

The Aftermath of Corporate Default with Chinese Characteristics

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Abstract

We study the consequences of corporate default using China's national credit registry. Borrowing after default declines if the lender or borrower is not state-controlled or if the borrower is located in a highly developed province. After default, a key social indicator, employment, does not increase except for state-controlled firms. A new bankruptcy law that increases creditor rights but reduces protection for employees is associated with lower post-default borrowing and employment. In contrast, state-controlled firms borrow more post-default under a government initiative intended to reduce bureaucratic interference in the economy. Our evidence highlights trade-offs between political, commercial, and social goals faced by bankers and policymakers.

Keywords: bank loans, corporate default, default resolution, China, state-owned enterprises, government controlled banks

JEL Classifications: G21, G28, G33, G38

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1. Introduction

Creative destruction is a key feature of a modern, market-oriented economy. Ideally, markets for goods and services, labor, talent, and capital reward success, thereby offering better products to consumers, better inputs to companies, and appropriate rewards to investors. Unsuccessful firms either improve themselves or find their assets put to better use through reorganization, bankruptcy, or outright liquidation. The mere threat of distress gives controlling owners and incumbent managers an incentive to operate a firm wisely. Studies of corporate distress in the US document how firms evolve through default or bankruptcy.¹

We can learn more by studying the workings of banking in institutional environments that differ widely across countries and time. For example, Jiminez, Salas, and Saurina (2006) use a central bank database that identifies borrowers that have defaulted to examine the significance of collateral for loans to Spanish companies. Paravisini (2008) studies the consequences of an Argentine government program intended to spur bank lending to small and medium sized enterprises. Several authors study legal system efficiency, creditor rights, investment, output, or borrowing costs as bankruptcy laws and institutions change across regions within a single country.² Bolton, Freixas, Gambacorta, and Mistrulli (2016) use an Italian credit register to study relationship banking around a financial crisis. Aretz, Campello, and Marchica (2020) document the positive impact of a French collateral law reform on smaller, new, and rural borrowers.

We study the consequences of default for Chinese manufacturing firms that have borrowed from banks. The nature of China's banking system, the country's broader economic and political goals, and our unique data offer several specific advantages. The data, an official registry of several million individual loans to Chinese companies, includes all bank loans to firms with at least one credit line of RMB 50 million or greater from at least one of the 17 largest Chinese commercial banks from January 2007 to June 2013. It covers almost all bank loans to corporations in the country.

We measure post default firm level outcomes ranging from new financing to productivity and employment, and, in particular, whether the default resolution process improves the defaulting

¹ See for example Gilson, John, and Lang (1990), Hotchkiss (1995), Hotchkiss and Mooradian (1997), Weiss and Wruck (1998), and Gilson (1997).

² See Rodano, Serrano-Velarde, and Tarantino (2016), Ponticelli and Alencar (2016), Gormley, Gupta, and Jha (2018), and Li and Ponticelli (2020).

borrower. These measures serve as dependent variables in panel regressions. Our null hypothesis predicts that default resolution does not improve borrower outcomes if it merely indulges, props, or bails out defaulting borrowers. The process can even weaken the borrower further. Alternatively, our primary alternative hypothesis is that default resolution imposes restructuring, monitoring, and oversight that improves the quality and performance of a borrower that has defaulted on a bank loan. We look for evidence such as less borrowing, relatively more long maturity borrowing,³ and better corporate operating performance on indicators such as return on assets and manufacturing productivity. We find evidence that, after default, new borrowing declines in general and longer-term borrowing does not change significantly, but broader measures of corporate performance do not improve. A proxy for the flow of new alternative financing also decreases after default.

The strength of the effects predicted by our primary alternative hypothesis can depend on the nature of the borrower, the quality of the regional institutional environment, and the objectives of the lender, all of which reflect the financial, economic, and policy environment of the Chinese banking system. First, state-controlled borrowers can suffer from management and performance problems if they are run for non-commercial goals or are subject to less pressure from product, labor, and capital markets (Sun and Tong, 2003; Khwaja and Mian, 2005; Liao, Liu, and Wang, 2014). We find that improvements in borrowing and performance after default are smaller for state-controlled firms. Post default bank loans actually increase by about 33% when a state-controlled borrower defaults.

Second, the enforcement of laws and regulations varies widely across Chinese provinces and can affect what happens once a corporate borrower defaults.⁴ We predict that the aftermath of default resolution depends on the quality of the borrower's local environment. We exploit a proxy for legal, regulatory, and economic development conditions that vary widely across China's provinces to understand the consequences of default in different institutional settings. We find that improvements in borrowing and performance after default are larger for defaulting borrowers located in provinces with high quality institutions and better economic conditions, which is

³ For example, across a sample of 39 countries, Fan, Titman, and Twite (2012) find that longer maturity lending is more common in higher quality institutional environments.

⁴ For example, Cull and Xu (2005) find that the impact of property rights on firms varies across Chinese provinces.

consistent with the idea that a high quality environment fosters better managed, monitored, and disciplined borrowers.

Third, we consider the consequences of government control of banks. If the government aims to nurture state-controlled firms and protect the jobs they provide, state-controlled banks can be particularly willing to provide new loans to these borrowers if they default. In particular, if state-controlled banks operate with political and social goals in mind,⁵ new loans from Big Five commercial banks are more frequent and generous after a borrower defaults. There is a particularly large increase in post default debt when both the borrower and lender are state-controlled. Interestingly, our proxy for alternative financing indicates that non-bank finance is not especially supportive of state-controlled borrowers that default.

Fourth, our identification strategy using a bankruptcy reform, a natural disaster, and a government initiative to limit bureaucratic interference in the economy confirms and enriches our findings. China's central government announced the new Enterprise Bankruptcy Law on 27th August 2006 and effective 1st June 2007. The law more clearly defines what happens if default leads to bankruptcy, gives more power to creditors, and, in particular, reduces protection for employee benefits. We find that improved creditor rights tend to reduce post default borrowing by over 50%. Next, though we predict that the Sichuan earthquake of 12th May 2008 should lead to more government support for troubled Sichuan firms, we find no evidence of significant post default changes in borrower debt and performance. Finally, on January 18, 2010, the Central Committee of the Chinese Communist Party formally issued "The Guidelines of the Communist Party of China for Party-member Leading Cadres to Perform Official Duties with Integrity" to contain interference in economic and financial activities and combat corruption.⁶ Though we predict that this set of guidelines will lead to more positive effects after a state-controlled firm defaults, difference-in-difference analysis reveals that the bureaucratic interference reform is

⁵ See, for example, Cull and Xu (2003), Claessens, Feijen, and Laeven (2008), La Porta, Lopez, De Silanes, and Shleifer (2002), Sapienza (2004), and Gao, Ru, and Tang (2020).

⁶ See http://english.qstheory.cn/magazine/201003/201109/t20110920_111462.htm for a summary. Article 7 specifies the award of contracts for construction projects, transfer of land use rights, government procurement, real estate development and operation, and development and use of mineral resources. Furthermore, the text explicitly prohibits interference with activities of state-owned enterprises (SOE) such as ownership restructuring, mergers and acquisitions, liquidation, reorganization, restructuring, and large scale investments. Interference in permit issuance, financing, economic disputes, and various activities related to resource allocations in the rural areas are also specifically prohibited.

associated with about 75% more bank lending to state-controlled firms after default. Aside from testing our interpretation of our main results with these difference-in-difference diagnostics, we also conduct robustness tests. They confirm the importance of government and institutional influences for post default outcomes.

Finally, we seek evidence of national political and social goals in post default outcomes. There can be a trade-off between improving troubled borrowers versus protecting jobs and social stability. We find that firm-level employment does not change after default, and can even increase for state-controlled borrowers. Thus, we illustrate the consequences of corporate default over a variety of institutional conditions, reforms, conditional on government influence and participation in both borrowers and lenders, and we detect evidence of broader political and social goals at work. In particular, some aspects of the default resolution process appear effective when the government is not directly involved in the borrower or lender, particularly in more advanced regions of the country. The case of China is of interest in and of itself because of the country's size, growth, and evolution away from a centrally planned economy.

The paper is organized as follows. Section 2 describes the Chinese banking environment. Section 3 describes the data set and the econometric methods we employ. Section 4 presents firm-level evidence on borrowing and performance after default. Section 5 presents firm-level evidence on employment after default. Section 6 summarizes robustness tests. Section 7 is a summary and conclusion.

2. The Chinese banking environment

2.1 Overview

China has been evolving away from a centrally planned command economy for several decades. Manufacturing productivity is improving but can still lag more developed countries (Hsieh and Klenow, 2009). Furthermore, there is evidence that the pressure of competition has improved firms in some industries (Ge, Lai, and Zhu, 2015). The extent to which the Chinese banking, legal, and regulatory system returns defaulting firms to good health is a measure of the effectiveness of the continuing effort to develop and modernize China's economy.

In the financial system of China, banks are not merely one component of the capital market but are the central institutions.⁷ Small and medium sized firms often use informal financing (Allen, Qian, and Qian, 2005), and corporate bond markets have grown substantially, but bank lending continues to predominate, comprising about 60% of new credit.⁸ China continues to develop modern financial institutions, improve laws and regulations that govern economic activity, and plan reforms of state-owned enterprises and the banking system. However, the growth in corporate and municipal debt and recent corporate bond defaults indicate continuing problems.

2.2 Banking reform

China's banking system has undergone major reforms during the past three decades (Okazaki, 2007). Early reforms focused on moving commercial lending from the central bank to state-owned banks supporting a specific facet of economic development. The second round of reform transitioned the state-owned banks toward operating as profit maximizing businesses.⁹ An important step was disposing of the large accumulation of non-performing loans by establishing state-owned asset management companies. The third round of reform included formally designating the Big Five state-controlled commercial banks and listing them on stock exchanges. Furthermore, other financial institutions have increased in importance including joint stock commercial banks, city commercial banks, rural commercial banks, other smaller credit unions, subsidiaries of a limited number of foreign banks, and so-called shadow banks.¹⁰

Other events have also contributed to the reform of China's banking system. First, banking was one of the key areas negotiated for China's WTO accession, encouraging increased competition and heightened scrutiny. Second, initial public offerings of state-owned commercial banks improve transparency and disclosure. Third, regulation and supervision improved with the establishment of the Chinese Banking Regulatory Commission in 2003, the central bank's involvement with the Bank for International Settlements, and commitment to the Basel Accords.

⁷ During our 2007 to 2013 sample period, official statistics indicate that the total assets of banking institutions tripled from 53.11 trillion RMB to 151.35 trillion RMB. Total bank loans increased from 27.77 trillion RMB (102.59% of GDP) to 76.63 trillion RMB (130.30%).

⁸ "Dark and Stormy", *The Economist* 7th May 2016

⁹ Using detailed loan records from a Chinese state-owned bank, Qian, Strahan, and Yang (2015) study the effect of delegating loan decisions from committees to individual loan officers.

¹⁰ See Allen and Gu (2020) for a discussion of the growing share of shadow banks in China. Allen, Qian, Tu and Yu (2019) hand-collect individual shadow loans for listed borrowers. The use of shadow loans is believed to be increasing. See Chen, He, and Liu (2020).

Fourth, three policy banks have been established to conduct lending for political goals, which, in theory, frees the state-owned commercial banks from political pressures (Okazaki, 2007).¹¹ Many observers believe that the reforms have led to a significantly more competitive and diversified banking system (Okazaki, 2007; International Monetary Fund, 2012).

