

Resolving financial distress where property rights are not clearly defined: the case of China

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Abstract

We use data on financially distressed Chinese companies in order to study a debt market where property rights are crudely defined and poorly enforced. To help with identification we use an event where a business-friendly province published new guidelines regarding the administration and enforcement of assets pledged as collateral. Although by no means a comprehensive reform of bankruptcy law or property rights, by instructing courts to enforce existing, albeit rudimentary, contractual rights the new guidelines virtually eliminated creditors runs and produced a sharp increase in the survival rate of financially-distressed companies. These changes illustrate how piecemeal reforms of property rights and their enforcement may have a significant impact on economic outcomes. Our analysis and results challenge the view that a fully fledged system of private property is a precondition for economic development.

Keywords: Finance and development, property rights, financial distress, creditors runs

JEL Classifications: G21, G23, G33, N25, O43, P48

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Resolving Financial Distress Where Property Rights Are Not Clearly Defined: The Case of China

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Resolving financial distress where property rights are not clearly defined: the case of China *

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Resolving financial distress where property rights are not clearly defined: the case of China

1 Introduction

The right to property is one of the pillars of any market economy. An owner can pledge title, the formal expression of property ownership, as collateral in exchange for credit, a transaction that “is the bedrock on which much of the financial system operates”; see Besley and Ghatak (2008). One important role of collateral is to tighten the debtor’s incentive to perform their obligations, thereby decreasing the cost of borrowing; see Hart and Moore (1998). Another role for collateral, which is a major focus of this paper, is to prioritize the creditors’ rights by their seniority thereby diminishing the hazard of coordination failures and creditors runs.

We study the relationship between property rights and corporate performance through the lens of the credit market using a sample of financially distressed small and medium size enterprises (SMEs) in China, where the right to property is only partially developed and still evolving; in theory, as a Socialist Market economy, China still rejects the concept of private property. The study has important implications for the management of bankruptcy and distress, in particular, the role of formal bankruptcy in coordinating dispersed creditors so as to avoid disorderly liquidation. China’s economy is now the second largest in the world, and any economic turbulence there could have a major impact on the global economy. Recent issues, such as the default of Evergrande, the country’s largest real estate firm, have exposed weaknesses in China’s property rights protection and bankruptcy laws. These problems, if persistent, could lead to a stagnant Chinese economy and have ripple effects on other regions.

In spite of its socialist principles, China has to accept that companies will not invest in money and efforts in the development of their assets unless they can exercise substantial control rights over them. Rights are weak and they vary widely, in terms of strength and quality. The strongest, called “title”, is, in fact, a relatively short-term lease private firms obtain from the government that can be pledged as collateral. The weakest is an informal grant of usage that, although costly to obtain, cannot be pledged as collateral. Only 55% of the companies in our sample have titles to their assets. In practice, the role of titles in establishing seniority among creditors for coordination has been weakened. Bankruptcy procedures are largely unavailable

for distressed SME companies. Creditors apply to the court for enforcement of debts whereby the courts will seize and sell sufficient debtors' assets to satisfy the claims of the creditor. When one asset is seized by multiple courts, the court to seize the asset, whether they represent the secured creditor or not, holds the authority to repossess. This first-mover advantage has created incentive to creditors to file for repossession as early as possible, generating creditors' run.

We apply an event-study methodology to a relatively minor reform, just one step on the path of financial development; see La Porta et. al. (1998) or Acemoglu, Johnson and Robinson, (2005) for a comprehensive survey. In 2012 the authorities in one of China's most prosperous and business friendly provinces published a technical report "answering questions" about the treatment of secured creditors of distressed companies. In fact, the report's unassuming title¹ delivered a strong and unambiguous message: that, under existing law, pledging title by way of a contract is sufficient to rank creditors by order of seniority. Specifically, it prevents the violation of seniority by denying the unsecured creditor's court the right to seize and liquidate debtors' assets and to use that as leverage over secured creditor. Hence, the rights of the senior creditor, which existed in theory but were ignored in practice, should be enforced as intended by the contracting parties. As noted, our event was piecemeal in nature, falling far short of any comprehensive reform of bankruptcy or property-rights laws, which in other respects remained rudimentary.

Our data is hand collected from the private records of "the bank" (TB), a relatively small lender headquartered in the treated province. The data covers 969 non listed, private SMEs that suffered financial distress between 2008 and 2015. The data is of exceptional quality and granularity. It includes information about the amount of lending by TB as well as by other banks, loan-to-value ratios, recovery rates and survival outcomes. The data also contains narratives with case histories recorded by TB's credit officers, with valuable information on total number of debtors, the provisions of the loan contracts, the timeline for each individual's filing and seizing debtor's asset, their eventual distribution plan, and whether the debtor companies continue to operate. Since the reform applied only in-province, and since TB had out-of-province borrowers, unaffected by the reform, the latter can be used as a control group. TB's untitled in-province borrowers are also a second control group since they have no secured creditors and are therefore unaffected by the reform.

We provide a comprehensive analysis of the 2012 reform across a wide range of variables impacted by

¹The full title is "Answers to questions regarding disputes in the enforcement of creditors' rights when multiple creditors apply for the liquidation of the same debtor's asset".

the reform. To begin with, we document that, pre reform, the first bank to file for debt enforcement benefited from higher recovery rates, but that pattern changed dramatically, post 2012 among “treated” companies, in particular among titled companies operating in TB’s province. Pre 2012, the mean recovery rate on TB’s in-province secured loans was 77%, but that rate dropped to 45% when TB failed to file first for debt enforcement. At the same time, by filing first, TB could increase the recovery rate on its unsecured loans from 26% to 67%. These differences virtually vanish in-province, post 2012 reform. The reform, which prohibits the first-mover from orchestrating asset sales, restricts their opportunistic behavior against secured creditors. More direct evidence for the diminished first-mover advantage is a sharp drop, from 65% to just 5%, in the incidence of secured banks recalling loans prior to maturity, in response to another creditor declaring the company in default. Feeling more secure in their position, the secured banks have little incentive to recall their loan. A similar drop, from 69% to 7%, is observed for banks who lent unsecured to treated companies. Hence, once the junior creditors realize that they cannot “jump the queue” through aggressive recovery tactics, their best interest is served by “staying loyal” to the debtor and hoping that it survives distress. As predicted, no significant changes can be detected in the control group, which includes borrower outside the province and those borrowers within the province but which have no titled assets to offer as collateral, since they are unaffected by the reform.

The diminished advantage to the first mover delivered material improvements in real economic performance. Survival rates for distressed borrowers treated by the 2012 reform increased from 9% to 19%. With better survival prospects, bank-credit availability also improved, with its volume increasing by some 15%; the effect is significantly stronger where the value of the collateral is higher. Interest rates on such credit fell by about 40bp. Notwithstanding, even after 2012, bank lending to titled in-province companies was just 37% of total assets, compared with 66% for SME companies in the UK, 63% in France and 79% in Germany; see Davydenko and Franks (2008). Bank credit for untitled in-province companies was 30% lower relative to titled in-province companies.

The reform also reduced the reliance on “informal” lenders who charged extremely high interest rates. For example, before 2012 the interest rate spread on such credit was around 18% in comparison with 0.9% for unsecured bank credit.² Worse, it is not uncommon for suppliers of informal credit to “enforce” their claims

²See Leong, Li, Pavanini, and Walsh (2021) for a structural model of illegal money lending by “credit sharks” based on data from Singapore. They report interest rates in the same order of magnitude as in our sample, or even higher. However, they describe their borrowers as “vulnerable individuals”, with no access to formal credit, whose main reasons for accessing the illegal market are gambling losses or alcohol abuse. They also report harassment by the credit sharks upon default, but the impression

through the exercise of physical violence against the defaulting debtor. Our narratives provide evidence of debtors and their families, reporting to the police, asking to be placed in custody for their own protection. The narratives also indicate that debtors often leave town and flee for fear of harassment. Indeed, for treated company owners, the incidence of fleeing fell from 34% pre 2012 to just 12% post 2012.

To better understand the channel by which these improvement in corporate performance were achieved, we analyse further debt concentration. Notice that by requiring the courts to implement the contractual order of seniority, the reform transferred default-contingent control rights from unsecured to secured creditors. Hence, given a certain debt structure, the reform has increased the *effective* level of debt concentration in favour of the secured lender. However, debt structure is an endogenous variable, and cannot be taken as given. Accepted theories, e.g. Bolton and Scharfstein (1996), imply a tradeoff between the advantage of concentrated debt in preventing creditors runs and the advantage of debt dispersion in deterring strategic default, where the debtor defaults so as to renegotiate better terms. Hence, it could be hypothesized that the pre-2012 levels of debt dispersion were already optimized, in which case companies should respond to the reform by diversifying borrowing away from the secured bank. This hypothesis is strongly rejected by the evidence: among treated companies, the share of secured bank debt in total bank lending increased from 51% pre reform to 72% post 2012, implying an even greater increase in the effective debt concentration. That such a debt structure was implemented only after the 2012 reform is consistent with the hypothesis that weak property rights distorts debt structure, constraining company's ability to manage their debt structure so as to achieve better coordination among their creditors through debt concentration.

Lastly, we demonstrate that the advantages that the 2012 reform delivered to titled (in province) companies came at the expense of untitled in-province companies. Post 2012, untitled companies had less bank credit, paid a higher price and came to rely more heavily on "informal lenders". For such borrowers the incidence of owners fleeing the province increased from 28% pre 2012 to 34% post 2012.

Our research investigates creditor runs, which, unlike well-documented bank runs ³, have virtually no evidence available in mature market economies.⁴ Notwithstanding, creditors runs play a prominent role in the

is that the methods are "more restrained"; they suggest this may be because police in Singapore provide debtors with some protection against harassment.

³For reference, see Gorton (1988), Calomiris and Mason (2003), Iyer and Puri (2012), and a survey by Goldstein (2012).

⁴The only exception is Hertzberg, Liberti, Paravisini (2011) document a fall in lending activity by banks upon learning that their information is to be revealed to other creditors. The fine granularity of our data allows us to identify the entire causal chain from inadequate implementation of property rights, through the advantage it gives the first mover to economic outcomes, thereby highlighting differences between mature and developing financial markets. However, they use data from Argentina, not quite a mature market economy.

analysis of bankruptcy law. Jackson's (1986) influential work starts with the idea that assets of the distressed company constitute a common pool, which the competing creditors tend to over exploit. Many have used this idea in order to justify an active role for courts in the resolution of financial distress, including the power to stay certain contractual rights as in Chapter 11 of the US bankruptcy code. The striking effectiveness of the 2012 reform raises questions about the need for such elaborate measures. Well structured, well prioritized debt contracts already contain distress-contingent plans for the allocation of property rights on the company's assets. Properly enforced, the asset pool is privately rather than commonly owned. As already noted, better coordination post 2012 reform was achieved without any change in corporate bankruptcy law.

