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GOING BANKRUPT IN CHINA

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ABSTRACT

Using new case-level data we document a set of stylized facts on bankruptcy in China and study how the staggered introduction of specialized courts across Chinese cities affected insolvency resolution and the local economy. For identification, we compare cases handled by specialized versus traditional civil courts within the same city. Specialized courts hire better-trained judges and cut case duration by 35%. State-owned firms experience larger declines in case duration relative to privately-owned firms, consistent with higher judicial independence. Cities introducing specialized courts experience faster firm entry, larger increase in average capital productivity and reallocation of employment out of "zombie" firms-intensive sectors.

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1 Introduction

The lack of an efficient and independent judicial system is a major obstacle to economic and financial development. In many developing countries, for example, courts are slow at processing cases, lack specialized judges and are subject to political interference.¹ This issue is particularly prominent in China, where local courts traditionally suffer from the interference of local governments when dealing with bankruptcy cases.² In particular, local politicians have strong incentives to delay the liquidation and keep in operation low-productivity and financially distressed state-owned firms in order to contain unemployment, avoid social unrest and promote their political careers. Government's protection of insolvent but politically connected firms through preferential credit lines or bailouts has been documented in several countries (Faccio, Masulis, and McConnell 2006) and shown to be conducive of a distorted allocation of resources across firms.³ However, there is scarce direct empirical evidence on the role played by the judicial system in shaping the treatment of politically connected firms when they enter financial distress.

We aim at closing this gap in the literature by providing micro-based evidence from China. China is an ideal laboratory to study this question. Until recent years, bankruptcy cases were filed in local civil courts, which lack specialized judges and tend to operate under the oversight of local party officials (Henderson 2007). In the last decade, however, in an attempt to increase the legal protection of creditors, China introduced 97 specialized bankruptcy courts in different prefecture-level cities. Compared to traditional civil courts, specialized courts should be run by better trained judges and are part of an effort by the central government to limit local governments' interventions in bankruptcy cases (INSOL 2018). This allows us to exploit the introduction of specialized courts across Chinese cities as a source of variation in the degree of judicial efficiency and independence.

Our paper has two objectives. First, we construct a new case-level dataset that allows

¹See Djankov, Hart, McLiesh, and Shleifer (2008) and Dakolias (1999) on differences in court efficiency across countries. See the 2007 Global Corruption Report of Transparency International (Rodriguez and Ehrichs 2007) for an analysis of political interference on judges and courts in developing countries.

²See Fan, Huang, and Zhu (2013). See also Henderson (2007) on the relationship between the Chinese judicial system and the Communist Party more generally.

³See, among others, Khwaja and Mian (2005) and Caballero, Hoshi, and Kashyap (2008).

to shed light on bankruptcy resolution in China. How the second largest economy in the world deals with corporate insolvency has important policy implications, especially in light of the recent increase in corporate defaults following a decade-long debt boom. Still, this question has been so far largely unexplored due to the lack of micro data. Second, we document how the introduction of specialized courts that started in the mid-2000s has affected insolvency resolution in China. In this analysis we are particularly interested in understanding the effect of court specialization on judicial efficiency – as captured by case duration – and on judicial independence – as captured by the judicial treatment of state-owned firms relative to privately-owned firms.

Let us start by describing the new data. We construct a new dataset covering 2,021 bankruptcy cases filed in China between 2011 and 2019. Our data source is a new online platform created by the Chinese Supreme Court which allows debtors and creditors to monitor the evolution of bankruptcy cases. In addition to firm and court characteristics, the platform provides access to a digitized version of the court documents accompanying each case. We extracted from these digitized documents the dates of the main judicial decisions for each case, the type of case (liquidation vs reorganization), the names of the judges in charge of each case and, for a small sample of cases, detailed information on the name of the debtor/creditor that initiate the case and the recovery rates obtained by different classes of creditors.

In the first part of the paper, we present a set of stylized facts on bankruptcy in China. Similar to other emerging economies, the vast majority of Chinese bankruptcies are liquidations (77%). Over half of the cases in our sample involve firms operating in manufacturing, construction and real estate. Liquidation cases are mostly initiated by unsecured creditors, while banks – whose claims tend to be secured by some form of collateral – initiate 7.5% of cases. The average duration of bankruptcy cases observed in the data is 1.6 years, around 60% longer than the average duration observed in the US during the same period according to World Bank data.⁴ However, there is large variation in case duration, which spans from a few months to around 8 years. Reorganizations and

⁴Doing Business, The World Bank Group (<http://www.doingbusiness.org>), years 2011-2019.

cases involving small firms tend to be closed faster than liquidations and cases involving large firms respectively.

