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Shadow banking of non-financial firms: Arbitrage between formal and informal credit markets in China

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ABSTRACT

In China's credit markets with financial repression, state-controlled non-financial firms (SOEs) are privileged in gaining access to bank credit, while non-SOEs, especially those small- and medium-sized firms, are disadvantaged. Corporate re-lending emerges as a response wherein the former secure bank loans and then re-lend to the latter. We document the characteristics of inter-corporate loans from a sample of legal cases. We employ four empirical strategies to conduct a forensic study of re-lending by detecting abnormal relations between financial accounts of listed firms. State-controlled companies conduct more re-lending, and firms with better growth opportunities, stronger corporate governance, and more financial constraints engage less. We compare re-lending with entrusted loans and find that firms extending nonaffiliated entrusted loans conduct re-lending actively, while firms offering affiliated entrusted loans do not. We also compare inter-corporate loans with micro-credit company loans in a review of legal cases.

1. Introduction

China's shadow banking sector has been developing rapidly since the global financial crisis. It became the fifth largest among Financial Stability Board (FSB) jurisdictions in 2012, rose to the third in 2013, and then to the second place in 2017. Unlike the capital market-based system in the U.S., the shadow banking system in China is bank-centric and thus has greater interactions with traditional banks (Dang et al., 2014). One prominent aspect of shadow banking in China is corporate re-lending business conducted by non-financial firms. Specifically, non-financial firms with good access to the formal financial system, primarily state-controlled firms, borrow from banks and then re-lend to credit-constrained firms with disadvantage in the access and cost of formal credit markets, mainly small- and medium sized non-state-controlled firms, through informal gray-market lending. Albeit a legally prohibited practice in China, corporate re-lending emerges as an institutional response to the tremendous difficulties met by those unprivileged firms in securing formal bank loans despite the government's efforts to help them.

In nature, it is an arbitrage activity by channeling regulated low-interest-cost loans secured from the formal financial system to high-interest-earning private credit market in the unregulated informal financial system. The arbitrage opportunity persists simply because of the highly segmented formal and informal financial systems under financial repression wherein large privileged firms, especially state-controlled ones, have favorable access to formal finance but unprivileged firms, especially medium- and small-sized non-state-owned ones, have highly restricted access to formal finance (Song et al., 2011; Cong et al., 2019). This prompts privileged firms to channel formal loans to informal credit markets in order to earn high interest income. *Re*-lending deviates from the conventional regulatory arbitrage in that only a small number of privileged corporate borrowers can take advantage of their borrowing from the formal financial system in a discriminatory credit market to conduct financial-system-based arbitrage.

Furthermore, re-lending differs from the leading forms of shadow banking in China. In entrusted loans, nonfinancial corporate lenders provide loans to affiliated or nonaffiliated borrowers with banks serving as agents; the interest rates charged and the whole process remain under government regulations. In wealth management products (WMPs), banks attract outside individual investments to conduct off-balance

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sheet activities. *Re*-lending actually allows nonfinancial firms to exploit formal loans to carry out illegal gray-market lending with a high interest rate, which builds an informal credit business on the basis of the formal financial system. In addition, re-lending differs from traditional shadow banking activities, i.e., conventional gray-market private loans or underground loans, in which private lenders typically commit their own funds or pool individual savings for informal lending (World Bank, 1989[1]). Sometimes underground lenders solicit money from private savers. This illegal fundraising could constitute a serious criminal activity. This underground lending market operates largely outside the formal banking system, which produces a relatively smaller systemic risk to financial stability (Prabha and Ratnatunga, 2014).

Though the Chinese government has made great efforts to enhance the access of unprivileged enterprises to formal bank loans, these firms still face tremendous obstacles. One major reason is that they lack proper collateral and reliable loan guarantors (see, for example, Beck and Demirguc-Kunt, 2006; Li et al., 2022). The information asymmetry in the credit market and the large banks' preference of using "hard information" to evaluate borrowers also contribute to the financial constraints of small firms (Pagano and Jappelli, 1993; Berger and Black, 2011). As China's commercial banks have accelerated profit-oriented reforms over these decades, banks are increasingly alert to debt default and non-performing loan risks. Consequently, unprivileged firms still find it hard to obtain bank loans. Thus, informal credit from the shadow banking sector remains the only viable source of external finance for these firms.

By digging into several striking lawsuits related to corporate re-lending disputes and a sample of 133 legal cases of inter-corporate loan disputes, we have a glimpse of some features of potential re-lending loans. Inter-corporate loans are much more informal and flexible in loan terms. Many of them do not set loan maturity, interest rate, and do not have a formal loan contract signed. They seldom employ collateral or loan guarantors. Some inter-corporate loans are covered up by real business transactions to avoid exposing its illegality and often have a maturity as short as less than 3 months or even one day. Inter-corporate loans typically charge an annual interest rate of more than 20%, which is approximately four times the benchmark loan interest rate of banks. In addition, there were often penalty interest rates on loans in arrears. Some cases demonstrate that lenders channel bank loans to re-lending business. Some borrowers are implicated in multiple lending-related lawsuits, which is indicative of the severe credit constraint they face. In our sample of legal cases, approximately 15.6% are loans to related borrowers that share large shareholders or board members with the lending firm. Related inter-corporate loans are less likely to have a formal contract, collateral, and guarantors. Contrary to the situation of entrusted loans illustrated in Allen et al. (2019a), both related and unrelated inter-corporate loans charge a high average interest rate (16% and 25%, respectively), enabling lenders to earn considerable profits, although the former charge a higher rate.

After documenting inter-corporate loan features from legal cases, we carry out a forensic empirical analysis along three lines using the sample of Chinese listed firms in 2007–13. First, we attempt to detect the opaque re-lending business by employing three primary strategies, in light of financing patterns or the trace of fund flows in the balance sheets. Second, we analyze potential factors affecting the extent of involvement in re-lending business for non-financial firms, including growth opportunities, ownership structure and credit constraints. Third, we examine the relationship between corporate re-lending and entrusted loans.

As re-lending is an illegal activity for non-financial firms, we conduct forensic investigations by detecting its traces from the abnormal patterns in the balance sheets of listed companies using different strategies. First, we find a significantly positive relationship between financial assets and liabilities for non-financial firms, which implies that a firm *borrows to lend* like a financial intermediary. State-controlled firms actively conducted re-lending business, whereas private-controlled firms did much less, which is consistent with our prediction for this financial-system-based credit arbitrage activity. Second, from a dynamic perspective, we detect an abnormally positive correlation between financial assets and business fixed investments, giving additional evidence for the existence of re-lending. Third, we identify re-lending business by tracing the fund flows in corporate financial statements. Typically, the re-lent loans were recorded in the item of "other receivables" to evade regulatory scrutiny and legal punishments. We detect a positive relationship between "other receivables" and financial liabilities, suggesting that a fraction of re-lent funds was shrouded in the account of "other receivables". Moreover, we explore a complementary strategy and find that these abnormal patterns among balance sheet accounts were often more salient when firms obtained bank loans, which lends support to our claim that re-lending is built upon the formal banking system.

We exploit the effects of monetary policy shocks on re-lending, which is in essence a difference-in-differences (DID) analysis. Theoretically speaking, in periods with expansionary monetary policy, banks enjoy an enlarged lending capacity, which makes funds more easily available to privileged firms and thus promotes re-lending. On the other hand, it is likely that commercial banks may directly extend loans to the prospective borrowers of re-lending in credit boom periods, which would discourage re-lending business. However, state-controlled firms in China exhibit an asymmetric adjustment to monetary policy changes: they generally suffer less from a policy tightening and benefit more from a policy easing (Chen et al., 2019). Also, the studies on the four-trillion-yuan stimulus plan demonstrate that the credit expansion disproportionately favored SOEs which have implicit government guarantees, while it largely tightened the funding constraints of POEs and crowded out their investments (Cong et al., 2019; Huang et al., 2020). We find that loose (tight) monetary policies boosted (impeded) firms' engagement in re-lending business. Similarly, firms engaged more in re-lending when bank loan capacity was strengthened, and state-controlled firms rode on the credit boom more strikingly than did private-controlled firms. This shows that commercial banks would hardly provide loans to unprivileged firms even in credit boom periods under China's discriminatory credit market with financial repression.

After detecting re-lending businesses, we explore the potential factors affecting the size of the re-lending. Using "other receivables" as a proxy for the scale of re-lending business, we find that a better growth opportunity, better corporate governance, and more binding credit constraints would deter firms from conducting re-lending. Also, these factors weaken the abnormal relations in different strategies.

Next, we explore the relationship between corporate re-lending and entrusted loans. In general, firms were less likely to conduct re-lending when they had offered entrusted loans. However, affiliated and nonaffiliated entrusted loans exhibit different patterns. Firms offering nonaffiliated loans actively participate in re-lending while those offering affiliated loans not. Nonaffiliated entrusted loans and re-lending are primarily profit-seeking lending activities conducted by cash-rich but low-growth companies, and thus the two forms of shadow banking complement each other. Affiliated entrusted loans mainly provide financial support to subsidiaries or related parties, acting as substitutes for re-lending. These findings are consistent with the features of entrusted loans found in Allen et al. (2019a). Our exploration of the sample of legal cases shows that inter-corporate loans also consist of related and unrelated loans. Contrary to the case of entrusted loans, both related and unrelated inter-corporate loans charge a high average interest rate (16% and 25%), enabling lenders to earn considerable profits, while affiliated entrusted loans are often used to support the subsidiaries with low interest rates.

Last, we look at the 451 legal cases implicating micro-credit companies, which are local government-supported private credit agencies

[1] See details on the website of https://elibrary.worldbank.org/doi/10.1596/9780195207880_Chapter8.

with unclear legal status. Given their illegal nature, private moneylenders, pawn shops, and loan sharks, are unlikely to resort to the court system to resolve their loan disputes. We gain an insight on traditional gray-market private lenders through a comparison of these semi-official micro-credit companies with the sample of inter-corporate loan legal cases. We find that inter-corporate loans have a slightly higher interest rate, a larger loan size, a lower median maturity, and are much less formal (less likely to sign a loan contract, and less likely to have collateral or guarantors).

Our paper makes several contributions to the literature. First, we conduct a comprehensive study of re-lending, a type of opaque shadow banking prevailing in China and many other emerging market economies. Inspired by Shin and Zhao (2013) which also examines the role of non-financial firms as surrogate intermediaries in emerging economies, our study substantially enriches the toolkit by employing various strategies to detect the re-lending activities. We further explore the potential determinants of re-lending activities, and shed light on various characteristics of inter-corporate loans from a study of legal cases. Our study complements Acharya et al. (2020) who concentrate on WMPs and He et al. (2016) and Allen et al. (2019a) who examine entrusted loans. Chen et al. (2018) explore the nexus between monetary policies and Chinese shadow banking using micro banking datasets, and Hachem and Song (2021) and Wang et al. (2019) theoretically account for the unprecedented development of Chinese shadow banking. By examining the illegal re-lending business, our study helps provide a more complete picture of shadow banking activities in corporate China.

Second, this study is related to the literature on informal financing in developing countries, especially in China. Ayyagari et al. (2010) document the prevalence of informal financing for Chinese firms, and compare the impacts of informal financing and formal financing on firm growth. Degryse et al. (2016) analyze the strength and weakness of formal and informal financing for borrowing firms, and show that these two complement each other in supporting the growth of small firms. Allen et al. (2019b) show that informal finance underpins China's recent economic miracle, and separately examine the effects of constructive informal financing, e.g., trade credit, family borrowing, and underground financing, on firm growth. Our research brings re-lending, a neglected form of informal financing, to the literature on comparative financial system. Moreover, in the earlier studies, formal credit and informal credit markets are considered as two segmented markets (see, e.g., Zhang, 2008). This study shows that the two types of markets could be linked through corporate re-lending activities.

Third, our work is related to the studies on the inter-firm funding which can be classified into intra-group or inter-group lending. The intra-group loans, or related-party loans, often occur between firms under a common controlling shareholder or management, and are an internal decision to allocate capital across subsidiaries of a business group, in order to overcome certain market frictions (Gopalan et al., 2007; Buchuk et al., 2014), or to expropriate minority shareholders as a manifestation of looting (La Porta et al., 2003; Jiang et al., 2010). The inter-group funding typically depends on the reputation or firm relationship, such as partners along supply chains. It can take the form of trade credits to ease partners' liquidity constraints in certain periods or occur as the informal lending like underground financing (Allen et al., 2019a) or inter-corporate lending examined in this paper.

The remainder of the paper is organized as follows. Section 2 provides background information on China's shadow banking. Section 3 examines a small sample of inter-corporate loan disputes. Section 4 specifies the identification methodology and presents the empirical results. Section 5 discusses the relationship between re-lending and entrusted loans and between inter-corporate loans and micro-credit company loans. Section 6 concludes the paper.

2. Background of shadow banking in China

Shadow banking consists of a diverse set of institutions and markets that, collectively, carry out traditional banking functions outside, or in ways only loosely linked to, the traditional system of regulated depository institutions.[2] China's shadow banking system has been expanding explosively in recent years. According to the FSB report, the size of China's narrow measure of shadow banking took the fifth place in the world in 2012 and the second in 2017, when it reached an amount of $7.0 trillion and represented 16% of total narrow measure assets. International Monetary Fund (IMF) estimates that, as of March 2014, shadow banking finance had risen to 35% of GDP and was expanding at twice the rate of bank credit.[3] Estimates from Chinese domestic sources, for example, *China Financial Stability Report* issued by the People's Bank of China, also point to a large absolute and relative size of the shadow banking sector.

The Chinese shadow banking sector mainly consists of Wealth Management Products (WMPs), entrusted loans, trust business, and private lending.[4] It differs from the U.S. system in a number of notable aspects. First, shadow banking is bank-centric in China, where banks are dominant players. Banks directly issue and operate WMPs, and entrusted loans have banks as servicing agents to grant loans. This study also finds that corporate re-lending is much more likely to occur after firms borrow from banks than after firms issue bonds or stocks. Second, securitization or wholesale funding are hardly involved; hence, there is limited complexity. Third, the bank-centered shadow lending activities prompt the purchase of WMPs or other products on the assumption that the distributing banks provide guarantees for the safety of these products, although banks have no such legal obligation. The perceived priority placed by the authorities on maintaining financial and social stability contributes to the prevailing perception of implicit bank guarantees (Ehlers et al., 2018).

Financial frictions in emerging economies are well documented in the literature (Banerjee, 2001; Harrison et al., 2004). China is no exception (Allen et al., 2005). After decades of economic reform, the private sector has become the key driver of economic growth in China. The Chinese government has long encouraged financial institutions to provide financial support for private firms, especially small- and medium-sized firms (SMEs). For instance, China enacted *Small and Medium Enterprises Promotion Law* in 2002. The State Council issued *Opinions on Encouraging, Supporting and Guiding the Development of Individual and Private Sectors and Other Non-public Economy Sectors* in 2005, *Opinions on Further Promoting the Development of Small and Medium-sized Enterprises* in 2009, and *Opinions on Further Supporting the Healthy Development of Small and Micro Enterprises* in 2012. In 2013, the General Office of the State Council released *Opinions on Financial Support for the Development of Small and Micro Enterprises* (herein, "*Opinions*"). The *Opinions* explicitly pointed out the growth rate of loans to SMEs cannot be lower than the average growth rate of other forms of loans, and the newly increased amount cannot be lower than the amount in the preceding year; more strikingly, the *Opinions* support banking institutions' write-offs of nonperforming loans made to SMEs. Nonetheless, the non-state sector remained discriminated against in terms of credit access because of limited collateral or lack of political support (Liu et al., 2009; Poncet et al., 2010; Geng and N'Diaye, 2012; Cull et al., 2015). State-owned enterprises (SOEs) could finance more than 30 percent of investments by bank loans, while private enterprises only have less than 10 percent (Song et al., 2011). In this way, China's shadow banking

[2] See the speech by Chairman Ben S. Bernanke in 2012," Some Reflections on the Crisis and the Policy Response". The details can be found on the website of https://www.federalreserve.gov/newsevents/speech/bernanke20120413a.htm.