Our analysis builds on the description of property rights in Allen Qian and Qian (2005). The results also bear on their hypothesis that China has created an alternative economic model, based on trust and reputation. Rather, we document a reality where the debtor-creditor relationship is still based on the concept of private property, albeit, poorly implemented. The "alternative" channels of informal lending that did develop are very costly and carry an unacceptable human cost in terms of harassment and even violence against debtors. At the same time, our findings reveal an important role played by local governments, attentive to the needs of business, willing to act promptly to remove constraints that constrain local business. Notwithstanding, we also find in the narratives some clear cases of local governments using its powers, selectively, in order to "help" certain debtors out of distress.

Our results also bear on the finance-development literature, which tends to emphasize that property rights are a precondition for a successful process of economic development; see North and Thomas (1973), De Soto (2000), La Porta et. al. (1998), and Acemoglu, Johnson and Robinson (2001). Rather, our findings highlight the fact that the right to property is a bundle of privileges: the right of usage, the right to lease, the right to pledge assets in order to secure credit, the right to prioritize credit, etc. Indeed, even freedom from harassment can be viewed as part of the debtor's right to their property. It is conceivable that various elements of the bundle bind at different points of the economic-development path. For example, not being able to prioritize security interests may not have been a binding constraint in the 1980s when farming collectives were allowed to allocate plots of land for private cultivation, but did become a binding constraint thirty years later.⁵ While starting with a fully-fledged system of property rights is theoretically conceivable, it may be deemed impractical due to other constraints. In particular, such a system is likely to be intensive

⁵Chari, Liu, Wang, and Wang (2019) for a study of a 2003 reform of leasing rights of agricultural land with a 10% productivity gain.

in legal and administrative human capital, a scarce resource in emerging economies; see Allen Qian and Qian (2005) for a description of judicial resources in China.

A more evolutionary approach to the interrelated process of institutional and real economic development can be found in the writing of the great English jurist, Henry Maine (1861).⁶ At an early stage, societies are “distinguished by the prevalence of co-ownership, by the inter-mixture of personal with proprietary rights, and by the confusion of public with private duties.” But then, once “the wheels of society had begun to move quickly,” a gradual process starts where rights in assets are carved out of the “common fund” and held individually, first through uninterrupted usage, then possession and, ultimately, private property. Along the transition process, assets are “conveyed with incomplete forms, and held, therefore, under imperfect titles.”

It is interesting to note that institutional arrangements similar to China’s can be found in poorer emerging markets. For example, Besely (1995) provides a vivid description of rural Ghana, a society in “transition between a traditional system of land rights (which emphasizes claims of the community) and a modern one (which emphasizes the claims of the individual).” The various rights commonly bundled in “property” may be broken down; for example, the right to sell does not follow automatically from the right to lease. Even when an asset can be sold, strings of “lineage approval” to the transaction may still attach, revealing the “vestiges of the [older] communal land tenure system.” Equally important, “formal (de jure) rights might have very little to do with the ability to exercise these rights (de facto)”. Hence, in Anloga, a less developed region of Ghana, although 78% of the currently cultivated farmers could purchase their land, only 3% have actually done so. The interesting feature of China is that such patterns of institutional under-development are still present even when the economy has already reached such an advanced stage of industrialization. However, other historical examples suggest a similar pattern. For example, in 18th century Britain, already in the midst of the industrial revolution, open fields and village commons were fenced, often by coercive means, bearing similarities to present day China; see Clark (1998). Also, Franks and Sussman (2005) document how US bankruptcy law in the 19th century evolved through a series of ad hoc reforms implemented by Federal courts in the reorganization of bankrupt railroads, largely in the absence of any Congress mandated corporate bankruptcy law. It was only in the 20th century that Congress took steps to give statutory formality to the innovations of the courts.

While our sample is made up of small non listed companies, recent events indicate that they may be

⁶The following citations are taken from Chapter 8.

valid well beyond that population. On 9 December 2021, Evergrande a real-estate developer based in Shenzhen (Guangdong province), listed on the Hong Kong stock exchange, with debt obligations in excess of \$300 billion, defaulted on loans made by foreign creditors.⁷ Concerns about creditors runs are explicitly mentioned, with one analyst stating: “creditors are racing to take Evergrande to court so they can be in a better position to get their money back”. Interestingly, even a company as big as Evergrande had to turn to “shadow” or “underground” lenders who charged annualized interest rates as high as 73%.⁸ Aware of coordination problems, the provincial authorities set up a special court to handle the case,⁹ and, also, “parachute[d] a team of officials into the indebted company,”¹⁰ which “includes representatives from [other] state-owned enterprises”.¹¹ Clearly, the process has become politicized; one analyst comments: “Chinese restructurings are like horse-trading. ... You have to play ball with the government;”¹² our narratives are consistent with this view.

Our paper is organized as follows: Section 2 describes the data, Section 3 describes the institutional setting, Section 4 provides a formal analysis, Section 5 includes some extensions and robustness tests and section 6 provides a discussion of the results and some conclusions.

2 The Data

We have assembled our data from TB’s private records, a relatively small bank operating out of one of China’s most affluent provinces, reputed for a climate supportive of private business. Cull and Xu (2005) survey company managers in eighteen cities; the capital of TB’s province scores highly on questions such as “to what extent do government officials that you regularly have contact with help rather than hinder firms?” or “what is the likelihood that the legal system would uphold your contracts and property rights in business disputes?”

Our sample is restricted to SMEs, which are the backbone of China’s Domestic Private Enterprise (DPE) sector. According to a recent report by Minsheng Bank¹³, DPEs account for more than 60% of China’s GDP, more than 50% of the Government’s tax revenues and about 80% of urban employment.SME/DPEs

⁷See Financial Times (FT), 9 December 2021, <https://www.ft.com/content/6d6b1f79-52b3-49e5-aa8a-7068adec7a9d>.

⁸See FT, 16 December 2021, <https://www.ft.com/content/941c0e96-ebf1-42ee-97ec-ad6764f35cbf?shareType=nongift>.

⁹See FT, 16 December 2021, <https://www.ft.com/content/941c0e96-ebf1-42ee-97ec-ad6764f35cbf?shareType=nongift>.

¹⁰See FT, 3 December 2021, <https://www.ft.com/content/502ab22a-45b4-48e0-afc2-c0fb5e6ac58b>.

¹¹See FT, 6 December 2021, <https://www.ft.com/content/b3df27fb-f54d-4680-95cf-3563bdcd2fe4>.

¹²See FT, 10 December 2021, <https://www.ft.com/content/476dbe5c-02cd-4650-a48c-ea65201ea6f4>.

¹³See http://www.sohu.com/a/136566101_618573, in Chinese.

make up the most dynamic and the most productive part of the Chinese economy, with a 9% productivity lead over

State Owned Enterprises (SOEs); see Song, Storesletten and Zilibotti (2011).¹⁴ In addition, China's DPEs suffer from low availability of bank credit, where only 10% of investments are funded by bank loans in comparison with 30% in the SOE sector; also see Song, Storesletten and Zilibotti, (2011). A Standard Chartered (2010) survey of Chinese SMEs¹⁵, reports that 41% had no access at all to bank credit. This suggests that our sample is taken from the better funded, more developed segment of the Chinese private business population.

TB, like most other Chinese banks, extends credit via fixed-term loans of one-year maturity. Companies often need to apply for loans from multiple creditors, banks or private creditors, to fulfill their financing needs to the maximum extent possible. It is common for the same company to have staggered loans with different maturity dates throughout the year. Our sample, covering the years 2008 to 2015, contains more than half-a million loans, extended to 21,860 borrowers. It follows that the reality of Chinese banking is close to credit-line lending (i.e. overdraft facilities in the UK or "revolvers" in the US). Table 1 consolidates the data at the level of company years of which there are 78,343 data points.

Insert Table 1 here

During the sample period, 969 borrowers defaulted, marking an annual default rate of 1.2%. In case the debtor defaults on any loan, all creditors, the defaulted or any other, are allowed to demand the debtor to repay their loans immediately.¹⁶ This situation could potentially result in multiple creditors simultaneously suing the debtor, necessitating the implementation of a coordination mechanism among the creditors. Although a formal bankruptcy procedure does exist in China, it is beyond the reach of the vast majority of SMEs. In fact only 21 distressed companies in our sample were resolved using formal bankruptcy. Another 42 were resolved through ad hoc informal conferences of creditors, sponsored by local government. Interestingly, among our 969 distress cases there are eight SOEs that happen to satisfy the SME definition, all resolved using one of the two procedures above, an indication of the political connections required to access

¹⁴Brandt, Hsieh, and Zhu (2008), Brandt and Zhu (2010) and Hsieh and Klenow (2009) report a Total Factor Productivity (TFP) gap of between 1.42% and 2.3%, respectively, albeit using different methodologies and covering a period slightly earlier than ours. According to Song, Storesletten and Zilibotti (2011), China's DPEs are slightly more profitable than Foreign Enterprises active in China.

¹⁵Median total assets of only 10 million RMB in comparison to about 95 million RMB in our sample – see Table 1.

¹⁶This requirement is due to the clause that stipulates the debtor must operate normally without any default or lawsuits. As a result, if the debtor fails to comply with this clause, creditors are allowed to demand immediate repayment of their loans.

them; see Section 6.3 for a more comprehensive analysis. Excluding these government sponsored resolutions, we are left with $906 = (969 - 21 - 42)$ private cases, constituting our “working sample”.

Upon default, TB collects additional, more accurate, information on the borrower so as to better manage its recovery efforts. In particular, TB collects information about other creditors, with whom it has to compete for recovery, including private, non-bank creditors. The information includes loan amounts, interest rates, maturity dates, collateral, timing of lawsuits and court-ordered asset seizures, as well as the distribution of proceeds among the creditors. Of the extra information gathered at that stage, of particular interest are narratives by TB’s credit officers documenting the difficulties encountered during the debt recovery process.

According to financial indicators reported in Table 1, the companies in the working sample are not that different in size or even profitability relative to the general population of non-distressed companies; one year before default they still report return on assets (ROA) of 9.7%. Possibly, at that point, TB was oblivious to the performance of its borrowers, raising questions about the quality of its monitoring.¹⁷ To address this concern, we correlate default with TB’s pricing and funding decisions two years prior to default; Table 2 reports the results. (Firm FEs and other controls are included.) The strong statistical significance indicates that TB was aware of the problem though the scale of its response was somewhat mild: interest rates increase by 15bps two years before default and by 25bps one year before default. That may be explained by the fact that although regulatory interest-rate ceilings were abolished a few years before the beginning of our sampling period, customary adherence to the policy lingered on. However, TB’s aversion to debt repricing is accompanied by a sharper reaction in lending volumes, which are cut back 4% two years before default and by 19% in the year preceding default.