Next, we propose an empirical strategy to study how the introduction of specialized courts has affected insolvency resolution. Specialized courts were introduced at different times in different Chinese cities between 2007 and 2017. The main identification challenge with comparing cases initiated in cities that introduced specialized courts with cases initiated in cities that did not is the potential endogeneity in the timing of introduction. For example, cities that introduced specialized courts might be on a different economic cycle, which would also affect the type of firms going bankrupt in each city. To deal with this challenge we exploit the fact that, even after the introduction of specialized courts, bankruptcy cases were still handled by both traditional civil courts and specialized courts within the same city (in almost equal proportions). This allows us to use a saturated model with city fixed effects interacted with year fixed effects, effectively comparing cases initiated in different courts within the same city and year. Even within a given city and year, cases are not randomly allocated across courts. However, we show that cases handled by traditional versus specialized courts within the same city and year are strongly balanced along firm and case characteristics (including firm size, sector of operation, and case type), and the magnitude of our estimates is unchanged when controlling for such characteristics.

Our empirical analysis proceeds in two steps. First, we document how the introduction of specialized courts affected judicial outcomes. We are particularly interested in their effect on court efficiency, average education of judges, and on the judicial treatment of state-owned firms. We think of the judicial treatment of SOEs as a measure of judicial independence from local politicians. Second, we study the impact of new specialized courts on the local economy, and in particular their effect on firm entry and on the average capital productivity of local firms.

We start by documenting the impact of specialized courts on observable measures of performance of local courts. We find that specialization leads to faster resolution. Case duration in specialized courts is 35% lower than in traditional civil courts when

comparing similar cases initiated in the same city and year. This corresponds to a decline in case duration of around 210 days. To investigate the effect of specialization on judicial independence we focus on the judicial treatment of state-owned versus private firms. According to the Chinese Supreme Court, one of the objectives of specialized courts was to facilitate an orderly and swift liquidation of unproductive state-owned firms and the reallocation of their resources to the rest of the economy. We find that the effect of specialization on case duration is significantly larger for cases regarding state-owned firms than privately owned firms. Our estimates indicate that specialized courts cut the time to deal with bankruptcies of SOEs by around 300 days *more* than for privately owned firms, a large and statistically significant difference. In particular, the magnitude of our estimates indicate that specialized courts reduce case duration for privately owned firms by around 198 days, and for state-owned firms by 506 days. We also investigate the average education of judges assigned to specialized courts. We find that cases entering in specialized courts are 60 percent more likely to be dealt with by judges that graduated from an "elite" law school.⁵ Finally, we document that, potentially as a consequence of being faster at processing cases, specialized courts accept bankruptcy cases at a faster rate (23%) than traditional civil courts in the same city and year.

In the second step of our analysis, we study the effect of specialized courts on the local economy, intended as the economy of the prefecture-level city. This analysis exploits city-level variation, which does not allow us to exploit variation across courts facing the same city-level shocks. Thus, we rely solely on the staggered introduction of specialized courts across cities as a source of identification. To attenuate the concerns associated with endogenous opening of specialized courts, we estimate a discrete time hazard model that studies whether differences in economic trends at city level predict the timing of introduction of specialized courts across cities. We find that the timing of their introduction is uncorrelated with different measures of local economic performance as captured by contemporaneous and lagged changes in GDP per capita, number of firms, average firm size and share of manufacturing in local GDP.

⁵Elite schools include Project 985 universities and the 5 top professional law schools in China: CUPL, SWUPL, ZUEL, NWUPL, and ECUPL.

Exploiting the staggered introduction of courts across cities, we study their effect on several measures of local economic development. A more efficient and independent bankruptcy system can promote local economic development in several ways. First, by facilitating the liquidation of low-productivity firms and favoring a quicker reallocation of their real assets, their labor force and their market shares to other firms in the economy (Bernstein, Colonnelli, and Iverson 2019). Second, by increasing the expected recovery rate of creditors and thus promoting lending to firms that operate under specialized courts (Visaria 2009).