A prominent goal of banking reform is to improve state-owned enterprises (SOEs). In an October 2017 address to the national congress of the Communist Party of China, Chairman Xi Jinping called for making SOEs “stronger, better, and bigger”. These firms account for a large fraction of the country’s output and employment, and are some of the largest customers of China’s banks. Reforms have focused on increasing productivity and competitiveness, improving performance, increasing the autonomy of the board and management, improving corporate governance, and implementing better managerial incentives. However, these firms continue to suffer high leverage, low operating efficiency, and poor corporate governance (Leutert, 2016). They also appear to enjoy special treatment from the banking system (Li, Yue, and Zhao, 2009; Bailey, Huang, and Yang, 2011). The continuing problems of the SOEs is a metaphor for the task faced by China’s banks, stock markets, laws, and regulations in improving all Chinese firms.

2.3 Debt priority and the bankruptcy system

Bank debt is generally viewed as senior to debt of other creditors, and secured debt has the highest priority among all debt contracts. However, China’s 1986 bankruptcy law ranked employee claims (such as wages and salaries, social insurance fees, and penalties for cancelling labor contracts) above secured claims, giving banks little confidence in recovering loans in case of bankruptcy. Paralleling US and UK statutes, the new bankruptcy law effective starting in 2007 gives secured claims priority over employee, tax, and general claims. It includes automatic stay, appointment of a bankruptcy administrator, and fraudulent conveyance and preference remedies. However, many legal concepts in the new law need further clarification and remain untested, with few precedents to rely on (Ang, Cheng, and Wu, 2014). Furthermore, default, which unlike bankruptcy is a common occurrence, rarely leads to formal legal action or liquidation but is typically resolved with restructuring or a cash infusion.¹² The purpose of our paper is to

¹¹ Ru (2018) studies the impact of loans from one of China’s policy banks on SOE borrowers, competing firms, and complementary firms.

¹² Djankov, Hart, McLiesh, and Shleifer (2008) offer only limited information on the foreclosure process in China, and nothing on reorganization or liquidation. Fan, Huang, and Zhu (2013) infer distress from z-scores and annual

understand what results from default and, in particular, whether firms benefit from the process and how government participation affects what happens after default.

3. Database description and econometric specifications

3.1 Bank loan data

We have access to a credit registry with loan level information on all commercial loans to borrowers that hold at least one credit line of RMB 50 million or greater from at least one of the largest 19 Chinese banks for the period from January 2007 to June 2013.¹³ These banks account for over 80% of the market share of all commercial loans. The borrowers represent 20 broad industrial sectors and 95 specific two-digit industries. The dataset covers more than 160,000 distinct borrowers representing all of China's 31 provinces and autonomous regions. The loan-level observations include borrower characteristics such as size, leverage, and location, lending bank characteristics such as the names and locations of branches, and loan characteristics such as loan amount, loan maturity, credit guarantee provider, internal rating, and issue and maturity date. We do not observe loan interest rates. The data are updated monthly from the issuance of a loan until either full repayment or the end of our sample period. After excluding loans from the two policy banks, excluding loans to financial services firms, and aggregating loans between the same borrower and lender originating in the same month, our sample consists of 1,886,795 borrower-bank-months of new lending activity.¹⁴

report data for listed Chinese companies. Using a proprietary database from a single credit guarantee firm in China, Dybvig, Shan, and Tang (2012) distinguish the risk assessments and collateral-related motivations of lenders versus third-party guarantors. Using a proprietary database from a single Chinese state-owned bank, Chang, Liao, Yu, and Ni (2014) find that “soft” (relationship) information has high predictability for loan default. For an informal first look at the resolution of default, we collect announcements from January 2007 to June 2013 from the websites of the Shanghai and Shenzhen stock exchanges using search keywords “default”, “delinquency”, and “overdue”. Not all defaults are announced and only public announcements of listed firms are available. For SOE borrowers announcing default, there are 33 instances (18.03%) identified as “In court”, 4 (2.19%) as “Liquidation”, 38 (20.77%) as “Restructuring”, and 126 (68.85%) as “Interest relief or subsidy”. For non-SOE borrowers announcing default, there are 74 instances (27.61%) identified as “In court”, 88 (8.21%) as “Liquidation”, 22 (32.84%) as “Restructuring”, and 134 (50.00%) as “Interest relief or subsidy”. The percentages across SOE or non-SOE sum to more than 100% because a few announcements indicate more than one method of resolution.

¹³ No more recent data is available to academic researchers at this time. Because our observations are firm-year, the June ending point creates a final observation with only six months. We have re-run all tests to end at December 2012 and the results are very similar to what we report in the tables. Furthermore, the data overlaps the period when stimulus intended to combat the effects of the global credit crisis, and this can affect our findings.

¹⁴ The raw database contains 7,179,136 loans and we end up with 1,886,795 borrower-bank-months. Less than two percent of the decline results from excluding loans from the two policy banks and loans to financial institutions. Thus,

3.2 Firm level data

We obtain borrower characteristics from several sources. The credit registry contains basic information (such as assets, leverage, and geographic location) for each borrowing firm. The Chinese Industrial Census (CIC) database of China's National Bureau of Statistics (NBS) is broadly comparable to the US Census of Manufacturing. It covers all manufacturing firms in China with annual sales of more than RMB 5 million through 2010, and more than RMB 20 million thereafter. The CIC data has firm-level balance sheet and income statement information, and other useful series such as the company's number of employees and its registration type which identifies borrowers that are state-owned. However, the CIC data covers only manufacturing firms, does not include any financial market information, and does not include information typically found in a listed company's annual report such as the name of the CEO. The CIC data is valuable because it expands the sample beyond stock exchange listed companies that comprise only a small fraction of the borrowers on the credit registry database. Because we are not confined to listed companies, our sample has an enormous number of firms and loans that vary widely across characteristics.

We combine databases to produce the sample we study as follows. We begin with the loan-level information in the credit registry, which we then merge into the CIC manufacturing firm database to produce the final sample. Although it covers manufacturing borrowers only, it includes all unlisted and listed firms and series that allows us to measure or estimate variables like the number of employees and Total Factor Productivity (TFP). Observations are borrower-years.¹⁵

3.3 Construction of variables

We begin by describing two key event indicators related to default and refinancing. We then describe the construction of two sets of panel dependent variables. They measure borrowing firm outcomes after default and other firm characteristics. We further classify borrowing firm outcomes into post-default borrowing and post default performance categories. Finally, we describe control variables. Appendix A offers more detail on the series we create from the credit registry and CIC database.

aggregating loans between the same borrower-bank pair and occurring in the same month (Khwaja and Mian, 2008) explains the decline in observations from individual loans to borrower-bank-months.

¹⁵ Some firm characteristics are yearly while others are cumulated from monthly or quarterly to annual. For example, bank loan data is aggregated from borrower-lender-month to borrower-year. See variable descriptions below and in Appendix A.

We indicate when a borrower is in default with *Default Dummy*, which equals one if one or more outstanding loans are in default (that is, at least three months overdue) for a given borrower and calendar year. For a robustness test, we also construct a variable to indicate refinancing activity as follows. First, we note whenever an individual loan (or loans) not in default matures in a particular quarter and a new loan of an identical amount (or multiple loans summing to that amount) from the same lender appears. Next, we set *Rollover Dummy* to one if there is at least one quarter for a given borrower and calendar year that displays at least one such loan.¹⁶ We use this variable to contrast the consequences of working through default versus more ordinary refinancing.

Our measures of borrowing outcomes after default are as follows. *New Loans* equals the amount of new financing by borrower-year. *New Long Term Loans* is the amount of new loans with maturity greater than or equal to one year. *New Big Five Loans* is the amount of new loans that originate with a Big Five state-controlled commercial bank. These three new loan measures are used in natural log form. To measure indirectly a dimension of the quality of a firm's liabilities, we compute an estimate of the borrower's use of non-traditional financing as follows. The credit registry data does not include loans from institutions other than banks, bond issues, or other forms of finance. Therefore, we define *Non-Bank Debt Ratio* as total liabilities (from the CIC database) minus face value of all outstanding loans (from the credit registry) divided by total liabilities. This measure reflects a variety of non-bank finance ranging from shadow bank loans to accounts payable.¹⁷ Finally, *Leverage Ratio* equals the book value of liabilities divided by the book value of total assets.¹⁸

Our measures of performance outcomes after default are as follows. *Return on Assets* (ROA) is the ratio of earnings to the book value of assets. *Total Factor Productivity* (TFP) is estimated with annual panel regressions following Brav, Jiang, and Kim (2015). *Sales/Assets* is the asset turnover ratio, a measure of capital intensity. The number of employees can reflect social consequences of corporate default and its aftermath. For example, a firm that is state-owned or from an underdeveloped province can, after default, perform relatively poorly on financial

¹⁶ See the internet appendix of Chang, Liao, Yu, and Ni (2014) for a broadly similar measure. Note that the frequency of their measure cannot be compared to ours since they use data from a single lender, exclude many loans based on maturity, and work at the loan level rather than borrower-year as we do. See Delis, Kokas, and Ongena (2017) on the distinction between individual loans ("loan facility") versus packages of closely related loans ("loan deal").

¹⁷ This financing may have a different impact than bank loans. See, for example, Degryse, Lu, and Ongena (2016).

¹⁸ *Leverage Ratio* is also used as a control variable, except when it is the regression dependent variable. The log of the book value of assets is used as a control variable in all regressions.

dimensions but preserve jobs. We use two measures of firm-level employment. *Employment* is the natural log of the number of employees and *Employment/Assets* scales the number of employees by the book value of assets.

We employ two key firm characteristics. First, *SOE Dummy* equals 1 if the borrower's registration type in the CIC database indicates a state-owned enterprise, that is, ownership by a government entity.¹⁹ The non-commercial objectives of governments who regulate or even control financial institutions can affect lending outcomes. State-controlled firms can have better access to bank loans (Cull and Xu, 2005), and banks factor potential government bailout into their lending decisions (Faccio, Masulis, and McConnell, 2006). The performance of state-controlled firms can lag other firms (Ayyagari, Demirguc-Kunt, and Maksimovic, 2010; Duchin and Sosyura 2012, 2014).

Second, *Provincial Quality Index* is an amalgam of provincial characteristics that reflects uneven development across China's provinces (Jiang, Lee, and Yue, 2010). The widely cited regional development index, "NERI", of Fan, Wang, and Zhang (2001) aggregates five aspects of economic development and financial market reform for each province: relationship between market and government, development of the non-state-owned economy, development of product markets, development of markets for factors of production, and development of market intermediaries and the legal environment. Firms located in provinces with a higher index value feature less government intervention, easier access to financial intermediaries, and better intellectual property protection (Chen, Firth, and Xu, 2009).

3.4 Overview of the data

Table 1 reports summary statistics. Panel A focuses on the firm-year manufacturing sample. Note that some of the variables are in natural log form so we translate back to raw numbers. The table's key findings are as follows. The mean for the lagged *Default Dummy* indicates that on average, 2.9% of firm-years are associated with at least one default. The mean for the *Rollover Dummy* indicates that 65.1% of firm-years are associated with at least one rollover. This makes sense given the number of loans per firm-year and the typically short maturities of loans.²⁰ The

¹⁹ The information needed to determine the value for *SOE Dummy* is systematically missing for year 2010 in the CIC database. We set *SOE Dummy* for 2010 to one if *SOE Dummy* is one for either 2009 or 2011. Else, it is zero.

²⁰ The means for our Default and Rollover dummies are similar to what Delis, Kokas, and Ongena (2017) report for revolving loans (their Table II).

median amount of *New Loans* per firm-year is 61 ($e^{4.111}$) million RMB, and much of that (median 21 million RMB) is greater than one year in maturity or (median 37 million RMB) lent by Big Five state-controlled commercial banks. Though bank loans continue to be an important source of external finance (Allen and Gu, 2020), the median of *Non-Bank Debt Ratio* (0.726) indicates that most of the typical firm's liabilities are accounts payable, wages and benefits, and loans from non-bank financial institutions. To scale these numbers, note that median firm size as measured by the book value of assets is 4.27 billion RMB, that is, around half a billion US dollars. Furthermore, the median number of employees is just over 500. Differences in means versus medians indicate that there are significant numbers of small loans. Per borrower-year, the median number of lenders is one and the median number of individual new loans is six. Finally, among critical firm characteristics, the average value of *SOE Dummy*, 0.069, indicates that almost seven percent of firm-years represent state-owned borrowers.