Insert Table 2 here

3 Institutional framework

“China has been a country of many ironies that continue to perplex a thoughtful outsider. Particularly perplexing is the disparity between the words and the reality”; see Zhang (2003). To better understand these “words” we present a short description of the complicated institutional system that governs the resolution of financial distress among Chinese SMEs.

¹⁷A point made by Jack Ma in his well-known speech to the Bund Financial Summit, Shanghai 24 October 2020, describing Chinese banks as having a “pawn-shop mentality”. These allegations are not supported by the analysis below.

3.1 Property rights

As far as land is concerned, “private property” is a misnomer. In legal-political theory, China is a Socialist Market Economy. Socialism implies that all land and, by implication, any attached equipment or structures, are ultimately “owned” by an abstract entity that is “the people of China”.¹⁸ In practice, “the people” exercise ownership either through one of the State’s organs (e.g. the People’s Liberation Army or provincial governments), or, directly, via local farming collectives, who control much of the land that has economic value.

At the same time, an economy as vibrant and dynamic as China’s, also requires that companies are able to acquire some control rights on assets that they use and develop. To accommodate these conflicting demands, China has developed a whole spectrum of ad hoc institutional arrangements, varying by the strength of the right and by the quality of its implementation. At the low end, farming collectives, who are not allowed to create any rights to land that is classified as rural, may still grant (for a hefty fee) the right of usage to an industrial company. Since the arrangement has no legal standing, such a right is neither transferable nor pledgeable. At the high end, local government can “sell” land classified as urban as a *conveyance*, effectively a fixed term leasehold (typically, for a duration of thirty to fifty years). There exists no formal procedure to extend the lease before it expires. Such a conveyance is transferable to a third party and, also, pledgeable as collateral against credit. In China, such conveyances are commonly called “titles”, misleadingly. The entire process is administrative in nature, so the de-facto strength of the right often depends on how diligently the bureaucracy of the local government handles the process. Of major importance is the documentation of the right, whether by some communication with a local official or through a public register (so that the right can be observed and verified by any third party). In the latter case, public registers vary, significantly by the quality of their administration.¹⁹

Of the 906 companies in our working sample, only 494 or 55%, have titles. Even for those (in-province) companies, the value of assets pledged as collateral is just 35% of total asset value reported by the company. Pre 2012, the amount of credit secured on those assets was just 17% of total asset value, implying a loan-to-value ratio of 49%, highlighting the SME credit-shortage problem; Section 4 provides a more rigorous analysis. Adding unsecured credit, the total amount of bank lending to titled companies was just 32% of

¹⁸It could be argued that the socialist tenure system draws on older communal traditions, but the analysis of this argument falls beyond the scope of the current paper.

¹⁹This paragraph draws, heavily, on Ho (2001) and Ho and Li (2003), where much additional detail can be found.

total assets; untitled companies received about one half of that amount.

Our narratives provide two interesting examples of the problems created by inadequate registration of titles. A private steel trader pledged some rolling stock as collateral. The steel was stored with a specialist warehouse and the receipt was pledged as collateral. In this case, however, the trader colluded with the warehouse to issue duplicate receipts, which were both pledged in order to secure two bank loans (against the same stock). Although TB recorded the value of the collateral at 2.35 million RMB, when the company defaulted, the recovery amounted to only 0.2 million RMB. In another case, a shipping operator borrowed 24 million RMB from TB, secured by three tugboats worth 20 million RMB. However, when TB tried to repossess the collateral, the owner claimed that the signature, of his daughter, on the pledging document, was not authentic. Eventually, TB managed to recover 11 million RMB.

3.2 Rule of law

Historically, China treated its legal system as just one part, not necessarily the most important one, of the State apparatus. This attitude is well exemplified by Mao Zedong's words in 1957, cited by Ho (2005): "you cannot rely on law to rule the majority of the people ... I took part in establishing the Constitution, but I do not remember it. Every one of our resolutions is a law; when we hold a meeting, that's law too." One implication of that attitude is that judicial service was considered a "job" that required no particular skill or training. Judges, many still serving during our sample period, were recruited from the ranks of the army, the Party or the bureaucracy. Even in the 1990s, when the administration of justice improved considerably, it was estimated that only 25% of judges had a law degree. Even in the more developed coastal provinces qualifications were often obtained by "televised education" or through some "specialized colleges"; see Zhang (2003). Apart from concerns about judges' independence and integrity²⁰, it is clear that lack of professionalism meant that certain legal rights were not treated with the same level of attention and diligence that they would receive in a mature market economy. Of critical importance to our analysis is the haphazard enforcement of priority rights among the creditors of a defaulted company.²¹

²⁰See, for example, Peerenboom (2008) and Wang (2013).

²¹We came across the following anecdote talking to lawyer involved in much repossession work for TB, whom we met while collecting our data. An elderly debtor refused to evacuate a residential property that he had previously pledged as collateral. On humanitarian grounds, a judge refused to issue an eviction order, but did grant TB an injunction that banned the debtor from traveling on the State's train grid. Alas, the borrower was of such poor health that he no longer traveled to visit his daughter, making the injunction worthless.

3.3 Contract enforcement

Troubled Chinese companies can petition the court for either liquidation or reorganization under the country's Bankruptcy Code ²², but such petition is most likely to be refused if filed by an SME with no political clout. The alternative is for the creditor to apply ²³for repayment under contract law. According to contract law, the creditor must first petition to a court, which is expected to accept the case and seize sufficient of the debtor's property for repayment. The court will conduct a hearing and in the event of a decision favouring the creditor it will sell sufficient assets of the debtor it previous seized to repay the outstanding debt.

An important difference between contract law and bankruptcy petition is that in the former case the court is obliged to take a comprehensive approach to the rights of all the company's creditors, while in the latter case the court main business is to provide remedy to the creditor who filed the case. In theory, even before the 2012 reform, such remedy should not have been provided at the expense of another creditor, especcally the secured creditor, regardless of the timing of filing. In particular, in case the junior creditor filed first and the senior creditor filed later, the senior creditor still have the seniority in claiming the proceeds

However in practice, the issues are made complicated because several courts may be involved in a company's distress as all courts can seize the asset and provide a verdict for liquidation. If the asset is seized by multiple courts, it is the court that seizes the assets first that holds the authority to determine whether and when to liquidate those seized assets. Unsecured creditors often approach a separate court from that of the secured creditor, usually one he have a connection with,

in the hope that the court would hold up the sale of the collateral . ²⁴ D disputes between the two courts often centered on the question of which creditor took steps first to "seal off" the property, rather than which creditor's right was senior to the other. Obviously, this state of affairs introduced a built-in first-mover advantage, which will be analyzed in greater detail in Section 4 below.

A case example illustrates the problem pre-2012 Reform, taken from TB's records. A private IT company "purchased" some land on which it constructed a plant. Local zoning laws defined the land as rural, so although the transaction was executed in cash, no title could be pledged. As a result, with assets of 258

²²See The Bankruptcy Law of the People's Republic of China that was enacted on August 27, 2006

²³See Civil Procedure Law of the People's Republic of China, enated on first enacted on April 9, 1991. It has undergone several amendments since then, with the most recent amendment taking place on October 26, 2020.

²⁴There were also ample opportunities for fraud. For example, a debtor might grant "fake" debt to a trusted associate, to which he would default, so that the trusted associate can seize the company's assets and tunnel them back to the owner. Interviews with experienced lawyers give us reasons to believe that such opportunities were exploited.

million RMB, the company could secure bank credit of only 75 million RMB, of which 14.8 million RMB were provided by TB against a mortgage on the owner's residential property, valued at 20 million RMB.²⁵ Upon default, TB filed for repossession in a court located in the province's capital city, where TB's own head office was also located. However, another *unsecured* creditor, also a bank, filed earlier in another court, in the same city, for repossession of the same residential property. TB's officers report that the court in which they filed was "unable to initiate a compulsory auction, and the communication has been fruitless, [because] the first seizing court ... refused to initiate the auction process" on TB's behalf.

It is worth noting that while the 2012 reform provides better protection for the rights of secured creditors, it makes little difference to the rights of the unsecured creditors. While it is still the case that, in theory, several creditors of equal seniority should share the proceeds from selling the debtor's assets pro rata, one first-mover junior creditor may increase his share at the expense of the others. Indeed, quantitative analysis below finds little evidence for any significant change in the conduct of creditors to untitled companies where Chinese law still fails to provide instruments that would allow the prioritization of creditors by order of seniority.

3.4 "Alternative" credit market

One of the main points made by Allen, Qian and Qian (2005) is that informal credit markets might provide an adequate alternative to imperfect formal markets. Tsai (2004) quotes survey results where farmers obtain four times more credit from informal markets than from formal ones. Ayyagari Demirgüç-Kunt and Maksimovic (2010), although rejecting the association between informal credit markets and enhanced performance²⁶, still describe them as benign institutions that "rely on relationships and reputation" with superior monitoring capacity allowing them to provide funding to borrowers that are rejected by the banks. Our data reveal a very different and less benign picture of the non bank sources of finance: the mean interest rate premium, over and above the Bank of China's base rate, is around 20%; see Section 4 for a more detailed analysis. Even more significantly, enforcement is often accompanied by significant levels of criminality. The narratives

²⁵In most cases, residential property is pledged via intermediaries, who obtain title from the debtor and guarantee the loan vis-a-vis the bank, saving the bank the political embarrassment of evacuating residents from their homes and, at the same time, allowing the intermediary to use more extreme measures to achieve the same end. The use of personal guarantees is widespread in China. Our impression is that they are not very effective or, at least, are a much less effective means of enforcing recovery via pledging a title. For that reason, and due to shortage of data, we have decided to ignore their presence.

²⁶They also report much smaller magnitudes: while banks fund 20.5% of companies' new investments, informal resources fund 1.9%.

speak of debtors placed in “private confinement” by alternative lenders. In one case, a businessman and his wife surrendered to the police and asked to be held in custody for their own safety. Such voluntary custody suggests that the police are unable or unwilling to protect debtors and their families from harassment by “private lenders”. Our data suggests that around 30% of untitled defaulting borrowers in TB’s province fled their city and vanished, to escape harassment and possible violence from the non bank lenders or loan sharks.

Violence results in further violations of the priority of debt claims. In one case, TB lent 25 million RMB to a textile company. Private creditors who lent 35 million RMB must have been threatening enough so that the owner “disappeared and could not be contacted”. For some reason, the local government was willing to contribute additional funding, but all those funds were used to pay the private (unsecured) creditors who were repaid in full, while TB managed to recover only 9.4 million RMB. This is in spite of the fact that the informal loans charged an interest rate of 30%, compared with only 6.3% charged by TB. Hence, even if the concept of seniority is well understood, the asymmetry in effective enforcement power between bank and non bank creditors may change the effective order of seniority in favor of the latter.