We focus on three main outcomes which are observable in our data: firm entry, average firm productivity at city level (as captured by average product of capital and return on assets), and the share of local labor employed in industries with higher diffusion of "zombie" firms. Following Caballero et al. (2008), we define zombie firms as low-productivity firms benefiting from financing conditions that are not justified by their fundamentals, independently from whether they are privately-owned or state-owned. Using data on publicly-listed firms we rank industries based on the diffusion of zombie firms, and define industries above the median of this measure as zombie-intensive industries, or Z-industries. Finally, we compute the city-level labor share in Z-industries using data from the *China Statistical Yearbooks*, which cover employment in both publicly listed and private firms.

We find that cities that introduced courts specialized in bankruptcy experienced a 3 percent faster increase in the number of local industrial firms and a 4.5 percent larger increase in average product of capital of local firms relative to cities where insolvency is still resolved exclusively by civil courts. We also find that cities that introduced specialized courts experienced a 1.7 percentage points larger decline in the share of labor employed in zombie-intensive industries.

Our paper is related to several literatures. First, the literature on law and finance. The seminal papers in this literature have showed – using cross-country variation – that a country’s legal and judicial infrastructure can shape the development of its financial markets (La Porta, Lopez-de Silanes, Shleifer, and Vishny 1997, La Porta, Lopez-de Silanes, Shleifer, and Vishny 1998; Djankov et al. 2008; Claessens and Klapper 2005;

Safavian and Sharma 2007). Recent work in this literature has focused on micro-data and within-country variation to study the effect of specialization and efficiency of judicial enforcement on both financial and real outcomes (Visaria 2009, Iverson 2017, Ponticelli and Alencar 2016, Rodano, Serrano-Velarde, and Tarantino 2011, Müller 2019), or the effect of specific legal reforms that target creditor rights on bank lending decisions (Vig 2013).⁶ Similarly to these recent works, our paper exploits micro data and within-country variation. Our contribution relative to this literature is twofold. First, we present, to the best of our knowledge, the first micro-level evidence on the role of judicial institutions in bankruptcy resolution in China. Second, the use of case-level data on bankruptcies filed in Chinese courts allows us to better identify the channel through which institutional changes can affect financial and real outcomes. In particular, our paper provides direct empirical evidence on the effects of specialized courts on case duration and judicial treatment of politically connected firms.

Second, our paper is related to the political economy literature on the value of firms' political connections. Faccio et al. (2006) show that politically connected firms are more likely to be bailed out by the government when in financial distress relative to similar but not politically-connected firms.⁷ Relatedly, preferential lending by state-owned banks to politically connected firms – and its real effects – has been documented in Sapienza (2004) and Carvalho (2014). Several papers have also shown that political concerns can directly or indirectly affect lenders' behavior even in advanced economies (Agarwal, Amromin, Ben-David, and Dinc 2018, Mian, Sufi, and Trebbi 2010). Relative to this literature, our paper focuses on political interference on judicial decisions – which is both widespread and largely understudied in developing countries – and how court specialization and better judges' training can mitigate its effects.

Finally, our paper is related to recent work on the development of the Chinese financial system and the role of state-owned firms. In particular, several recent papers have focused

⁶See also Iverson, Madsen, Wang, and Xu (2018) and Coviello, Ichino, and Persico (2014) on the role of judicial experience and work practices on judicial productivity.

⁷On this, see also Cong, Gao, Ponticelli, and Yang (2019) in the context of China. Consistently, Fisman (2001) and Faccio (2006) show how the market value of politically connected firms is more sensitive to political events relatively to non-politically connected firms, especially in developing countries.

on the drivers and consequences of the Chinese credit boom that followed the 2009-2010 stimulus plan. Part of this literature has focused on the allocative effects of the credit boom across firms with different connections to the government (Cong et al. 2019, Huang, Pagano, and Panizza 2016, Chong-en, Hsieh, and Michael 2016), while other papers have focused on the institutional drivers of the rise in shadow banking (Hachem and Song 2016, Chen, He, and Liu 2020, Wang, Wang, Wang, and Zhou 2016). Our paper complements this literature by investigating the role and evolution of the bankruptcy system that is in charge of resolving the growing amount of corporate debt that is becoming insolvent in the aftermath of the credit boom.