[3] See details in *Global Financial Stability Report: Risk Taking, Liquidity, and Shadow Banking: Curbing Excess while Promoting Growth* (p. 77) on IMF official website.

[4] Hachem (2018) provides a comprehensive survey on the studies of Chinese shadow banking and explicitly introduce the changes of shadow banking under different regulations.

plays an important role in intermediating funds to a considerable number of firms without privileged access to formal bank credit.

The rise of shadow banking in China is largely a legacy of the massive four-trillion-yuan stimulus plan program implemented in November 2008 as a response to the global financial crisis. The stimulus package attempted to mobilize SOEs and local government financing vehicles, with the help of banks, to invest in infrastructure projects. This scheme made China's growth pattern more credit-driven, SOE-favoring, and state-led than before 2008 (Cong et al., 2019). Consequently, a big chunk of low-interest-rate formal credit was extended to SOEs and some privileged large non-SOEs, which also could put up large amounts of fixed assets as collateral (Liu et al., 2009; Cong et al., 2019). This directly boosted the shadow banking activities of the corporate sector such as entrusted loans and private lending, as formal credit provided abundant cheap funds to those privileged corporations. By contrast, the stimulus plan largely tightened the funding constraints of private-controlled firms and crowded out their investments (Huang et al., 2020).

To alleviate credit constraints, unprivileged Chinese firms relied heavily on the costly private lending market. This study focuses on corporate re-lending business, an important but unexplored form of private lending, in which non-financial firms *borrow in order to lend*. This is a kind of direct lending between non-financial firms without commercial banks serving as intermediaries or agents, which is different from entrusted loans. Since the Chinese laws and regulations prohibit non-financial firms from engaging in lending, re-lending is a gray-market business or even underground finance activity in which non-financial firms channel formal loans to private credit markets to earn financial-system-arbitrage profits. Nevertheless, given the availability of alternative legal forms of inter-corporate lending such as entrusted loans, corporate re-lending is still popular. As discussed in detail in Section 5.1, it is mainly because corporate re-lending has the advantages of cost-effectiveness, simple procedure, and flexibility in loan terms.

To facilitate our strategies of tracking the abnormal relations between financial accounts, we take the critical period of 2007–2013 as our sample period. During this period, the Chinese shadow banking started, accelerated, and reached a peak. We end our analysis in 2013 for three reasons. First, regulations on shadow banking activities began to tighten in 2013. On April 1, 2013, the *Guiding Opinions of China Banking Regulatory Commission on Banking Services for the Real Economy* (Provision 9) was issued, which required that "commercial banks should prevent loans from being misappropriated or lent, and ensure that the bank loans are invested in real economy". On December 1, 2013, the *Notice of the General Office of the State Council on Issues Concerning Strengthening the Supervision of Shadow Banking* (Provision 107) was released. China Banking Regulatory Commission (CBRC) issued *Notice on Issues Concerning Improving the Organization and Management System of Bank Wealth Management Business* on July 1, 2014, *Measures for the Supervision and Administration of the Wealth Management Business of Commercial Banks* on December 1, 2014, and *Administrative Measures for Entrusted Loans of Commercial Banks* on January 1, 2015. The document for entrusted loans emphasized that banks should prevent firms from re-lending bank loans through entrusted loans. On March 28, 2017, CBRC further issued *Notice on Launching Special Governance of Various Regulatory Arbitrage Activities in the Banking Industry*, in which it required commercial banks to examine whether they extended "bridging loans" in violation of regulations, and whether their clients took bank funds for private lending and invested in high-interest-rate businesses.

Second, the sudden retreat of the global-financial-crisis-induced four-trillion-yuan stimulus plan might shrink the shadow banking sector much. The stimulus plan was withdrawn much earlier than expected in around 2011, which imposed non-negligible effects on the Chinese economy (Yu, 2021). After the stimulus plan, banks strengthened the requirements on the collateral (e.g., land or real-estate) or guarantees, and SOEs could not raise funds at the favored interest rate, which would shrink the upstream funds and increased the costs of re-lending.

Third, there may be competing forces that worked in the opposite direction. For example, year 2012–13 witnessed a regime change with President Xi Jinping coming to power. One prominent new development with profound socioeconomic impact is the launch and deepening of an anti-corruption campaign. According to Ouyang and Zhang (2020), corruption can substitute for conventional collateral in enforcing financial commitments in economies with poor institutions, especially for POEs. Corruptive relations with government officials keep firms committed to loan payments. The anti-corruption campaign broke the political connections of borrower firms, particularly for POEs, and destroyed the commitment mechanism. Borrowers might increasingly seek financial resources from the shadow banking sector such as re-lending and entrusted loans.

Moreover, China experienced two episodes of credit crunch in the interbank market in the middle and end of 2013. From 2014 onward, the liquidity shortage and credit crunch persisted and spread to the corporate sector. Many listed companies took advantage of excess demand for credit and considerably increased entrusted loans to earn high interest incomes. Further, the removal of the ceiling on the ratio of deposit to loan in 2015 might have affected the extension of bank credits, particularly stimulating the growth of credit from small banks. Given its illegality and the tightened regulatory environment, re-lending was unlikely to increase as much as did entrusted loans. There might be, however, market forces that prompted firms to continue to conduct re-lending. These competing forces might offset each other to some degree.[5] To better detect re-lending activity, we primarily focus on the sample period of 2007–13 in this study.

It is noteworthy that re-lending business between two non-financial firms is forbidden by laws in China. According to the *General Provisions for Lending of People's Bank of China* enacted in 1996, lenders must be approved by the PBOC to participate in lending business and must register with the State Administration for Industry and Commerce. The official stance toward re-lending softened slightly in August 2015 when the Supreme People's Court issued Interpretation No. 18, titled "*Provisions of the Supreme People's Court on Several Issues Concerning the Application of Law in the Trial of Private Lending Cases*". It stated that "where a party claims the validity of a private lending contract signed as required for production or business operation among legal persons and other organizations, the People's Court shall support such a claim" except under several special circumstances. Nevertheless, Provision 18 still emphasizes the illegality of borrowing from financial institutions and then lending to other non-financial firms. Consequently, firms do not record re-lending activities transparently and classify them properly in financial reports, which creates huge difficulties in identifying illegal business. We attempt to conduct a forensic study of this opaque re-lending business on the basis of the traces left on corporate balance sheets.

3. A glimpse of the mysterious *re*-lending world

To obtain a more complete picture of the inter-corporate loan world, including re-lending, we hand collected private lending dispute cases from the official government website *Judgment Documents Network* supported by the Supreme People's Court, and constructed a sample of 133 judicial cases related to inter-enterprise lending between real business entities. In Appendix B, we describe the sample construction process in detail, and explicitly introduce three lawsuits related to inter-corporate loan disputes, which help us have a glimpse of the practice of inter-corporate lending. Simultaneously, we obtained a sample of 451 loan dispute cases between private credit agencies, i.e., micro-credit companies, and business entities. As this research focuses on the re-lending behavior of enterprises, we analyze the former sample of 133 cases. We discuss the latter sample of 451 cases as one example of

[5] In our analysis of comparing the re-lending activity before and after 2013 (unreported), we obtain mixed results which probably reflect the competing forces of different factors at work.

private credit market and compare it with the inter-corporate lending sample in Section 5.

Admittedly, this small sample of legal disputes has its limitations and is unlikely to be representative of the universe of inter-corporate loans and corporate re-lending. First, SOEs and listed companies are rarely involved in private lending disputes. On the one hand, SOEs may be more cautious in lending decision-making and encounter less risk of default when granting loans. On the other hand, most of the legal documents and court judgments are public information. Appearing in a judicial case, regardless of as a plaintiff or defendant, will alert investors to legal risks and greatly affect the stock market performance of listed companies. For SOEs, it will reveal the risk of their tendency toward financialization, which is not in line with the national development strategy. Second, unlike the three examples explicitly illustrated in Appendix B, it is typically difficult to judge whether the inter-corporate loan is re-lending from the content of the court judgment for most judicial cases. Nonetheless, we collect information on whether the loan was hidden in the accounts of other receivables or security deposits, whether the borrowing was related to business transactions, and whether there was a business relationship between the borrower and the lender, which is often indicative of corporate re-lending activities.

To better assess the motives of inter-corporate lending and the specific characteristics of the borrowers and lenders, we collected various types of information for this sample of legal cases, which are explicitly introduced in Appendix B2. The data was hand-collected from three primary sources: (1) the judgment content of each case from the *Judgment Documents Archives*, (2) the *Aiqicha* website, and (3) the Peking University *Fabao* database (PKU law database). Appendix Table A1 provides the variable descriptions.

3.1. The characteristics of the full sample

Table 1 provides the descriptive statistics of the key variables we collected from the legal case sample. Panel A lists the loan terms. In general, the terms of inter-corporate loans are significantly different from those of bank loans or entrusted loans. Inter-corporate loans are much more informal and flexible in loan terms. The flexibility of these terms gives inter-corporate lending an advantage over entrusted loans. Our data shows that 35 of the 133 cases did not set loan maturity, 58 did not set the interest rate, and only 54.9% of the cases had a formal loan contract signed. For the cases with an agreed maturity, most of them were very short. The mean and median maturity of the sample were 8.77 months and 3 months, respectively, which were much shorter than the average maturity of bank loans and entrusted loans. In several extreme cases, the maturity was as short as only one day. Loan amount exhibits significant variations. The maximum loan value was 80 million yuan, whereas the minimum value was 27,300 yuan. The average loan amount was 366,400 yuan. In one legal case, the defendant borrowed from the plaintiff for four times with a total loan amount of only 44,000 yuan.

The interest rates for inter-corporate loans are very high. The mean and median annual interest rates of the sample were 23.25% and 21.6%, which were approximately four times the benchmark loan interest rate of banks, and the highest interest rate could exceed 100% per annum. In addition, there were often penalty interest rates on loans in arrears. In 43 legal cases, the overdue penalty interest rate was set in loan contracts, which was even higher than the loan interest rate. The average and median overdue penalty interest rates were 75% and 24% per annum, respectively, and some cases had a clause of 1% penalty interest for one day overdue repayment. Judging from the interest and penalty interest on loans in arrears, we believe this financial behavior could generate substantial additional income for corporate re-lenders.

Repeated borrowing between the plaintiff and the defendant is common. There are 29 cases (21.8%) in the sample where the borrower and the lender had more than one loan. Inter-corporate loans seldom employed collateral or guarantors, another exhibition of flexibility. In this sample of judicial cases, only 12.8% of the cases had collateral, and 36.1% of the cases had loan guarantors. Among the 52 cases with loan guarantors, 46.2% of them were guaranteed by other firms, while more than half of them were guaranteed by natural persons. The mean and median numbers of guarantors were 0.647 and 0, and the largest number of guarantors for a case was 8.

In 17.4% of the cases in the sample, inter-corporate loans were covered up by business transactions, which shows that the lender firm knew the illegality of its private lending behavior. For example, in the 2013 *Jiangsu Province Nanjing City Lishui District People's Court Civil Case* No. 302, the plaintiff claimed to have lent 3 million yuan to the defendant through bank transfers, and indicated the purpose as payment for goods. The court, however, found that there was no contractual relationship between the plaintiff and the defendant. In the 2013 *Jiangsu Province Nanjing City Pukou District People's Court Civil Case* No. 291, the plaintiff and the defendant had four loans but there were many coal transactions at the same time. The focus of the case was how to distinguish the loan from the payment for goods. In the 2013 *Jiangsu Province Nanjing City Qinhui District People's Court Civil Case* No. 591, the defendant repaid the borrowing by entrusting the plaintiff to export its goods. In the 2013 *Zhejiang Province Wenzhou City Ouhai District People's Court Civil Case* No. 713, the plaintiff produced custom-made clothes for the defendant, and then turned the account receivable into a loan, charging an annual interest rate of 24%.

More importantly, the content of some judgments clearly shows that the lender conducted re-lending. In the 2013 *Hunan Province Chenxi County People's Court Civil Case* No. 120, the document stated that the plaintiff and the defendant signed a loan agreement. At the same time, the plaintiff obtained a loan from the China Development Bank. The loan contract between the plaintiff and the defendant clearly indicates that the interest on the inter-corporate loan started on the day when the interest on the plaintiff's borrowing from the China Development Bank began to be calculated. The amount of the inter-corporate loan and its interest rate were based on those of the loan from the China Development Bank. In the 2013 *Shandong Province Juancheng County People's Court Civil Case* No. 1262, the plaintiff borrowed 2 million yuan from Shandong International Trust and Investment Corporation wherein the defendant provided a loan guarantee. The plaintiff took 400,000 yuan out of the loan to re-lend to the defendant. In addition, in some cases, when the defendants appealed to the court, they mentioned that the plaintiffs did not have enough self-owned funds to lend. Instead, they borrowed from banks and re-lent, which was an illegal transfer of bank funds (see, e.g., the 2013 Guangdong Province *Dongguan City People's Court Civil Case* No. 2799).

We report the statistics of the borrower-lender relations variables in Panel B of Table 1. Many borrowers and lenders had established certain types of connections before the loan occurred. In 15.6% of the cases, the plaintiff and the defendant had equity ownership in each other or senior management connections. In 19.5% of the cases, both parties were operating in the same industry, and in 86.9% and 73.1% of the cases, both parties were from the same province and the same prefecture-level city, respectively. It is worth noting that, based on the content of the judgment documents, in 26.2% of the sample cases, the two parties had business connections before conducting inter-corporate loan, such as partners in project contracting or supplier-customers. Moreover, some of our other findings also suggest that the borrower and the lender might have some mutual trust at the beginning. For example, collateral, guarantors, and even formal contracts were often absent in the inter-corporate loans in these legal cases. The lenders filed lawsuits in court on average 488 days after the loan was overdue, which shows that the plaintiffs displayed a considerable amount of patience before bringing the disputes to the court.[6]

[6] We exclude four cases in which the plaintiffs initiated legal proceedings before the expiry date when reporting the statistics for the duration from the expiry date of loans to the prosecution date.

Table 1
Summary statistics of a legal cases sample.

Variables	Mean (1)	Median (2)	P25 (3)	P75 (4)	Min (5)	Max (6)	Std (7)	N (8)
Panel A: Loan information								
Maturity (month)	8.772	3	1	6	0.0333	240	25.39	98
Interest rate (%)	23.40	21.60	12	24.60	2.55	133	18.72	73
Amount (ten thousand)	336.4	150	46	300	2.730	8000	795.5	133
Penalty_interestrate (%)	75.07	24	18	109.5	5.600	365	108.3	43
Frequency	1.450	1	1	1	1	11	1.192	129
Hidden	0.174	0	0	0	0	1	0.381	132
Loan contract	0.549	1	0	1	0	1	0.499	133
Collateral	0.128	0	0	0	0	1	0.335	133
Guarantee	0.361	0	0	1	0	1	0.482	133
Num_guarantor	0.647	0	0	1	0	8	1.136	133
Firm_guarantor	0.462	0	0	1	0	1	0.503	52
Decision	0.922	1	1	1	0	1	0.268	129
Support_interest	0.597	1	0	1	0	1	0.494	72
Duration_endtosue (day)	488.3	381	189	657	4	3005	523.2	51
Panel B: Relation								
Is_related	0.156	0	0	0	0	1	0.365	128
Same_ind	0.195	0	0	0	0	1	0.398	128
Businessrelation	0.262	0	0	1	0	1	0.441	130
Same_prov	0.869	1	1	1	0	1	0.338	130
Same_city	0.731	1	0	1	0	1	0.445	130
Panel C: Firm information								
Capital_L (ten thousand)	26,841	1250	200	5377	10	222,600	198,432	128
Listed_L	0.01	0	0	0	0	1	0.089	127
SOE_L	0.156	0	0	0	0	1	0.365	128
Capital_B (ten thousand)	2643	1000	300	2500	10	34,960	5038	125
Listed_B	0	0	0	0	0	0	0	128
Anyothercase_B	0.883	1	1	1	0	1	0.323	128
Num_lendingcases_B	4.617	2	0	6	0	36	7.194	128
Num_allcases_B	20.97	11	4	24	1	200	31.67	128

This table reports the summary statistics of a sample of 133 legal cases from the official government website *Judgment Documents Network* supported by the Supreme People's Court. All the legal cases are about private lending between two non-financial firms. See Appendix Table A1 for detailed descriptions of variables.

