	0.985
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (10). Outcome variables are the log of fixed assets, sales, cash, and wage by firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

borrowing structure. This suggests that firms with offshore funding do not have a riskier financial profile compared to other firms. However, the result changes for firms in the real estate sector. The coefficient β_1 for the triple interaction term is negative and significant, suggesting that firms in the real estate sector demonstrate higher financial instability after issuing offshore bonds in tax havens.

This finding has important risk implications for firms in the real estate sector. While offshore financing provides these firms with alternative funding sources, they invest these funds into fixed assets and property development, alleviating the constraints of the tight regulatory environment in the domestic housing market. This offshore financing pattern increases the risk profile of the involved firms, increasing the financial instability in the credit market.

6 Conclusion

This article explores the spillover effects resulting from the implementation of a Chinese macroprudential policy aimed at regulating WMPs in 2018. My analysis reveals an observable impact of this policy on reducing the borrowing activities of non-SOEs within the domestic credit market. This provokes these non-SOEs to actively seek alternative avenues for financing beyond the regulatory constraints. I detect significant spillover effects of this policy, particularly linked to non-SOEs in the real estate sector, in tax haven countries.

My research explores the importance of tax havens as conduits for Chinese firms to raise international capital and contributes to the understanding of the implications of domestic macroprudential policy on a global scale. This is a crucial question for policymaking, particularly given China's status as one of the primary countries engaging in substantial offshore borrowing facilitated through tax havens. Despite the substantial amount of capital that flows through tax havens, there remains a gap in the existing body of research dedicated to this issue. My study seeks to fill this gap, contributing to our comprehension of the offshore behaviors of Chinese firms.

The consequences of these spillover effects hold substantial importance for the Chinese capital market since the funds raised in tax havens flow back to the domestic credit market. This raises important yet unanswered questions. It is crucial to investigate if it undermines the efficacy of macroprudential policy, and increases the riskiness of involved firms. This calls for more research on related topics on the implications of international capital sourced from tax havens.

Table 11: Effects on Risks

	(1) Z Score	(2) Z Score	(3) Z Score	(4) Z Score
Tax Haven$_{it}$	0.263	0.113	0.489*	0.162
	(0.201)	(0.196)	(0.231)	(0.312)
Tax Haven$_{it}\times$Post$_{t}$	0.649*	0.311	0.588	0.633^{+}
	(0.251)	(0.355)	(0.370)	(0.331)
$\ln$(Total Assets)$_{it}$		1.511***		1.508***
		(0.326)		(0.325)
(Net Profits/Total Assets)$_{it}$		2.898*		2.897*
		(1.303)		(1.303)
(Fixed Assets/Total Assets)$_{it}$		-7.244***		-7.261***
		(1.263)		(1.266)
(Total liability/Total Assets)$_{it}$		-5.972***		-5.970***
		(0.820)		(0.818)
Tax Haven$_{it}\times$Real Estate$_{i}$			-0.567*	-0.086
			(0.224)	(0.338)
Post$_{t}\times$Real Estate$_{i}$			2.340***	1.527***
			(0.492)	(0.341)
Tax Haven$_{it}\times$Post$_{t}\times$Real Estate$_{i}$			-1.747*	-2.092**
			(0.713)	(0.712)
N	35018	35011	35018	35011
adj. R^2	0.511	0.797	0.511	0.797
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (10). Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

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Appendix

A Regression Results on A Balanced Sample

The estimations of the main results are repeated on a balanced sample, dropping firms that have been de-listed or have newly entered the market. The results are consistent with the main ones.