It follows that although many SME names end with the letters “Ltd.”, in practice, liability is often unlimited. It is worth articulating how the inadequate management of property rights actually undermines this basic legal instrument. Once businesses lack pledgeable titles, they can no longer pledge their fixed assets as collateral, so the provision of bank credit is restricted. They have no choice but to apply for credit in the “informal” or non bank market accompanied by personal guarantees. Once that is done, they cannot shield personal assets from business failure, and they are potentially subject to serious harassment. Moreover, there is still no personal bankruptcy law in China that will allow debtors to write-off debt in default. Although the Supreme Court released a plan to establish such a law,²⁷ implementation has been slow.²⁸ The role of local government

The description above already implies that business, law and regional politics are interwoven, rather than clearly separated as they are (or supposed to be) in mature markets economies. Given the wide powers that they possess, regional governments have been resourceful in “helping” companies that they deem worthy of such help. An interesting case is that of a private manufacturing company located in TB’s own province that borrowed unsecured 35 million RMB from TB. Though not an SOE, the narrative speaks of a preferential

²⁷See The Guidelines for People’s Courts on Enforcement Work (2019-2023) (<http://news.sina.com.cn/sf/news/fzrd/2019-06-12/doc-ihvhiew8261703.shtml>)

²⁸Two cities, Wenzhou and Shenzhen, enacted personal bankruptcy procedures independently of the national government.

treatment by the local government. Help came in the form of hastily initiating a change in zoning law to convert the company's land status from industrial to residential, thereby sharply increasing its value, generating a considerable amount of cash. As a result, TB was repaid 32.5 million RMB, an almost full recovery.

3.5 The Reform

In April 2012, the enforcement department of the High Court in TB's own province used its semi legislative powers in order to issue some "Answers to questions regarding disputes in the enforcement of creditors' rights when multiple creditors apply for the liquidation of the same debtor's asset".²⁹ No new legislation was required because, in theory, privately contracted security interests were legal and enforceable under existing Chinese law. Notwithstanding, these "answers" did deliver a strong message that the existing law needed to be implemented as intended.³⁰ In particular, they implied that a court that is asked to seize an asset on behalf of a junior creditor should transfer the case to the court where the senior creditor has filed for repossession, regardless of who filed first. In case the first-moving court refuses to comply, the Province Supreme Court can enforce such a transfer (within the province). In China, higher courts are powerful since they are part of the nomination process of judges in subordinate courts and also approve part of their expenditures.

Notably, the issue of creditors' coordination, particularly concerning first-seized creditors and secured creditors, has been identified as a significant concern in China. Following the initial efforts of TP, numerous other provinces have also issued their own "Answers to questions" addressing similar concerns. Many provinces have been explicit in stating their objectives. For example, in the introduction of Shanghai's version, it is stated:

In practice, a single borrower frequently finds themselves being sued in various regions or different court levels, with their assets serving as collateral for one creditor. Upon initiation of the liquidation process, the secured creditor discovers that the asset has been seized by a different court (hereinafter referred to as the "first-seizing court"). This scenario gives rise to a conflict between the secured creditor and the first-seizing court regarding the authority to manage the asset. This conflict significantly undermines the realization of

²⁹See http://www.360doc.com/content/18/0205/12/30598038_727853750.shtml

³⁰Other provinces such as Jiangsu or Fujian have followed.

priority repayment claims and forms the actual context for the issuance of the "Answers." ³¹

Again, it is worth emphasizing that the intervention by the provincial supreme court was not part of a more comprehensive reform to resolve the many other problems that affect the Chinese credit market, such as that fact the title is, in fact a short-term lease agreement. Note also that the inability to extend the title before it expires reduces its value to the creditor in case it repossesses the property.

4 Theoretical considerations

In some important respects, the theory of creditors runs is similar to the Diamond-Dybvig (1983) theory of bank runs: the creditors (depositors), who all have equal rights in the debtor's (i.e the bank) assets, are placed in a queue and, then, "served sequentially", i.e. paid *the face value of their claims*, until they are all satisfied or until the bank runs out of money. Clearly, in the latter case, which is more relevant to our analysis, those who are close to the head of the queue have an advantage over those who are placed further down. It is therefore in the best interest of each and every creditor (depositor) to make their claim against the debtor's assets early, so as to secure a place at the head of the queue or as close as possible; hence the first-mover advantage. The equilibrium outcome of such a financial structure may lead to a creditors run.

In some other respects, the phenomenon of creditors runs is quite different from that of bank runs, and the sequential-servicing assumption is much more difficult to justify. The Diamond-Dybvig justification is that demand deposits are intended to accommodate liquidity shocks that are realized over an extended period "at different random [points of] time"³². By the very nature of these shocks, service is demanded with immediate effect. Since it is not known which creditors (depositors) will be subject to a shock, they are all granted equal rights in the debtor's assets; since it is not known how many others will be subject to a shock thereafter, payment is fixed at the face value of the claim.³³ However, corporate (particularly SME) debt is not intended to serve as a liquid instrument. Absent the element of immediacy there is enough time to implement a mechanism that removes the first-mover advantage. Indeed, that is an important function of title or collateral: to establish seniority across creditors by way of ex-ante contracting, thereby severing the linkage between recovery rates and the time of claiming repayment. It follows from this argument that

³¹See <https://jzzy.hncourt.gov.cn/public/detail.php?id=11408>

³²Implicitly, the argument "capture[s] the flavor of continuous time".

³³See, however, Green and Lin, (2003) who demonstrate the weakness of argument.

creditors runs should vanish or be greatly mitigated once contractual priority rules are enforced.

Notwithstanding, creditors runs (or “asset grabbing”) do play a prominent role in the finance-law analysis of bankruptcy and distress (see Jackson (1986)), which highlights the need for empirical testing. Since our data provides information about recovery rates, seniority of debt and maturity, we can directly observe the first-mover advantage, both before and after 2012. The critical identifying assumption is that although Chinese law has recognized, in theory, that a titled company can establish an order of seniority across their creditors by pledging title to a particular lender, these arrangements were not enforced prior to the 2012 reform. We define the treatment group as in-province companies with a pledgeable title over their assets, with treatment administered in 2012. The control group includes loans that were not affected by the reform, either because the debtor was operating out of BT’s province, or because it had no title to pledge for its borrowing. Hence, the testable hypothesis is that, before the reform, there was a strong correlation between the position of the creditor in the queue and their recovery rate, a correlation that vanished post 2012 in the sub-sample of creditors that were treated by the Reform.

5 Formal analysis

In this section we exploit the 2012 reform in order to study the relationship between property rights, creditors runs, borrowing rates and post distress economic performance. We start by documenting the presence of a significant pre-2012 first mover advantage, which is virtually eliminated among “treated” companies following the 2012 Reform.

5.1 First-mover advantage and creditors runs

While our data is sourced from one creditor only, TB, the data contains some information about other lenders who extended credit to TB’s borrowers, including the amount that they lent although, not the recovery rates on these loans. However, using just TB’s recovery rates we can still test the effect of the reform on the first-mover advantage, utilizing the fact that TB lends both in and out of province, and it play the role of both secured or unsecured creditors. Where the borrowing company is untitled or located out of province, i.e. not treated by the reform, we predict that TB’s recovery rates are correlated with its position in the queue, namely whether it was the first to file for recovery, with this correlation not being significantly different

before and after 2012. Where the borrowing company operates in province and has title over its productive assets, whether that title is pledged to TB or to another bank, such a pledge was immaterial pre 2012, but it became a dominant factor post 2012. That is, pre 2012, even when TB is secured by title, its recovery rate should be correlated with its position in the queue, but that correlation is expected to vanish post 2012.

Insert Table 3 here

Results in Table 3 are consistent with this prediction. Before the 2012 reform, first-movers enjoyed an advantage over second-movers across all borrower classes, as demonstrated in columns (1) and (3). For in-province titled borrowers, lending against title delivered TB a recovery rate of 77% only when it was the first to file; otherwise, when filing behind a junior creditor, recovery rates dropped to just 45%. Similarly, where TB was lending titled companies without security, assuming that title was pledged to another bank, filing first still increased its recovery rate from 26% to 67%. That is, pre 2012, filing first delivered a higher recovery rate for a junior creditor (67%) than when it was secured but failed to be the first to file (45%). Evidently, the ineffective enforcement of the priority rule permitted unsecured creditors to leapfrog secured creditors and seize a substantial portion of the proceeds that should have accrued to the secured, if priority had been followed. Observations for borrowers outside of the province reveal a similar pattern.

We show that the 2012 Reform had a substantial effect on creditor recovery rates. After 2012, the recovery rate of secured but non-first-filed creditors increased by 35% to 80%, being similar to the recovery rate of secured and first-filed creditors (82%). This significant change indicates that the reform was successful in delivering priority to the secured creditor, as intended by the act of pledging title. It accomplished this by stopping unsecured creditors from jumping the queue and seizing assets first. After 2012, where title was pledged to another bank, TB could increase its recovery rates only slightly from 26% to 35% if it seized the asset first, in sharp contrast to the pre-2012 situation, where recovery rates increased from 26% to 67%.

It is worth noting that the Reform is limited in two ways. First, since Chinese security arrangements are constrained by the availability of titles, the Reform had little effect on the first-mover advantage for untitled companies. Post 2012, in province, filing first could still increase TB's recovery rates from 29% to 69%, very similar to the pre-2012 situation, with recovery rates increasing from 26% to 67%. . Second, the effect of the Reform is exclusive to in-province borrowers. Out of province, post 2012, TB, by filing first, could increase its recovery rate irrespective of whether it was senior (from 49% to 74%), or junior to another bank

(from 31% to 68%) or, equally unsecured with other banks (from 29% to 75%), very close to the situation pre 2012.

For more formal testing and in order to obtain statistical significance, we split the sample into the treatment group – in province with titles, and the rest as a control group – either out of province or without titles, and estimate the triple difference-in-difference (DiD) regressions, as well as including various controls:

$$Recovery_i = \alpha + \beta_1 Post_i + \beta_2 Secured_i + \beta_3 First_i + \beta_4 Post_i \times Secured_i + \beta_5 Post_i \times First_i + \beta_6 First_i \times Secured_i + \beta_7 Post_i \times First_i \times Secured_i + \theta X_i + \eta FE_i + \varepsilon_i. \quad (1)$$

Recovery is TB's recovery rate on loans extended to borrower *i*. *Post* is a dummy variable that equals 1 if the distress took place after 2012 and 0 if otherwise. *Secured* is a dummy variable that equals 1 if TB is the borrower's secured creditor and 0 if otherwise. *First* is a dummy variable that equals 1 if TB filed first and 0 otherwise. *X* is a vector of additional control variables including total assets as a proxy for size, and return on assets, as a proxy for profitability, and *FE* is fixed effects.