The rest of the paper is organized as follows. Section 2 describes the institutional background of recent bankruptcy reforms introduced in China in the last decade and the role of specialized courts. In section 3 we describe the new case-level dataset used in the paper and we present a set of new stylized facts on bankruptcy in China that can be observed in the data. Section 4 presents the identification strategy and describes the main empirical results. Section 5 concludes.

2 Institutional Setting: Bankruptcy in China

In the last decade, China experienced two major changes of its bankruptcy system. First, in 2007, the Chinese government introduced a new bankruptcy law with the objective of strengthening the protection of creditors. Second, in the decade between 2007 and 2017, Chinese cities introduced courts specialized in bankruptcy proceedings. In this section we briefly describe these two changes to the Chinese bankruptcy system in more detail.

2.1 Bankruptcy Law and Frictions in Traditional Civil Courts

Until 2007, insolvency in China was resolved under the 1986 People’s Republic of China Bankruptcy Law, which focused exclusively on how to address insolvency of state-owned

enterprises (SOEs).⁸ The text of the old bankruptcy law states that secured creditors have first priority in the order of repayment, followed by workers, tax claims and general unsecured creditors (art. 32). However, during the 1990s, the State Council issued two decrees specifying that payment of resettlement costs and other benefits for employees of bankrupt SOEs had priority over secured creditors (Booth 2008).⁹ These deviations from the wording of the 1986 bankruptcy law made the Chinese bankruptcy regime particularly unfriendly to secured creditor, prioritizing government interests and workers' claims with the primary objective of maintaining social stability and preventing social protests.

In 2006, the National People's Congress approved a new bankruptcy law which drew on regulations and judicial experiences of the United States and Europe. The new law entered into force in June of 2007, replacing the 1986 law and all other local insolvency legislation, thus providing a unified legal insolvency framework for China.¹⁰ The 2007 bankruptcy law brought important changes in creditor rights' protection. First, secured creditors are given priority over any workers' claims, and should be repaid with the specific property used as collateral (Art. 109).¹¹ Secured claims are followed by: general expenses of bankruptcy proceedings, workers' claims, tax claims and general unsecured claims such as suppliers (Art. 113). Second, the new law introduces a new reorganization procedure (Chapter 8), which resembles Chapter 11 of the United States Bankruptcy Code, where creditors hold meetings with the debtor and have the right to review and approve a reorganization plan. In addition, the 2007 bankruptcy reform attempted to lay out unified rules for mandatory liquidation of firms that are in severe financial distress and whose bankruptcy

⁸Chapter 19 of the Civil Procedure Law introduced in 1991 dealt with insolvency of non-SOEs. In addition, some local governments had their specific bankruptcy regulations (e.g. "Shenzhen Special Economic Zone Enterprise Bankruptcy Regulations". See Booth (2008) for a detailed description of the legal landscape before the introduction of the 2007 Bankruptcy Law.

⁹These decrees took the form of "Notices". In particular, the 1994 Notice specified that the proceedings obtained from selling the land use rights of bankrupt SOEs should be used to cover the resettlement costs of employees. The 1997 Notice clarified that these payments to employees would take priority over secured creditors. If land use rights' sale was not sufficient to cover resettlement costs, these costs would be financed by auctioning firm property (whether secured or unsecured) and, if not sufficient, directly paid by the government at the same level of the bankrupt SOE (Booth 2008).

¹⁰The drafting of the Chinese bankruptcy law started in 1994; the draft was amended and revised several times until its final approval in 2006. See Booth (2008) for a detailed description of the drafting process of the new law.

¹¹One exception are workers' claims filed *before* the introduction of the new law, which are granted special status and received priority over secured claims (Art.132).

proceedings become too lengthy – regardless of government ownership. In particular, when judges deem the likelihood of survival to be very low, they can decide to bypass the reorganization procedure completely and move to liquidation directly. This provision had to objective of shortening bankruptcy proceedings and guaranteeing higher recovery to creditors’ claim on non-viable firms.