Table 12: Onshore Effects on Market and Bank Borrowing

	(1)	(2)	(3)	(4)
	ln(Cash Inflow from Market)		ln(Bank Borrowing)	
$NSOE_i \times Post_t$	-0.619**	-0.773**	0.965***	0.701***
	(0.225)	(0.261)	(0.263)	(0.193)
$\ln(\text{Total Assets})_{it}$		2.689***		1.819***
		(0.356)		(0.131)
$(\text{Net Profits/Total Assets})_{it}$		-0.392		-0.212
		(0.310)		(0.395)
$(\text{Fixed Assets/Total Assets})_{it}$		-10.707***		2.850***
		(1.133)		(0.375)
$(\text{Total liability/Total Assets})_{it}$		-3.040***		2.063**
		(0.844)		(0.685)
N	19656	19391	19656	19391
adj. R^2	0.353	0.396	0.527	0.556
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (10) on a balanced sample. Outcome variables are the log of cash inflow from market and bank borrowing for firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 13: Onshore Effects on Total Borrowing and Retained Earning

	(1)	(2)	(3)	(4)
	ln(Total Borrowing)		ln(Retained Earnings)	
$\text{NSOE}_i \times \text{Post}_t$	0.077	-0.041	-2.510***	-2.563***
	(0.109)	(0.045)	(0.542)	(0.355)
$\ln(\text{Total Assets})_{it}$		1.218***		3.779***
		(0.074)		(0.189)
$(\text{Net Profits/Total Assets})_{it}$		0.038		2.128**
		(0.073)		(0.730)
$(\text{Fixed Assets/Total Assets})_{it}$		-0.641***		-2.416*
		(0.159)		(0.956)
$(\text{Total liability/Total Assets})_{it}$		0.727***		-5.303***
		(0.168)		(1.294)
N	19656	19391	19595	19342
adj. R^2	0.729	0.795	0.654	0.687
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (10) on a balanced sample. Outcome variables are the log of total borrowing and retained earnings by firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 14: Onshore Effects on Market and Bank Borrowing of Firms in Real Estate Sector

	(1)	(2)	(3)	(4)
	ln(Cash Inflow from Market)		ln(Bank Borrowing)	
$NSOE_i \times Post_t$	-0.662*	-0.656*	1.019***	0.783***
	(0.267)	(0.284)	(0.287)	(0.208)
$Post_t \times$Real Estate$_i$	0.335	0.167	-0.204	-0.420*
	(0.770)	(0.893)	(0.170)	(0.164)
$NSOE_i \times Post_t \times$Real Estate$_i$	0.234	-0.904	-0.344	-0.514
	(0.664)	(0.642)	(0.393)	(0.326)
ln(Total Assets)$_{it}$		2.698***		1.832***
		(0.347)		(0.131)
(Net Profits/Total Assets)$_{it}$		-0.391		-0.210
		(0.310)		(0.393)
(Fixed Assets/Total Assets)$_{it}$		-10.690***		2.880***
		(1.148)		(0.377)
(Total liability/Total Assets)$_{it}$		-3.048***		2.054**
		(0.842)		(0.685)
N	19656	19391	19656	19391
adj. R^2	0.353	0.396	0.527	0.556
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (2) on a balanced sample. Outcome variables are the log of cash inflow from market and bank borrowing by firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 15: Onshore Effects on Total Borrowing and Retained Earnings of Firms in Real Estate Sector

	(1)	(2)	(3)	(4)
	ln(Total Borrowing)		ln(Retained Earnings)	
$\text{NSOE}_i \times \text{Post}_t$	0.058	-0.027	-2.910***	-2.819***
	(0.133)	(0.054)	(0.619)	(0.413)
$\text{Post}_t \times \text{Real Estate}_i$	0.092	-0.025	-0.136	-0.383
	(0.103)	(0.062)	(0.721)	(0.615)
$\text{NSOE}_i \times \text{Post}_t \times \text{Real Estate}_i$	0.117	-0.103	2.958**	1.990*
	(0.176)	(0.119)	(0.922)	(0.793)
$\ln(\text{Total Assets})_{it}$		1.220***		3.759***
		(0.075)		(0.188)
$(\text{Net Profits/Total Assets})_{it}$		0.039		2.126**
		(0.073)		(0.733)
$(\text{Fixed Assets/Total Assets})_{it}$		-0.638***		-2.452*
		(0.158)		(0.954)
$(\text{Total liability/Total Assets})_{it}$		0.726***		-5.285***
		(0.168)		(1.301)
N	19656	19391	19595	19342
adj. R^2	0.729	0.795	0.655	0.687
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (2) on a balanced sample. Outcome variables are the log of total borrowing and retained earnings for firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 16: Spillovers of Macroprudential Regulation in Tax Havens