Panel B focuses on the underlying individual loans. The values in this panel are raw rather than logged. Note that each borrower has a different number of loans so it is difficult to compare the firm-year information in Panel A with the loan level information in Panel B. The individual loans have a face value averaging just over 12 million RMB but a median of only about 3 million RMB, indicating a small number of relatively large loans. For loan maturity, the small median (6 months) relative to the average (8.975 months) indicates a small number of relatively long maturity loans but is consistent with the typically short term of loans and their frequent rollovers. One percent of loans end up delinquent for three or more months. Over 20 percent of loans are covered by a third party guarantee, the average risk rating indicates that borrowers are typically regarded as high quality, and the average Long loan dummy indicates that almost 20 percent (0.191) of loans are one year or longer in duration.

Appendix B summarizes the *Provincial Quality Index* of institutional and economic development and a measure of the extent of lending to state-controlled firms by Chinese provinces. Substantial variation across provinces is evident. For example, the average *Provincial Quality Index* distinguishes the most developed provinces (Guangdong, Jiangsu, Shanghai, Zhejiang) and those that are considered least developed (Qinghai, Xizang). Furthermore, the most developed areas display much less bank financing directed at state-controlled firms than the least developed areas. In Shanghai, for example, 6.12% of bank loans and 5.98% of the amount of bank loans

goes to state-controlled enterprises. In contrast, about a third of bank lending activity in Xizang relates to state-controlled enterprises.

3.5 Econometric specifications

Our empirical approach centers on a set of regressions to explain each borrowing and performance outcome:

$$Y_{i,t} = \beta_1' X_{i,t} + \beta_2' Z_{i,t} + \varepsilon_{i,t} \quad (1)$$

$Y_{i,t}$ is a post default borrowing or performance outcome variable for borrower i in year t . $X_{i,t}$ is a vector of key firm characteristics, the default and ordinary refinancing dummies, and other control variables. $Z_{i,t}$ contains interactive terms that combine one of the default dummy with one of the firm characteristics to test specific predictions from testable hypotheses. Firm and year fixed effects are included in all specifications. β_1 and β_2 are vectors of slope coefficients and $\varepsilon_{i,t}$ is the error term. Robust standard errors are clustered at the firm level to account for heteroscedasticity across firms and serial correlations.

Another set of tests implements an identification strategy using key events. We extend specification (1) for difference-in-difference analysis centered on an exogenous event that has implications for the predictions of our testable hypotheses. We add a dummy variable that identifies time periods before and after the exogenous event, a dummy that identifies treated firms that we predict are affected differently by the event, and the interaction between the two. We identify three such events as described in the introduction. First, we predict that the new Enterprise Bankruptcy Law, which sharpens creditor rights, enhances positive post default effects. Second, we predict that the Sichuan earthquake, which occurred in a less-developed region, results in more support for Sichuan corporate defaulters and, thus, decreases the benefits of default resolution and protects employment. Third, we predict that “The Guidelines of the Communist Party of China for Party-member Leading Cadres to Perform Official Duties with Integrity”²¹, which we refer to as the “cadre behavior event”, is associated with more positive effects after default for the SOE firms.

4. Empirical results on borrowing and performance after default

²¹ See http://english.qstheory.cn/magazine/201003/201109/t20110920_111462.htm for a summary.

4.1 Borrowing activity after default

In this section, we examine borrowing activity after default. We relate the findings to the testable hypotheses presented earlier. We seek to understand whether default and its resolution help improve borrower behavior. Classic papers have documented the consequences of distress, default, or bankruptcy for US firms. For example, Ofek (1993) finds that higher leverage predicts restructuring, job cuts, and dividend reductions for poorly-performing firms. Hotchkiss (1995), Hotchkiss and Mooradian (1997), and Weiss and Wruck (1998) find that entrenched management is associated with poor operating performance after default or bankruptcy. Gilson (1997) finds that troubled firms deleverage more under Chapter 11 than in informal workouts. Our purpose throughout the paper is to understand the consequences of default when borrowers, lenders, and the banking system generally differ in measurable ways from the well-known US environment.

Table 2 reports regressions that document borrower liabilities after default has occurred. To test whether borrowing behavior improves after default, measures of borrowing are regressed on the lag of *Default Dummy* and control variables (*Assets*, *Leverage Ratio*). Across the manufacturing sample of over 100,000 observations, there is a statistically significant decline of 7.8% in *New Loans* and a decline of 1.2 percentage points in the *Non-Bank Debt Ratio*. Put another way, with the amount of *New Loans* decreasing but the *Non-Bank Debt Ratio* dropping too, non-bank financing recedes even more than bank financing. This suggests that non-bank sources of finance operate more on strictly commercial objectives. There is also an increase of 1% in *Leverage Ratio*. The extensive regressions (that is, those with a dummy variable as the dependent variable) show that *New Loans*, *New Long Term Loans*, and *Big Five Loans* are less likely to be observed after a default.

To explore the drivers of post-default borrowing, we estimate regression including terms that interact *Default Dummy* variable with proxies for the quality of the borrower's management and environment. In particular, Table 3 presents regressions that relate borrower liabilities to default while conditioning on state ownership of the borrower or the development and institutional quality of the province where the borrower is located.

In Panel A of Table 3, estimated slope coefficients on the interactive term *Default Dummy (lag 1) × SOE Dummy* are strongly significantly positive for *New Loans* (0.450, $t=3.42$), *New Long Term Loans* (0.324, $t=2.29$), and *New Big Five Loans* (0.471, $t=3.54$), and significantly positive

for leverage (0.021, $t=2.23$). Furthermore, the sum of the slopes on the interactives of *New Loans*, *New Long Term Loans*, and *New Big Five Loans* with the slopes on *Default Dummy* are greater than zero. This indicates that the sign of the negative impact of default on lending is reversed if the borrower is state-owned. For example, in the *New Loans* regression, the negative slope on *Default Dummy* (-0.123, $t=-3.34$) plus the positive slope on *Default Dummy (lag 1) $\times$ SOE Dummy* (0.450, $t=3.42$) sum to 0.327. In other words, *New Loans* typically contract by 12.3% after default by a private firm, but grow by 32.7% if the defaulting borrower is state-controlled. In contrast, the slope on *Non-bank Debt Ratio* is insignificant. This suggests that state-owned borrowers have access to post-default bank financing that other borrowers do not, particularly loans from Big Five state-controlled commercial banks. Furthermore, the insignificant slope on *Non-bank Debt Ratio* indicates that shadow banks, suppliers, and other sources of non-bank finance do not discriminate in favor of state-owned borrowers when they default. Thus, the providers of shadow loans, payables, and other finance behave differently from China's largest banks, and particularly so compared to state-controlled banks. This is consistent with the idea that post-default improvements such as decreased debt are less noticeable for state-controlled firms.

In Panel B, estimated slope coefficients on the interactive term *Default Dummy (lag 1) $\times$ Provincial Quality Index* are marginally significantly negative for *New Loans* (-0.35, $t=-1.92$), *New Long Term Loans* (-0.037, $t=-1.86$), and *New Big Five Loans* (-0.034, $t=-1.84$), but marginally significantly positive for *Non-bank Debt Ratio* (0.005, $t=1.85$). Although these interactive effects for *Provincial Quality Index* are much less significant than what Panel A reports for *SOE Dummy*, they suggest that banks are less likely to lend generously to borrowers from high quality provinces that default, which is consistent with more improvement for borrowers from higher quality regions. This evidence complements what we report in Panel A. The formal banking system is particularly likely to assist a defaulting borrower that is state-owned or is located in a less developed province. This suggests that the banking system targets broader political goals. In contrast, the shadow banks, manufacturing suppliers, corporate group members, and other firms who supply non-bank finance do not adhere to these goals but behave in a more conventional commercial manner.

4.2 Borrower performance after default

In this section, we examine associations between default and proxies for borrower performance, rather than borrowing activity as in the previous section. The proxies for borrower

performance are *Return on Assets*, *Total Factor Productivity*, and *Sales/Assets*. We relate the findings to the testable hypotheses presented earlier.

Table 4 presents the results of regressions that relate borrower performance to default. There is marginally significant evidence that *Total Factor Productivity* and *Sales/Assets* decrease after default. Because the TFP regression is the log-linear model, the slope coefficient (-0.030, $t=-2.66$) on default suggests that TFP is, on average, 3% lower after default. In the *Sales/Assets* regression, the slope coefficient (-0.029, $t=-1.75$) implies that *Sales/Assets* is 2.9 percentage points lower after default.

Table 5 presents regressions that expand on Table 4 by conditioning on whether the borrower is state-owned and how developed the borrower's home province is. In Panel A, slope coefficients on the interactive variable *Default Dummy (lag 1) × SOE Dummy* are negative and significant for *Total Factor Productivity* (-0.118, $t=-3.08$) and *Sales/Assets* (-0.144, $t=-2.75$). These slopes imply that, after default, the rate of change of *Total Factor Productivity* is 11.8 percentage points lower and the change in *Sales/Assets* is 14.4 percentage points lower if the defaulting firm is state-owned. Evidence that state-controlled borrowers improve less after default is consistent with our prediction.

In Panel B, the estimated slopes on the *Default Dummy (lag 1) × Provincial Quality Index* interactive are significantly positive for all three performance outcomes, particularly for *Total Factor Productivity* (0.034, $t=6.07$) and *Sales/Assets* (0.041, $t=5.44$). Ascribing scale to the *Provincial Quality Index* effects is more difficult because the index is a continuous variable, rather than a dummy like *SOE Dummy* in Panel A. As an example, suppose we illustrate the provincial quality effect by comparing a province with a *Provincial Quality Index* of about four (Gansu) to one with an index of about eight (Jiangsu). After default, the growth in *Total Factor Productivity* for a Jiangsu firm is almost 14 percentage points higher (0.034 times eight minus four) than that of a Gansu firm. This illustrates the scale and significance of the impact of higher quality institutions and economic development for the workings of the default process. This is consistent with the idea that the default resolution process works more efficiently in provinces with higher quality legal and regulatory institutions.

On balance, our findings for borrower performance after default seem consistent with both common sense and the unique conditions within China. Financing of all sorts typically recedes

after default, which suggests that borrowers adopt a more conservative structure of liabilities. Operating performance recedes a bit, as might be expected after a period of distress. However, political, social, and institutional influences can explain some of our more detailed findings. Good post default outcomes are weaker for state-owned firms and higher for firms in high quality institutional and economic environments. There is even some evidence that state-controlled banks behave more generously towards state-owned borrowers that default.

4.3. Difference-in-difference analysis for identification

Thus far, the facts we have presented using our novel and comprehensive data on bank loan defaults by Chinese corporations often support the testable predictions we have advanced. In particular, we find that state control of borrowers and lenders and the degree of development and economic growth in the borrower's province have significant, sensible associations with default outcomes. Earlier, we noted papers that document the impact of changes in financial law and regulation.²² In this section, we look at associations between default outcomes and three major legal, natural disaster, and policy events.