Despite the substantial changes in bankruptcy rules, the enforcement by traditional civil courts has remained problematic. Bankruptcy cases involve complex legal, social and economic challenges which many local civil courts in China lack the resources to handle. In addition, the inefficiency of the civil court in handling cases also reflects the limited expertise of judges in interpreting the language and the spirit of the new regulation. In interviews with senior judges of civil courts, several judges underlined how many of their peers were trained under the planned economy and with the social objective of maintaining employees’ benefits, instead of reorganize firms in an efficient manner. According to a recent report by the International Association of Restructuring, Insolvency and Bankruptcy Professionals (INSOL 2018), among the main challenges with bankruptcy resolution in China are the limited understanding of the new law by non-specialized courts and the performance evaluation system of judges which does not weight the additional complexity of bankruptcy cases. In addition, Chinese firms in financial distress often wait to obtain the “consent” of the local government to start an official bankruptcy procedure (Fan et al. 2013), and local governments try to avoid formal bankruptcy or delay bankruptcy proceedings of SOEs as they have to bear the financial and social costs associated with resettling employees when a firm is liquidated (INSOL 2018). In sum, even after the introduction of the new law, the judicial system remained largely unprepared to effectively implement the changes brought by the new law.

2.2 Introduction of Specialized Bankruptcy Courts

In the decade following the introduction of the 2007 bankruptcy law, the Chinese central government started promoting a slow shift from a policy-mandated bankruptcy system – in which the government largely decides which companies fail or survive – to a

more “market-oriented” bankruptcy system, in which market forces decide who are the winners and losers. A key part of this process was the introduction of bankruptcy tribunals that are specialized in handling bankruptcy cases. These tribunals (whose Chinese name translates into “Liquidation and Bankruptcy Tribunal”) are specialized sections of existing courts. In that sense, they are not separate, independent new courts, but specialized tribunals operating within a pre-existing civil court. In the rest of the paper, whenever we refer to specialized courts, we refer to specialized tribunals within existing civil courts.

After the introduction of the new bankruptcy law in 2007, a handful of Chinese cities started a first phase of introduction of such tribunals. In November 2014, the Supreme Court formulated a recommendation to introduce specialized courts across China and provided official guidelines for such introduction. In the two years after the formulation of the Supreme Court’s guidelines – between December 2014 and May 2016 – a second phase of introduction of specialized courts took place, which included the following provinces: Beijing, Shanghai, Tianjin; Hebei, Jilin, Jiangsu, Zhejiang, Anhui, Hubei, Hunan, Guangdong. Finally, in June 2016, a third phase was started when the Supreme Court formally required all provinces to have at least one court specialized in bankruptcy cases. As of December 2017, there were 97 specialized courts across China and in almost all Chinese provinces there was at least one of such courts.¹² The 97 specialized courts include 3 higher people court, 63 intermediate courts, and 31 people’s courts (INSOL 2018).

The introduction of specialized courts modified the old regime in several ways. First, specialized courts brought with them changes in the selection of judges and the evaluation system for judges’ productivity. As we document in the paper, judges hired to preside over bankruptcy cases in specialized courts are more likely to be graduates from China’s elite law schools. The selection of better-educated judges could not only improve the quality of judicial decisions but also potentially alleviate political capture by local governments. In addition, the evaluation system of judicial productivity in specialized courts is different than the one used in traditional civil courts. This is to take into account the higher degree

¹²The Guizhou province, Tibet autonomous region and Ningxia Hui autonomous region have not yet courts specialized in bankruptcy.

of complexity of bankruptcy cases relative to other civil cases.¹³

In addition, specialized courts simplified the procedure for debtors to file for bankruptcy and facilitated creditors' vote in remote areas by allowing online votes on reorganization plans. This alleviated creditor coordination problems, especially among general unsecured creditors. Better trained judges, more adequate schemes to evaluate judges' productivity, and higher coordination among creditors aimed at fastening the bankruptcy proceedings while generating safeguards over local government influence in bankruptcy resolution.

Let us also briefly discuss how these new courts are formed. The initiative to create a specialized bankruptcy tribunal in a given city is taken at the local level. In particular, it is the local judiciary that submits a proposal to introduce a specialized court to the Supreme Court, which then has to approve it. Although this is, at least formally, an independent initiative of the local judicial system, such initiative is usually at least in part coordinated with the local government. The widespread introduction of specialized courts across Chinese cities suggests that local politicians were willing to accept limits to their influence on the local insolvency process, possibly because being at the forefront of reforming the bankruptcy resolution system can be rewarded with better career opportunities. In fact, the central government sees favorably the introduction of specialized courts as a way to deal with "zombie" enterprises – low-productivity but politically connected firms – whose liquidation is often opposed or delayed by local party officials. In addition, in recent years, the central government has emphasized the ease of doing business as an important criteria for local government officials' promotions.