	Issuance in Tax Haven$_{it}$		
	Full sample	Restricted	Restricted
	(1)	(2)	(3)
NSOE$_i$×Post$_t$	0.006*	0.016***	0.018***
	(0.002)	(0.004)	(0.005)
ln(Total Assets)$_{it}$			0.013***
			(0.002)
(Net Profits/Total Assets)$_{it}$			0.002
			(0.003)
(Fixed Assets/Total Assets)$_{it}$			0.020^{+}
			(0.011)
(Total liability/Total Assets)$_{it}$			0.005
			(0.003)
ln(Cash Inflow from Market)			-0.000^{+}
			(0.000)
L.ln(Cash Inflow from Market)			-0.000**
			(0.000)
N	29458	22127	17766
adj. R^2	0.345	0.346	0.353
Firm and Year FE	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (3) on a balanced sample. The outcome variable is a dummy variable of one if a firm i issues at least one bond in tax haven countries in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 17: Spillovers from Firms in Real Estate Sector

	(1)	(2)	(3)
	Issuance in Tax Haven$_{it}$		
NSOE$_i$×Post$_t$	-0.005*	-0.008	-0.008
	(0.003)	(0.005)	(0.006)
Post$_t$×Real Estate$_i$	0.035***	0.057***	0.057
	(0.007)	(0.011)	(0.037)
NSOE$_i$×Post$_t$×Real Estate$_i$	0.100***	0.179***	0.179***
	(0.008)	(0.014)	(0.025)
ln(Total Assets)$_{it}$		0.010***	0.010
		(0.002)	(0.006)
(Net Profits/Total Assets)$_{it}$		0.002	0.002**
		(0.003)	(0.001)
(Fixed Assets/Total Assets)$_{it}$		0.017	0.017
		(0.011)	(0.022)
(Total liability/Total Assets)$_{it}$		0.006^{+}	0.006^{+}
		(0.003)	(0.004)
ln(Cash Inflow from Market)		-0.000	-0.000**
		(0.000)	(0.000)
L.ln(Cash Inflow from Market)		-0.000**	-0.000^{+}
		(0.000)	(0.000)
N	29458	17766	17766
adj. R^2	0.363	0.384	0.384
Firm and Year FE	Yes	Yes	Yes
SE clustered	Yes	No	Yes

Note: This table reports the coefficients from the DID regression (4) on a balanced sample. The outcome variable is a dummy variable of one if a firm i issues at least one bond in tax haven countries in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