Table 6 summarizes difference-in-difference regressions that detect responses to the bankruptcy law, earthquake, and cadre behavior events. The table presents the key coefficient in each of the three sets of regressions, that is, the slope on the interactive term that isolates the treatment group and the period after the event. The first set of regressions centers on the new bankruptcy law in force as of June 2007. As described earlier in the paper, we predict that increased power to creditors encourages post default improvements in borrowers such as less debt and better operating performance. Estimated slopes on the interactive term in specifications for *New Loans*, *New Long Term Loans*, and *New Big Five Loans* are strongly significantly negative. This is consistent with the new law improving borrower behavior and, in particular, discouraging new post default borrowing. However, the decline in new lending is somewhat smaller for *New Big Five Loans*, which is consistent with the idea that government-controlled lenders are more supportive of defaulting borrowers. *Non-bank Debt Ratio* rises, which can be consistent with payables and other non-bank debt related to operations receding less than bank debt. However, slopes on the performance variables *Return on Assets*, *Total Factor Productivity*, and *Sales/Assets*

²² See, for example, Rodano, Serrano-Velarde, and Tarantino (2016), Ponticelli and Alencar (2016), Gormley, Gupta, and Jha, (2018), and Aretz, Campello, and Marchica (2020).

are not statistically significant. While the new law appears to induce more cautious borrowing after default, there is no evidence of consequences for managerial incentives and, thus, firm performance.

The second set of regressions centers on the Sichuan earthquake of May 2008. We predict that this event increases government support for Sichuan borrowers. This both encourages additional lending and dampens performance. There are no significant responses among either post default borrowing outcomes or performance outcomes.

The third set of regressions centers on the cadre behavior announcement of January 2010. We predict that this event will improve borrower behavior after default, particularly for state-owned borrowers. However, the results contradict our prediction. The slopes on the interactive term in specifications for *New Loans*, *New Long Term Loans*, and *New Big Five Loans* are strongly significantly positive. The slope on *Non-bank Debt Ratio* is marginally significantly negative, suggesting that the proportion of bank debt rises. Thus, far from improving post default outcomes for state-controlled firms as we predicted, the cadre behavior event is associated with additional borrowing after a state-controlled firm defaults. Furthermore, the slope on the interactive term for *Return on Assets* is marginally significantly negative. Evidently, the announced guidelines do not succeed as intended to improve the performance of state-controlled borrowers after default.

Note that we do not report parallel trends tests (Roberts and Whited, 2012) that often accompany difference-in-difference estimates. Two of our three events occur at the start of our sample period and, thus, do not have enough data for the pre-event window. The earthquake event has enough pre-event years but the test is irrelevant because the triple difference-in-difference terms are insignificant. Another diagnostic is the placebo test of whether the predicted effect of the event does not manifest itself over other sub-samples of the data. We were unable to specify placebo tests for the bankruptcy reform event (applicable to all Chinese companies) and the cadre event (applicable to all state-controlled firms). Non-Sichuan borrowers can serve in a placebo test of the earthquake event, but it is not relevant because the event is insignificant for treated firms.

5. The consequences of default for social outcomes

Our results to this point indicate that post default borrowing, performance, and the contrasts between formal and informal default resolution relate to a borrower's ownership and institutional

environment in interesting and intuitive ways. Implicit in these tests and our interpretation of their results is that banks should operate on a commercial basis and, in particular, the default process should improve the operating performance of distressed borrowers. However, we next consider the possibility that a banking system targets broader non-commercial goals as well. In particular, research on the US typically finds substantial declines in employment after restructuring (John, Lang, and Netter, 1992; Ofek, 1993), activist investor intervention (Brav, Jiang, and Kim, 2015), default on a bond issue (Agrawal and Matsa, 2013), or Chapter 11 bankruptcy (Hotchkiss, 1995). Therefore, our final tests seek evidence that China’s default resolution process tries to maintain or even increase employment. China formally incorporates the importance of employment in law.²³

We estimate regressions with *Employees/Assets* or the natural log of *Employees*, rather than borrowing or performance outcomes, as dependent variable. Panel A of Table 7 shows that the basic association between the default event and measures of employment is typically weak or insignificant. Far from disappointing us, this is actually a very interesting result. Employment does not recede as part of workouts after defaults on bank loans. This is consistent with the notion that the default resolution process protects employment. Furthermore, a significant positive slope on *Default Dummy (lag1) × SOE Dummy* in the specification that explains the log of the number of employees implies that, after default, employment growth at state-owned firms is 17.9 percentage points higher than for other firms. Thus, employment at state-controlled firms tends to increase substantially after such a firm defaults on a bank loan. Thus, China’s default resolution process appears to target the broader social goal of maintaining employment and, indeed, increasing it at state-controlled firms. In contrast, Panel B shows insignificant coefficients on *Default Dummy (lag1) × Provincial Quality Index*, that is, no apparent effect of provincial characteristics on the association between employment and default.

Next, we follow the format of Table 6 and measure how the employment variables respond for treated firms during the three event periods we previously defined. Results are reported in Panel C of Table 7A. A few surprising findings suggest that employment is not always protected during a default workout. The slope coefficient on *Default Dummy × Event Dummy* for the bankruptcy

²³ See, for example, “Law of the People’s Republic of China on Promotion of Employment” at http://english.www.gov.cn/archive/lawsregulations/page_3.html. See Dobson and Kashyap (2007) for a discussion of the competing goals of the Chinese banking system.

law event is negative and statistically significant ($t=-2.65$) in the specification to explain the natural log of the number of employees.²⁴ At the same time, the corresponding interactive in the specification to explain *Employees/Assets* is insignificant. Thus, the number of employees declines while the ratio of employees to firm size remains constant. This suggests that, after the strengthening of the bankruptcy law, defaulting firms tend to shrink. Furthermore, the interactive of the cadre behavior event dummy and *SOE Dummy* is insignificant rather than positive as in Panel A, indicating that employment at state-controlled firms no longer expands after default. Thus, legal, regulatory, and enforcement events seem to alter how firms balance social goals versus their own solvency. Furthermore, if we consider Table 6 and Table 7 Panel C results together, it appears that the well-defined and more easily enforced bankruptcy reform is more effective than the broad, vague cadre behavior reform.

6. Robustness tests

In this section, we summarize tests that check whether the interpretation of our results thus far holds up to different specifications and proxies. We design alternative tests to verify that government involvement with either the defaulting borrower or sources of new lending detracts from post-default performance. We test whether the consequences of default differ from those of ordinary rollovers. Furthermore, we also check whether our findings hold for only a particular sub-period when fiscal stimulus was deployed against the effects of the global financial crisis.

6.1 Comparing consequences of default versus ordinary rollovers

First, we compare and contrast the consequences of default on a bank loan to what happens after a more ordinary bank loan rollover. Defaulting on a bank loan reflects financial distress and is a step on the path to bankruptcy and reorganization or liquidation. However, rolling over a loan when it matures is common and can even have positive implications.²⁵ Therefore, we contrast what happens after an ordinary refinancing versus a default to highlight the distinctions between them. Furthermore, the aftermath of ordinary refinancing versus default resolution can vary with both government control and regional institutional quality.

²⁴ See Falato and Liang (2016) for broadly related evidence.

²⁵ There is evidence that revision or renewal of a bank loan or credit line is a particularly strong positive signal about the quality of the borrower. See, for example, Lummer and McConnell (1989).

Table 8 extends some of our specifications to include both *Default Dummy* and *Rollover Dummy*. Panel A focuses on differential effects for state-controlled borrowers that default. We find substantial differences between default and rollover outcomes. The estimated slopes on *Default Dummy (lag 1)* versus *Rollover Dummy (lag 1)* typically differ in sign among the borrowing outcomes. For example, *New Loans* to a typical private firm recede after a default by an average of 13.1% but expands after a rollover by an average of 23.7%. In specifications to explain *New Loans*, *New Long Term Loans*, and *New Big Five Loans*, slopes on the interactive *Default Dummy (lag 1) × SOE Dummy* term are larger and more significant than those on the interactive *Rollover Dummy (lag 1) × SOE Dummy* term. Thus, apparent special support for state-controlled firms is particularly large under financial distress. Furthermore, as predicted, the scale of these effects seems slightly larger for *New Big Five Loans*. Among the performance variables, the coefficients on the simple dummy terms indicate that *Total Factor Productivity* is higher after a rollover but not after a default. The coefficients on the interactive terms indicate lower *Total Factor Productivity* and *Sales/Assets* after a state-controlled firm defaults but marginally higher *Sales/Assets* after a rollover by a state-controlled firm.

Panel B focuses on effects that vary with the quality of the defaulting borrower's home province. Specifications to explain *New Loans*, *New Long Term Loans*, and *New Big Five Loans* display marginally significantly negative slopes on *Default Dummy (lag 1) × Provincial Quality Index* but marginally significantly positive slopes for *Rollover Dummy (lag 1) × Provincial Quality Index* in some specifications. Thus, relatively more post default bank loans are associated with borrowers in lower quality provinces while ordinary rollovers of maturing debt are more prevalent in higher quality provinces. Echoing Panel B of Table 5, the slopes on *Default Dummy (lag 1) × Provincial Quality Index* are positive in specifications to explain the performance outcomes *Return on Assets*, *Total Factor Productivity*, and *Sales/Assets*.

6.2 Alternative proxies for government support and host region institutional quality

Next, we see whether our conclusions hold for alternative proxies for government involvement and institutional quality. We create three additional measures as follows. *Strategic Industry Dummy* equals one for firms in industries that central government policies and announcements identify as significant for China's economic growth. *Monopolistic Industry Dummy* identifies critical infrastructure providers and other firms central to the economy. Both

types of firms can benefit from government help with a problem such as default. *Provincial Capital City Dummy* identifies firms located in the capital city of their home province. These firms can enjoy both greater government support due to high visibility and higher quality law, regulation, and disclosure in the provincial government center.

Table 9 presents estimates of selected earlier regressions that include one of these three alternative measures among the explanatory variables. To save space, we only report coefficient estimates directly related to those variables. Panel A presents results for *Strategic Industry Dummy*. The estimated slopes on *Default Dummy (lag 1) × Strategic Industry Dummy* are strongly significantly positive for *New Loans*, *New Long Term Loans*, and *New Big Five Loans*, but the slope on *Non-bank Debt Ratio* is marginally significantly negative. This indicates that, after a strategic industry firm defaults, it is more likely to receive increased loans from government-controlled banks but not from non-bank private sources. This is similar to what we report using the *SOE Dummy* measure.

Panel B presents results for *Monopolistic Industry Dummy*. While most slopes on interactive terms related to post default debt are insignificant, the slope on *Leverage Ratio* is strongly significantly positive, the slope on *Total Factor Productivity* is significantly negative, and the slope on *Sales/Assets* is marginally significantly negative. Thus, after default, monopolistic industry firms increase leverage and their operating performance declines. Again, this echoes our earlier findings based on *SOE Dummy*.

Panel C presents results for *Provincial Capital City Dummy*. There is evidence that new loans from government-controlled banks increase but non-bank lending decreases after such a firm defaults. This suggests that, like strategic or monopolistic firms, these relatively visible firms are more likely to enjoy government support after default than other firms. However, there is also a marginally significantly positive slope on one of the operating performance measures, *Total Factor Productivity*. This suggests that these firms improve their performance after default due to higher quality institutions in provincial capitals. Therefore, the findings for *Provincial Capital City Dummy* suggest a mix of government involvement and institutional quality hypotheses.

Finally, Panel D suggests whether our findings relate to the unique circumstances of the global credit crisis. We rerun some of our basic specifications excluding calendar years 2009 and 2010 when substantial government stimulus could affect our findings. However, we

nonetheless get findings similar to those for the full sample. After a default, an SOE firm receives more new funding from banks, particularly government-controlled banks, but not private non-banks. Furthermore, measures of operating performance decline. This is very similar to our full sample findings reported earlier the paper.²⁶

7. Summary and conclusions

Our sample of 3.5 million loans to manufacturing firms represents virtually all such lending from the largest 17 Chinese commercial banks from January 2007 to June 2013. We document many concerns with state participation. In particular, default outcomes seem less successful if a state-controlled borrower or lender is involved. At the same time, we also find that some dimensions of this system seem to work well. Privately owned firms borrow less after default, as do firms located in provinces with more advanced institutions and economic conditions. Precise, well-targeted legal reforms such as the change in bankruptcy law seem to succeed. We note that our results are based on a specific time period, and, in particular, can be confounded by the global credit crisis and government efforts to mitigate its effects.