Insert Table 4 here

Table 4 reports regression results for equation (1) separately for the treatment group (titled in-province borrowers) in column (1) and the control group (in province without titles, and out of province borrowers both with and without titles) in column (2). In line with Table 3's analysis, pre-2012, there is a strong first-mover advantage in both the treatment and the control groups. Within the treatment group, filing first adds 42 percentage points to TB's recovery rate, of which 33 percentage points are subtracted post 2012. Both effects are significant at the 1% level, but given the coefficients' standard errors, the effect of the two changes loses statistical significance post 2012: the Reform eliminates the first mover advantage for treated companies. At the same time, post 2012, obtaining title against an in-province borrower adds 40% to TB's recovery rate, significant at the 1% level. As the triple-interaction coefficient shows, post 2012, once secured, filing first made no significant difference to TB's recovery rates on in-province defaulted debt. All this stands in sharp contrast to the control group where moving first adds 49 percentage points to TB's recovery rate, largely unaffected by the Reform.

While the analysis above suggests that the 2012 reform has removed the incentive for lenders to distressed treated companies to file for early repayment, a more important question is how creditors have responded to the new incentive structure. Theory predicts that such creditors, whether they are secured or unsecured, would be more patient before initiating repossession procedures against distressed borrowers. Unsecured creditors should realize that early action would only accelerate a response by the secured creditors, to whom the courts would grant priority, to the detriment of the unsecured. If so, it is likely to be in the interests of the unsecured creditors to wait and give the company a chance to recover. Once the secured creditors face a lower risk of preemptive action by the unsecured creditors, they too should feel safer in their position, allowing them to wait before taking action.

Insert Table 5 here

As described earlier, Chinese banks provide staggered fixed-term loans. However it is relatively easy for creditors to recall their loan prematurely, once there is a default against any other creditor.³⁴ Consistent with this prediction, columns (9) and (10) of Table 5 report a sharp drop, post 2012, in the incidence of recalling loans early by all classes of creditors of treated companies: from around 65% to 5% for secured bank lending, from 69% to 7% for unsecured banks and from 76% to 9% for private non-bank lending. No discernible effect can be detected in the control group. It is worth noting that the proportion of creditors recalling loans is relatively low. In many instances, the first creditor applying to the court for repayment would try to hide the petition so that other creditors would not be alerted to the claim. Thus the low level of recalled loans reflects the low dissemination of information about creditor claims made under contract law. Other creditors are either uninformed of the first-moving creditor, or even if they are aware, they do not have the time to take action.

Insert Table 6 here

For a more-formal testing, Table 6 reports DiD regression results similar in specification to equation (1). In columns (1)-(3) the dependent variable is a dummy that equals one if any creditor within the class calls back the loan before it matures. The independent variable of interest is the interaction between *Post*, *Titled* and *In-province*. *Titled* is a dummy variable that equals 1 if the borrower has title for its productive assets

³⁴Once a loan is recalled by another creditor, junior or senior, all other creditors can go to court and file a case for repayment and repossession if there is collateral. This is triggered by a covenant present in many debt contracts. A firm that has defaulted on one loan is regarded as insolvent, therefore allowing other creditors to file for repayment and repossession.

and 0 if otherwise. *In-province* is a dummy variable that equals 1 if the borrower is located in province. Since a company can borrow secured if and only if it has title, the sample size in column (1) declines to 431 observations and includes the sample of all titled creditors. The *Titled* variable equals 1 for each and every such observation, and the triple interaction reduces to just a double interaction in that column. To put it differently, the control group in column (1) is just out-of-province titled companies, while in columns (2) and (3) the control group also includes non-titled in-province companies. The results are consistent with those shown in columns (9) and (10) of Table 5. All three columns confirm the statistical and economic significance of the sharp drop in the incidence of recalled loans to treated companies, by all creditor classes, post 2012.

Most importantly, the stabilizing effect of the 2012 reform is illustrated by the sharp rise in survival rates, a result of lower incidence of creditors runs following the virtual elimination of the first-mover advantage within the treatment group. When creditors recall loans, companies are less likely to survive due to a significant number of creditors' claims being recalled simultaneously or within a short period of time. Reducing the incentives to recall loans therefore means a higher survival rate for borrowers. Columns (13) and (14) of Table 5 report an increases in survival rates among titled distressed companies in province, from just 9% to 19%. Column (4), in Table 6 provides a more formal test, documenting statistical significance at the 5% level.

5.2 Debt structure

The 2012 reform had a direct impact on debt structure. By increasing the *expected* amount of default-contingent control rights of secured debt, it actually increased *effective* debt concentration towards the secured creditor – taking *nominal* debt structure as given. Obviously, debt structure is one of the main financial decisions that an SME has to make, so it cannot be taken as given. In this section we study the endogenous response of debt structure to the reform and draw important inferences about the mechanism through which the reform operates: by relaxing constraints on companies abilities to optimize their debt structure.

Mainstream theory suggests a tradeoff whereby concentrated debt facilitates coordination when the company is genuinely distressed and debt dispersion that, by making coordination more difficult, deters strategic default (where a viable debtor defaults just in order to negotiate better terms); c.f. Berglöf and von Thadden (1994), Bolton and Scharfstein (1996). Hypothetically, the pre 2012 incidence of runs could have been part of

an optimized debt structure along the lines of Calomiris and Kahn (1991), in which case treated companies should have responded to the Reform by dispersing debt so as to restore the effective pre-reform effective structure. We reject this hypothesis by documenting an increase in debt concentration towards the secured creditors among treated companies post 2012. The result is consistent with the idea that weak property rights distort companies' choices along the above tradeoff towards excessive debt dispersion. Banks operating in China face a broad spectrum of stringent regulations, including informal guidance and instructions communicated directly. The implicit interest cap imposed for loans restricts banks from mitigating additional risks through higher interest rates. Consequently, this leads to a reduction in the level of debt concentration.

Table 5 reports the results. Post 2012, the secured bank's lending in-province titled companies increased from 17% of total asset to 24%, while collateral value, as a proportion of total assets, remained at 35%; see columns (1), (2), (5) and (6). In other words, loan-to-value ratios have increased from 49.8% to 67.0%. At the same time, respective interest-rate spreads, measured against the People's Bank of China (PBOC) base rate fell from 58bp to 18bp; see columns (7) and (8).

At the same time that in-province titled companies borrowed more from the secured bank, at a lower price, they borrowed slightly less but at a significantly higher price from unsecured banks, whose number fell after 2012, on average from 2.8 to 2.3 banks per borrower; see columns (3) and (4) of Table 5. At the same time, the volume of unsecured bank lending to treated companies, as a proportion of total assets, fell from 15% to 13%, while credit spreads have risen from 88bp to 169bp; see respective columns Table 5. The combined effect of these changes in the composition of bank lending is an expansion of total bank credit, as a proportion of total assets, from 32% to 37%, while the combined price effect, which can be derived by calculating the weighted average cost of bank credit, has not changed significantly. It is still the case that over and above the redistribution of volumes, risks and prices across lender classes, overall lending conditions to in-province titled companies have eased, consistent with a lower risk to creditors and premature liquidation.

Perhaps the best indication of better lending conditions for treated companies is the much lower reliance on "private" or "alternative" lending, which, as a proportion of total assets was 5% before 2012 and less than 1% after. As noted above, not only does this kind of debt come at a high, with interest-rate spreads of 18% to 19%, it also involves unacceptable levels of violence against borrowers. To protect themselves, borrowers are often forced to leave town and disappear. Reports, by TB's credit officers, of such incidents have fallen dramatically among in-province titled borrowers, from 24% pre 2012 to just 8% thereafter; see columns (11)

and (12) of Table 5.

At the same time that credit conditions have improved for in-province titled borrowers, they have worsened for in-province untitled borrowers. The effect is discernible across all dimensions above: following 2012, the volume of bank credit to in-province untitled borrowers, as a proportion of total assets, fell from 17% to 14%, while its price increased from 90bp to 145bp. In addition, they had to rely more heavily on alternative credit, 12% of total assets post 2012 up from 9% before. As a result, there is an increased incidence of borrowers having to flee in order to avoid violence, 34% up from 28% pre 2012.

That out-of-province untitled borrowers did not suffer such worsening in credit conditions, see Panel B of Table 5, indicates a certain degree of market segmentation at the province level. For example, it is possible that with improved credit conditions titled companies could gain a competitive advantage in goods market, thereby undermining their profitability and increasing the risk of failure for untitled companies, which is priced into their credit. This would be more relevant to industries where output of goods or services are not tradable across province lines.

As for formal analysis, quantity effects are reported in Table 7 while price effects are reported in Table ???. Notice, particularly, the strong effect of the Reform on the quantity of secured bank credit and total bank credit, which are both significant at the 1% level. Price effects tend to be less statistically significant. The effect of the reform on the incidence of the secured debtor fleeing is also significant at the 1% level.

Insert Table 7 here

Insert Table 8 here

The dramatic increase in survival rates among in-province titled companies is also significant. Table 8 reports some key performance indicators, for survivors in both the treatment and the control group, in distress time $\tau = -2, -1, 0, 1, 2$, relative to the distress year ($\tau = 0$), which is the time of default. On the eve of distress, at $\tau = -2$, the companies in the two groups are quite similar in size (total assets) and performance (sales, ROA). The main difference is that, at that point, the treatment group has more bank borrowings, 43% ($= 36.3 + 6.3$) as a proportion of total assets, compared with only 27% for the control group. In addition, debt structure is more concentrated in the treatment group relative to the control group, as 83% of loans are from secured creditors for treated firms compared with only 53% for companies in the control group. Interestingly, both groups have no alternative non-bank debt at $\tau = -2$.

The decline is sharper and recovery is slower in the control group compared with the treatment group. Between $\tau = -2$ and $\tau = 0$, total assets fall 24% in the control group, compared with 56% in the control group. At $\tau = 2$, total assets recover to 7% of their initial, $\tau = -2$, level in the treatment group compared with only 17% in the control group. A similar pattern can be observed in sales, which fall (recover) 29% (5%) in the treatment group and 70% (21%) in the control group. Most likely and consistent with the data, the pressure to sell assets and contract operations comes from the creditors. In the five periods along the distress-recovery path, loans are expressed as a proportion of total assets at $\tau = -2$. It follows that measured in currency, total bank lending to the event year $\tau = 0$ contracted by 10% in the treatment group and by 40%, in the control group. That is a greater contraction compared with the contraction in total assets, perhaps to give the banks more confidence to remain with the company.