Another striking phenomenon is that the borrowers and lenders were sometimes matched by government agencies or commercial banks in some cases. For example, the documents in the 2013 *Anhui Province Fuyang City People's Court Civil Case* No. 00,052 case mentioned that the basis for the signing of the loan contract was in the minutes of a special meeting organized by the People's Government of Linquan County of Anhui Province, which required the plaintiff company to settle the cash flow of 15,000,000 yuan for the defendant within 10 days. The document for the 2013 *Guangdong Province Shenzhen City Bao'an District People's Court Civil Case* No. 1366 mentioned that, to ensure the stability of the jurisdiction, the Guanlan Sub-district Office of Longhua New District, Shenzhen City decided that the plaintiff lent to the defendant for emergency funding needs. Thus, local governments sometimes facilitated inter-corporate loans.

Panel C shows the statistics of borrowers and lenders' variables. Based on the information collation of the judgment documents database and Peking University Fabao database, we can infer that the borrower firms faced tremendous financial constraints, although there were no explicit statements available. In our legal case sample, a considerable proportion of borrowing companies had been involved in judicial disputes multiple times. That is, many borrowing companies were frequent customers in the inter-corporate loan market or other private lending markets. According to Panel C, 88.3% of the borrowing companies had other judicial disputes (including private lending and other cases) as shown in the judgment documents database. Among them, the average number of cases related to private lending in which the sample borrowing companies got implicated was 4.62. The frequent legal disputes indicate that borrowing companies might encounter obstacles to raising funds in the normal financial market, and could only resort to private loans including inter-corporate loans that required high interest payments. In addition, the average size of registered capital of the lender was 268 million yuan, and that of the borrower was 26.43 million yuan. Thus, the lender was typically significantly larger than the borrower in firm size. This is consistent with our finding that lending firms were often large-scale companies with certain financing advantages.

It is difficult to understand thoroughly the motive of the borrowing company for seeking inter-corporate loans and the reason why the loan was overdue from the judgment documents. We, however, gain some insights from the extracted information of some legal cases. Among the 133 legal cases, the defendants in 77 cases reported the reasons for their borrowing. The reasons included the alleviation of the shortage of funds, business turnover needs, project investment needs, and the purchase of machinery, equipment, and raw materials. In other words, financial constraint is the primary reason for borrowing.

The defendants in 56 cases stated the reasons for their debt default, which largely covered the following three categories: (a) they lacked funds and were unable to repay the loan (17 cases); (b) the defendant denied the existence of the loan because there was no formal loan contract or because it was hidden in supplier-customer business transactions (15 cases); (c) the defendant did not admit the loan secured before the change of major shareholders or legal representatives (10 cases). Based on this information, albeit limited, we find that liquidity shortage was a main reason for loan default or overdue borrowing. Meanwhile, deliberate or malicious debt default could be frequent among these debt-related lawsuits.

We also look at the identities of the lenders in the legal cases. There were relatively few SOEs involved in judicial cases. Statistics show that only 15.6% of the cases had SOE lenders. After reading the judgments of 20 cases with SOE lenders, we find several characteristics. First, SOEs tended to carry out multiple inter-corporate loans. In the sample, two SOEs lent to three different firms and got involved in legal disputes. Second, SOEs paid more attention to the security of loans than did non-SOEs. In the cases of SOE lenders, 75% had signed formal loan contracts with borrowers, and 50% had arranged loan collateral or joint guarantors, while in the cases of non-SOE lenders, 50% had formal loan contracts, and only 38% had collateral or loan guarantors. Third, all the re-

lending behaviors, i.e., lender firms transformed bank loans they secured into inter-corporate loans, confirmable through legal documents took place in SOE lender cases. In addition, out of all 133 cases, only one case involving a state-owned enterprise as the plaintiff resulted in the repayment of the loan by the guarantor.

We observe large variations in the judicial decisions in various cities on inter-corporate loans, especially in terms of the recognition of the high interest rate of the loan. Panel A shows that in 92.2% of the cases, the judgment was in favor of the plaintiff, that is, the defendant had to repay the principal owed (*Decision*). Compared with the cases decided in favor of the defendant, the inter-corporate loan cases decided in favor of the plaintiff had a longer mean maturity (9.23 months vs. 3.84 months), a slightly smaller loan size (3.4 million yuan vs. 3.6 million yuan), and a little higher mean agreed interest rate (23.55% vs. 19.8%). As all inter-corporate loans were gray-market credit market activities, a high interest rate was a common phenomenon, and it was not a key determinant of the court's decisions. Moreover, legal cases judged in favor of the lender had significantly less frequent cover-up of loans in real business transactions (14% vs. 56%), slightly more frequent formal loan contracts (56% vs. 50%), a little higher fraction with collateral (12% vs. 10%) and a significantly higher proportion with loan guarantors (39% vs. 0).

Nonetheless, among the 72 loan cases with agreed interest rates, only 59.7% of the verdicts supported that the defendant should repay the interest according to the agreed interest rate (*Support_interest*). Compared with the cases where the agreed interest rate was not supported by the court ruling, the supporting cases had a significantly lower mean pre-agreed interest rate (16.64% vs. 32.94%), a smaller average loan size (3.28 million yuan vs. 5.78 million yuan), and a longer mean maturity (13.3 months vs. 7.13 months).

The stance of the court on interest rates in inter-corporate loans varied from city to city. This variation could be partly affected by the level of pre-agreed interest rates for inter-corporate loans, i.e., the mean interest rate of the interest claims supported by the courts was only approximately half that of claims unsupported. The variation could also be partly shaped by the attitude of the local government and local judiciary toward inter-corporate loans. The municipal courts in provinces with below-median GDP per capita supported 57.14% of the lenders' claims for pre-agreed interest rates, whereas the proportion was 62.16% for the local courts in provinces with above-median GDP per capita. Though the two fractions are not statistically significantly different, it suggests that the local judiciary in more developed regions might be more tolerant of high interest rates charged in inter-corporate loans. Taking a closer look, we find that the average inter-corporate loan interest rates were slightly lower in regions with higher per capita GDP (22.06% vs. 24.94%). Thus, a lower average interest rate might also prompt local courts to more likely support these interest claims.

3.2. Related and unrelated inter-corporate loan cases

Allen et al. (2019a) show that the purposes of entrusted loans to affiliated and non-affiliated entities are obviously different. Affiliated entrusted loans are typically used to support the operations of subsidiaries, while non-affiliated loans often charge very high interest rates to earn profits. In terms of legal cases, we are also interested in understanding whether loans between related parties and those between unrelated enterprises exhibited striking differences.

In the sample of 133 legal cases, the borrower and lender were related parties in 15.6% of the legal cases. That is, they had common large shareholders or board members. We then divide the legal case sample into a subgroup of related parties and the other of unrelated parties. Table 2 separately reports the summary statistics of the two subgroups and the difference in each variable. Though most of the differences are not statistically significant (probably because of small sample size), several points are worthy of note. First, the difference in the interest rate of related and that of unrelated inter-corporate loans is striking. The average interest rate was 16.12% for the related group and 25.2% for the unrelated group. More strikingly, the mean overdue penalty interest rate was much lower in the related group than in the unrelated group (24.4% versus 76.9%). The average amount of related-party loans is significantly much larger (8.26 versus 2.48 million yuan), approximately thrice the amount of unrelated-party loans.

Second, the loan contracts are less formal between related parties. A formal contract was written in 45% of the legal cases for related loans and in 56.5% of the cases for unrelated loans. Only 5% of related-party inter-corporate loan cases had collateral, while the figure was 14.8% for unrelated-party loan cases. The mean number of guarantors was larger in the unrelated loan group. This implies that unrelated lenders were more cautious and demanded loan guarantees to reduce default risk. The convictions confirmed it. The courts supported the request for loan principal repayment in 94.2% of unrelated-party cases and in 80% of related-party cases.

By contrast, the courts supported the claim for interest payment in 60% of related-party loan cases and in 58.6% of unrelated loan cases. Perhaps the typically high interest rates in unrelated-party loans deterred the courts from endorsing the lenders' claims. We also find that related lenders and borrowers tended to have some mutual trust in the first place and negotiated among themselves as much as possible before bringing the disputes to the court. On average, the related lenders initiated legal proceedings 590 days after the maturity date, while the unrelated lenders took legal actions more quickly (485 days).

Table 2
Legal cases of inter-corporate loans: related and unrelated parties.

Variables	Related party		Unrelated party		Mean Difference
	Mean (1)	Median (2)	Mean (3)	Median (4)	(3) – (1) (5)
Loan information					
Maturity (month)	8.149	5	9.076	3	0.928
Interest rate (%)	16.12	18	25.20	22.40	9.08
Amount (ten thousand)	826.1	215	247.9	150	−578.29***
Penalty_interestrate (%)	24.40	24.40	76.90	24	52.50
Frequency	1.632	1	1.429	1	−0.203
Hidden	0.250	0	0.159	0	−0.091
Loan contract	0.450	0	0.565	1	0.115
Collateral	0.050	0	0.148	0	0.098
Guarantee	0.300	0	0.361	0	0.061
Num_guarantor	0.450	0	0.620	0	0.170
Firm_guarantor	0.500	0.500	0.465	0	−0.035
Decision	0.800	1	0.942	1	0.142**
Support_interest	0.600	1	0.586	1	−0.014
Duration_endtosue (day)	589.8	645.5	484.8	346	105.0
Relation					
Same_ind	0.150	0	0.204	0	0.054
Businessrelation	0.450	0	0.213	0	−0.237**
Same_prov	0.800	1	0.889	1	0.089
Same_city	0.750	1	0.731	1	−0.019
Firm information					
Capital_L (ten thousand)	129,028	5000	7917	1000	−121,111.3**
Listed_L	0	0	0.009	0	0.009
SOE_L	0.200	0	0.148	0	−0.052
Capital_B (ten thousand)	2461	1004	2701	1000	240.19
Anyothercase	0.800	1	0.897	1	0.097
Num_lendingcases	3.800	0.500	4.794	2	0.994
Num_allcases	12.70	6.500	22.13	11	9.431

In this table, we divide the legal case sample into one subgroup of related or affiliated loans and the other of unrelated or unaffiliated loans, according to whether the borrower and lender share common large shareholders or board members. Columns (1) – (2) report the statistics of related loans and columns (3) – (4) report the statistics of unrelated-party loans. Column (5) shows the mean difference between these two groups. See Appendix Table A1 for detailed descriptions of variables. We test the difference by t-statistics, and *, **, *** denote significance at 10%, 5%, and 1% levels, respectively.

Last, we examine the difference in firm characteristics. Related lenders had a much larger firm size measured by the registered capital than unrelated lenders (1290 million versus 79 million yuan) and are more likely to be state-controlled firms (20% versus 14.8%). The differences are similar to those observed in entrusted loans (See Section 3 of Allen et al. (2019a)). The average size of borrowers in these two subgroups was very close, and they were both small (24.6 million versus 27 million yuan). Moreover, unrelated borrowers had on average a larger number of other loan-related legal cases as well as a total number of legal cases.

In a nutshell, related and unrelated inter-corporate loans differ in several aspects, including the loan amount, interest rate, the terms of contract, and the characteristics of lenders and borrowers.

4. Forensic empirical investigation

4.1. Sample descriptions

Our sample consists of 2303 firms in China over the period of 2007–13.[7] Chinese shadow banking started from 2007, accelerated after the government four-trillion-yuan stimulus plan in response to the global financial crisis in 2009, and reached a peak around the first half of 2014. Therefore, 2007–2013 is a critical period to examine the development of shadow banking activities of non-financial firms. We collected the fundamental variables in financial statements from the Compustat Global database. We obtained additional information on the ownership nature of companies, stock prices, earnings indicators, shareholder identity and structure, and institutional investors' stockholdings from the Wind database. These two databases were merged using the ISIN code.[8] Observations lacking necessary financial variables such as cash and short-term investment, ROA, total receivables, or plant, property, and equipment (PPE) were excluded from the sample. This procedure yielded a final sample of 2303 firms and 14,497 observations.[9]

Columns (1) – (4) of Table 3 report some descriptive statistics of variables used in the regression analysis. The median ratio of financial assets to sales is 0.447, while the corresponding median ratio for the U.S. companies is 0.1313, which suggests a high level of cash reserve held by Chinese firms. The median ratio of financial liabilities to sales is 0.431, whereas the corresponding median ratio for the U.S. companies is 0.2179, indicating a high leverage level for firms in China. To have a rough idea of our sample firms, we find that the ratio of other receivables to total sales, a proxy for the size of re-lending business, is about 5.2%. Our sample firms have a market-to-book ratio (*MB ratio*) of 8, and a mean price-earnings ratio (PE ratio) of 94. The medians of annual growth rates of total assets and earnings are 13.9% and −2.4%, respectively. As expected, the mean fraction of shares held by the largest shareholder (*Block*) is 34.4%, indicating a fairly concentrated ownership structure. The average fraction of shares controlled by directors is 10.1%. Since the allocation of shares to directors could alleviate the agency problem to a certain extent (Morck et al., 1988), the proportion of shares held by directors may influence firms' participation in re-lending business.

State-controlled or owned firms (SOEs) and privately-controlled or owned firms (POEs) account for 39% and 51% of our sample, respectively. Under the politically-based discrimination in credit markets, SOEs are expected to have more funds available to engage in re-lending business. Columns (5) – (8) of Table 3 make a simple comparison of SOEs and POEs in terms of these fundamental variables. Two subsamples differ in several aspects. First, SOEs had more external debts, which is consistent with the observation that they had comparative advantage in getting access to the formal credit market. Second, SOEs made less investment and showed a lower profitability than POEs, which is revealed by their relatively lower mean and median ratios of business fixed investments to sales and ROA. Strikingly, POEs dominated SOEs nearly in all the measures of growth opportunity, including market-to-book ratio, and the growth rate of earnings or total assets. Hence, POEs had better growth prospects than SOEs. In terms of ownership concentration, the largest shareholders controlled a much higher proportion of shares in SOEs than in POEs (39.6% versus 33.9%) but the directors held a significantly smaller proportion of shares in SOEs (4% versus 19.9%). This reflects the fact that directors typically held a much smaller fraction of shares in SOEs whereas the state or state entities had larger block shareholdings.

When we turn to credit and liquidity constraints, we find that SOEs exhibited a significantly smaller inventory, a higher degree of asset tangibility, and a slightly lower level of trade credit than did POEs. This is consistent with the fact that SOEs were more frequently engaged in capital-intensive industries and had better access to formal finance. Hence, SOEs should be less subject to credit or liquidity constraints when they consider embarking on re-lending business. Bearing these differences in mind, we should carefully investigate different patterns of SOEs and POEs when detecting the existence of re-lending business.

4.2. Strategies in detecting inter-corporate loans

In our sample period (2007−2013), corporate re-lending activities were forbidden by laws and regulations. Consequently, they were not explicitly recorded in corporate balance sheets. Nonetheless, we conduct several forensic accounting exercises to detect the existence of re-lending business by tracking the abnormal relationship between financial accounts on balance sheets.

4.2.1. Strategy 1: financial assets and financial liabilities

In the spirit of Shin and Zhao (2013), we examine the correlation between liquid financial assets and financial liabilities to detect whether the increase in debts is devoted to real investments or to re-lending business. According to the classic "pecking order" theory (Myers and Majluf, 1984), firms prefer to employ internal funds first, and would tap the external funds only when internal funds are inadequate.[10] Then, financial assets and financial liabilities on the balance sheets would exhibit a negative correlation, i.e., when a firm finances a real investment project, it begins with drawing on its liquid assets, such as cash holdings or bank deposits, and then turns to banks for loans or issues new bonds either because internal funds are inadequate or because the firm plans to keep some liquid assets for daily operations. Therefore, we should observe that financial assets go down and financial liabilities go up, i.e., they move in the opposite directions for "*borrow-to-invest*" firms.