Our employment results suggest how the reform of China's economic and legal system walks a fine line between narrow commercial targets and broader social goals. This trade-off in working out distressed firms is not unique to China.²⁷ A good example of the policy relevance of our work is the Chinese government's continuing effort to reform state-owned enterprises.²⁸ This effort includes increasing use of formal reorganization of distressed borrowers recently.²⁹ Our results encourage the continued reform of China's banking system. Improvements in the use of lending, default, and default resolution are evident. The default resolution process does not merely

²⁶ An additional unreported diagnostic (available upon request) shows that lengthening the delinquency period from three to six or twelve months has little effect on our findings. Three months is noted in Basel III details. See, https://www.bis.org/bcbs/qis/qis3qa_f.htm.

²⁷ For another example from beyond US style settings, see Kang and Shivadasani (1997) on Japan.

²⁸ See http://www.nytimes.com/2016/10/14/world/asia/china-soe-state-owned-enterprises.html?_r=0, http://www.xinhuanet.com/english/2018-12/21/c_137689977.htm, and http://english.www.gov.cn/news/topnews/202007/15/content_WS5f0e5746c6d06c409125117f.html.

²⁹ Bankruptcy proceedings rose to 9542 cases in 2017 nationwide, a 68.4% increase from the previous year. The number of bankruptcy courts increased from a mere 5 in the beginning of 2015 to 97 nationwide by the end of 2017 (<https://www.chinacourt.org/article/detail/2018/03/id/3219396.shtml>). For a recent example, see <https://www.scmp.com/business/article/2020992/guangxi-nonferrous-metals-becomes-chinas-first-interbank-bankruptcy>.

provide “zombie fuel” to defaulting firms but seems to improve borrowers and lenders that are not state-controlled, makes use of higher-quality regional institutions, and can protect employment. However, the tension between commercial and social goals is an ongoing concern for any economy at risk of business cycle downturns, financial crises, natural disasters, and other costly surprises.

References

- Agrawal, Ashwini K. and Matsa, David A., 2013, Labor Unemployment Risk and Corporate Financing Decisions, *Journal of Financial Economics* 108, 449-470.
- Allen, Franklin and Gu, Xian, 2020, Shadow Banking in China Compared to Other Countries (May 20, 2020). Available at SSRN: <https://ssrn.com/abstract=3604341> or <http://dx.doi.org/10.2139/ssrn.3604341>
- Allen, F., J. Qian, and M. Qian, 2005, Law, Finance and Economic Growth in China, *Journal of Financial Economics* 77, 57–116.
- Allen, Franklin, Qian, Yiming, Tu, Guoqian, and Yu, Frank, 2019, Entrusted loans: A close look at China's shadow banking system, *Journal of Financial Economics* 133, 18 - 41.
- Ang, James, Cheng, Yingmei, and Wu, Chaopeng, 2014, Does Enforcement of Intellectual Property Rights Matter? Evidence from Financing and Investment Choices in the High Tech Industry, *Review of Economics and Statistics* 96, 332 – 348.
- Aretz, K., Campello, M., and Marchica, M. T., 2020, Access to Collateral and the Democratization of Credit: France's Reform of the Napoleonic Security Code, *The Journal of Finance* 75, 45-90.
- Ayyagari, M., A. Demirguc-Kunt, V. Maksimovic, 2010, Formal versus Informal Finance: Evidence from China, *Review of Financial Studies*, 23, 3048 - 3097.
- Bailey, W, Huang, V., and Yang, Z., 2011, Bank loans with Chinese characteristics: Some evidence on inside debt in a state controlled banking system, *Journal of Financial and Quantitative Analysis* 46, 1795 – 1830.
- Berkowitz, D., H. Ma, and S. Nishioka, 2017, Recasting the Iron Rice Bowl: The Reform of China's State Owned Enterprises, *Review of Economics and Statistics* 99, 735 - 747.
- Bernard, Andrew B., Jensen, J. Bradford, and Schott, Peter K., 2006, Survival of the Best Fit: Exposure to Low-Wage Countries and the (Uneven) Growth of U.S. Manufacturing Plants, *Journal of International Economics* 68, 219 –37.
- Bolton, Patrick, Freixas, Xavier, Gambacorta, Leonardo, and Mistrulli, Paolo Emilio, 2016, Relationship and Transaction Lending in a Crisis, *Review of Financial Studies* 29, 2643 - 2676.
- Brandt, L., J. Van Biesebroeck, and Y. Zhang, 2012, Creative Accounting or Creative Destruction? Firm-Level Productivity Growth in Chinese Manufacturing, *Journal of Development Economics*, 97, 339 - 351.
- Brav, Alon, Jiang, Wei, and Kim, Hyunseob, 2015, The Real Effects of Hedge Fund Activism: Productivity, Asset Allocation, and Labor Outcomes, *Review of Financial Studies* 28, 2723 – 2769.
- Chang, C., G. Liao, X. Yu, and Z. Ni, 2014, Information from Relationship Lending: Evidence from Loan Defaults in China, *Journal of Money, Credit, and Banking* 46, 1225 - 1257.

- Chen G. M., M. Firth, and L. P. Xu, 2009, Does the Type of Ownership Control Matter? Evidence from China's Listed Companies, *Journal of Banking and Finance*, 33, 171-181.
- Chen, Zhuo, He, Zhiguo, and Liu, Chun, 2020, The financing of local government in China: Stimulus loan wanes and shadow banking waxes, *Journal of Financial Economics* 137, 42-71.
- Claessens, Stijn, Feijen, Erik, and Laeven, Luc, 2008, Political connections and preferential access to finance: The role of campaign contributions, *Journal of Financial Economics* 88, 554-580,
- Cull, Robert, and Xu, Lixin Colin, 2003, Who gets credit? The behavior of bureaucrats and state banks in allocating credit to Chinese state-owned enterprises, *Journal of Development Economics* 71, 533 – 559.
- Cull, Robert, and Xu, Lixin Colin, 2005, Institutions, ownership, and finance: the determinants of profit reinvestment among Chinese firms, *Journal of Financial Economics* 77, 117 – 146.
- Degryse, H., Lu, L, and Ongena S., 2016, Informal or Formal Financing? Evidence on the Co-Funding of Chinese Firms. *Journal of Financial Intermediation* 27, 31-50.
- Delis, Manthos D., Kokas, Sotirios, and Ongena, Steven, 2017, Bank Market Power and Firm Performance, *Review of Finance* 21, 299 - 326.
- Djankov, Simeon, Hart, Oliver, McLiesh, Carlee, and Shleifer, Andrei, 2008, Debt Enforcement around the World, *Journal of Political Economy*, 116, 1105 - 1149.
- Dobson, Wendy and Kashyap, Anil K., 2007, The Contradiction in China's Gradualist Banking Reforms (August 15, 2007), Chicago GSB Research Paper No. 08-07, University of Chicago Graduate School of Business Working Paper No. 4 (August).
- Duchin, Ran, and Sosyura, Denis, 2012, The Politics of Government Investment, *Journal of Financial Economics* 106, 24 – 48.
- Duchin, Ran, and Sosyura, Denis, 2014, Safer Ratios, Riskier Portfolios: Banks' Response to Government Aid, *Journal of Financial Economics* 113, 1 – 28.
- Dybvig, P.H., S. C. Shan, and T. Tang, 2012, Outsourcing Bank Loan Screening: Evidence from Third Party Credit Guarantees, unpublished University of Hong Kong working paper.
- Faccio, M., R. Masulis, and J. J. McConnell, 2006, Political connections and corporate bailouts, *Journal of Finance* 61, 2597 – 2635.
- Falato, Antonio, and Liang, J. Nellie, 2016, Do Creditor Rights Increase Employment Risk? Evidence from Loan Covenants, *Journal of Finance* 71, 2545-2590.
- Fan G, X. L. Wang and L. W. Zhang, 2001, NERI Index of Marketization of China's Provinces 2001 Report, *Journal of National School of Administration* 3, 17 - 27 (in Chinese).

- Fan, Joseph P.H., Huang, Jun, and Zhu, Ning, 2013, Institutions, ownership structures, and distress resolution in China, *Journal of Corporate Finance* 23, 71 – 87.
- Fan, J., Titman, S., and Twite, G., 2012, An International Comparison of Capital Structure and Debt Maturity Choices. *Journal of Financial and Quantitative Analysis* 47, 23-56.
- Gao, Haoyu, Ru, Hong, and Tang, Dragon Yongjun, 2020, Subnational Debt of China: The Politics-Finance Nexus, *Journal of Financial Economics* forthcoming.
- Ge, Ying, Lai, Huiwen, and Zhu, Susan Chun, 2015, Multinational price premium, *Journal of Development Economics* 115, 181 - 199.
- Gilson, Stuart C., 1997, Transactions costs and capital structure choice: Evidence from financially distressed firms, *Journal of Finance* 52, 161 - 196.
- Gilson, Stuart C., John, Kose, and Lang, Larry H.P., 1990, Troubled debt restructurings: An empirical study of private reorganization of firms in default, *Journal of Financial Economics* 27, 315 - 353.
- Gormley, T., Gupta, N., and Jha, A., 2018, Quiet Life No More? Corporate Bankruptcy and Bank Competition, *Journal of Financial and Quantitative Analysis* 53, 581-611.
- Hotchkiss, Edith S., 1995, Post bankruptcy performance and management turnover, *Journal of Finance* 50, 3 - 21.
- Hotchkiss, Edith S., and Robert M. Mooradian, 1997, Vulture investors and the market for control of distressed firms, *Journal of Financial Economics* 43, 401 - 432.
- Hsieh, Chang-Tai, and Klenow, Peter J., 2009. Misallocation and Manufacturing TFP in China and India, *The Quarterly Journal of Economics* 124, 1403 - 1448.
- Huang, Zhangkai, Li, Lixing, Ma, Guangrong, and Xu, Lixin Colin, 2017, Hayek, Local Information, and Commanding Heights: Decentralizing State-Owned Enterprises in China, *American Economic Review* 107, 2455 - 2478.
- International Monetary Fund, 2012, People's Republic of China: Detailed Assessment Report: Basel Core Principles for Effective Banking Supervision, IMF Country Report No. 12/78 (April).
- Jiang, G., C. M. C. Lee, and H. Yue, 2010, Tunneling through Intercorporate Loans: The China Experience, *Journal of Financial Economics*, 98, 1 – 20.
- Jimenez, G., Salas, J., Saurina, J., 2006, Determinants of collateral, *Journal of Financial Economics* 81, 255–281.
- John, Kose, Lang, Larry H.P., and Jeffrey Netter, 1992, The voluntary restructuring of large firms in response to performance decline, *The Journal of Finance* 47, 891 - 917.
- Kang, Jun-Koo, and Shivdasani, Anil, 1997, Corporate restructuring during performance declines in Japan, *Journal of Financial Economics* 46, 29-65.