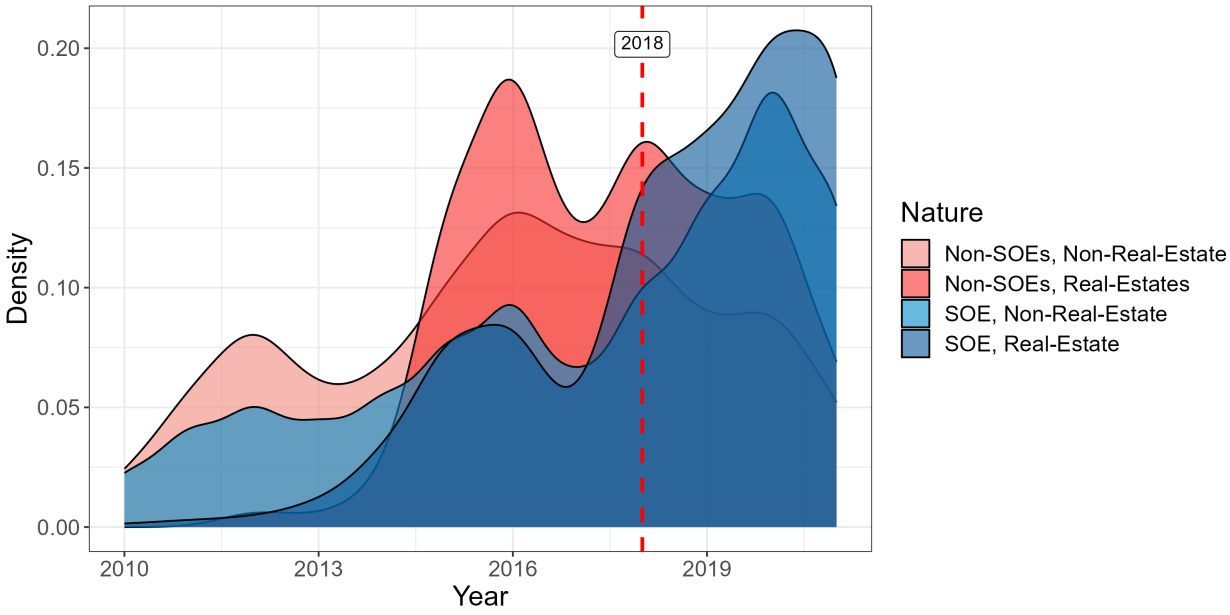
Table 18: Spillovers Linked to Private Ownership

	(1)	(2)	(3)
	$\ln$(Issuance Amount in Tax Haven)$_{it}$		
Private Ownership$_{it}$	-0.004	-0.024	-0.024
	(0.026)	(0.047)	(0.068)
Post$_t$×Private Ownership$_{it}$	-0.049**	-0.088**	-0.088
	(0.015)	(0.032)	(0.054)
Real Estate$_i$×Private Ownership$_{it}$	-0.375**	-0.550**	-0.550*
	(0.115)	(0.201)	(0.255)
Post$_t$×Real Estate$_i$	-0.100**	-0.155*	-0.155
	(0.037)	(0.068)	(0.144)
Post$_t$×Real Estate$_i$×Private Ownership$_{it}$	0.675***	1.033***	1.033$^+$
	(0.063)	(0.112)	(0.530)
$\ln$(Total Assets)$_{it}$		-0.003	-0.003
		(0.012)	(0.016)
(Net Profits/Total Assets)$_{it}$		-0.002	-0.002
		(0.014)	(0.003)
(Fixed Assets/Total Assets)$_{it}$		-0.098	-0.098$^+$
		(0.062)	(0.056)
(Total liability/Total Assets)$_{it}$		-0.013	-0.013
		(0.026)	(0.011)
$\ln$(Cash Inflow from Market)		-0.001	-0.001
		(0.001)	(0.001)
L.$\ln$(Cash Inflow from Market)		-0.001	-0.001
		(0.001)	(0.000)
N	19777	10923	10923
adj. R^2	0.241	0.236	0.236
Firm and Year FE	Yes	Yes	Yes
SE clustered	Yes	No	Yes

Note: This table reports the coefficients from the DID regression (7) on a balanced sample. The outcome variable is the log of the total amount of offshore bond funding for firm i in year t. The variable "Private ownership" refers to the share of private ownership of firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^+$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