By its very nature, a bank takes deposits and extends loans concurrently, leading to a positive correlation between its financial assets and financial liabilities on its balance sheet. Similarly, if firms serve as financial intermediaries by concurrently borrowing and lending, they may show a positive correlation between financial assets and financial liabilities, and the pecking order theory would be violated. That is, the

[7] In November 2006, eight government authorities released a joint announcement to resolve the related-party loans in the balance of other receivables account. Since related-party loans and re-lending business both contain the forms of lending to other firms, but have different features, we choose 2007 as the starting year to avoid the confounding effect from related-party loans.

[8] We exclude observations without ISIN code. If one firm has two ISIN codes or one ISIN is connected to two firms, these observations are also dropped. Moreover, we omit the observations with ISIN codes but without firm name.

[9] The actual size of sample used in different analyses depends on the data availability and is reported in each step.

[10] For the purpose of our identification, we do not require that firms strictly adhere to the pecking order theory. As long as internal financing is the first shot, the identification strategy still works.

Table 3
Summary statistics of variables in regression analysis.

	Full sample				SOE		POE		Mean difference
	Median	Mean	Std.	N	Median	Mean	Median	Mean	(8) – (6)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
finasset_sales	0.245	0.447	0.570	14,469	0.209	0.341	0.281	0.529	0.187***
finlia_sales	0.217	0.431	0.713	14,469	0.285	0.549	0.181	0.340	−0.209***
fixinv_sales	0.026	0.061	0.261	13,664	0.017	0.056	0.037	0.065	0.009*
orec_sales	0.016	0.052	0.162	14,469	0.015	0.047	0.0176	0.056	0.008***
traderec_sales	0.178	0.224	0.197	14,469	0.131	0.176	0.220	0.260	0.084***
size	7.388	7.455	1.379	14,492	8.021	8.163	6.953	6.943	−1.220***
ROA	0.056	0.069	0.782	14,497	0.036	0.042	0.072	0.096	0.053***
leverage	0.463	0.531	2.221	14,494	0.532	0.532	0.411	0.496	0.036
MB ratio	3.359	8.227	189.0	11,416	3.217	9.587	3.556	7.052	−2.167
growth_ta	0.139	1.287	54.17	13,686	0.111	1.351	0.171	1.295	−0.056
growth_earnings	−0.024	0.211	56.35	13,627	−0.011	0.627	−0.046	−0.150	−0.777
cashflow	14.93	14.72	1.567	14,464	14.93	14.81	14.93	14.67	−0.149***
Block	0.344	0.365	0.157	12,261	0.393	0.396	0.312	0.339	−0.057***
Director shares	0.000	0.101	0.190	11,409	0.000	0.004	0.067	0.199	0.195***
Inven	0.127	0.109	0.070	14,466	0.110	0.100	0.132	0.115	0.015***
Tangi	0.124	0.213	0.178	14,466	0.175	0.257	0.117	0.182	−0.075***
TrCredit	0.046	−0.155	12.49	14,466	0.044	−0.210	0.047	−0.150	0.060

This table presents summary statistics of variables used in the empirical analysis over the period of 2007–2013. In Columns (1) – (4), median, mean, and standard deviation of variables are calculated for the whole sample. Columns (5) – (6) and Columns (7) – (8) report the median and mean of variables in the subsamples of state-controlled firms and private-controlled firms, respectively. We test the mean difference between two subsamples by t-statistics in column (9), and *, **, *** denote the significance at 10%, 5%, and 1% levels, respectively. See Appendix Table A1 for detailed descriptions of variables.

negative association between liquid financial assets and financial liabilities in "borrow-to-invest" firms would change to the positive correlation in "*borrow-to-lend*" firms.

In employing Strategy 1 to detect re-lending activities, we conduct regressions of financial assets on financial liabilities (both scaled by total sales). A positive and statistically significant relationship will lend support to the claim that re-lending activities are very likely to exist. A violation of the prediction of the "pecking order" theory, especially a positive relationship between financial assets and financial liabilities, albeit statistically insignificant, may suggest that some moderate re-lending activities are still likely to exist. The specification is as follows:

$$finassets\_sales_{i,t} = \beta_0 + \beta_1 finlia\_sales_{i,t} + \beta_2 ROA_{i,t-1} + \beta_3 size_{i,t-1} + \beta_4 leverage_{i,t-1} + \delta_i + \rho_t + \varepsilon_{i,t}, \quad (1)$$

where *i* and *t* denote firm and time. $finassets\_sales_{i,t}$ is the sum of cash and short-term investments scaled by sales, and $finlia\_sales_{i,t}$ is the sum of short-term debt and long-term debt scaled by sales, both of which are winsorized at the 1% and 99% level. *Size* is measured by the logarithm of total assets, and *leverage* is the ratio of liabilities to assets. All control variables are lagged by one year.

Table 4 reports the estimation results. Column (1) suggests that financial assets were significantly and positively associated with financial liabilities, which is contrary to the prediction of the pecking order theory. In other words, the "borrow-to-invest" pattern did not dominate in our sample, whereas the "borrow-to-lend" pattern might prevail. The results remain unchanged if we include firm size, leverage, and profitability as control variables in Column (2). A one-standard-deviation increase in scaled financial liabilities was associated with an increase of 0.06 in the ratio of financial assets to sales.

In China, the politically based financial favoritism dictates that large firms and SOEs always have better access to credit markets (e.g., Song et al., 2011; Dekle and Vandenbroucke, 2012; Fan et al., 2015). Since different degrees of credit constraints affect the availability of funds for re-lending, we hypothesize that, other things equal, less credit-constrained companies were more likely to engage in shadow banking activities. Columns (3) – (4) summarize the estimation results for the subsamples of state-controlled firms (SOEs) and privately-controlled companies (POEs), respectively. Obviously, firms with different ownership types behaved differently. The estimated coefficients of financial liabilities are statistically significantly positive in the SOE subsample. Quantitatively, a one-standard-deviation increase in the scaled financial liabilities led to an increase of 0.12 in the ratio of financial assets to sales. Considering that the mean of the dependent variable is 0.45, we believe the economic impacts are large.

Meanwhile, the subsample of POEs produced a negative correlation between financial assets and financial liabilities, but statistically insignificant. This indicates that POEs might also violate the prediction of the "pecking order" theory, and were likely to have some re-lending activities. Nevertheless, they did not participate in the re-lending business as actively as did SOEs. We further perform a simulation test to determine the significance of differences in the estimated coefficients of different subsamples (See the methodology in Cleary (1999)). The last row reports the empirical *p*-values calculated in the bootstrapping procedures, which indicate the percentage of simulations where the difference in the estimated coefficients is larger than the actual observed difference. The *p*-value tests suggest that the coefficients of the SOE and POE subsamples are significantly different at the 1% level.[11]

The subsample results are consistent with our expectation. On the one hand, POEs faced more difficulties than did SOEs in obtaining external finance from the formal financial system for investments. Thus, they lacked sufficient funds to re-lend to other firms. On the other hand, POEs had higher profitability and productivity growth (e.g., Dollar and Wei, 2007; Song et al., 2011). As shown in Table 3, the gap in ROA between SOEs and POEs was about 5 percentage points per year.

[11] The simulation procedure is explicitly described in Cleary (1999). The null hypothesis in this test is that the coefficient estimates for two subsamples are equal. Specifically, n1 and n2 are the actual numbers of observations in the two subsamples whose estimated coefficients are to be compared. We repeat 1000 simulations in which n1 and n2 observations from the pooled sample are randomly chosen for subgroup 1 and 2, respectively, and calculate the empirical *p*-value in this bootstrapping procedure that indicates the percentage of simulations where the difference in the estimated coefficients is larger than the actual observed difference. Moreover, we further include the interaction term of SOE dummy with financial liabilities in strategy 1, to quantify the difference between SOE and POE. In unreported results, we find that the estimated coefficient on the interaction term is 0.1340 with a t value of 2.52. We perform this simulation test for all remaining tables in which we compare the patterns between the two groups, except for Panels B and C of Table 7 due to a limited number of observations in certain subsamples. We thank the anonymous reviewer for this suggestion.

Table 4
Strategies 1 and 2.

	Strategy 1				Strategy 2			
	Full sample	Full sample	SOE	POE	Full sample	Full sample	SOE	POE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
finlia_sales	0.0904***	0.0824***	0.1480***	−0.0071				
	(0.0264)	(0.0275)	(0.0390)	(0.0419)				
fixinv_sales					0.0857***	0.0978***	0.0647*	0.0776
					(0.0294)	(0.0298)	(0.0357)	(0.0491)
ROA		0.0019	−0.0136	0.0030		0.0020	−0.0788	0.0013
		(0.0014)	(0.1537)	(0.0115)		(0.0014)	(0.1344)	(0.0110)
size		0.0725***	−0.0518**	0.1028***		0.0875***	−0.0130	0.1034***
		(0.0167)	(0.0225)	(0.0214)		(0.0168)	(0.0235)	(0.0219)
leverage		0.0034**	0.0019	0.0077		0.0045***	0.0494	0.0090
		(0.0017)	(0.0784)	(0.0095)		(0.0015)	(0.0682)	(0.0091)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	14,469	13,660	5653	6777	13,664	13,660	5653	6777
adj. R-sq	0.462	0.492	0.603	0.457	0.485	0.489	0.578	0.458
Empirical *p*-values			0.010				0.382	

This table presents the estimation results of models (1) and (2) over the period of 2007–2013. The dependent variable is the sum of cash holdings and short-term investments scaled by sales. *finlia_sales* is the sum of short-term debts and long-term debts scaled by sales. Columns (1) – (2) and (5) – (6) examine the entire sample, columns (3) and (7) examine the subsample of state-controlled firms (SOEs), and columns (4) and (8) examine private-controlled firms (POEs). See Appendix Table A1 for detailed descriptions of control variables. Firm and year fixed effects are included in all regressions. The empirical *p*-values are calculated in a simulation procedure to test the significance of difference in coefficient estimates of different subsamples. The null hypothesis is that the coefficients for two subsamples are equal. Robust standard errors clustered at firm level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Consequently, re-lending business, despite generating substantial interest income, was not very attractive for POEs, while SOEs were induced to engage in it quite much.

One may argue that the observed abnormal correlation between financial assets and financial liabilities in the first four columns of Table 4 could be driven by other possibilities, rather than re-lending business. One possibility is that firms are likely to hold the borrowed funds to wait for a better timing of investments. We could then also observe a co-movement of financial assets and financial liabilities. It is noteworthy, however, that the opportunity costs of holding cash are high due to the difficulties in obtaining bank financing and relatively high interest rates charged by banks (the benchmark interest rate for one-year loans was around $6-7\%$ in our sample period). Therefore, firms typically had explicit investment plans before borrowing money. Moreover, we will exclude the possibility of waiting for investment opportunities by examining the relationship between liquid financial assets and business fixed investments in the subsequent analysis of Strategy 2.

Another possible explanation is that firms borrow from banks or issue bonds, but retain the funds for precautionary purpose, resulting in a positive correlation. However, the sharp contrast between SOEs and POEs negates this hypothesis. The precautionary cash holding is found to be more important for POEs than SOEs (Yang et al., 2017). Nevertheless, the abnormal co-movement pattern is more pronounced in the SOE subsample, while SOEs have a comparative advantage in obtaining formal finance. Consequently, they should have weaker incentives to hold cash equivalents for precautionary purpose. In Appendix Fig. A1, we depict the ratio of liquid assets to total assets for different groups. Clearly, POEs had the highest ratio in the sample period, followed by foreign-controlled enterprises (FOEs). The ratios of both POEs and FOEs were substantially higher than that of SOEs. This demonstrates that the particularly striking pattern observed for SOEs was unlikely to be driven by this precautionary cash holding. Overall, the estimation results in Table 4 provide supportive evidence for the existence of re-lending business.

4.2.2. Strategy 2: financial assets and business fixed investments

This strategy exploits a connection between liquid assets and fixed investments, inspired by Japan's experience in the 1980s. Non-financial firms in Japan conducted a "carry trade" by issuing corporate securities at low costs in international markets and depositing the funds raised into banks as time deposits to earn high interest rates following the liberalization of the Japanese banking system. Thus, non-financial firms could earn the interest rate spread and change their roles vis-à-vis those of banks from debtors to creditors. Hattori et al. (2009) verify the transaction of "carry trade" by observing an abnormal correlation between liquidity ratio and business fixed investment. Normally, firms tend to optimally match the timing of fund raising and that of business fixed investment by taking into consideration the high opportunity costs of holding liquidities. Thus, a fraction of the reserve of cash equivalents should be tapped when firms increase business fixed investments. Consequently, a negative correlation between the two is expected. Nonetheless, the costs would decrease if firms could deposit the raised funds into bank accounts to earn high interest income. Hence, the correlation becomes weak or even vanishes.

The situation is similar in China's re-lending. The borrowing costs in the range of $6-7\%$ pale in comparison with the extremely high re-lending interest rates of more than 20%. In anticipation of the high return from re-lending, firms are relatively free to hold cash equivalents for a while and do not need to carefully match cash holdings with the timing of investment. In such case, the relationship between business fixed investments and liquid financial assets would become weak or even reversed.

To detect whether the participation in re-lending drives an abnormal correlation between liquid financial assets and business fixed investments, we estimate the following specification:

$$finassets\_sales_{i,t} = \beta_0 + \beta_1 fixinv\_sales_{i,t} + \beta_2 ROA_{i,t-1} + \beta_3 size_{i,t-1} + \beta_4 leverage_{i,t-1} + \delta_i + \rho_t + \varepsilon_{i,t} \quad (2)$$

where *fixinv* is the change in net property, plant, and equipment, a good proxy of business fixed investments.

In Column (5) of Table 4, the estimated coefficient of business fixed investments is significantly positive in the full sample, indicating that a substantial proportion of firms' internal funds was not used for real investments. This pattern remains unchanged after the inclusion of control variables in Column (6). In view of the different performances of firms with different ownership identities in Strategy 1, we also examine the correlation between liquid financial assets and business fixed investments in the subsamples of SOEs and FOEs in Columns (7) – (8), respectively. We observe that SOEs displayed a significantly positive correlation between business fixed investment and financial assets, while POEs exhibited a positive but statistically insignificant

correlation. This again implies that SOEs actively engaged in re-lending business, but POEs might have some moderate re-lending activities. Consistent with Strategy 1, this contrast lends more support to a more active participation of SOEs than POEs in shadow banking activities.

4.2.3. Strategy 3: other receivables and financial liabilities

In a document entitled "*Guidance on Identifying the Participation of Bank Clients in Private Lending Markets*" circulated by China Banking Regulatory Commission (CBRC), bankers in China were advised that the re-lent loans were usually shrouded in the accounts of "other receivables" or "short-term investments" on the balance sheets of non-financial firms.[12] This was further verified by our interview with industry experts and the details of several judicial adjudicative documents in China. We therefore focus on "other receivables" as a proxy for re-lending activities in the analyses.

The *Guidance* issued by CBRC also suggests that firms actively engaged in re-lending activities might transfer some lending revenues from the account of other receivables to the account of total receivables to avoid inviting regulatory scrutiny. Thus, such firms are very likely to have abnormally large balances and growth rates of total receivables as some revenues from re-lending might spill over from the former account to the latter one. To check whether the relationship between total receivables and other receivables in our sample corporations satisfies this conjecture based on regulatory practices, we divide the sample firms into those with above-median ratio of other receivables to total sales and those with below-median one in Table 5, Panel A. Clearly, the mean and median ratio of total receivables to sales and growth rate of total receivables are significantly higher in the subsample of firms with above-median ratio of other receivables. This strong correlation could stem from the complementarity of business revenues going into total receivables and other receivables including the principal and interest income of re-lent loans. This finding verifies the CBRC advice based on regulatory practices that firms with active engagement in re-lending likely exhibit the spillover of revenue from the "other receivables" account to the "total receivables" account.