- Khwaja, A., and Mian, A., 2005, Do Lenders Favor Politically Connected Firms? Rent Provision in an Emerging Financial Market, *Quarterly Journal of Economics* 120, 401-411.
- Khwaja, Asim Ijaz, and Mian, Atif, 2008, Tracing the Impact of Bank Liquidity Shocks: Evidence from an Emerging Market, *American Economic Review* 98, 1413 - 1442.
- La Porta, R., F. Lopez de Silanes, and A. Shleifer, 2002, Government ownership of banks, *Journal of Finance* 57, 265 – 301.
- Leutert, Wendy, 2016, Challenges Ahead in China's Reform of State-Owned Enterprises, *Asia Policy* 21, 83 – 99.
- Li, Bo and Ponticelli, Jacopo, 2020, Going Bankrupt in China. Available at SSRN: <https://ssrn.com/abstract=3251570> or <http://dx.doi.org/10.2139/ssrn.3251570>.
- Li, Kai, Yue, Heng, and Zhao, Longkai, 2009, Ownership, institutions, and capital structure: Evidence from China, *Journal of Comparative Economics* 37, 471 – 490.
- Liao, Li, Liu, Bibo, and Wang, Hao, 2014, China's Secondary Privatization: Perspectives from the Split-Share Structure Reform, *Journal of Financial Economics* 113. 500 – 518.
- Lummer, Scott, and McConnell, John, 1989, Further Evidence on the Bank Lending Process and the Capital Market Response to Bank Loan Agreements, *Journal of Financial Economics* 21, 99-122.
- Ofek, Eli, 1993, Capital structure and firm response to poor performance: An empirical analysis, *Journal of Financial Economics* 34, 3-30.
- Okazaki, Kumiko, 2007, Banking system reform in China: the challenge of moving toward a market-oriented economy, Occasional Paper, Santa Monica: the RAND Corporation.
- Paravisini, D., 2008, Local Bank Financial Constraints and Firm Access to External Finance, *The Journal of Finance* 63, 2161 - 2193.
- Ponticelli, Jacopo, and Alencar, Leonardo S., 2016, Court Enforcement, Bank Loans and Firm Investment: Evidence from a Bankruptcy Reform in Brazil, *Quarterly Journal of Economics* 131, 1365-1413.
- Qian, Jun, Strahan, Philip E., and Yang, Zhishu, 2015, The Impact of Incentives and Communication Costs on Information Production: Evidence from Bank Lending, *Journal of Finance* 70, 1457 - 1494.
- Rodano, Giacomo, Serrano-Velarde, Nicolas, and Tarantino, Emanuele, 2016, Bankruptcy law and bank financing, *Journal of Financial Economics* 120, 363 – 382.
- Ru, Hong, 2018, Government Credit, a Double-Edged Sword: Evidence from the China Development Bank, *Journal of Finance* 73, 275-316.
- Sapienza, Paola, 2004, The effects of government ownership on bank lending, *Journal of Financial Economics* 72, 357 – 384.

- Sun, Q. and Tong, W.H.S., 2003, China Share Issue Privatization: The Extent of Its Success, *Journal of Financial Economics* 70, 183 - 222.
- Weiss, Lawrence A., and Karen H. Wruck, 1998, Information problems, conflicts of interest, and asset stripping: Chapter 11's failure in the case of Eastern Airlines, *Journal of Financial Economics* 48, 55 - 97.

Table 1. Summary statistics

This table presents summary statistics on the primary sample for subsequent empirical tests. The manufacturing firm sample combines the loan level credit registry data with firm-year observations of manufacturing firms from the NBS database. The time period is January 2007 to June 2013. In Panel A and in subsequent regressions, *New Loans*, *New Long Term Loans*, *New Big Five Loans*, *Total Factor Productivity*, *Assets*, and *Employment* are used as the natural log of one plus the value. Panel B examines raw numbers. The raw credit registry loan data contains over 3.5 million individual loans to 39,215 distinct borrowers. Definitions of three of the Panel B variables are not obvious and do not appear in Appendix A: Third-party credit guarantee dummy (see Dybvig, Shan, and Tang, 2012), Rating (lender's internal assessment of individual loan risk), and Long loan dummy (maturity of one year or more).

Panel A: Manufacturing sample by firm-year						
Variables	Number of observations	Mean	Median	Standard deviation	First quartile	Third quartile
<i>Default Dummy</i> (lag1)	112019	0.029	0.000	0.169	0.000	0.000
<i>Rollover Dummy</i> (lag1)	112019	0.651	1.000	0.477	0.000	1.000
<i>New Loans</i> (log million RMB)	112019	3.656	4.111	2.189	2.482	5.142
<i>New Long Term Loans</i> (log million RMB)	112019	2.525	3.045	2.248	0.000	4.290
<i>New Big Five Loans</i> (log million RMB)	112019	2.923	3.619	2.404	0.000	4.796
<i>Non-bank Debt Ratio</i>	112009	0.670	0.726	0.306	0.474	0.955
<i>Leverage Ratio</i>	100220	0.612	0.628	0.230	0.459	0.777
<i>Return on Assets</i> (ROA)	98073	0.073	0.038	0.128	0.006	0.101
<i>Total Factor Productivity</i> (log TFP)	111242	0.016	0.015	0.838	-0.496	0.542
<i>Sales/Assets</i>	111910	1.263	0.874	1.329	0.505	1.487
<i>SOE Dummy</i>	112019	0.069	0.000	0.254	0.000	0.000
<i>Provincial Quality Index</i> (NERI)	112019	9.508	9.870	2.017	7.880	11.540
<i>Assets</i> (log million RMB)	112016	8.442	8.360	1.345	7.612	9.229
<i>Employees/Assets</i>	111298	2.059	1.223	3.755	0.588	2.399
<i>Employees</i> (log)	111298	6.253	6.223	1.175	5.568	6.936
Number of lenders for new loans	168124	1.960	1.000	1.657	1.000	2.000
Number of new loans	168124	16.909	6.000	33.739	2.000	16.000
Amount of New Loans/Assets	139974	0.295	0.232	0.234	0.112	0.416

Panel B: Underlying individual loan data						
Variables	Number of observations	Mean	Median	Standard deviation	First quartile	Third quartile
New loan amount (million RMB)	3514337	12.037	3.009	25.066	0.500	10.000
New loan maturity (months)	3514337	8.975	6.000	14.068	4.000	9.000
Delinquent (unpaid when due)	3131344	0.015	0.000	0.120	0.000	0.000
Delinquent 3 months or more (default)	2981981	0.010	0.000	0.100	0.000	0.000
Third-party credit guarantee dummy	3514337	0.205	0.000	0.403	0.000	0.000
Rating (1=high, 5=low)	3514337	1.021	1	0.145	1	1
New loan amount/assets (percent)	3514337	1.297	0.278	2.389	0.028	1.517
Long loan dummy	3514337	0.191	0	0.393	0	0

Table 2. Borrower liabilities after default

This table presents regression tests of our null hypothesis (“Default resolution does not improve borrower outcomes.”) versus the alternative (“Default resolution improves borrower outcomes.”). Borrower outcome variables related to debt are regressed on lagged *Default dummy*, *Assets*, *Leverage Ratio*, constant, and firm and year fixed effects. The sample is manufacturing firms and observations are borrower-year. Standard errors are clustered by firm. Intercept terms are estimated but not reported to save space. *New Loans*, *New Long Term Loans*, *New Big Five Loans*, and *Assets* are used as the natural log of one plus the value.

	Intensive dependent variable is:					Extensive dependent variable is:		
	<i>New Loans</i>	<i>New Long Term Loans</i>	<i>New Big Five Loans</i>	<i>Non-bank Debt Ratio</i>	<i>Leverage Ratio</i>	<i>New Loans dummy</i>	<i>New Long Term Loans dummy</i>	<i>Big Five Loans dummy</i>
<i>Default Dummy (lag1)</i>	-0.078** (-2.21)	-0.009 (-0.23)	-0.035 (-0.94)	-0.012** (-2.37)	0.010*** (3.13)	-0.032*** (-4.70)	-0.027*** (-3.59)	-0.018** (-2.15)
<i>Assets</i>	0.185*** (13.95)	0.170*** (12.25)	0.163*** (11.92)	-0.012*** (-6.82)	0.039*** (20.90)	0.017*** (7.07)	0.018*** (6.79)	0.025*** (8.48)
<i>Leverage Ratio</i>	0.981*** (16.37)	0.896*** (14.25)	0.831*** (13.27)	-0.123*** (-14.42)	-	0.141*** (11.42)	0.123*** (9.27)	0.166*** (11.42)
Adjusted r-squared	0.598	0.567	0.657	0.614	0.752	0.396	0.568	0.439
Observations	100220	100220	100220	100211	100220	100220	100220	100220
Number of firms	27910	27910	27910	27906	27910	27910	27910	27910

Table 3. Borrower liabilities after default conditioned on state ownership and provincial institutional quality

This table presents regression tests of our null hypothesis (“Default resolution does not improve borrower outcomes.”) versus the alternative (“Default resolution improves borrower outcomes.”) combined with proxies for borrower, lender, and institutional quality that can affect post default outcomes. Borrower outcome variables related to debt are regressed on lagged *Default Dummy*, *SOE Dummy* or *Provincial Quality Index*, interactive terms, *Assets*, *Leverage Ratio*, constant, and firm and year fixed effects. The sample is manufacturing firms and observations are borrower-year. Standard errors are clustered by firm. Intercept terms are estimated but not reported to save space. All specifications include firm and year fixed effects. *New Loans*, *New Long Term Loans*, *New Big Five Loans*, and *Assets* are used as the natural log of one plus the value.

Panel A								
	Intensive dependent variable is:					Extensive dependent variable is:		
	<i>New Loans</i>	<i>New Long Term Loans</i>	<i>New Big Five Loans</i>	<i>Non-bank Debt Ratio</i>	<i>Leverage Ratio</i>	<i>New Loans dummy</i>	<i>New Long Term Loans dummy</i>	<i>New Big Five Loans dummy</i>
<i>Default Dummy (lag1)</i>	-0.123*** (-3.34)	-0.041 (-1.00)	-0.081** (-2.11)	-0.012** (-2.18)	0.008** (2.35)	-0.040*** (-5.55)	-0.022** (-2.45)	-0.034*** (-4.41)
<i>Default Dummy (lag 1) × SOE Dummy</i>	0.450*** (3.42)	0.324** (2.29)	0.471*** (3.54)	-0.002 (-0.17)	0.021** (2.23)	0.077*** (3.33)	0.037 (1.38)	0.078*** (3.18)
<i>SOE Dummy</i>	-0.048 (-0.66)	0.020 (0.26)	-0.060 (-0.79)	-0.004 (-0.55)	0.010* (1.72)	-0.003 (-0.18)	-0.005 (-0.28)	-0.011 (-0.76)
<i>Assets</i>	0.185*** (13.95)	0.169*** (12.21)	0.163*** (11.91)	-0.012*** (-6.79)	0.039*** (20.83)	0.017*** (7.04)	0.025*** (8.48)	0.018*** (6.79)
<i>Leverage Ratio</i>	0.980*** (16.34)	0.894*** (14.23)	0.829*** (13.25)	-0.123*** (-14.42)	-	0.140*** (11.40)	0.166*** (11.41)	0.123*** (9.26)
Adjusted r-squared	0.598	0.567	0.657	0.614	0.752	0.396	0.439	0.568
Observations	100220	100220	100220	100211	100220	100220	100220	100220
Number of firms	27910	27910	27910	27906	27910	27910	27910	27910

Table 3. Borrower liabilities after default conditioned on state ownership and provincial institutional quality (continued)

Panel B								
	Intensive dependent variable is:					Extensive dependent variable is:		
	<i>New Loans</i>	<i>New Long Term Loans</i>	<i>New Big Five Loans</i>	<i>Non-bank Debt Ratio</i>	<i>Leverage Ratio</i>	<i>New Loans dummy</i>	<i>New Long Term Loans dummy</i>	<i>New Big Five Loans dummy</i>
<i>Default Dummy (lag 1)</i>	0.224 (1.39)	0.314* (1.75)	0.267 (1.58)	-0.052** (-2.32)	-0.000 (-0.02)	0.024 (0.76)	0.032 (0.94)	0.047 (1.26)
<i>Default Dummy (lag 1) × Provincial Quality Index</i>	-0.035* (-1.92)	-0.037* (-1.86)	-0.034* (-1.84)	0.005* (1.85)	0.001 (0.73)	-0.006* (-1.80)	-0.007* (-1.76)	-0.008* (-1.76)
<i>Provincial Quality Index</i>	0.030 (1.44)	0.057*** (2.66)	-0.014 (-0.66)	-0.004 (-1.49)	0.005 (1.56)	0.006 (1.44)	-0.002 (-0.57)	0.015*** (3.06)
<i>Assets</i>	0.184*** (13.90)	0.168*** (12.15)	0.164*** (11.93)	-0.012*** (-6.74)	0.039*** (20.81)	0.017*** (7.00)	0.018*** (6.81)	0.024*** (8.37)
<i>Leverage Ratio</i>	0.980*** (16.35)	0.894*** (14.22)	0.831*** (13.28)	-0.123*** (-14.42)	-	0.140*** (11.41)	0.123*** (9.29)	0.166*** (11.39)
Adjusted r-squared	0.598	0.567	0.657	0.614	0.752	0.396	0.568	0.439
Observations	100220	100220	100220	100211	100220	100220	100220	100220
Number of firms	27910	27910	27910	27906	27910	27910	27910	27910

Table 4. Borrower performance after default

This table presents regression tests of our null hypothesis (“Default resolution does not improve borrower outcomes.”) versus the alternative (“Default resolution improves borrower outcomes.”). Borrower outcome variables related to performance are regressed on lagged *Default Dummy*, *Assets*, *Leverage Ratio*, constant, and firm and year fixed effects. The sample is manufacturing firms and observations are borrower-year. Standard errors are clustered by firm. Intercept terms are estimated but not reported to save space. All specifications include firm and year fixed effects. *Assets* is used as the natural log of one plus the value. Total Factor Productivity (TFP) is estimated in log form at a previous stage.