Furthermore: in the treatment group, secured credit contracted twice as much as unsecured credit, 10% against 5%. This is consistent with the argument made above: that when seniority rights are strictly enforced, the position of the unsecured creditors at the end of the queue drives them to passivity: they will bear the full cost of liquidation and, therefore have a strong incentive to avoid actions that will increase the likelihood of liquidation. Assuming that titled assets are the last to be sold, the secured bank, which has the power to push the company into contraction or bankruptcy, has actually made its position even safer during the two years leading to default default ($\tau = -2, -1, 0$), further decreasing its incentive to force liquidation. To put it more formally, the enforcement of seniority has the effect of coordinating creditors' actions, with the secured leading and the unsecured following, in a manner that diminishes the risk of premature liquidation.

6 Robustness checks and extensions

Our results are subject to several alternative interpretations. Title could be an endogenous variable that captures certain company characteristics such as productivity or political influence, which affects performance in times of distress. Alternatively, our findings may be explained by a pre-existing trend in which treated companies outperform the control sample. The treatment-control difference could also be a result of other policies that were deployed at the same time, only affecting titled companies in TB's province. Section 6.1 presents Instrumental Variable (IV) analysis as well as a falsification test that address the first two concerns. Section 6.2 mitigates the third by demonstrating that the reform's impact on total bank lending is not only

increasing but is also convex in the the company's titled assets, indicating a stronger-than-linear effect that could be associated with improved coordination. We also show that the effect of the reform is stronger where the borrower has subsidiaries in different locations, which makes them vulnerable to coordination failures as courts from other districts are called in, possibly by other lenders. Section 6.3 extends the analysis to highlight the role of political connections in gaining access to a formal bankruptcy procedure or to an informal government-sponsored resolution mechanism.

6.1 Robustness checks

Insert Table 9 here

The ideal title instrument would be a variable that is correlated with the entitlement but not with other characteristics that affect performance of the company in distress. Section 3 already hints that the company's location might be used as an instrument. In China, a title is created when a municipality, through its control of zoning laws, changes land status from rural to urban and, then, grants a title to a user. Though the municipality is constrained by an annual quota set up by the government of the province, it applies discretion over the location of the rezoning according to its own long-term city planning. Although, in theory, all land should be auctioned to maximize the municipality's fiscal revenue, in practice, the firms that already operate in the region are favored so as to minimize the costs associated with corporate relocation and land expropriation.

We therefore treat land located within a future urban region as an exogenous variable that is correlated with a company's title, yet largely independent of characteristics that affect the company's performance in distress. Hence, the instrumental variable *Urban* is a dummy that equals 1 for a company that already operates in that location two years or more prior to it receiving the rezoned status.³⁵ The two-year lag is introduced in order to avoid an endogenous relocation decision based on status or, more importantly, private information of an impending change. Column (1) in Table 9 reports first-stage results: location in an urban area ahead of the change of zoning status adds 60% to the probability of having a title, significant at the 1% level.

One might still worry about high-performing or connected companies choosing locations in which an urbanization decision is expected. It is also possible for local governments decide to urbanize regions with

³⁵The results are robust to dropping the two-year lag.

a concentration of high-performing businesses. If so, the urbanization process is determined not just by long-term city planning, but also by the performance of local businesses. Columns (2) to (7) in Table 9 report the results of exclusivity tests, we compare the characteristics of firms in regions to be urbanized with those in other regions. We find that none of these variables, including firm size, government connections, and individual or industry profitability, correlate with the urbanization choice. In addition, we exclude the possibility that the instrumental variable is correlated with our classification of the treated group by demonstrating that it is not correlated with the $Post_i$ and $In - Province_i$ variables.

Insert Table 10 here

Table 10 reports second-stage results. We limit the analysis to three key debtor performance indicators, already studied above: company survival, fleeing, and total bank credit; see Columns (1) to (3). We do not observe a reversal of signs or coefficients of statistical significance, compared with the OLS DiDs results above.

Columns (4) to (6) report the results of a falsification test, using the same three performance indicators, designed to detect a pre-existing trend before 2012. The placebo is placed in the year 2010 and includes the period before the 2012 reform. Had such a trend been detected, it would falsify the hypothesis that the changes post 2012 is the result of the reform. The test rejects the existence of a trend.

6.2 Heterogeneity tests

Insert Table 11 here

To strengthen our results, we use the value of the collateral (adjusted by total assets) rather than just a dummy for the presence of a title, as we have done so far. A linear relationship between the amount of bank credit and the value of the collateral, consistent with a mechanical application of a fixed loan-to-value ratio by the creditor banks would not be of significant economic interest. However, an extra, over and above the linear effect, would indicate an additional factor, which we interpret as an increase in the value of coordination: with more collateral, at the margin, banks are more willing to increase the loan-to-value ratio, as they value not just the availability of the collateral to absorb credit losses, but the collateral's ability to better coordinate the creditors, thereby avoiding the premature liquidation of viable companies due to creditors runs. Technically, we are testing for bank credit that is convex in the value of the collateral. As we

did above, we limit the analysis to treated borrowers alone in order to control the number of interactions. Table 11 delivers two tests: the first, in column (1) models an incremental slope dummy for observations where the value of the collateral exceeds the sample median. The coefficient is positive, albeit not statistically significant. In column (2) we add a squared collateral value (adjusted by total assets). Here, we observe a positive coefficient, and statistically significant at the 5% level.

In Columns (3) to (5) of Table 11 we test for a related effect: that borrowers with more geographically dispersed business operations and consequently a less concentrated debt structure, would benefit more from a reform that improves coordination. The variable of interest is a dummy variable that equals 1 if the borrower has subsidiaries in more than one city. We use the same three performance indicators: a debtor survival dummy, debtor fleeing dummy, and total bank credit. All interactions are included, but only the triple interactions are displayed. The results suggest the effect is significantly stronger for such companies.

6.3 Government-sponsored resolution mechanisms

As noted above, China's bankruptcy law is beyond the reach of most SMEs as the bankruptcy filing would require a special permission from the local authorities. We therefore test that politically connected companies would be among the very few that do manage to file. An additional resolution mechanism, with similar implications, is for local government officials to call a creditors' conference in order to coordinate the rescue efforts of a company in which there is some public interest. It is understood that the government will find a way to penalize a creditor that deviates from a policy agreed by the conference. Clearly, the process, is likely to be highly politicized. As noted above, of 969 distressed companies in our sample, only 21 went into formal bankruptcy while for 42 an informal conference was called.

Insert Table 12 here

Table 12 reports that being an SOE strongly increases the likelihood of a government-sponsored resolution process. The government may also be cautious when dealing with subsidiaries of local conglomerates, for fear that the failure of a single subsidiary would trigger a domino effect that would bring down the entire too-big-to-fail business group. Interestingly, the likelihood of a government-sponsored resolution also increases in the number of creditor banks, which increases the risk of coordination failures. On the other hand, a large number of private creditors, who are typically not invited to the creditors' conference, decreases the

likelihood of such conference as it complicates informal coordination.

7 Discussion and conclusions

The coincidence of strong performance and weak property rights has puzzled many students of the Chinese economy. Allen Qian and Qian (2005), observe that China “is an important counterexample to the findings in the law, institutions, finance, and growth literature: Neither its legal nor financial system is well developed.” That the private sector has played such a pivotal role in the country’s economic development “challenges the view that property rights and the lack of government corruption are crucial in determining financial and economic outcomes”. Instead, they hypothesize that an alternative economic model “based on reputation and relationships may be behind” China’s success. However, neither the zeal of creditors to exploit the first-mover advantage, nor the ruthless methods used by “alternative lenders” is consistent with this hypothesis. Instead of an alternative relationship-based model, we document a system of institutional arrangements that are largely based on the concept of property rights, albeit instituted in a haphazard manner and, often, inadequately implemented.

A further indication that one need not invoke the notion of an alternative economic model in order to understand present-day China, we also point out some interesting similarities with China and 18th century England and 19th-century United States, both on the cusp of becoming the world’s dominant industrial powers, yet operating rudimentary financial systems. In the case of China, we have already mentioned the violent conflicts that erupted when communal land was enclosed by local businesses. In that respect, it’s worth mentioning that private incorporation was illegal in Britain before the repeal of the Bubble act in 1825; see Franks and Sussman (2005). There, we also document widespread violations of the property rights of some secured creditors in a landmark US railroad-insolvency case. Through successive cases heard by the Federal Courts, and with hardly any assistance from the central government, concepts such as an automatic stay on debt repayments, debtor in possession financing, and supra priority financing were gradually developed, step by step. The ad hoc nature of these reforms bears many similarities to those in China in recent years.

Additionally, the outstanding performance of China’s economy needs to be viewed in the historical context of the country’s earlier implosion. For the better part of the previous millennium, China’s share in world GNP was about a quarter, collapsing to just 5% by the 1950’s; see Figure 1. A quick recovery from such

self-inflicting harm is an implication of standard models of economic growth. This should not diminish the importance of government, central and regional, in facilitating that remarkable recovery, through piecemeal market reforms, mostly of benign and local nature. One example is the 2012 reform analyzed in this paper. Another, more important one is Deng Xiaoping's reforms in the 1960's that allowed farmers to privately cultivate plots of communal land and, then, take their products to market. Rather than some "alternative economic model", China may owe its success to the accumulated effect of a multitude of such ad hoc, sometimes small, reforms.

However, such a view of China's performance does call for a certain modification of our understanding of the concept of private property, including its relation to economic growth. In theory, the right to property is the right to use, deploy or alienate an asset in whatever manner the owner pleases. In practice the right to property is only a cluster of separate rights, largely implementable one independently of the other: the right of usage does not imply a right to pledging, the right to pledge does not imply the right to alienate, etc. In that respect, the views of North and Thomas (1973), that property rights are a necessary condition for a significant process of economic growth may seem somewhat simplistic. Those rights whose absence bind in the later stage of economic development may not bind at an earlier stage; for example, absent a right to pledge was not binding in early agricultural reforms, but did become binding at a more advanced stage of industrialization. Implementing the entire bundle at the onset of development may be an elegant solution in theory, but may be infeasible in practice. We point out a severe shortage of legally-trained human capital as an important impediment to instituting a fully-fledged system of property rights at the very early stage of economic development. We refer to the reader to the more evolutionary approach of the great English jurist, Henry Maine (1861).