¹³For example, according to a recent Wall Street Journal report (Ng and Zhou 2019): "To speed up processing, courts have given judges productivity targets and evaluate them with a system that gives them more credit for handling bankruptcy cases. In southern China's Hunan province, one standard bankruptcy case could be deemed equal to 30 civil cases when evaluating a judge's performance, according to a guideline published last year."

3 A new dataset of bankruptcy cases in China:

Data and stylized facts

Our empirical analysis is based on a new case-level dataset of bankruptcies filed in Chinese courts between 2011 and 2019. We sourced case-level information from the "National Corporate Bankruptcy Information Disclosure Platform", an online platform launched in 2016 by the Chinese Supreme's People Court (SPC) that allows debtors and creditors to monitor the evolution of bankruptcy cases.¹⁴ For each case, the online platform reports the name of the company filing for bankruptcy, the name of the court in which the case was filed, the current status of the case, as well as the province, sector, size and ownership category of the bankrupt firm.

The platform also offers access to the text of the court documents accompanying the case. Court documents include the text of the rulings made by the judges in charge of each case, as well as any communications from the bankruptcy administrators to the parties involved in the case.¹⁵ Using text analysis we extracted from these court documents the following case information. First, we extracted the date of case filing, the date in which the court accepted the case, the date of the main judicial decisions and the date of official closure of the case. Second, we extracted the type of bankruptcy case – i.e. whether the case is a liquidation or a reorganization – and the name of the creditor or debtor who filed the case. Third, we extracted information on the judicial team in charge of each case, including the names of the main judge and the secondary judges. For a small sample of cases (94 cases) we were also able to extract information on the recovery rate obtained by different categories of creditors: secured creditors, workers, tax authority and unsecured creditors.

All the information used in this paper is updated to January 2020. As of January 2020, the platform contained 2,021 cases with available court documents.¹⁶ These 2,021 cases

¹⁴The platform is publicly available at <http://pccz.court.gov.cn/pcajxxw/index/xxwsy>

¹⁵Both judges and bankruptcy administrators are required by Chinese regulation to upload these documents in the platform.

¹⁶Overall, as of January 2020 the platform contained 3,180 entries. After we focus on cases filed or accepted in the period between January 2011 and December 2019 and with available court documents in the platform, we are left with 2,021 cases.

are the main dataset used in our empirical analysis. Around 50 percent of these cases (982) were still in progress as of January 2020, while the remaining 1,039 had reached a formal conclusion.¹⁷ In this section, we use this new data to document a set of stylized facts that shed light on the composition of cases and on the characteristics of firms going bankrupt in China. We also discuss the representativity of our sample and the potential selection issues we face.

We start in Table 1 by reporting the distribution of cases by type and firm characteristics. Notice that each case is uniquely identified by a firm, so in what follows we use the two terms interchangeably. Liquidations represent the vast majority (77 percent) of bankruptcy cases in our sample, while 16 percent of cases are reorganizations. The remaining 7 percent of cases in our sample are cases that change status over time. These include reorganizations where creditors fail to find an agreement and are therefore turned into liquidations, or liquidations in which the debtor manages to find new investors and then applies for a reorganization.¹⁸ In terms of firm size, 68 percent of the bankrupt firms in our sample are below 50 employees, 28 percent are bankruptcies of firms with between 50 and 500 employees, while the remaining 4 percent are firms with more than 500 employees. In terms of firm ownership, around 7 percent of the firms in our sample are registered as state-owned, while the remaining 93 percent are privately owned. Hsieh and Song (2015) show that the share of state-owned firms in the China’s Industrial Survey in the early 2010s is around 12 percent. The lower share of SOEs in our dataset might reflect the fact that SOEs are on average larger firms which tend to receive preferential treatment in credit markets. Finally, in terms of sector composition, almost half of the firms filing for bankruptcy in our sample operate in the manufacturing sector, followed by real estate, wholesale & retail trade, and construction.¹⁹

[Table 1 here]

¹⁷Among the cases that were still in progress as of January 2020, 263 had already reached the resolution stage, which corresponds to the approval of the reorganization plan or the liquidation plan by the court. Most reorganization cases are quickly closed right after approval of the reorganization plan. On the other hand, there can be a long delay between the approval of the liquidation plan and closure of the liquidation case, which only happens after assets are sold and proceeds used to repay legal fees and creditors.