The constituents of "other receivables" are varied, containing loans to employees and other companies, settlement amounts due for non-current asset sales, rents receivable, and term deposits. These businesses are not ordinary transactions. A brief look at the footnotes in financial statements and the details of legal cases involving inter-corporate loans reveals that a fraction of other receivables is associated with corporate lending activities. For example, according to case No. 4807 handled by the Supreme People's Court in 2018, the loans recorded in other receivables were taken as key evidence to justify the existence of private lending relationship.[13] Moreover, in Example 2 illustrated in Appendix B3, the lender was found to have recorded a large amount of financial transaction with the borrower in the account of other receivables in its balance sheets.

If a substantial portion of borrowed funds flows to re-lending business, we should observe a significant positive association between financial liabilities and the balance of "other receivables". We first carry out regression analysis as follows:

$$orec\_sales_{i,t} = \beta_0 + \beta_1 finlia\_sales_{i,t} + \beta_2 traderec\_sales_{i,t} + \beta_3 ROA_{i,t-1} + \beta_4 size_{i,t-1} + \beta_5 leverage_{i,t-1} + \delta_i + \rho_t + \varepsilon_{i,t} \quad (3)$$

where *orec_sales* represents other receivables scaled by sales, winsorized at the 1% and 99% levels.

Table 5, Panel B, reports the estimation results. In all regressions, we add accounts receivable to control for the spillover effect of re-lending revenues from other receivables to the size of receivables closely related to trade or other normal business activities. Column (1) suggests a significantly positive association between the financial liabilities and other receivables, and a one-standard-deviation increase in the debt-to-sales ratio was associated with an increase of 0.07 in the ratio of other receivables to sales. Following the similar arguments in Strategies 1 and 2, we separately examine the SOE and POE subsamples in Columns (2) and (3). The amount of borrowed money was tightly correlated with the balance of other receivables in both subsamples, and the bootstrapping-based test *a la* Cleary (1999) shows no significant difference in the estimated coefficients of the key explanatory variable between the SOE subsample and the POE subsample.

One may be concerned that there is noise in the account of "other receivables", as it contains several items other than re-lending business, e.g., rent receivable or tunneling-purposed loans. However, the items of the "receivables" series typically exhibit large variations across industries but little within an industry (Ng et al., 1999; Arif et al., 2016). This facilitates the detection of firms conducting re-lending, and prompts us to use industry-median benchmark in the following robustness check. Given the opacity of re-lending business, what we catch from "other receivables" is most likely still an underestimation of the actual amount of re-lending business.

To further address the potential noise contained in other receivables, we employ the industrial median of U.S. firms as benchmark, and subtract it from the ratio of "other receivables" to sales of Chinese firms operating in the same industry. Presumably, this U.S. benchmark ratio incorporates the impacts of some normal factors of business operation that determine the cross-industry variation in the size of other receivables, which can better capture the abnormal level of other receivables and help well capture the effects of re-lending activities of Chinese firms. Columns (4) – (6) of Table 5, Panel B, conduct regressions for the whole sample, SOEs, and POEs, respectively. We find that financial liabilities are significantly and positively correlated with the ratio of U.S. benchmark-adjusted other receivables to sales in the whole sample and in the sub-sample of SOEs, whereas the correlation in the POE subsample is positive but statistically insignificant.[14]

Additionally, Jiang et al. (2010) claim that the account of other receivables was regarded as reflecting the intensity of tunneling activities. Though the Chinese regulatory authorities had issued several rules and announcements that forced listed firms to end offering loans to their controlling shareholders or affiliates before 2006, there is concern over the enforcement of these regulations so that other receivables might still contain some confounding related-party loans. They are fundamentally different from affiliated re-lending loans and should not be classified as corporate re-lending activities in our sample period. Therefore, we collect the data on the account of other receivables under the category of "financial transactions with related parties" from China Securities Markets and Accounting Research (CSMAR) database. To ensure the robustness of our results, we subtract the amount of related-party other receivables from the total amount of "other receivables" for each firm,

[12] Details refer to www.cbrc.gov.cn/chinese/files/2013/3CE506009D474703B4388E3965BD878D.doc.

[13] See the details of this case on http://wenshu.court.gov.cn/website/wenshu/181107ANFZ0BXSK4/index.html?docId=4f4204db466847e89644a8b101116a16.

[14] Alternatively, we use Chinese mainland companies listed in Hong Kong (red chips) as a benchmark. These companies have business operations in the Chinese mainland, but they are subject to disclosure requirements, accounting standards, and regulatory scrutiny of the Hong Kong regulatory authorities, international auditors, and international investors. They are likely to perform better in regulatory compliance and engage less in re-lending activities. Thus, the Hong-Kong-listed-companies-adjusted other receivables may also better reflect corporate re-lending business after controlling for the effects of some normal business operation factors. As expected, we observe that the mean ratio of other receivables to sales for red chips is 0.025 in our sample period, approximately half of the mean ratio of A share listed firms. In unreported tables, we again find a significantly positive association between financial liabilities and HK-adjusted other receivables in the full sample. We separately examine the SOE and POE subsamples but find no significant difference.

Table 5
Strategy 3: the role of other receivables.

Panel A Tests of the *Guidance* issued by CBRC

	High other receivables		Low other receivables		Mean difference (1) – (3)
	Mean	Median	Mean	Median	
	(1)	(2)	(3)	(4)	(5)
total receivable/sale	0.358	0.272	0.120	0.167	0.158***
growth of total receivable	0.283	0.038	0.172	0.017	0.111**

Panel B Strategy 3: the correlation between other receivables and financial liabilities

	Other receivable/sales			US industry median adjusted other receivable/sales			Subtracting related-party other receivables		
	Full sample	SOE	POE	Full sample	SOE	POE	Full sample	SOE	POE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
finlia_sales	0.0956***	0.0882***	0.1054***	0.0998***	0.0742**	0.1116	0.0429**	0.0595***	0.0159
	(0.0127)	(0.0182)	(0.0206)	(0.0270)	(0.0298)	(0.0721)	(0.0181)	(0.0228)	(0.0344)
traderec_sales	0.2173***	0.2578***	0.1878***	0.4370***	0.3295**	0.4271**	0.3278***	0.4067***	0.2447
	(0.0395)	(0.0723)	(0.0538)	(0.1084)	(0.1385)	(0.2067)	(0.0906)	(0.1109)	(0.1501)
ROA	−0.0017*	−0.0935**	−0.0084	0.0031**	−0.1129	−0.0015	0.0723*	−0.0497	0.1374***
	(0.0010)	(0.0453)	(0.0059)	(0.0015)	(0.0849)	(0.0095)	(0.0409)	(0.0885)	(0.0378)
size	−0.0087	−0.0087	−0.0082	0.0100	0.0337	−0.0395	−0.0149	−0.0218	0.0136
	(0.0060)	(0.0117)	(0.0082)	(0.0230)	(0.0211)	(0.0627)	(0.0108)	(0.0137)	(0.0158)
leverage	−0.0019***	0.0247	0.0035	−0.0039**	0.0548	−0.0049	−0.0132	−0.0212	−0.0182
	(0.0007)	(0.0225)	(0.0047)	(0.0018)	(0.0468)	(0.0123)	(0.0166)	(0.0381)	(0.0176)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	13,660	5653	6777	3244	2258	664	4670	2876	1411
adj. R-sq	0.496	0.509	0.508	0.515	0.454	0.566	0.457	0.394	0.514
Empirical *p*-values	0.254			0.248			0.148		

Panel A reports the mean and median of the ratio of total receivables to sales and the growth of total receivables in the high other receivables subsample and the low other receivables subsample, which are divided by the median ratio of other receivables to sales in our sample. We test the differences in the mean and median between two subsamples by t-statistics in column (5), and *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Panel B presents the estimation results of Eq. (3) over the period of 2007–2013. The dependent variable in Columns (1) – (3) is other receivables scaled by sales; the dependent variable in Columns (4) – (6) is other receivables scaled by sales minus industry median ratio of other receivables to sales of U.S. firms on an annual basis; the dependent variable in Columns (7) – (9) is other receivables subtracting related-party other receivables scaled by sales. *finlia_sales* is the sum of short-term debts and long-term debts scaled by sales. Columns (1), (4), and (7) examine the entire sample, Columns (2), (5), and (8) examine subsamples of state-controlled firms (SOEs), and Columns (3), (6), and (9) examine the subsample of private-controlled firms (POEs), respectively. The empirical *p*-values are calculated in a simulation procedure to test the significance of difference in coefficient estimates of different subsamples. The null hypothesis is that the coefficients for SOE and POE subsamples are equal. See Appendix Table A1 for detailed variable descriptions. Firm and year fixed effects are included in all regressions. Robust standard errors clustered at firm level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

and conduct analogous regressions in Columns (7) – (9). The results of the whole sample analysis in Column (7) show a consistently positive correlation between financial liabilities and related-party loan-adjusted other-receivables. When looking at the two subsamples, the statistical significance only holds in the SOE subsample, while the POE subsample produces positive but statistically insignificant estimates. These two adjustments, by the U.S. benchmark and related-party other receivables, help us better detect the existence of re-lending business, and provide robust evidence to show that POEs were less likely to actively engage in re-lending activities which were outside their main business line.

It is noteworthy that these three strategies, when combined, could clearly reflect the corporate re-lending activities, and would not be mingled with the leading alternative shadow banking activities of non-financial firms. For example, firms record the value of wealth management products they bought in the account of "tradable financial assets" instead of liquid assets or cash holdings. As the purchase of WMPs is totally legal and legitimate, it is unnecessary for firms to hide their funds in the account of "other receivables". In addition, firms had usually recorded entrusted loans in the account of "other liquid assets" before the implementation of the new accounting rules in year 2007, and used a separate account called "entrusted loans" afterwards. Thus, firms have had no need to record entrusted loans in "cash holdings", or "short-term investment", or "other receivables".

Some listed firms in China have established financial subsidiaries or transformed themselves into financial companies in recent years, especially some reputed SOEs. For example, Phoenix (stock code 600,679 listed in Shanghai), a reputed bicycle manufacturer with a history of about 120 years, established a financial subsidiary in 2011. For this type of companies, a big chunk of the re-lending business could legally be transferred to its financial subsidiaries, rather than be hidden on the balance sheets of the parent company. Thus, we manually collect a small sample of 22 firms that disclosed the information on the establishment of subsidiaries, examine these listed firms' consolidated balance sheets and check whether they truly added new accounting items of loan offerings and interest income after the establishment of financial subsidiaries, and investigate whether the abnormal relations between financial accounts would gradually diminish or disappear after they set up the financial arms. These robustness checks in Appendix C corroborate our findings in the earlier part of detecting re-lending by justifying the validity of the three detecting strategies to a certain extent.

4.2.4. *Strategy 4: external finance and re-lending*

One potential concern with these three primary identification strategies of re-lending is that firms do not necessarily first obtain external finance from the formal financial system through bank borrowing, bond issuances, and equity issuances and then re-lend to other firms. Firms could, for example, potentially use their own funds (e.g., retained earnings) or borrow from the informal financial system, e.g., private credit markets, and then re-lend to other firms. To explore whether re-lending channels funds from the formal financial system to the gray private credit market, we examine whether firms with privileged access to formal bank loans, bond issues and seasoned equity offerings were more actively engaged in re-lending business. We conduct tests to investigate whether the three primary detection strategies of re-lending are more salient in those firm-years when firms obtained bank loans, issued bonds, or issued equity shares.

In Table 6, Panel A, we first divide the firm-year observations into the subsample of those firm-years with the announcement of bank loans

Table 6
Strategy 4: external financing and re-lending.

Panel A: bank loans						
	Strategy 1		Strategy 2		Strategy 3	
	No	Yes	No	Yes	No	Yes
	(1)	(2)	(3)	(4)	(5)	(6)
finlia_sales	0.0244	0.2414***			0.0998***	0.0819***
	(0.0330)	(0.0396)			(0.0149)	(0.0245)
fixinv_sales			0.0773**	0.0915*		
			(0.0348)	(0.0514)		
ROA	0.0032**	0.2175*	0.0033**	0.1332	0.0015*	−0.0179
	(0.0015)	(0.1172)	(0.0016)	(0.0961)	(0.0009)	(0.0304)
size	0.1173***	−0.1053***	0.1235***	−0.0226	0.0001	0.0019
	(0.0220)	(0.0216)	(0.0221)	(0.0249)	(0.0069)	(0.0111)
leverage	0.0064***	−0.0601***	0.0069***	−0.0071	−0.0001	0.0076
	(0.0016)	(0.0199)	(0.0016)	(0.0233)	(0.0006)	(0.0124)
traderec_sales					0.2541***	0.0360
					(0.0456)	(0.0527)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	9457	3525	9457	3525	9457	3525
adj. R-sq	0.469	0.666	0.469	0.616	0.507	0.569
Empirical *p*-values	0.094		0.448		0.492	

Panel B: bond issues						
	Strategy 1		Strategy 2		Strategy 3	
	No	Yes	No	Yes	No	Yes
	(1)	(2)	(3)	(4)	(5)	(6)
finlia_sales	0.0765***	0.1291**			0.1012***	0.0172**
	(0.0293)	(0.0614)			(0.0135)	(0.0084)
fixinv_sales			0.0968***	−0.0389		
			(0.0329)	(0.1164)		
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	12,563	780	12,563	780	12,563	780
adj. R-sq	0.481	0.599	0.479	0.584	0.493	0.517

Panel C: equity issues						
	Strategy 1		Strategy 2		Strategy 3	
	No	Yes	No	Yes	No	Yes
	(1)	(2)	(3)	(4)	(5)	(6)
finlia_sales	0.0715**	0.1093*			0.1018***	−0.0132
	(0.0296)	(0.0655)			(0.0126)	(0.0176)
fixinv_sales			0.1088***	0.0395		
			(0.0334)	(0.1107)		
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	12,644	441	12,644	441	12,644	441
adj. R-sq	0.498	0.646	0.497	0.637	0.523	0.343

Panel D: profitability comparison			
	ROA		Difference (with - without)
	with	without	
	(1)	(2)	(3)
Bank loan	0.0496	0.0770	−0.0274**
Bond issues	0.0538	0.0711	−0.0162
Equity issues	0.1192	0.0648	0.0545**

This table presents estimation results of the three primary strategies in different subsamples over the period of 2007–13. The dependent variables are the sum of cash holdings and short-term investments scaled by sales in Columns (1) – (4), and other receivables scaled by sales in Columns (5) and (6) in Panels A-C. "*Yes*" and "*No*" represent subsamples of firm-year observations with the announcement of bank loans and those without in Panel A, subsamples of firm-year observations with bond issues and those without in Panel B, and subsamples for those with seasoned equity issues and those without in Panel C, respectively. To save space, we do not report the estimations of controls in Panels B and C. The empirical *p*-values are calculated in a simulation procedure to test the significance of difference in coefficient estimates of different subsamples. The null hypothesis is that the coefficients for two subsamples are equal. See Appendix Table A1 for detailed variable descriptions. Firm and year fixed effects are included in all regressions. Robust standard errors clustered at firm level are reported in parentheses. Panel D performs *t*-test for differences in the means of ROA for firms with external financing and firms without. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

and the subsample of those firm-years without. Next, we carry out tests based on the three primary identification strategies in both subsamples. We observe that Strategy 1 turns out significant results in the subsample with bank loans only. When we use Strategy 2, both subsamples produce positive and significant correlation, while the estimated coefficient of the key explanatory variable (the ratio of fixed investment to total sales)

is slightly larger in the subsample with bank loans than in the subsample without bank loans. When we employ Strategy 3, the correlation between financial liabilities and other receivables is statistically significant in both subsamples. These results suggest bank loans at least contributed to the financial resources for the re-lending business.[15]

We adopt the same approach to investigating the re-lending pattern in the period with bond or equity financing,[16] and compare the performance of three primary identification strategies in the subsamples with or without bond (equity) issues in Panel B (C). Strategy 1 produces significant results in all subsamples. This suggests that part of the funds raised through bond or equity issuances was likely to support the re-lending business. Turning to Strategy 2, we observe that the estimated coefficient on the ratio of fixed investment is negative and statistically **insignificant** in the firm-years **with** bond or equity issues, while the estimates are positive and **significant** in the firm-years **without** bond or equity issues. Thus, the results of Strategy 2 cannot support that bond or equity finance is an important funding source for corporate re-lending business. When we implement Strategy 3, the correlation between financial liabilities and other receivables is statistically **significant** in the subsamples **without** bond or equity issues, and the estimate is **insignificant** in the subsample **with** equity issues. The correlation is positive and significant in the subsample with bond issues, but the magnitude of the estimated coefficient is much smaller (one tenth) than that in the subsample without bond issues. Hence, the results of Strategy 3 suggest that bond or equity issues were unlikely to be a primary financial source for re-lending.