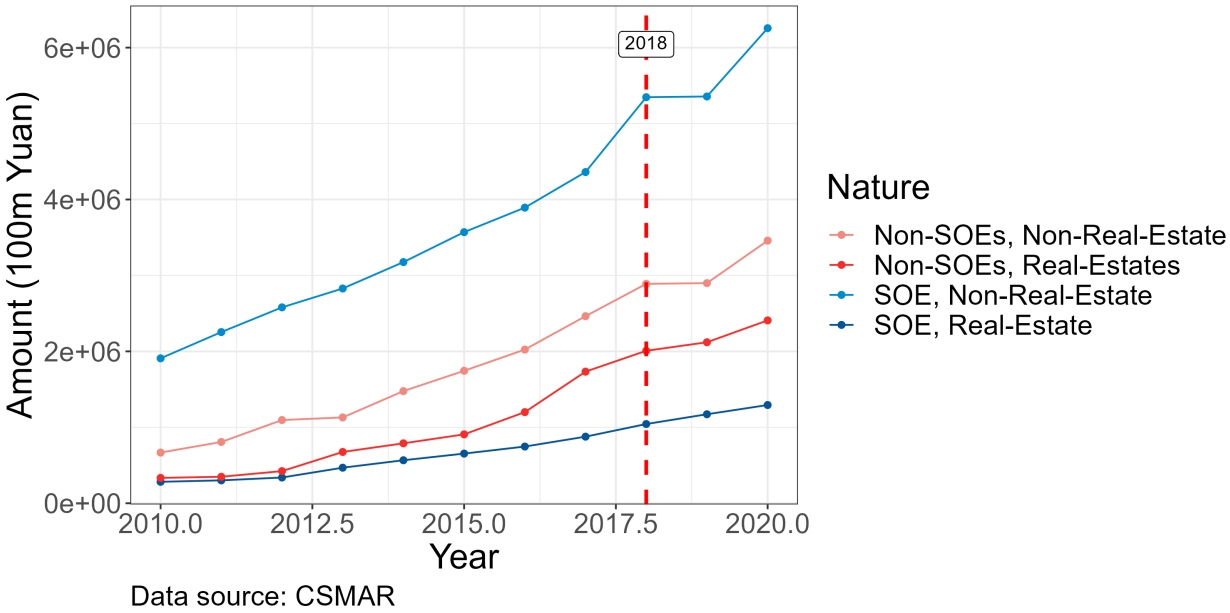
B Onshore Trend of Bond Issuance and Bank Borrowing

Figure 6: Onshore Trend of Bond Issuance



Notes: This figure depicts the density of bond issuances in the domestic credit market since 2010 for four categories of firms: non-SOEs non-real-estate, non-SOEs real estate, SOEs non-real-estate, and SOEs real estate.

Figure 7: Onshore Trend of Bank Borrowing



Notes: This figure depicts the amount of total bank loans for four categories of firms: non-SOEs non-real-estate, non-SOEs real estate, SOEs non-real-estate, and SOEs real estate.

C Spillovers Linked to Firm's Exposure to Domestic Bond Market

It is assumed that the degree of exposure to the domestic bond market affects the firm's offshore financing patterns. The hypothesis is that firms more dependent on the domestic bond market are more exposed to the macroprudential policy, making them more likely to issue bonds offshore. To test this hypothesis, I run the following regression:

$$\begin{aligned} \text{T}_{it} = \beta_0 + \beta_1 \text{NSOE}_i \times \text{Post}_t \times \text{Exposure}_{it} + \beta_2 \text{NSOE}_i \times \text{Exposure}_{it} \\ + \beta_3 \text{Post}_t \times \text{Exposure}_{it} + \delta_i + \delta_t + \Gamma X_{it} + \epsilon_{it}, \quad (10) \end{aligned}$$

where $\text{Exposure}_{\text{it}}$ is the ratio of the amount of domestic bonds to sales for firm i in year t. The other variables are as defined in previous estimations. As shown in Table 19, the results are not significant. The insignificance also applies to two other measures of exposure: the ratio of the amount of domestic bonds to total liabilities and the log of the total amount of domestic bonds.