¹⁸In a very limited number of cases, we observe the same firm going multiple times between reorganization and liquidation.

¹⁹For around 10 percent of firms the sector information is reported as "Other" in the original data.

Next, we report the time series of case characteristics. Figure 1 shows the number of cases in our dataset by year in which they were filed. As shown, the number of cases filed in our sample has been increasing significantly after 2012 and up to 2016, then stabilizing in more recent years.

In Figure 2 we then decompose the number of cases filed each year by different case characteristics (liquidations vs reorganizations) and firm characteristics (size, sector and ownership). While the composition of cases by type and sector is relatively stable over time, some clear trends emerge in the composition of cases by firm size and ownership. In particular, bankruptcies of small firms have become a larger fraction of cases over time, going from 60 percent in 2011 to 80 percent in 2019. On the other hand, the share of bankruptcies of state-owned firms – which tend to be large firms – has declined over time from more than 20 percent of cases in 2011 to roughly 5 percent in 2019.

[Figure 1 and 2 here]

Next, in Table 2, we report the share of cases initiated by debtors vs creditors for the 1,285 cases in our sample for which we could extract this information. As expected, liquidations are mostly initiated by creditors, while reorganizations are mostly initiated by the debtor firm. Among creditors, we can additionally differentiate between banks and non-bank creditors (usually suppliers). Banks initiated 7.5 percent of liquidations in our sample, with around half of the filings made by China’s Big Four banks (China Construction Bank, ICBC, Agricultural Bank of China, and Bank of China).

Our statistics on recovery rates are limited to a sample of 94 cases for which this information is available, so they should be taken as only suggestive evidence. Table 3 reports the average recovery rate for the four main categories of creditors: secured debts, labor claims, tax debts and ordinary unsecured debts. The categories are ordered by their absolute priority according to the 2007 Chinese bankruptcy law (i.e. categories higher in this order get paid first with the proceeds obtained from selling liquidated assets). As Table 3 shows, recovery rates are, on average, higher for creditors that rank higher in terms of absolute priority. Labor claims tend to be paid almost in full (95%), which is consistent with the special attention that Chinese courts often have for workers (Booth

(2008)). Secured creditors recover on average almost 90% of their claims, the tax authority around 80%, while the ordinary unsecured creditors, such as suppliers, receive on average only 13% of the value of their claims at the end of the bankruptcy process.

In Figure 3 we report the geographical distribution of the bankruptcy cases in our sample across Chinese provinces. The geographical distribution of cases is correlated with the geographical distribution of economic activity across provinces. This can be seen in Figure 4, which shows a strong and positive correlation between the average number of bankruptcy cases filed per year in our dataset (in logs) and the average number of industrial firms registered in each province per year according to the China Statistical Yearbooks (also in logs).

[Figures 3 and 4 here]

We complement the case-level dataset described above with information on judges' education. We extract this information from the China Masters Theses Full-text Database (CMFD) made available via the China Knowledge Resource Integrated Database (CNKI). This dataset contains information on master theses from all major schools in China since 1948, including author, school, title and full text of the thesis. We code a judge as having a master from an "elite" law school if we find a master thesis under its name at Project 985 universities or at one of the 5 top professional law schools in China.²⁰

Before moving to the empirical analysis, it is important to discuss how representative the data reported in the bankruptcy disclosure platform is of the population of bankruptcy cases filed in China during the period under study. This question is hard to answer given the limited information available on the population of bankruptcy cases. To the best of our knowledge, the only publicly available statistics that we can use as benchmark is the total number of bankruptcy cases accepted in Chinese courts every year, which is reported yearly by the Supreme Court (INSOL 2018). Figure 5 reports this number between 1989 and 2017. According to the Supreme Court data, between 2011 and 2017,

²⁰Top professional law schools include: CUPL, SWUPL, ZUEL, NWUPL, and ECUPL.

around twenty-five thousand bankruptcy cases were accepted in Chinese courts, against the approximately two thousand cases recorded in our sample.