	<i>Return on Assets</i>	<i>Total Factor Productivity</i>	<i>Sales/Assets</i>
<i>Default Dummy (lag1)</i>	-0.002 (-0.80)	-0.030*** (-2.66)	-0.029* (-1.75)
<i>Assets</i>	-0.008*** (-7.13)	-0.051*** (-7.90)	-0.332*** (-24.31)
<i>Leverage Ratio</i>	-0.097*** (-21.21)	-0.149*** (-6.56)	-0.109*** (-2.64)
Adjusted r-squared	0.649	0.797	0.789
Observations	98057	99535	100165
Number of firms	27811	27800	27907

Table 5. Borrower performance after default conditioned on state ownership and provincial institutional quality

This table presents regression tests of our null hypothesis (“Default resolution does not improve borrower outcomes.”) versus the alternative (“Default resolution improves borrower outcomes.”) combined with proxies for borrower, lender, and institutional quality that can affect post default outcomes. Borrower outcome variables related to performance are regressed on lagged *Default Dummy*, *SOE Dummy* or *Provincial Quality Index*, interactive terms, *Assets*, *Leverage Ratio*, constant, and firm and year fixed effects. The sample is manufacturing firms and observations are borrower-year. Standard errors are clustered by firm. Intercept terms are estimated but not reported to save space. All specifications include firm and year fixed effects. *Assets* is used as the natural log of one plus the value. . Total Factor Productivity (TFP) is estimated in log form at a previous stage.

	<i>Return on Assets</i>	<i>Total Factor Productivity</i>	<i>Sales/Assets</i>
Panel A			
<i>Default Dummy (lag1)</i>	-0.001 (-0.58)	-0.018 (-1.56)	-0.015 (-0.85)
<i>Default Dummy (lag 1) × SOE Dummy</i>	-0.004 (-0.59)	-0.118*** (-3.08)	-0.144*** (-2.75)
<i>SOE Dummy</i>	-0.001 (-0.31)	-0.006 (-0.28)	0.071*** (2.65)
<i>Assets</i>	-0.008*** (-7.10)	-0.051*** (-7.87)	-0.333*** (-24.31)
<i>Leverage Ratio</i>	-0.097*** (-21.20)	-0.148*** (-6.54)	-0.109*** (-2.65)
Adjusted r-squared	0.649	0.797	0.789
Observations	98057	99535	100165
Number of firms	27811	27800	27907
Panel B			
<i>Default Dummy (lag1)</i>	-0.017** (-2.17)	-0.325*** (-6.41)	-0.385*** (-5.85)
<i>Default Dummy (lag 1) × Provincial Quality Index</i>	0.002** (2.04)	0.034*** (6.05)	0.041*** (5.44)
<i>Provincial Quality Index</i>	-0.002 (-0.88)	0.014 (1.33)	-0.009 (-0.47)
<i>Assets</i>	-0.008*** (-7.06)	-0.052*** (-7.94)	-0.332*** (-24.23)
<i>Leverage Ratio</i>	-0.097*** (-21.22)	-0.150*** (-6.61)	-0.109*** (-2.65)
Adjusted r-squared	0.649	0.797	0.789
Observations	98057	99535	100165
Number of firms	27811	27800	27907

Table 6. Difference-in-difference tests of borrower outcomes after default

Specifications parallel previous tables plus addition of difference-in-difference related variables. To conserve space, only the key difference-in-difference coefficients are reported. Full estimates are available upon request. *Event Dummy* equals one for the year the event occurs or the following year.

	<i>New Loans</i>	<i>New Long Term Loans</i>	<i>New Big Five Loans</i>	<i>Non-bank Debt Ratio</i>	<i>Leverage Ratio</i>	<i>Return on Assets</i>	<i>Total Factor Productivity</i>	<i>Sales/Assets</i>
<u>Bankruptcy Law June 2007</u>								
<i>Default Dummy (lag 1) × Event Dummy</i>	-0.564*** (-8.66)	-0.516*** (-7.26)	-0.474*** (-6.92)	0.030*** (3.33)	0.003 (0.52)	0.003 (0.97)	-0.009 (-0.45)	-0.026 (-0.91)
Adjusted r-squared	0.598	0.568	0.657	0.614	0.752	0.649	0.797	0.789
Observations	100220	100220	100220	100211	100220	98057	99535	100165
<u>Sichuan earthquake May 2008</u>								
<i>Default Dummy (lag 1) × Sichuan Firm Dummy × Event Dummy</i>	-0.304 (-0.82)	-0.036 (-0.09)	-0.290 (-0.70)	-0.045 (-1.05)	-0.021 (-0.62)	-0.011 (-0.57)	-0.098 (-0.93)	-0.135 (-0.75)
Adjusted r-squared	0.599	0.568	0.657	0.614	0.752	0.649	0.797	0.789
Observations	100220	100220	100220	100211	100220	98057	99535	100165
<u>Cadre behavior January 2010</u>								
<i>Default Dummy (lag 1) × SOE Dummy × Event Dummy</i>	0.745*** (3.00)	0.584* (1.77)	0.778*** (2.90)	-0.043* (-1.89)	0.005 (0.24)	-0.028* (-1.77)	0.070 (1.03)	0.196* (1.78)
Adjusted r-squared	0.599	0.569	0.657	0.615	0.752	0.649	0.797	0.789
Observations	100220	100220	100220	100211	100220	98057	99535	100165

Table 7. Employment after default conditioned on state ownership and provincial institutional quality

This table uses employment-related measures as dependent variables in specifications that are otherwise similar to those in previous tables. The sample is manufacturing firms and observations are borrower-year. Standard errors are clustered by firm. Intercept terms are estimated but not reported to save space. All specifications include firm and year fixed effects, *Assets* and *Employment* are used as the natural log of one plus the value. *Event Dummy* equals one for the year the event occurs or the following year.

Panel A	Dependent variable:	
	<i>Employees/Assets</i>	<i>Employees</i>
<i>Default Dummy (lag 1)</i>	0.021 (0.28)	0.008 (0.50)
<i>Default Dummy (lag1) × SOE Dummy</i>	0.126 (1.22)	0.179** (2.33)
<i>SOE Dummy</i>	0.162** (2.10)	0.091*** (2.79)
<i>Assets</i>	-1.397*** (-20.17)	0.470*** (56.75)
<i>Leverage Ratio</i>	0.476** (2.05)	-0.052* (-1.94)
Adjusted r-squared	0.747	0.862
Observations	99551	99551
Number of firms	27803	27803
Panel B		
<i>Default Dummy (lag 1)</i>	-0.383 (-1.19)	0.002 (0.03)
<i>Default Dummy (lag1) × Provincial Quality Index</i>	0.048 (1.11)	0.003 (0.33)
<i>Provincial Quality Index</i>	0.015 (0.24)	0.036*** (2.96)
<i>Assets</i>	-1.396*** (-20.18)	0.470*** (56.57)
<i>Leverage Ratio</i>	0.477** (2.06)	-0.051* (-1.92)
Adjusted r-squared	0.747	0.862
Observations	99551	99551
Number of firms	27803	27803

Table 7. Employment after default conditioned on state ownership and provincial institutional quality (continued)

Panel C: Difference-in-difference regressions		Dependent variable:	
		<i>Employees/Assets</i>	<i>Employees</i>
<u>Bankruptcy Law June 2007</u>			
	<i>Default Dummy (lag 1) × Event Dummy</i>	0.034	-0.076***
		(0.32)	(-2.65)
	Adjusted r-squared	0.747	0.862
	Observations	99551	99551
<u>Sichuan earthquake May 2008</u>			
	<i>Default Dummy (lag 1) × Sichuan Firm Dummy × Event Dummy</i>	-0.479	-0.019
		(-0.88)	(-0.12)
	Adjusted r-squared	0.747	0.862
	Observations	99551	99551
<u>Cadre behavior January 2010</u>			
	<i>Default Dummy (lag 1) × SOE Dummy × Event Dummy</i>	-0.268	0.017
		(-1.16)	(0.13)
	Adjusted r-squared	0.747	0.863
	Observations	99551	99551

Table 8. Comparing borrower outcomes after default versus after rollover by borrower-year

This table presents estimates that extend selected regressions from previous tables with *Rollover Dummy*, a measure of ordinary refinancing events to contrast to findings for *Default Dummy*. The sample is manufacturing firms and observations are borrower-year. Standard errors are clustered by firm. Intercept terms are estimated but not reported to save space. All specifications include firm and year fixed effects. *New Loans*, *New Long Term Loans*, *New Big Five Loans*, and *Assets* are used as the natural log of one plus the value. Total Factor Productivity (TFP) is estimated in log form at a previous stage.