Table 19: Spillover Effects on Bond Issuance in Tax Havens

	(1) Tax Haven	(2) Tax Haven	(3) Tax Haven
$NSOE_i \times Post_t$	0.031**	0.047**	0.047
	(0.011)	(0.015)	(0.034)
$Exposure_{it}$	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.000)
$NSOE_i \times Exposure_{it}$	0.000	0.000	0.000
	(0.001)	(0.001)	(0.000)
$Post_t \times Exposure_{it}$	-0.002	-0.003	-0.003*
	(0.002)	(0.003)	(0.001)
$NSOE_i \times Post_t \times Exposure_{it}$	0.001	0.001	0.001
	(0.002)	(0.003)	(0.001)
$\ln$(Total Assets)$_{it}$		-0.021$^+$	-0.021
		(0.011)	(0.018)
(Net Profits/Total Assets)$_{it}$		0.001	0.001
		(0.070)	(0.030)
(Fixed Assets/Total Assets)$_{it}$		-0.092$^+$	-0.092$^+$
		(0.049)	(0.047)
(Total liability/Total Assets)$_{it}$		0.018	0.018
		(0.043)	(0.026)
$\ln$(Cash Inflow from Market)		0.000	0.000
		(0.001)	(0.001)
L.$\ln$(Cash Inflow from Market)		-0.000	-0.000**
		(0.000)	(0.000)
N	3176	2419	2419
adj. R^2	0.346	0.281	0.281
Firm and Year FE	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (10). Firm and year fixed effects are included. Standard errors are clustered at the firm level. Significance level: $^+$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

D Regression Results without Control Variables

The results of Tables 9 and 10 without control variables are reported in the two tables below. They are consistent with the main estimations.

Table 20: Effects on Fixed Assets, Sales, Cash and Wage

	(1) $\ln(\text{Fixed Assets})_{it}$	(2) $\ln(\text{Sales})_{it}$	(3) $\ln(\text{Cash})_{it}$	(4) $\ln(\text{Wage})_{it}$
Tax Haven_{it}	0.320^{***}	0.254^{***}	0.318^{***}	-0.056
	(0.056)	(0.042)	(0.023)	(0.113)
$\text{Tax Haven}_{it} \times \text{Post}_t$	0.127^{*}	0.113^{*}	0.283^{***}	0.309^{+}
	(0.052)	(0.055)	(0.064)	(0.177)
N	43858	42462	43840	29821
adj. R^2	0.853	0.871	0.787	0.978
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (10) without control variables. Outcome variables are the log of fixed assets, sales, cash, and wage by firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 21: Effects on Fixed Assets, Sales, Cash and Wage for Firms in Real Estate Sector

	(1) $\ln(\text{Fixed Assets})_{it}$	(2) $\ln(\text{Sales})_{it}$	(3) $\ln(\text{Cash})_{it}$	(4) $\ln(\text{Wage})_{it}$
Tax Haven_{it}	0.423^{***}	0.214^{***}	0.287^{***}	-0.130
	(0.118)	(0.059)	(0.029)	(0.114)
$\text{Tax Haven}_{it} \times \text{Post}_t$	-0.035	-0.018	0.054	0.179
	(0.073)	(0.071)	(0.079)	(0.185)
$\text{Tax Haven}_{it} \times \text{Real Estate}_i$	-0.222^{*}	0.103^{*}	0.107^{***}	0.396^{***}
	(0.108)	(0.051)	(0.029)	(0.119)
$\text{Post}_t \times \text{Real Estate}_i$	0.104^{*}	0.079	0.254^{***}	0.132^{+}
	(0.052)	(0.073)	(0.050)	(0.079)
$\text{Tax Haven}_{it} \times \text{Post}_t \times \text{Real Estate}_i$	0.246^{*}	0.165	0.188^{+}	0.169
	(0.098)	(0.100)	(0.098)	(0.332)
N	43858	42462	43840	29821
adj. R^2	0.854	0.871	0.787	0.978
Firm and Year FE	Yes	Yes	Yes	Yes

Note: This table reports the coefficients from the DID regression (10) without control variables. Outcome variables are the log of fixed assets, sales, cash, and wage by firm i in year t. Firm and year fixed effects are included. Standard errors are clustered at the city level. Significance level: $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.