In addition to historical insights, the study of economies at an earlier stage of institutional development can offer a valuable perspective into the working of mature markets. In an influential work, Jackson (1986) characterizes the condition of the distressed company using the metaphor of the common pool, prone to to a rush by creditors to grab as many assets as they can. It is evident that dealing with creditors runs is one of the main functions of corporate bankruptcy law. Our results expose the weakness of the common-pool argument. Remember that the companies in our sample had no access to bankruptcy law; their distress was handled, purely, through the enforcement of debt contracts and, in particular, clauses that deal with the repossession of collateral. The basic function of such contracts is to allocate property rights on the distressed

company's assets, thereby "privatizing the common pool" and resolving the over-fishing problem. Our results also explain the scarcity of evidence of creditors runs. Though many developed markets, from where most of the data for financial research originates, have certain deficiencies in their property rights, they are rarely so severe as to allow a party to establish possession of an asset just because it was the first to claim ownership.

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8 Tables and Figures

Figure 1: China, Western Europe and the United States

China, Western Europe and the United States, share in total world output, from the year 1000 to 2015. Quadratic time scale. Source: the Maddison Project, Bolt et. al. (2018).

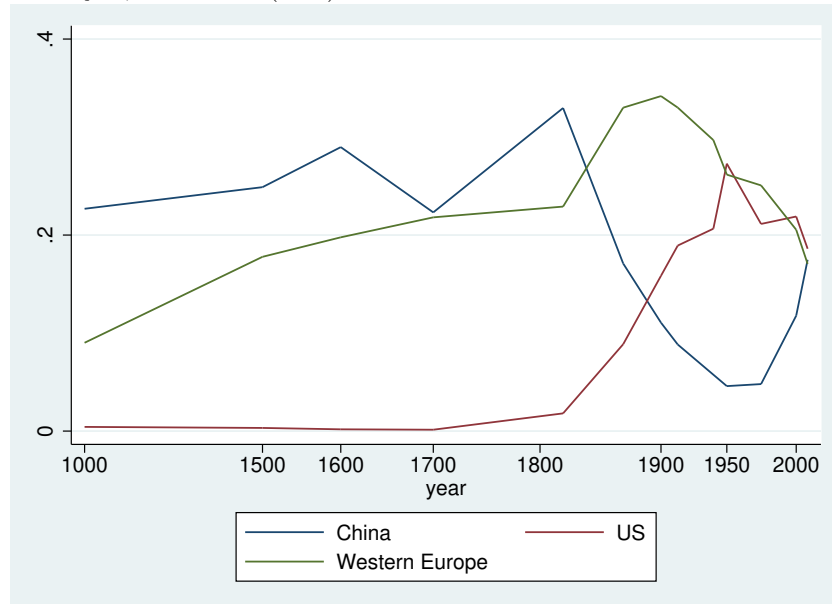


Table 1: Descriptive statistics, non-distressed sample versus distressed sample, 2008-2015

Descriptive statistics for the non-distressed sample versus the distressed, “working sample”. The non-distressed sample aggregates more than half a million term loans at the level of the company and the year for the 2008-2015 period. There are 21,860 companies and 78,343 company years. The working sample includes 906 privately-resolved distressed companies, that is 969 distressed companies less 63 companies resolved via government-sponsored channels. The reported financial indicators in the working sample cover the year before default.

Pre-distressed sample, 21,860 companies, 78,343 company years			
	Mean	Median	S.D.
Total assets (Million RMB)	94.8	22.2	138.4
Sales (Million RMB)	87.6	32.3	158.3
Total employee	3832	187	483.2
ROA(%)	9.66	6.53	9.76
Total bank lending/Tot. assets	0.342	0.319	0.176
Industry Distribution	Manufacturing	Wholesale and retail	Others
	42.1%	38.2%	19.7%
Distressed (working) sample, 906 companies, pre default			
Total assets (Million RMB)	86.5	37.3	132.3
Sales (Million RMB)	92.1	34.3	252.3
Total employee	340.8	160	470.8
ROA(%)	9.73	6.65	9.32
Total bank lending/Tot. assets	0.335	0.296	0.159
Industry Distribution	Manufacturing	Wholesale and retail	Others
	44.3%	40.3%	15.4%

Table 2: The response of TB to pending default

Panel regressions the non-distress sample as defined in Table 1. Dependent variables are TB’s interest rate and volume of lending. Default($-\tau$) is a dummy variable that receives the value of 1 τ year before default, $\tau = 1, 2$, and zero otherwise. Controls include Total Assets, leverage (total bank debt/total assets) and ROA. Firm and Year FEs also included. Standard errors in parenthesis; *, ** and *** indicate statistical significance at the 10%, 5% and 1%, respectively.

	Interest rate	log of TB lending
	(1)	(2)
Default(-1)	0.254*** (0.032)	-0.187** (0.083)
Default(-2)	0.152*** (0.042)	-0.041 (0.110)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Controls	Yes	Yes
N	73,675	73,675
R^2	0.049	0.287

Table 3: TB's recovery rates by debtor's title, location, TB's security and filing time, pre and post 2012

Mean recovery rates on TB loans to 906 distressed debtors (the working sample), including number of observations in each subset. A debtor is classified as in-province if it operates in the same province as TB's and out of province otherwise. Titled debtors have titles on their productive assets, mainly land and buildings. TB is considered to be secured where the title is pledged to it and unsecured if it is pledged to another bank. Whether secured or unsecured, TB may be the first for recovery or not. The sample is also split by the time that the debtor entered distress, before or after the 2012 reform.

		In province borrowers		Out of province borrowers	
		Before	After	Before	After
Titled debtors		(1)	(2)	(3)	(4)
TB secured, filed first	mean	0.765	0.820	0.753	0.739
	<i>N</i>	17	63	5	8
TB secured, did not file first	mean	0.449	0.804	0.538	0.492
	<i>N</i>	35	74	15	17
TB unsecured, filed first	mean	0.671	0.353	0.661	0.676
	<i>N</i>	17	12	5	8
TB unsecured, did not file first	mean	0.263	0.256	0.282	0.308
	<i>N</i>	27	73	11	44
Untitled debtors					
TB unsecured, filed first	mean	0.670	0.685	0.725	0.753
	<i>N</i>	37	82	8	19
TB unsecured, did not file first	mean	0.262	0.288	0.296	0.289
	<i>N</i>	90	148	22	69

Table 4: The effect of the 2012 reform on TB's recovery rate, conditional on filing time and treatment

Difference-in-difference regressions, testing the effect of the 2012 reform on TB's recovery rates, by security and time of filing, using 906 distressed debtors (the working sample). The sample is split to the treatment group – titled borrower in province, in Column (1), and the control group, both untitled debtors in province and all out of province debtors, in column (2). Post is a dummy variable that equals 1 if the company enters distress post 2012 and 0 otherwise; TB-secured is a dummy variable that equals 1 if the debtor has a title that is pledged to TB and 0 otherwise. (It is assumed that titled borrowers who did not pledge a title to TB have done so to another bank.) Filed First is a dummy variable that equals to 1 if TB file for repossession ahead of all other creditors. All interactions are included in the regressions but only the economically interesting ones are reported. Controls include: total assets, leverage ratio, ROA, local GDP and employment rate. FEs include for the city where the borrower is located, time and industry.. *, **, and *** are corresponding to significant level of 10%, 5% and 1%.

	TB's recovery rate	
	Treatment: titled in province (1)	Control: the rest (2)
Filed First	0.417*** (0.105)	0.490*** (0.141)
Post × Filed First	-0.333*** (0.138)	-0.059 (0.155)
Post × TB-Secured	0.399*** (0.109)	-0.071 (0.178)
Post × TB-Secured × Filed First	0.018 (0.170)	0.046 (0.259)
Controls	Yes	Yes
Years FE	Yes	Yes
Industry FE	Yes	Yes
R^2	0.533	0.346
N	318	588

Table 5: Debt structure and resolution for the distressed firms before and after the 2012 legal change for both borrowers within and outside the province

Debt structure and performance, for in/out of province borrowers, before and after 2012, with and without titles for 906 TB borrowers in default (the working sample). Titled (untitled) borrowers (don't) have titles on their productive assets, mainly land and structures. Bank lending against a pledged title is defined as secured; all other bank lending is classified as unsecured, even though some forms of guarantees exist in many. (In a few rare cases, the titles was pledged to more than one lender, in which case the junior one is classified as unsecured). Private lending is by non banks finance operators. Column (1)-(2) reports the number of providers within each category. Column (3)-(4) reports the amount of lending within each category, divided by the borrower's total assets. Column (5)-(6) reports the interest-rate spread, above the Bank of China base rate. Column (7)-(8) reports the value of the collateral, divided by the borrower's total assets. Column (9)-(10) report the share of loans called back by the lender before loan maturity. Column (11)-(12) reports the share of borrowers who fled. Column (13)-(14) reports the share of borrowers who survived bankruptcy.

Panel A: In-province borrowers														
	Collateral/Tot. assets		#(creditors)		Lending/Tot. assets		Interest spread (%)		Loan called		Share of fleeing		Share of surviving	
	Before (1)	After (2)	Before (3)	After (4)	Before (5)	After (6)	Before (7)	After (8)	Before (9)	After (10)	Before (11)	After (12)	Before (13)	After (14)
Titled borrowers														
Secured bank lending	0.345	0.349	1	1	0.172	0.237	0.585	0.181	0.646	0.05				
Unsecured bank lending			2.818	2.275	0.146	0.130	0.881	1.688	0.688	0.072				
Private lending			3.857	2.785	0.049	0.008	17.542	19.482	0.76	0.09				
Untitled borrowers														
Unsecured bank lending			3.722	3.518	0.172	0.142	0.899	1.446	0.795	0.787	0.37	0.37	0.095	0.074
Private lending			2.98	3.185	0.09	0.116	19.185	19.853	0.78	0.752				
Panel B: Out-of-province borrowers														
	Collateral/Tot. assets		#(creditors)		Lending/Tot. assets		Interest spread (%)		Loan called		Share fleeing		Share surviving	
	Before (1)	After (2)	Before (3)	After (4)	Before (5)	After (6)	Before (7)	After (8)	Before (9)	After (10)	Before (11)	After (12)	Before (13)	After (14)
Titled borrowers														
Secured bank lending	0.373	0.381	1	1	0.179	0.193	0.658	0.698	0.667	0.688	0.361	0.364	0.09	0.092
Unsecured bank lending			2.495	2.718	0.124	0.121	1.073	1.059	0.75	0.792				
Private lending			3.303	3.499	0.044	0.046	19.382	19.189	0.778	0.779				
Untitled borrowers														
Unsecured bank lending			3.284	3.452	0.152	0.148	0.96	0.958	0.733	0.648	0.367	0.398	0.101	0.091
Private lending			2.999	2.952	0.09	0.092	19.47	19.357	0.767	0.659				

Table 6: The impact of the 2012 reform on creditors calling back loans and company survival

Difference-in-difference regressions testing the effect of the 2012 reform on the incidence of creditors calling back their loans, by creditor class, using 906 distressed debtors (the working sample). Post is a dummy variable that equals 1 if the default occurred post 2012 and 0 otherwise; Titled is a dummy variable that equals 1 if the debtor has title on her productive assets and 0 otherwise. In-province is a dummy variable that receives a value of 1 if the debtor is located within TB's province and 0 otherwise. All interactions are included in the regressions but only the economically interesting ones are reported. In columns (1) to (3) the dependent variable is a dummy that equals one if any creditor within the class calls back the loan before maturity. Creditor classes are secured banks, unsecured banks and private (alternative) non-bank lenders. Since only titled companies can issue secured loans, Titled=1 for all 431 observations in column (1), which reduces the triple interaction to just a double interaction. In column (4), the dependent variable is a dummy that equals 1 if the debtor survived distress. Controls include: total assets, leverage ratio, ROA, local GDP, employment rate. FEs include time and industry. *, **, and *** are corresponding to significant level of 10%, 5% and 1%.