Panel A								
	<i>New Loans</i>	<i>New Long Term Loans</i>	<i>New Big Five Loans</i>	<i>Non-bank Debt Ratio</i>	<i>Leverage Ratio</i>	<i>Return on Assets</i>	<i>Total Factor Productivity</i>	<i>Sales/Assets</i>
<i>Default Dummy (lag 1)</i>	-0.131*** (-3.59)	-0.045 (-1.10)	-0.092** (-2.40)	-0.012** (-2.21)	0.008** (2.30)	-0.001 (-0.55)	-0.019 (-1.60)	-0.015 (-0.86)
<i>Rollover Dummy (lag 1)</i>	0.237*** (8.34)	0.124*** (4.65)	0.296*** (10.59)	0.005 (1.62)	0.005** (2.30)	-0.001 (-1.00)	0.018** (2.57)	0.009 (0.80)
<i>Default Dummy (lag 1) × SOE Dummy</i>	0.446*** (3.42)	0.313** (2.22)	0.474*** (3.58)	-0.002 (-0.17)	0.021** (2.23)	-0.004 (-0.60)	-0.120*** (-3.12)	-0.147*** (-2.80)
<i>Rollover Dummy (lag 1) × SOE Dummy</i>	0.036 (0.36)	0.193** (2.00)	-0.088 (-0.86)	-0.002 (-0.17)	-0.001 (-0.16)	0.001 (0.33)	0.022 (0.96)	0.056** (2.04)
<i>SOE Dummy</i>	-0.072 (-0.68)	-0.108 (-1.05)	-0.000 (-0.00)	-0.003 (-0.32)	0.011 (1.45)	-0.002 (-0.48)	-0.020 (-0.83)	0.034 (1.10)
<i>Assets</i>	0.182*** (13.82)	0.167*** (12.10)	0.160*** (11.72)	-0.012*** (-6.82)	0.039*** (20.80)	-0.008*** (-7.09)	-0.051*** (-7.90)	-0.333*** (-24.31)
<i>Leverage Ratio</i>	0.974*** (16.34)	0.891*** (14.20)	0.822*** (13.21)	-0.123*** (-14.43)	-	-0.097*** (-21.19)	-0.148*** (-6.56)	-0.109*** (-2.66)
Adjusted r-squared	0.599	0.568	0.658	0.614	0.752	0.649	0.797	0.789
Observations	100220	100220	100220	100211	100220	98057	99535	100165
Number of firms	27910	27910	27910	27906	27910	27811	27800	27907

Table 8. Comparing borrower outcomes after formal versus informal default by borrower-year (continued)

Panel B								
	<i>New Loans</i>	<i>New Long Term Loans</i>	<i>New Big Five Loans</i>	<i>Non-bank Debt Ratio</i>	<i>Leverage Ratio</i>	<i>Return on Assets</i>	<i>Total Factor Productivity</i>	<i>Sales/Assets</i>
<i>Default Dummy (lag 1)</i>	0.208 (1.30)	0.304* (1.70)	0.247 (1.47)	-0.053** (-2.36)	-0.001 (-0.05)	-0.017** (-2.14)	-0.327*** (-6.45)	-0.386*** (-5.86)
<i>Rollover Dummy (lag1)</i>	0.014 (0.11)	0.093 (0.76)	0.059 (0.46)	0.057*** (3.89)	0.002 (0.19)	-0.019*** (-3.24)	0.090*** (2.79)	0.014 (0.32)
<i>Default Dummy (lag 1) × Provincial Quality Index</i>	-0.034* (-1.88)	-0.036* (-1.83)	-0.033* (-1.78)	0.005* (1.86)	0.001 (0.74)	0.002** (2.03)	0.034*** (6.08)	0.041*** (5.44)
<i>Rollover Dummy (lag 1) × Provincial Quality Index</i>	0.024* (1.85)	0.005 (0.40)	0.025* (1.86)	-0.006*** (-3.64)	0.000 (0.32)	0.002*** (3.17)	-0.008** (-2.28)	-0.000 (-0.02)
<i>Provincial Quality Index</i>	0.015 (0.63)	0.055** (2.35)	-0.029 (-1.21)	-0.000 (-0.06)	0.004 (1.43)	-0.003 (-1.64)	0.020* (1.80)	-0.009 (-0.45)
<i>Assets</i>	0.181*** (13.76)	0.166*** (12.05)	0.160*** (11.75)	-0.012*** (-6.79)	0.039*** (20.78)	-0.008*** (-7.05)	-0.052*** (-7.98)	-0.332*** (-24.23)
<i>Leverage Ratio</i>	0.974*** (16.34)	0.890*** (14.19)	0.824*** (13.23)	-0.123*** (-14.42)	-	-0.097*** (-21.22)	-0.150*** (-6.63)	-0.109*** (-2.66)
Adjusted r-squared	0.599	0.568	0.658	0.614	0.752	0.649	0.797	0.789
Observations	100220	100220	100220	100211	100220	98057	99535	100165
Number of firms	27910	27910	27910	27906	27910	27811	27800	27907

Table 9. Alternative proxies for government support and host region institutional quality

This table presents estimates that extend selected regressions from previous tables with alternative proxies for government support of defaulting borrowers and for the quality of the borrower's geographic location. The sample is manufacturing firms and observations are borrower-year. Standard errors are clustered by firm. All specifications include firm and year fixed effects. We include only the interactive term involving *Provincial Capital City Dummy* (equal to one for firms located in the capital city of the host province) as it does not (unlike strategic, monopolistic, or SOE dummies) vary with time. *New Loans*, *New Long Term Loans*, *New Big Five Loans*, and *Assets* are used as the natural log of one plus the value. *Total Factor Productivity* is estimated in log form at a previous stage. For each specification, the table reports coefficients and standard errors for selected independent variables, not for the entire specification. Monopolistic industries (defined by Bailey, Huang, and Yang, 2011) are mining, real estate, media and culture, power, gas, and water, transportation and storage, banking, finance and insurance, metals and nonmetals, petroleum, and chemicals and rubber. See Online Appendix L of Huang, Li, Ma, and Xu (2017) for definition of strategic industries.

	<i>New Loans</i>	<i>New Long Term Loans</i>	<i>New Big Five Loans</i>	<i>Non-bank Debt Ratio</i>	<i>Leverage Ratio</i>	<i>Return on Assets</i>	<i>Total Factor Productivity</i>	<i>Sales/Assets</i>
Panel A.								
<i>Default Dummy (lag 1) × Strategic Industry Dummy</i>	0.258*** (3.62)	0.231*** (2.88)	0.226*** (2.94)	-0.019* (-1.88)	-0.003 (-0.44)	-0.005 (-1.20)	-0.023 (-0.98)	-0.031 (-0.93)
<i>Strategic Industry Dummy</i>	0.083*** (3.18)	0.125*** (4.30)	0.077*** (2.70)	-0.016*** (-3.98)	-0.002 (-0.62)	-0.000 (-0.00)	-0.009 (-1.10)	-0.029** (-2.13)
Panel B.								
<i>Default Dummy (lag 1) × Monopolistic Industry Dummy</i>	0.079 (1.11)	0.122 (1.54)	0.092 (1.20)	-0.012 (-1.14)	0.047*** (7.26)	-0.002 (-0.40)	-0.052** (-2.29)	-0.065* (-1.94)
<i>Monopolistic Industry Dummy</i>	0.077*** (3.20)	0.105*** (3.89)	0.064** (2.44)	-0.015*** (-4.20)	-0.001 (-0.53)	0.001 (0.36)	-0.013* (-1.66)	-0.024** (-1.97)
Panel C.								
<i>Default Dummy (lag 1) × Provincial Capital City Dummy</i>	0.164** (1.99)	0.135 (1.48)	0.176** (1.98)	-0.028*** (-2.59)	-0.004 (-0.57)	-0.003 (-0.58)	0.052* (1.96)	0.046 (1.26)
Panel D. (Exclude 2009 and 2010)								
<i>Default Dummy (lag 1) × SOE Dummy</i>	0.537*** (2.93)	0.520*** (2.65)	0.552*** (3.04)	-0.013 (-0.70)	0.013 (1.03)	-0.012 (-1.53)	-0.195*** (-4.04)	-0.243*** (-3.40)
<i>SOE Dummy</i>	-0.002 (-0.03)	0.076 (0.84)	-0.048 (-0.55)	-0.015* (-1.68)	0.002 (0.32)	-0.000 (-0.12)	-0.013 (-0.66)	0.002 (0.10)

Appendix A. Variable Definitions

Currency amounts are quoted in Chinese yuan, indicated by RMB. During our sample period, the exchange rate rose from about eight yuan per US dollar to about six per US dollar.

Borrowing outcomes

<i>Default Dummy</i>	A dummy variable equal to one if one or more outstanding loans are in default (that is, at least three months overdue) for a given borrower and calendar year
<i>Rollover Dummy</i>	A dummy variable equal to one if there is at least one quarter in a given firm-year that displays at least one individual loan (or loans) not in default maturing and a new loan of an identical amount (or multiple loans summing to that amount) from the same lender
<i>New Loans</i> (million RMB)	The total amount of newly extended loans to a firm by any bank in a given year.
<i>New Long Term Loans</i> (million RMB)	New Loans with maturity greater than or equal to one year.
<i>New Big Five Loans</i> (million RMB)	New Loans that originate with one of the partially privatized “large commercial banks” (also known as the “Big Five” state-controlled commercial banks): Agricultural Bank of China, Industrial and Commercial Bank of China, Bank of China, People's Construction Bank of China, and Bank of Communications. The sample includes twelve other banks known as “joint stock commercial banks” (China Citic Bank, China Everbright Bank, Huaxia Bank, China Guangfa Bank, Ping An Bank, China Merchants Bank, Shanghai Pudong Development Bank, Industrial Bank, China Minsheng Banking Corporation, Evergrowing Bank, China Zheshang Bank, and Bohai Bank) but excludes the two fully government owned policy banks (China Development Bank, Export-Import Bank) as they serve non-commercial policy-related purposes.
<i>Non-bank Debt Ratio</i>	Total liabilities (from CIC database) minus face value of all outstanding bank loans (from the credit registry) divided by total liabilities
<i>Leverage Ratio</i>	The book value of liabilities divided by the book value of total assets.

Performance outcomes

<i>Return on Assets</i>	The ratio of net income to assets
<i>Total Factor Productivity</i>	Using the Cobb–Douglas production function, Total Factor Productivity is the residual from regressing $\log\{\text{total revenue}\}$ on $\log\{\text{total assets}\}$ and $\log\{\text{total employment}\}$ in the panel of firm-years in the CIC survey from 1998 to 2013 for each industry and year. See Hsieh and Klenow (2009); Bernard, Jensen, and Schott (2006).
<i>Sales/Assets</i>	The asset turnover ratio is a proxy for capital intensity.

Key borrower characteristics

<i>SOE Dummy</i>	A dummy variable equal to 1 if the borrower’s registration type on the CIC database indicates state ownership, that is, the firm is ultimately controlled by a central or local government or the firm’s registration type ever equals “110” (state-controlled enterprise) or “151” (solely state-owned enterprise). See Hsieh and Klenow (2009), Brandt, Van Biesebroeck, and Zhang (2012), Berkowitz, Ma, and Nishioka (2017), and http://www.gov.cn/zwgg/2011-11/17/content_1995548.htm .
<i>Provincial Quality Index</i>	NERI index of borrower’s home province economic development and financial reform (Fan, Wang, and Zhang, 2001) Higher index means higher quality.

Other borrower characteristics

<i>Assets</i> (million RMB)	Total assets of the firm.
<i>Employees</i>	Number of employees as indicated in the CIC database.
<i>Employees/Assets</i>	Number of employees divided by book value of assets.

Appendix B. Characteristics by Province

This table presents 2007 to 2013 averages of key characteristics by province.

Province	Average of <i>Provincial Quality Index</i>	Percentage of number of individual loans to State-controlled firms	Percentage of total amount of loans to state-controlled firms
Anhui	7.85	7.39%	15.99%
Beijing	9.79	9.82%	31.40%
Chongqing	8.11	10.26%	9.43%
Fujian	9.03	3.88%	6.11%
Gansu	5.00	22.74%	41.22%
Guangdong	10.46	4.94%	5.55%
Guangxi	6.20	12.68%	26.58%
Guizhou	5.56	23.38%	43.72%
Hainan	6.46	5.22%	17.57%
Hebei	7.24	7.48%	10.61%
Heilongjiang	6.12	15.34%	18.69%
Henan	7.98	11.28%	19.03%
Hubei	7.60	10.36%	25.59%
Hunan	7.34	13.91%	28.00%
Jiangsu	11.36	3.64%	6.65%
Jiangxi	7.61	8.88%	15.53%
Jilin	7.07	11.21%	12.24%
Liaoning	8.71	9.07%	17.28%
Neimenggu (Inner Mongolia)	6.27	15.78%	16.60%
Ningxia	5.92	14.19%	33.49%
Qinghai	3.40	11.61%	6.83%
Shaanxi	5.62	17.85%	41.93%
Shandong	8.90	8.33%	14.05%
Shanghai	10.98	6.12%	5.98%
Shanxi	6.13	11.18%	28.96%
Sichuan	7.54	9.55%	18.64%
Tianjin	9.44	10.44%	25.25%
Xinjiang	5.15	15.78%	13.68%
Xizang (Tibet)	1.14	32.88%	34.53%
Yunnan	6.07	12.34%	20.66%
Zhejiang	11.71	2.32%	3.98%