Overall, the striking results of Strategy 1 and the moderately strong results of Strategy 2 provide reasonably strong support to the claim that bank loans serve as an important source for re-lending. In contrast, Strategy 1 produces moderate support to bond issues and equity issues as a financial source for re-lending, but Strategies 2 and 3 absolutely deny the possibility. Hence, we believe that firms were much more likely to channel bank loans than bond or equity issues to re-lending business.

This difference between bank loans and bond or equity issues might stem from the following factors. First, the application of listed firms for public issuances of bonds or equity is subject to the scrutiny of the regulatory authorities. Seasoned equity offerings must be approved by the China Securities Regulatory Commission (CSRC) in advance; for different types of bonds, issuing bonds must go through the examination and approval procedure of CSRC, the National Development and Reform Commission, or the People's Bank of China. In contrast, the extension of bank loans to a firm is a decision made by a single bank or a syndicate of banks, which does not involve prior regulatory approval. Similarly, the uses of funds raised from public bond or equity issuances are subject to the monitoring by the regulatory authorities, while the uses of bank loans by lending banks. Thus, the deviation of fund uses from their stated purposes incurs a more serious penalty and is less likely to occur in bond or equity issues than in bank loans.

Second, a high level of regulatory scrutiny in security issues is accompanied by a high threshold requirement for issuing company performances.[17] Typically, better performing companies are more likely to meet the standards of the regulatory authorities to issue securities, whereas bank loan decision-making is more decentralized and corporate borrowers could exhibit a more diverse pattern of performances. For state-controlled companies, the government may encourage banks to provide loans, in which case the performance criteria will be further compromised. In Table 6, Panel D, we present the mean ROA comparisons of sample firms with and without bank loans, bond issues and equity issues. Firms with bank loans had a significantly lower mean ROA than those without. Firms issuing bonds and those without had no statistically significant differences in mean ROA, while firms issuing equity shares had a significantly higher average ROA than those without (approximately a difference of 5.4 percentage points). This substantiates our claim that better-performing firms typically issue equity shares or bonds, and they have less incentive to channel their funds to re-lending business.

Third, bank loans are the dominant form of external finance for non-financial listed firms. Table A2 reports statistics of external finance raised through bank loans, bond issues and equity issues by listed firms drawing on the CSMAR and Wind databases. The annual average amount of bank loans for all listed firms is 422 billion yuan, approximately twice that of bond issues (208 billion yuan) or equity issues (248 billion yuan). If we turn targets from listed firms to all firms (including private firms), the China Statistics Yearbooks show that the total amount of new extend loans over 2007–2013 are 50,642 billion yuan, taking the proportion of 58.35% of all new external financing (Jiang et al., 2020). Moreover, it is worthwhile to note that the average size of each bank loan may not be as large as that of bond or equity issue, and bank loans, however, occurred most frequently. In our listed firm sample, the mean values of the bank loan amount, bond issues, and equity issues were 593 million yuan, 2135.69 million yuan, and 1490.2 million yuan, respectively. The annual average numbers of distinct firms receiving bank loans, issuing bonds, and issuing equity shares were 712, 97, and 167, respectively. Thus, bank loans were most widely accessible, while only a sparse set of listed firms had the ability to issue bonds or stocks. This easy availability of bank credit enables a great number of firms to channel bank loans to re-lending activities.

Also, costs of financing may be another factor. We calculate the costs of equity financing drawing on two components: one is the underwriting fee (scaled by the raised funds), and the other is the price discount which is measured by the percentage change from the closing price of one day before the equity issue to the offer price. The average cost of equity financing by these two components was 17.85% over our sample period. In this sense, the difference between the average interest rate in the legal cases and the average cost of equity is relatively small, which might impede the participation of listed firm in such an illegal activity.[18]

4.3. The market liquidity and re-lending business

To better explore the mechanism of re-lending business as "borrow to lend", we examine the variation in such activities across periods with different market environments and its impacts on the relationship between financial assets and liabilities in our principal detection strategies.

[15] The disclosure of bank loans is not compulsory for listed firms, so the data coverage in the CSMAR database is incomplete. Then our subsample analysis may underestimate the role of bank loans in re-lending business. Bond issues and equity financing must get approval from the regulatory authorities, and the data should be more complete.

[16] Thank the anonymous reviewer for the great suggestion of additionally examining the bond issues and equity financing.

[17] Over the period of 2007-2013, we have 1,134 equity issues in total, among which 1,034 issues (91%) were private placements. CSRC did not place any profit requirements on the issuers in private placements. However, we believe the regulatory authorities still had some implicit requirement on firm performance when approving stock issuance applications. The firms with private offerings had an average ROA of 12.31%, even higher than the level of profitability of firms with public offerings.

[18] We also compare the costs of bank loans and bond issues and find that the costs of bank loans are slightly higher. In the CSMAR loan data set, only 3.26% of deals have the information on the interest rate, and we do not posit that the small set has a representativeness. Nevertheless, we report here that the means of interest rates on bank loans and the coupon rates of bonds are 7.69% and 5.4%, respectively. To provide a better comparison, we focus on a small set of firms both borrowing from banks and issuing bonds and find a similar pattern, i.e., 7.17% for loans versus 5.54% for bonds. We recognize that the patten might not be universal considering the data availability, but it is consistent with the empirical findings of Schwert (2020) that banks earn an interest rate premium relative to the price of credit risk implied by the bond market, as well as main theories of bank loans versus bonds (e.g., Diamond, 1991; Rajan, 1992; Chemmanur and Fulghieri, 1994; Holmstrom and Tirole, 1997).

Table 7
Market liquidity and re-lending business.

	Tight Monetary policy			Bank loans		
	Full sample	SOE	POE	Full sample	SOE	POE
	(1)	(2)	(3)	(4)	(5)	(6)
finlia_sales	0.2520***	0.2602***	0.2261***	0.2323***	0.2402***	0.1984***
	(0.0194)	(0.0281)	(0.0321)	(0.0204)	(0.0312)	(0.0300)
tight	0.5641***	−0.0116	0.9993***			
	(0.1202)	(0.1356)	(0.2014)			
finlia_sales × *tight*	−0.0396**	−0.0139	−0.0641*			
	(0.0166)	(0.0208)	(0.0361)			
bankgrowth				1.1664***	−0.5924	1.4535***
				(0.2090)	(0.4531)	(0.2482)
finlia_sales × *bankgrowth*				0.0068	0.0263**	−0.0006
				(0.0088)	(0.0122)	(0.0162)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
N	51,036	22,388	22,440	51,036	22,388	22,440
adj. R-sq	0.127	0.187	0.107	0.128	0.188	0.110
Empirical *p*-values		0.076			0.078	

This table examines the effect of market liquidity and the development of entrusted loans on the abnormal relations between financial assets and financial liabilities in Eq. (1) by using quarterly data over the period of 2007–2013. The dependent variable is the sum of cash holdings and short-term investments scaled by sales. *finlia_sales* is the sum of short-term debts and long-term debts scaled by sales. *tight* is a dummy, taking the value of one if PBOC increases the deposit reserve ratio and zero otherwise. *bankgrowth* is a dummy, taking the value of one if the total amount of bank loans in this quarter grew faster than last quarter, and zero otherwise. Firm and quarter fixed effects are included in all regressions. Controls include ROA, size, and leverage. The empirical *p*-values are calculated in a simulation procedure to test the significance of difference in coefficient estimates of different subsamples. The null hypothesis is that the coefficients for SOEs and POEs are equal. Robust standard errors clustered at firm level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Since market liquidity is basically exogenous to non-financial firms and has nontrivial impacts on firms' subsequent financing decisions, exploring the role of market liquidity in affecting the intensity of re-lending activities provides an ideal setting to detect the re-lending business.

To capture the variation in market liquidity more precisely, we use quarterly data over the period of 2007–2013 in this subsection. Two indicators are employed to measure market liquidity. One is the deposit reserve ratio, a popular indicator of monetary policy stance in China. When the deposit reserve ratio is lowered (raised), we regard monetary policy as expansionary (contractionary). Thus, we construct an indicator variable, *tight*, that takes the value of one if PBOC has raised deposit reserve ratio and zero otherwise. The other is bank loan availability in the market, the data of which is collected from total social financing statistics available on the PBOC website. When the growth rate of bank loans is larger than that in the preceding quarter, we regard the period as having a higher market liquidity. Hence, we construct another indicator variable, *bankgrowth*, which takes the value of one if the total amount of bank loans in a quarter grows faster than in the preceding quarter. Then we additionally include the market liquidity indicators and their interactions with financial liabilities in Eq. (1). In essence, the identification strategy is a Difference-in-Differences (DID) approach.

Column (1) of Table 7 presents the regression results to show the impacts of monetary policy tightening on the relationship between financial assets and financial liabilities. First, we can observe that the inclusion of monetary policy indicator, *tight*, did not change the sign and statistical significance of the estimated coefficients of financial liabilities in the estimation. Second, more importantly, from the negative estimated coefficient of the interaction term of financial liabilities and the dummy of tight monetary policy, we observe that the relationship between financial assets and financial liabilities became weaker when the monetary policy was tighter. The negative impact of monetary tightening on re-lending is logical: the precondition to re-lending business is that firms are able to obtain funds from banks; monetary tightening adds to the difficulties of firms in raising debt through the formal financial system and definitely adversely affects the amount of funds available for re-lending business. The results are consistent with and complementary to empirical findings in Chen et al. (2018), which shows that the entrusted lending of nonbank trustees decreased in response to a tight monetary policy. Also, the positive estimated coefficient of the tight monetary policy indicator is reasonable, as non-financial firms tended to keep more liquid assets for precautionary purpose in the periods of monetary tightening.

Columns (2) and (3) show the impacts of monetary policy changes on the SOE and POE subgroups. A tight monetary policy significantly weakened the relationship between financial assets and liabilities for the POE group but not for the SOE group, and the impact was larger in magnitude for POEs than for SOEs and the whole sample. Clearly, POEs were hit harder by tight monetary policies than did SOEs and thus they were engaged less in shadow banking activities. The significant difference in coefficient estimates is also confirmed by the empirical *p*-values calculated by a bootstrapping procedure.

Furthermore, we examine the impacts of the upstream available funds on re-lending business. Based on the results of monetary policy indicators, we posit that, the more available the bank loans are in the economy, the more readily the firms can carry out re-lending business. From Columns (4) – (6), we observe that the estimated coefficients of the interaction terms of bank loan growth with financial liabilities are statistically insignificant in the whole sample and the POE subsample. By contrast, more bank loans noticeably strengthened the positive correlation between financial assets and financial liabilities in the SOE subsample, suggesting that re-lending was more active when larger amounts of funds were available in the economy. In other words, SOEs could ride on the formal credit boom to carry out re-lending more strikingly.

The findings in Table 7 are consistent with the literature. It is found that SOEs exhibit an asymmetric adjustment to monetary policy changes: they generally suffer less from a policy tightening and benefit more from a policy easing. Following the economic stimulus plan in China, the credit expansion disproportionately favored SOEs that have implicit government guarantees, and credit was even reallocated from POEs to SOEs (Cong et al., 2019). Huang et al. (2020) further show that the stimulus plan largely tightened the funding constraints of POEs and crowded out their investments while leaving SOEs unaffected. Indeed, in this study, the negative effects of monetary tightening on re-lending, especially that of POEs, suggest that POEs suffered more strikingly from the shrinkage of the availability of upstream funds, while in periods of credit boom, abundant market liquidity benefited SOEs more and prompted them to engage more saliently in re-lending business. This

Table 8
Growth opportunities and re-lending business.

	other receivables/ sales	Strategy 1	Strategy 2	Strategy 3
	(1)	(2)	(3)	(4)
growth_earning	−0.0006*	0.0005	−0.0006	0.0001
	(0.0003)	(0.0006)	(0.0005)	(0.0002)
finlia_sales		0.0816***		0.0943***
		(0.0276)		(0.0125)
growth_earning × *finlia_sales*		−0.0008		−0.0005**
		(0.0007)		(0.0003)
fixinv_sales			0.0934***	
			(0.0298)	
growth_earning × *fixinv_sales*			−0.0028*	
			(0.0017)	
ROA	−0.00117	0.0018	0.0008	−0.0017*
	(0.00143)	(0.0014)	(0.0015)	(0.0010)
leverage	−0.00075	0.0034*	0.0046***	−0.0018**
	(0.00097)	(0.0018)	(0.0016)	(0.0008)
size	0.01917***	0.0683***	0.0810***	−0.0090
	(0.00653)	(0.0171)	(0.0166)	(0.0060)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	13,655	13,597	13,597	13,597
adj. R-sq	0.426	0.496	0.494	0.499

The dependent variable in Columns (1) is other receivables scaled by sales. *growth_earnings* is growth rate of earnings per share. Columns (2) through (4) report the estimation results of Equations (1) – (3) by including growth of earnings and its interactions, respectively. The dependent variable is the sum of cash holdings and short-term investments scaled by sales in Columns (2) and (3) and other receivables scaled by sales in Column (4). *finlia_sales* is the sum of short-term debts and long-term debts scaled by sales. *fixinv_sales* is defined as the change in net Property, Plant, and Equipment scaled by sales. The sample period is 2007–13. See Appendix Table A1 for detailed variable descriptions. Firm and year fixed effects are included in all regressions. Robust standard errors clustered at firm level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

finding corroborates our interpretation of corporate re-lending as an activity of "borrow to lend".

4.4. Potential factors influencing re-lending activities

Now we are in a position to examine potential factors and channels influencing the participation of firms in re-lending business. As the account of "other receivables" captures some of re-lending business, we primarily use it as a proxy for re-lending activities and focus on the analysis of the factors influencing the variation in the size of other receivables. Furthermore, we include the factors we examined and their interactions in the estimation of Equations (1) – (3) to confirm the effects of these factors in the three primary detecting strategies.

4.4.1. Growth opportunities

If a firm has many promising investment projects and growth opportunities, it might not have many idle funds and thus has weak incentive to engage in such an illegal business. Table 8 provides an analysis of growth factors affecting the degree of companies' involvement in shadow banking business. We employ other receivables scaled by sales as the dependent variable and use the growth of earnings as the primary proxy for growth prospects.[19] Column (1) shows that firms with a higher growth of profitability displayed a smaller size of re-lending activities. The results, combined with the contrast between SOEs and POEs in previous analyses, imply that re-lending business was one business strategy for firms with relatively lackluster growth prospects of their main business lines, and it was less attractive to firms with promising prospects of their main business lines.

Next, we examine whether the abnormal relations between financial accounts in our three primary detection strategies are affected by the growth factors. We include the growth rate of earnings and its interaction with financial liabilities in Eqs. (1) and (3) and its interaction with business fixed investments in Eq. (2). Interestingly, we find that the estimated coefficients of the three interaction terms are negative, and two coefficients are statistically significant, which suggests that the growth opportunities would weaken the abnormal relations we observed to some degree. These findings, in another way, lend support to that fast-growing firms were less likely to engage in re-lending business.