	Prematurely called by creditor class:			debtor survives
	secured	unsecured	private	
	(1)	(2)	(3)	(4)
Post×Titled×In-province	-0.583** (0.092)	-0.610** (0.132)	-0.693** (0.142)	0.112** (0.051)
Interactions	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
FEs	Yes	Yes	Yes	Yes
R^2	0.103	0.121	0.132	0.059
N	431	906	906	906

Table 7: The impact of the 2012 reform on bank and private lending

Difference-in-difference regressions testing the effect of the 2012 reform on lending by different classes of creditors, using 906 distressed debtors (the working sample). Creditor classes are secured banks, unsecured banks and private (alternative) non-bank lenders. Post is a dummy variable that equals 1 if the debtor entered distress post 2012 and 0 otherwise; Titled is a dummy variable that equals 1 if the debtor has title on her productive assets and 0 otherwise. In-province is a dummy variable that receives a value of 1 if debtor is located within TB's province and 0 otherwise. All interactions are included in the regressions but only the economically interesting ones are reported. In columns (1) to (4) the dependent variable is the amount of credit provided by each creditor class as a percentage of total assets. Since only titled companies can issue secured loans, Titled=1 for all 431 observations in column (1), which reduces the triple interaction to just a double interaction. In columns (5) to (7) the dependent variable is the spread charged by the respective credit class over and above the PBoC base rate. In column (8), the dependent variable is a dummy that equals 1 if the debtor flees the province, her whereabouts unknown to TB. Controls include: total assets, leverage ratio, ROA, local GDP, employment rate. FEs include for the city where the borrower is located, time and industry. *, **, and *** are corresponding to significant level of 10%, 5% and 1%.

	Lending/Tot. assets				Interest-rate spread (%)			Owner fleeing
	Secured	Unsecured	Total bank lending	Private	Secured	Unsecured	Private	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post×Titled×In-province	0.073*** (0.027)	-0.008 (0.038)	0.065*** (0.026)	-0.021** (0.011)	-0.461* (0.246)	0.818* (0.427)	2.201* (1.235)	-0.212*** (0.073)
Interactions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.562	0.091	0.276	0.282	0.596	0.051	0.182	0.154
N	431	906	906	906	431	906	906	906

Table 8: Key performance indicators, in distress time, for 101 survivors, not/treated by the 2012 reform

Key performance indicators, for 74 debtors who survived distress after 2012, along a distress time line. There are 42 out of the total of 318 firms in the treatment group (titled and in-province) and 32 out of 588 firms in the control firms.

Distress time, τ , is measured in years, with $\tau = 0$ being the year when the debtor entered distress. Survival is defined by still being active and banking with TB at $\tau = 2$. Loans and ROA are measured against total assets at $\tau = -2$.

Distress time, τ , years	-2	-1	0	1	2
Treatment group: titled survivors, in province, post 2012 ($N = 42$)					
Total assets (RMB, millions)	152.3	147.2	115.3	128.3	142.4
Sales (RMB, millions)	132.4	121.3	93.7	115.35	125.32
ROA (% of Total Assets at $\tau = -2$)	6.1	6.1	2.5	5.3	6.2
Secured loans (% of Total Assets at $\tau = -2$)	36.3	35.0	32.5	34.3	36.3
Unsecured loans (% of Total Assets at $\tau = -2$)	6.3	6.3	6.0	6.9	6.9
Private loans (% of Total Assets at $\tau = -2$)	0	0.1	1.3	1.4	0.8
Control group: other survivors, post 2012($N = 32$)					
Total asset (RMB, millions)	140.4	136.0	61.7	89.1	117.2
Sales (RMB, millions)	126.1	118.4	37.5	93.5	98.8
ROA (% of Total Assets at $\tau = -2$)	5.9	6.1	-3.0	1.3	5.6
Secured loans (% of Total Assets at $\tau = -2$)	14.4	11.6	7.1	11.7	13.0
Unsecured loans (% of Total Assets at $\tau = -2$)	12.6	10.1	9.1	10.5	11.2
Private loans (% of Total Assets at $\tau = -2$)	0.0	1.4	3.5	3.3	2.3

Table 9: First stage IV

First-stage regression and some exclusivity tests of the instrumental variable using 906 borrowers in default (the working sample). The instrument, Urban, equals 1 if the titled debtor was operating within her current locality already 2 years before zoning laws were changed, allowing operators in that locality to acquire title. The exclusivity tests in columns (2)-(7) demonstrate that the instrument is unlikely to operate through other channels, such as the size, profitability, or the industry distribution. Government connection is defined as whether the company is SOE or not. We control for total assets, leverage ratio, ROA, FEs time and industry. *, **, and *** are corresponding to significant level of 10%, 5% and 1%.

	First stage	Exclusivity tests					
	Titled (1)	Size (2)	Government connection (4)	Profitability (3)	Industry Profitability (5)	Post12 (6)	In Province (7)
Urban	0.612*** (0.040)	0.125 (0.080)	0.003 (0.016)	0.016 (0.157)	0.043 (0.033)	-0.001 (0.033)	0.121 (0.147)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.228	0.363	0.158	0.010	0.350	0.020	0.395
N	906	906	906	906	906	906	906

Table 10: Instrumental variable and falsification tests

Robustness tests for three key performance variables used in tests above. In columns (1) and (4), the dependent variable is a dummy that receives a value of 1 if the debtor survives and 0 otherwise. In columns (2) and (5) the dependent variable is a dummy that receives the value of 1 if the debtor flees and 0 otherwise. In columns (3) and (6) the dependent variable is total bank credit. In columns (1) to (3) we perform an IV estimation using Table 9's Urban variable as an instrument. In columns (4) to (6) we perform a falsification test using the pre-reform period. For the falsification test, Post10 is a dummy variable that equals 1 if the debtor entered distress post 2010 and 0 otherwise. Titled is a dummy variable that equals 1 if the debtor has title on her productive assets and 0 otherwise. In-province is a dummy variable that receives a value of 1 if the debtor is located within TB's province and 0 otherwise. All interactions are included in the regression but only the two below are reported. We control for total assets, leverage ratio, ROA, FEs for the city where the borrower is located, time and industry. *, **, and *** are corresponding to significant level of 10%, 5% and 1%.

	IV			Falsification test		
	Firm survives (1)	Owner flees (2)	Total bank credit (3)	Firm survives (4)	Owner flees (5)	Total bank credit (6)
Post12×Titled	0.168*** (0.062)	-0.431*** (0.121)	0.325** (0.160)			
Post10×Titled×In-province				-0.070 (0.097)	0.094 (0.990)	-0.003 (0.259)
Controls and Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.226	0.143	0.204	0.148	0.505	0.336
N	675	675	675	111	111	111

Table 11: Heterogeneity tests - convexity in titled assets and the effect of multi-city subsidiaries

Heterogeneity tests for the effect of the amount of titled asset and those borrowers with geographically dispersed businesses. Post is a dummy variable that equals 1 if the debtor entered distress post 2012 and 0 otherwise. Titled is a dummy variable that receives a value of 1 if the debtor has land title and 0 otherwise. In Column (1) and (2), the dependent variable is the Total bank lending (over Total Assets). Collateral_ratio is the value of the collateral over total assets. In columns (3), the dependent variable is a dummy that receives a value of 1 if the debtor survives and 0 otherwise. In Columns (1) and (2), we include only titled in-province observations. As a result, the total number of observations has been reduced from 906 to 318. The variable Collateral_ratio greater than median is a dummy variable that equals 1 if the collateral ratio, representing the collateral's value compared to that of the total assets, exceeds the median level. Similarly, the variable 1[Having subsidiaries in multiple cities] is a dummy variable that equals 1 if the borrower has subsidiaries in more than one city. In columns (4) the dependent variable is a dummy that receives the value of 1 if the debtor flees and 0 otherwise. In columns (5) the dependent variable is total bank credit. All interactions are included, but only the triple interaction is included. Controls include: total assets, ROA, local GDP, employment rate. FEs include time and industry. *, **, and *** are corresponding to significant level of 10%, 5% and 1%.

	Heterogeneity tests				
	Total bank lending		Firm survives	Owner flees	Total bank credit
	(1)	(2)	(3)	(4)	(5)
Post×Collateral_ratio	0.143*	0.108			
	(0.082)	(0.228)			
Post×Collateral_ratio ×Collateral_ratio greater than median	0.185				
	(0.235)				
Post×Collateral_ratio ²		0.213**			
		(0.110)			
Post×Titled×Having subsidiaries in multiple cities			0.128***	-0.153**	0.067***
			(0.054)	(0.072)	(0.026)
Interactions	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes	Yes
R ²	0.195	0.158	0.175	0.102	0.142
N	318	318	675	675	675

Table 12: State-sponsored resolutions and firm characteristics

OLS regressions that correlate government-sponsored resolution (applied to 63 cases) with certain company characteristics using 969 distressed debtors. In column (1) the dependent variable is a dummy that equals 1 if the debtor enters a formal bankruptcy and 0 otherwise. In column (2) the dependent variable is a dummy that equals 1 if the creditor banks organize a conference to coordinate a resolution and 0 otherwise. Affiliated to a conglomerate is a dummy variable that equals 1 if the borrower is a subsidiary of a large conglomerate and zero otherwise. We control for the total asset, leverage ratio, ROA, year, industry, city fixed effects. *, **, and *** are corresponding to significant level of 10%, 5% and 1%.

	Bankruptcy (1)	Conference (2)
SOE	0.059*** (0.022)	0.101** (0.041)
Affiliated to a conglomerates	0.136*** (0.016)	0.070** (0.031)
Number of bank creditors	0.000 (0.001)	0.011*** (0.002)
Number of private creditor	0.000 (0.001)	-0.006** (0.003)
Control	Yes	Yes
Year dummy	Yes	Yes
Industry dummy	Yes	Yes
City dummy	Yes	Yes
R^2	0.196	0.119
N	969	969

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