4.4.2. Ownership structure

As re-lending is illegal, it contains substantial legal and regulatory risks and may undermine firm value. Consequently, the extent of involvement in re-lending may concern the monitoring role of directors and ownership concentration. In this subsection, we primarily focus on the percentage of shares held by board directors (*director shares*).[20] Board shareholding has been documented as an incentive scheme to alleviate the agency problem and enhance the monitoring function of directors (Morck et al., 1988). The results in Column (1) of Table 9 are in line with it. A higher proportion of shares held by directors is significantly associated with less other receivables, suggesting that board shareholding deterred the involvement of firms in the re-lending business.

Following the similar arguments in Section 4.4.1, we check the influence of board shareholdings on re-lending activities in the three principal detecting strategies of re-relending. The results are reported in Columns (2) – (4). In Strategies 1 and 3, the abnormal relationship between financial assets and financial liabilities, and the relationship between other receivables and financial liabilities are both significantly weakened by board shareholdings, an indicator of better corporate governance. In Strategy 2, albeit statistically insignificant, the proportion of shares held by directors also slightly weakens the abnormal pattern. Overall, results in Table 9 demonstrate that board shareholdings can help curb re-lending activities.

4.4.3. Credit constraints

To engage in re-lending business, non-financial firms should have abundant readily available funds and reliable fund-raising channels. We employ three measures to investigate the impacts of credit constraints on re-lending activities[21]: Trade credit (*TrCredit*), Inventory (*Inven*), and Tangibility (*Tangi*). *TrCredit* is defined as the change in accounts payable

[19] In Table A3, we adopt the growth of total assets and market-to-book ratio as alternative measures of growth prospects, and the results remain robust.

[20] In Appendix Table A3, we further examine two another measures of ownership structure: the percentage of shares held by the largest shareholder (*Block*), and the concentration of shareholding by top ten shareholders (*Herfindahl_10*). These two are related to the conflicts of interests between shareholders and managers and between large shareholders and minority shareholders. The results show that a larger stock ownership by the controlling shareholders and a more concentrated ownership structure would help curb the re-lending activities. The importance of ownership concentration in suppressing re-lending may reflect the fact that block holders tend to put primary emphasis on running the main business well rather than embarking on risky and non-core businesses.

[21] These measures are used by Rajan and Zingales (1998), Kroszner et al. (2007) and Monava (2008), who have introduced the calculation methodology in detail. The calculation of these measures utilizes the data from North America Compustat database for all U.S. firms and is based on year-by-year industry median. In doing so, we treat credit constraints as industry characteristics, which are shaped by the industry-specific operational features. We choose U.S. firms as the benchmark rather than using the Chinese corporate data directly for several considerations. As U.S. firms operate more closely to a steady-state equilibrium and U.S. financial markets have fewer frictions, the data could more accurately reflect the credit constraints faced by each industry. To save space, we only report the results of trade credit in this subsection.

Table 9
Ownership structure and re-lending business.

	other receivables/ sales	Strategy 1	Strategy 2	Strategy 3
	(1)	(2)	(3)	(4)
Director shares	−0.1084*	0.6803***	0.4685***	−0.0081
	(0.0562)	(0.1687)	(0.1697)	(0.0461)
finlia_sales		0.1743***		0.0918***
		(0.0280)		−0.0133
Director shares × *finlia_sales*		−0.6650***		−0.1939***
		(0.1821)		(0.0620)
fixinv_sales			0.0268	
			(0.0313)	
Director shares × *fixinv_sales*			−0.0601	
			(0.2122)	
ROA	−0.0007	−0.0045	−0.0038	−0.0015*
	(0.0015)	(0.0032)	(0.0033)	(0.0009)
leverage	−0.0008	−0.0088***	−0.0073***	−0.0018***
	(0.0010)	(0.0024)	(0.0021)	(0.0007)
size	0.0153*	−0.1563***	−0.1241***	−0.0076
	(0.0083)	(0.0205)	(0.0217)	(0.0065)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	12,117	11,223	11,223	11,223
adj. R-sq	0.399	0.705	0.689	0.498

The dependent variable in Columns (1) is other receivables scaled by sales. *Director shares* is the proportion of shares held by board directors. Columns (2) through (4) report the estimation results of Equations (1) – (3) by including director shareholding and its interactions. The dependent variable is the sum of cash holdings and short-term investments scaled by sales in Columns (2) and (3), and is other receivables scaled by sales in Column (4). *finlia_sales* is the sum of short-term debts and long-term debts scaled by sales. *fixinv_sales* is defined as the change in net Property, Plant, and Equipment scaled by sales. The sample period is 2007–13. See Appendix Table A1 for detailed variable descriptions. Firm and year fixed effects are included in all regressions. Robust standard errors clustered at firm level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 10
Credit constraints and re-lending business.

	other receivables/ sales	Strategy 1	Strategy 2	Strategy 3
	(1)	(2)	(3)	(4)
TrCredit	0.0001*	0.0003	0.0000	0.0002
	(0.0001)	(0.0004)	(0.0001)	(0.0002)
finlia_sales		0.0831***		0.0934***
		(0.0277)		(0.0127)
TrCredit × *finlia_sales*		−0.0002		0.0002
		(0.0003)		(0.0002)
fixinv_sales			0.0983***	
			(0.0301)	
TrCredit × *fixinv_sales*			0.0022***	
			(0.0002)	
ROA		0.00182	0.0021	−0.0014
		(0.00144)	(0.0013)	(0.0009)
leverage		0.00334*	0.0044***	−0.0018***
		(0.00173)	(0.0015)	(0.00070)
size		0.07170***	0.0867***	−0.0085
		(0.01678)	(0.0168)	(0.0061)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	13,629	13,629	13,629	13,629
adj. R-sq	0.408	0.492	0.490	0.496

In Panel A, the dependent variable in Columns (1) is other receivables scaled by sales. *TrCredit* is defined as the change in accounts payable divided by the change in total assets. Columns (2) through (4) report the estimation results of Equations (1) – (3) by including *TrCredit* and its interaction with financial liabilities or with business fixed investments, respectively. The dependent variable is the sum of cash holdings and short-term investments scaled by sales in Columns (2) and (3), and the dependent variable is other receivables scaled by sales in Column (4). *finlia_sales* is the sum of short-term debts and long-term debts scaled by sales. *fixinv_sales* is defined as the change in net Property, Plant, and Equipment scaled by sales. See Appendix Table A1 for detailed variable descriptions. Firm and year fixed effects are included in all regressions. Robust standard errors clustered at firm level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

divided by the change in total assets, which is one form of finance complementary to formal credit channels received by firms. *Inven* is equal to the ratio of inventories to sales. A larger inventory typically means a longer duration of production cycles and the needs for a larger amount of short-term funds. *Tangi* is the proportion of net plant, property, and equipment (PPE) in total book asset value, which measures the size of fixed assets that firms can use as collateral to raise funds. In short, higher values of *Tangi* and *TrCredit* and lower values of *Inven* imply fewer credit constraints.

Table 10 provides regression results. Taking the scaled other receivables as a proxy of re-lending activities, we present the results on the impact of the credit constraint measure on re-lending in Column (1). As expected, re-lending business was less active for firms in industries that were more credit constrained. Abundant trade credit promoted re-lending business, as high balances in *TrCredit* alleviated credit constraints and potentially provided short-term funds for firms. When separately examining the role of credit constraints in the SOE and POE subsamples (Appendix Table A4), we find that credit constraints would significantly deter re-lending activities of POEs, whereas SOEs were not affected much. A larger amount of trade credit (and thus a relief of liquidity constraint) would push POEs to do more re-lending, whereas it had no significant effect in the group of SOEs. These results show that private-controlled firms were much more subject to liquidity constraints, and consequently their re-lending activities were more sensitive to the availability of liquidity.

Similarly, we further test the influence of credit constraints on the abnormal patterns in our re-lending detecting strategies. In general, the inclusion of credit constraint factor did not alter the relations between financial accounts of our interest, and an above-industry-median balance of trade credit even strengthened the relation in Strategy 2, lending more support to the deterrent effect of credit constraints on the participation of firms in re-lending business.

Combining Tables 8-10 with the results in Tables 4 and 5, we find that the lower profitability of the main business line, lack of growth opportunity, and easy access to formal financial system are likely to be the most important reasons for state-controlled firms to be engaged in shadow banking activities more intensively.

5. Entrusted loans, micro-credit companies and *re*-lending

5.1. A comparison of entrusted loans and re-lending

5.1.1. A general comparison

Entrusted loans are a major form of inter-corporate loans that is most closely related to our research. In entrusted loans, one non-bank entity (a firm or an individual) extends loans to another, involving banks as serving agents. As trustees, banks are not responsible for matching a lender with a borrower, do not provide any guarantee to loan repayment, and thus do not bear any risk. In other words, in entrusted loans, commercial banks serve as middlemen and play a supervisory role, and the loan grantors and receivers are both non-financial firms. Nevertheless, entrusted loans are a legal form of inter-corporate lending.[22] Allen

[22] We thank an anonymous reviewer for the insightful suggestion of comparing entrusted loans and corporate re-lending.

et al. (2019a) comprehensively examined the characteristics of entrusted loans in China. Entrusted loans consist of affiliated loans and nonaffiliated loans. In affiliated loans, corporate lenders are profitable and provide loans to support their subsidiaries, suppliers, or customers. In nonaffiliated loans, corporate lenders suffer low growth rates in their main business lines and extend loans to unrelated parties as an alternative form of investment to boost their earnings. Following their approach, we collect the data on entrusted loan transactions by manually searching the keyword "entrusted loans" in all public nonfinancial firms' annual reports in the period of 2007–13. We obtain a sample of 3201 entrusted loan transactions extended by 330 distinct firms.[23]

Comparing the findings of Allen et al. (2019a) and this study, we observe that entrusted loans and corporate re-lending share some commonalities but also differ in several important aspects. First, in the periods of monetary tightening, entrusted loans, especially affiliated loans, increase while re-lending activities diminish. This shows that entrusted loans are often a way for corporations to provide liquidity support to their subsidiaries or related parties when access to formal finance is restricted, and the funds for entrusted loans typically do not come from bank loans. In contrast, corporate re-lending channels bank loans to private credit market, and a tightened access to external finance will reduce the financial resources for re-lending.

Second, both types of lending consist of loans to affiliated parties and those to nonaffiliated parties. Given the detailed transaction records available, we observe that the overwhelming majority of entrusted loans are affiliated loans which are used to support subsidiaries or related parties at a rate close to the official bank loan rate. Non-affiliated loans are a striking alternative investment channel that aims to earn high profits by charging high interest rates. From our study of legal cases, we also find that re-lending consists of affiliated or related loans and nonaffiliated or unrelated loans. The average size of related-party loans is approximately threefold as large as that of unrelated-party loans. Both unrelated and related loans charge higher interest rates: the average rate was 16.12% for the related group and 25.2% for the unrelated group. More strikingly, the overdue penalty interest rate was much lower in the related group than in the unrelated group (24.4% versus 76.9%). As for the entrusted loans, we find that the average rate on affiliated loans was 7.3%, which was fairly close to the official lending rate charged by banks, while that on nonaffiliated loans was 12.39%. This suggests that lending firms exhibited a stronger motive of earning profits through inter-corporate loans than through entrusted loans.

Third, the lenders of affiliated entrusted loans have high profitability and fast sales growth, whereas those of nonaffiliated entrusted loans are large firms with excess cash but lacking growth opportunities. In this sense, lenders in corporate re-lending are typically similar to those in nonaffiliated entrusted loans in that, according to our evidence, firms with lower profitability and fewer growth opportunities are more likely to engage in re-lending business.

Given the availability of entrusted loans as a legal form of profit-seeking inter-corporate lending, we posit that firms still engage in illegal re-lending business for several reasons. First, trustee banks in entrusted loan transactions levy varying levels of handling fees and service charges according to the size and duration of loans. Based on our extensive search, the annual bank service charge is no lower than 1.5‰ for loans less than 100 million yuan and 1‰ for loans more than 100 million yuan. For example, the Industrial and Commercial Bank of China, which is the largest bank in China, set the monthly handling fees at 0.15–0.3‰ for an entrusted loan deal below 100 million yuan and at 0.1–0.2‰ for loan deals above 100 million yuan. City commercial banks charge even higher fees, for instance, Dezhou Bank (Shandong Province) asked for a service fee of no lower than 2‰ for each loan deal. Take the mean size of entrusted loans in our sample period, 311,000,000 yuan, as an example. A 1‰ bank charge amounts to a fee of 311,000 yuan per year, which is still a lower bound. In contrast, corporate re-lending does not involve banks as service agents and saves such service fees.

Second, entrusted loans need to go through a lengthy examination and approval procedure. When a firm applies to a bank to offer entrusted loans, the trustee bank needs to check the sources of funds for loans, the uses of loans by the borrower, and the sources of funds for the borrower's repayment. In principle, corporate lenders **cannot** channel their own bank borrowing to the provision of entrusted loans. Then, the principal (the firm) and the agent (the trustee bank) would sign an agency agreement for the transaction. Afterwards, the lender firm, the trustee bank, and the borrower firm would sign a contract for the entrusted loan deal. If the lender requested collateral or guarantee for the loan, more elaborate procedures would be required. Moreover, the interest rate in entrusted loans is subject to the regulatory restrictions, while re-lending firms have more freedom to set interest rates and sometimes charge extremely high ones.

Third, corporate re-lending exhibits more flexibility in loan maturity than do entrusted loans. *Re*-lending is often as short as one month to three months or even shorter, while entrusted loans are typically one year or longer, and long-term entrusted loans with a maturity of 3–5 years are frequent. *Re*-lending deals can be expeditiously executed without going through trustee banks' check and approval. This facilitates re-lending to serve as emergency loans or bridging loans that are particularly suitable for meeting the borrower corporations' urgent cash needs.

5.1.2. Firm-level evidence

Provided both entrusted loans and re-lending are inter-corporate loans, they are subject to the constraint of a firm's financial resources. We are strongly motivated to examine whether re-lending and entrusted loans are substitutes or complements. We first divide the full sample into one subsample consisting of firm-years with entrusted loans and the other without. Then, we apply the three primary detection strategies of re-lending to the two subsamples separately. Table 11, Panel A, shows that Strategies 1 and 2 produce statistically significant results in the subsample of firm-years that do not have entrusted loans. Strategy 3 generates statistically significant results in both subsamples, but the estimated coefficient of the key explanatory variable (financial liabilities/sales) is slightly larger in the subsample without entrusted loans. This suggests that re-lending and entrusted loans might be substitutes.

Going further, we classify the group of firm-years with entrusted loans into the subgroup with affiliated loans and the one with nonaffiliated loans, and then implement the re-lending detection Strategies 1–3 in these two subgroups separately. In Panel B, some interesting findings are noteworthy. Strategies 1–2 produce positive and statistically **significant** correlations in the subgroup of firm-years with **nonaffiliated** entrusted loans only. Strategy 3 generates statistically significant results in both subgroups, but the correlation between other receivables and financial liabilities is larger in magnitude in the subgroup of firm-years with nonaffiliated loans. In other words, firm granting affiliated loans are less likely to engage in re-lending business, but those granting nonaffiliated loans might actively conduct re-lending business.

As SOEs are found to be main "re-lenders" from our detecting strategies, we further split the sample into SOEs and POEs and examine whether the relationship between entrusted loans and re-lending differs. Appendix Table A6, Panels A and B, report the estimation results for SOEs and POEs, respectively. The results of the SOE subsample are much similar to those observed in the full sample, suggesting that re-lending and entrusted loans may be substitutes for SOEs. When turning to the POE subsample in Panel B, we find that most of the estimated coefficients (with only one exception) are insignificant, corroborating our argument that POEs have moderate re-lending activities. Likewise, we

[23] Table A5 presents the transaction-level annual average loan size and interest rate for affiliated loans, nonaffiliated loans, and their combination in each year in the period of 2007-13. The patterns are basically similar to those shown in Allen et al. (2019a).

Table 11
The relationship between re-lending and entrusted loans.

Panel A: Full sample						
	Strategy 1		Strategy 2		Strategy 3	
	No	Yes	No	Yes	No	Yes
	(1)	(2)	(3)	(4)	(5)	(6)
finlia_sales	0.0874***	0.0356			0.0920***	0.0825**
	(0.0293)	(0.0834)			(0.0131)	(0.0387)
fixinv_sales			0.0959***	0.0741		
			(0.0308)	(0.0721)		
ROA	0.0023*	0.0642	0.0024*	0.0802	−0.0015	−0.0283
	(0.0013)	(0.1284)	(0.0014)	(0.1327)	(0.0010)	(0.0492)
size	0.0756***	−0.0877**	0.0915***	−0.0743	−0.0062	0.0217
	(0.0172)	(0.0428)	(0.0172)	(0.0472)	(0.0059)	(0.0149)
leverage	0.0041**	−0.3151	0.0051***	−0.2913	−0.0017**	0.0858
	(0.0016)	(0.1949)	(0.0014)	(0.2005)	(0.0007)	(0.0911)
traderec_sales					0.2099***	−0.0631
					(0.0402)	(0.0761)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	13,009	475	13,009	475	13,009	475
adj. R-sq	0.488	0.737	0.485	0.737	0.497	0.568
Panel B: Subsample with entrusted loans						
	Strategy 1		Strategy 2		Strategy 3	
	Affiliated	Non-affiliated	Affiliated	Non-affiliated	Affiliated	Non-affiliated
	(1)	(2)	(3)	(4)	(5)	(6)
finlia_sales	−0.0165	0.3897***			0.0877*	0.1547***
	(0.0828)	(0.1286)			(0.0467)	(0.0468)
fixinv_sales			0.0226	0.1829***		
			(0.0804)	(0.0522)		
ROA	0.2489	0.0646	0.2557	0.0111	−0.2570	0.0688
	(0.4273)	(0.0973)	(0.4444)	(0.0993)	(0.1819)	(0.0741)
size	−0.0810*	−0.1817	−0.0803	−0.1380	0.0200	0.0247
	(0.0432)	(0.1310)	(0.0506)	(0.1338)	(0.0164)	(0.0326)
leverage	−0.4841*	−0.3088	−0.4949*	−0.1328	0.0121	0.4038
	(0.2855)	(0.2740)	(0.2966)	(0.2926)	(0.0482)	(0.2921)
traderec_sales					−0.0513	−0.1311
					(0.1127)	(0.1212)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	302	169	302	169	302	169
adj. R-sq	0.727	0.669	0.727	0.650	0.644	0.342

This table reports the estimation results of the three primary strategies in different subsamples. In Panel A, we divide the sample into firm-years with entrusted loans (columns 2, 4, and 6) and those without loans (columns 1, 3, and 5). In Panel B, we focus on the subsample of firm-years with entrusted loans, and then divide it into units with affiliated loans and units with nonaffiliated loans. The sample period is 2007–13. See Appendix Table A1 for detailed variable descriptions. Firm and year fixed effects are included in all regressions. Robust standard errors clustered at firm level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

focus on SOE-year and POE-year units with entrusted loans only and examine the patterns in the subsamples with affiliated and non-affiliated entrusted loans separately in Panels C and D. Results show that SOEs granting nonaffiliated loans actively conduct re-lending business, while the subgroups of POE-years with either affiliated or nonaffiliated loans produce insignificant estimates.

To check whether firms conducted both re-lending and entrusted loans more directly, we match the plaintiff and defendant names recorded in the sample of legal cases with the lenders and borrowers of entrusted loans. In our sample of 133 legal cases, only one lender is a listed company. In this legal case, the plaintiff, Jiangsu High Hope International Group Corporation (stock code: 600,981), a state-controlled company, lent to its client in 2008 and took legal action in 2013. The lender and the borrower did not have a formal contract and agreed to repay loans through business transactions. Unsurprisingly, we find that the firm appeared as a lender in the sample of entrusted loans. It extended 7 loans in different years with a total amount of 682 million yuan to a non-affiliated borrower firm located in the same province. Though it is an individual case, the information is consistent with our argument that SOEs were more active in re-lending, and those granting nonaffiliated loans actively conducted re-lending business. Another interesting finding is that no firm appears as a borrower both in entrusted loans and in our sample of inter-corporate legal cases. We conjecture that, if firms can raise funds through entrusted loans, they will not turn to inter-corporate loans.

Overall, our evidence suggests that nonaffiliated entrusted loans and corporate re-lending in the gray market were complements for some firms, especially SOEs. Firms with slow growth but excess cash holdings would engage in both nonaffiliated entrusted loans and gray-market re-lending as alternative investment outlets. Nonetheless, firms with high profitability and fast growth would primarily use affiliated entrusted loans to support their affiliates and related parties. The seeming substitution relationship between the total entrusted loan transactions and re-lending business is mainly driven by those high-growth high-profitability firms, which are the majority of entrusted loan providers. Meanwhile, those low-growth but cash-rich firms, especially SOEs, engage in both re-lending and nonaffiliated entrusted loans to seek profits, giving rise to a complementarity between the two.

5.2. A comparison of re-lending and micro-credit company loans

As mentioned in Section 2, a big chunk of the private credit market consists of traditional gray-market private loans or underground loans offered by private moneylenders, loan sharks and pawnshops. When debt default occurs, these underground private credit agencies rarely take legal actions. On the one hand, private lending is illegal. To make

things worse, underground lenders often solicit money from private savers, which could be a serious criminal activity in China. Thus, underground private lenders typically would not resort to the court to resolve debt contract disputes. On the other hand, these underground lenders often seek debt repayment by strong-arm tactics or violence. Consequently, the disputes over underground private loans do not appear frequently in courts.

For a better comparison between re-lending and other forms of informal lending, we focus on a group of legal cases involving micro-credit companies. Micro-credit companies are credit agencies approved and supervised by local financial regulatory authorities. Established by natural persons, corporate legal persons and other social organizations, micro-credit companies are not allowed to take deposits from the public or to conduct any form of illegal fund-raising. The interest rates of loans extended by micro-credit companies are determined by the market but are subject to regulations. They cannot be more than four times and less than 0.9 times the benchmark bank loan interest rate over the same period announced by the People's Bank of China.

In our sample period, micro-credit companies are semi-official credit agencies. Although they are approved by local governments, the legal status of micro-credit companies has not been officially recognized. It is not until December 29, 2020 that the Supreme People's Court issued the *Reply on the Scope of the Application of the New Private Lending Judicial Interpretation*, which confirmed that micro-credit companies were qualified as local financial institutions. The supervision of micro-credit companies was tangled: the regulatory authorities for the setup and registration were provincial governments, China Banking Regulatory Commission (CBRC) was responsible for supervising the legality of fundraising, and the People's Bank of China supervised the interest rates.

Compared with banks, micro-credit companies are more convenient and faster in loan offering, which are suitable for small and medium-sized enterprises and households. Compared with inter-corporate re-lending and gray-market private lending, the loan business of micro-credit companies is generally endorsed by local governments, more standardized, and loan interest rates are determined by the negotiation between borrowing firms and credit agencies. The micro-credit industry grew rapidly. According to the statistics reports on micro-credit companies issued by the People's Bank of China, at the end of 2013, the number of micro-credit companies reached 7839 with a total loan balance of 819 billion yuan. Nonetheless, quite a few micro-credit companies originated from loan sharks. These micro-credit companies also faced heavy tax burdens, that is, 25% corporate income tax rate, which forced them to extend loans at high interest rates. In a nutshell, over our sample period such agencies were permitted to extend loans, but certain terms of loans were often illegal.

Next, we look at the 451 legal cases implicating micro-credit companies and compare them with the sample of inter-corporate-loan-related legal cases in terms of loan contracts and several characteristics of borrowing firms. Table 12 reports the relevant statistics. First, both types of loans had a short average maturity of less than one year. Micro-credit company loans had a slightly shorter maturity than inter-corporate loans. The mean of annual interest rate on micro-credit company loans was 19.99%, slightly lower than that of inter-corporate loans (23.25%). The median penalty interest rate on overdue loans of micro-credit companies was 22.40%, slightly lower than that on inter-corporate loans (24%). Nevertheless, the mean penalty interest rate of inter-corporate loans was a bloody 75.07%, which is considerably higher than that on micro-credit companies' loans (26.87%). The average size of micro-credit company loans was 2.66 million yuan, smaller than 3.36 million yuan for the inter-corporate loan sample.

Second, we find that 97.8% of micro-credit company loans had a formal contract, while the figure was only 54.9% for inter-corporate loans. A larger fraction of micro-credit company loans had collateral (17.7%) or loan guarantors (96.2%), compared with the corresponding proportions of 12.8% and 36.1% for inter-corporate loans. Thus, micro-credit company loans were much more formal and standardized than inter-corporate loans.

Third, courts were more likely to support the claims of micro-credit companies, including the repayment of principal (99.6%) and the agreed interest rates (95.3%). In contrast, the chances of the court endorsing the principal and interest rate claims of lenders in inter-corporate loans were lower (92.2% and 59.7%), and the gap was particularly striking for interest rate claims. Understandably, the semi-official nature of credit company loans made their loan amount and interest rates more acceptable to the court.

Fourth, the duration from the expiry date of loans to prosecution date was about 488 days on average for inter-corporate loans, and the figure was 181 days when micro-credit companies faced a default. It is likely that the lenders in inter-corporate loans might be reluctant to bring the disputes to the court because of the illegal or at least controversial nature of inter-corporate loans. It is also likely that the lenders and borrowers in inter-corporate loans might have some mutual trust and went to the court only when they had no alternative means of dispute resolution. The ratios of borrowers and lenders located in the same province or in the same city were lower in the inter-corporate loan sample, potentially because they had other relationships, such as business relations and sharing common shareholders and board members.

Last, we look at some characteristics of borrowing firms. On average, borrowers in micro-credit company loans were smaller in firm size with an average registered capital of 12.59 million yuan, whereas that of borrowers in inter-corporate loans was 26.43 million yuan. An almost equal proportion (88%) of borrowers in both types of lending was implicated in other legal cases. Inter-corporate loan borrowers were involved in an average of 21 legal cases, whereas micro-credit company borrowers in 17 cases. Nevertheless, the micro-credit company loan borrowers appeared in an average number of 8.125 other lending-related legal cases, a number that was much larger than that (4.617) of the inter-corporate borrowers. This could be because micro-credit companies were more likely to bring debt default disputes to the

Table 12
A comparison between micro-credit company loans and inter-corporate loans.

Variables	Inter-corporate loans		Micro-credit company loans		Mean Difference (1) - (3)
	Mean (1)	Median (2)	Mean (3)	Median (4)	
Maturity (month)	8.772	3	6.506	6.033	2.27*
Interest rate (%)	23.25	21.60	19.99	20.16	3.42***
Amount (ten thousand)	336.4	150	266.0	150	70.41
Penalty_interestrate (%)	75.07	24	26.87	22.40	48.21***
Loan contract	0.549	1	0.978	1	−0.429***
Collateral	0.128	0	0.177	0	−0.050
Guarantee	0.361	0	0.962	1	−0.601***
Decision	0.922	1	0.996	1	−0.073***
Support_interest	0.597	1	0.953	1	−0.356***
Duration_endtosue (day)	488.3	381	180.7	119.5	307.6***
Same_prov	0.869	1	0.991	1	−0.122***
Same_city	0.731	1	0.978	1	−0.247***
Capital_B (ten thousand)	2643	1000	1259	500	1384***
Anyothercase	0.883	1	0.887	1	0.004
Num_lendingcases	4.617	2	8.125	5	−3.508***
Num_allcases	20.97	11	17.07	10	3.898

In this table, we examine one sample consisting of 133 legal cases related to loans between real business entities as introduced in Table 1, and the other sample consisting of 461 legal cases related to loans between micro-credit companies and real business entities. We report the mean and median statistics of the sample of inter-corporate loans and the sample of micro-credit company loans in columns (1) – (2) and columns (3) – (4), respectively. Column (5) shows the mean difference between these two group in column (5), and *, **, *** denote significance at 10%, 5%, and 1% levels, respectively.

court, or the borrowers of micro-credit loans faced tighter financial constraint.

In short, informal lending, both inter-corporate loans and micro-credit company loans, have short maturities and high interest rates, and borrowers are typically small firms and have limited access to formal finance. It is worth noting that inter-corporate loans have more flexible terms, that is, absence of formal contracts, collateral, or guarantors, and courts are less likely to support their claims on agreed interest rates and penalty interest.

6. Conclusions

This study investigates re-lending business of non-financial firms, an important component of shadow banking activities in emerging markets, based on the experience of corporate China. *Re*-lending is a type of shadow banking in which privileged non-financial firms borrow from formal financial system at low interest rates and re-lend funds to credit-constrained firms through informal gray-market lending. It is a natural development of shadow banking under financial repression.

We first provide a glimpse of the corporate re-lending world through a study of 133 legal cases as well as an anatomy of three examples related to inter-corporate loan disputes. Though these legal cases are unlikely to be representative, they help us gain some basic understanding of the characteristics of re-lending activity. To test the existence of re-lending business, we employ three primary strategies to conduct a forensic study by detecting abnormal relationships between financial accounts of listed firms. The test results demonstrate that non-financial firms in China actively engage in re-lending and part of external funds raised from formal financial system were re-lent through the gray credit market.

We further use a complementary strategy to find that the principal strategies produced particularly strong results when firms obtained bank loans, which adds support to our claim that non-financial firms borrowed from banks and re-lent through informal credit market. Moreover, state-controlled firms participated more prominently in re-lending business because of their privileged access to formal finance. We also introduce exogenous monetary liquidity indicators into our analyses, and evidence shows that monetary tightening impeded the engagement by firms in re-lending business, but state-controlled firms could ride the credit boom to continue with this business. Stepping further, we find that growth prospects, board shareholdings, and credit constraints curbed the re-lending business.

Finally, we make a general comparison between re-lending and entrusted loans and provide firm-level evidence of their relationship. Firms, especially state-controlled firm, granting affiliated entrusted loan to their subsidiaries or related parties, were less likely to engage in re-lending, while firms granting nonaffiliated entrusted loans were also active in re-lending. Firms with rich cash but low growth prospects conducted re-lending as well as nonaffiliated entrusted loans as alternative investment instruments to boost earnings. We also provide a comparison between inter-corporate loans and other forms of informal lending by focusing on a group of legal cases involving micro-credit companies, a type of semi-official credit agencies.

The development of re-lending business may have some positive impacts on the Chinese financial system. First, it provides alternative financing channels for small and medium-sized firms, which have tremendous difficulties in accessing formal finance. Thus, re-lending is likely to promote the growth of private businesses. Second, the opacity of SMEs weakens the willingness of banks to extend loans, while re-lending business can help mitigate the information asymmetry to some extent in that firms usually lend to familiar borrowers which they frequently deal with. Moreover, the negotiated interest rates in re-lending might provide a platform for experimenting with the liberalization of interest rates in China.

The economic consequences and risks brought about by financial intermediary activities of non-financial firms need to be examined in future research, either empirically or theoretically. On the one hand, re-lending among non-financial firms may improve the efficiency of micro-level capital allocation and alleviate the financial market frictions under a financial repression regime, as it provides a channel for capital to flow into firms with higher productivity and more profitable investment opportunities. On the other hand, the risks cannot be ignored because they are the financial activities directly carried out within the real economy. *Re*-lending also poses challenges to the conduct of monetary policies. Tight and loose monetary policies generate different market conditions for the development of shadow banking activities of non-financial firms through distinct transmission mechanisms. Conversely, the development of shadow banking can affect the monetary policy transmission mechanisms for better or for worse, which is left for future studies.

Credit author statement

The authors have worked closely.

Julan Du — Data search, Methods, Writing, Literature search

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Yongqin Wang — Data collection, Literature review, Methods, Writing

Data availability

Data will be made available on request.

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Supplementary materials

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