[Table 5 around here]

There are two types of potential selection issues we face in using the data made available in the bankruptcy disclosure platform. First, we face selection based on duration in the early years of our sample. Since the bankruptcy disclosure platform was launched in 2016, cases filed between 2011 and 2015 are recorded in the platform only if they were still in progress as of 2016.²¹ This mechanically leaves out cases filed in early years of our sample and closed before 2016. In the empirical analysis we deal with this selection based on duration by including year of acceptance fixed effects in our specifications. This allows us to effectively compare cases that were filed in different courts but that started in the same year.²²

Second, despite Chinese regulation requires judges and bankruptcy administrators to upload information on all cases in the online platform, the gap between aggregate statistics reported by the Supreme Court and the bankruptcy online platform makes evident that not all cases are reported in the online platform. From our conversations with bankruptcy professionals, a large number of bankruptcy filings in China involve small firms with virtually no assets left at the time of filing. These cases tend to be closed shortly after filing with no payments to creditors. The bankruptcy professionals we interviewed for this paper confirmed that this type of cases are less likely to be reported by judges and bankruptcy administrators in the online platform, which instead tend to focus on larger cases where the insolvent firm has positive assets at filing. In this sense, our sample is likely skewed towards larger companies and companies characterized by higher asset tangibility, as these are more likely to preserve their asset value at the time of bankruptcy. This is consistent with the stylized facts presented in Table 1, which shows that around one third of cases in our sample are of firms with at least 50 employees, and more than 60

²¹In fact, out of the 980 cases that reached conclusion by the time we extracted the data, only 34 were closed before 2016 (all of them between 2013 and 2015).

²²Including year of acceptance fixed effects also helps us dealing with the right-censoring of the data, an issue that we discuss in more detail in section 4.

percent of cases are of firms operating in industries characterized by relatively high asset tangibility, such as the manufacturing, construction, real estate, and utilities.

Despite the selection issues described above, we think of this new dataset as a unique and extremely valuable source of information. First, because it allows to shed light on several aspects of bankruptcy proceedings in China, an area thus far unexplored by academic research due to the lack of data. Second, we think that the identification strategy presented in section 4.1 mitigates selection bias concerns.

3.1 Data on Specialized Courts

We obtained the exact dates of introduction and the location of all the 97 courts specialized in bankruptcy operating in China as of 2019 from the Ministry of Justice. Since the location and introduction dates of these courts is not reported in official documents, to validate the information that we received from the Ministry of Justice we conducted several rounds of interviews with Supreme Court judges, local court judges, trustees, lawyers, and accountants that were involved in major bankruptcy cases.

Figure 6 shows the number of prefecture-level cities that introduced their first specialized court by quarter. For each city, we use the earliest introduction date of a specialized court. As shown, all specialized courts were introduced between 2007 and 2017. Some cities introduced their first specialized courts right after the bankruptcy reform of 2007. In particular, 5 courts were introduced in 2007 and 2008. However, the majority of courts were introduced starting from May of 2012 and up to December of 2017. Figure 6 shows that the number of cities introducing their first specialized court increased substantially after the official guidelines on this matter that were issued by the Supreme Court in 2014, and then again in 2017. Our case level data on bankruptcy cases covers the years 2011 to 2019. Thus, the relevant variation in our empirical analysis comes from the specialized courts introduced between 2012 and 2017.

[Figure 6 here]

Figure 7 reports the number – and share – of bankruptcy cases in our dataset that were filed in traditional civil courts versus specialized courts by year. As shown, the share

of bankruptcy cases filed in specialized courts increased from around 5 percent of filed cases in the years 2011-2012 to approximately 40 percent of the cases at the end of our sample in 2019.

[Figure 7 here]

It is important to underline here that, even after the introduction of the first specialized court in a given prefecture-level city, not all bankruptcy cases in that city are processed by the newly introduced specialized courts. Figure 8 reports the average share of bankruptcy cases filed in specialized courts among all bankruptcy cases filed in a given city, relative to the quarter of introduction of the first specialized court in that city. The share of cases filed in specialized courts is zero in the quarters before the introduction of the first specialized court, and increases to an average of around fifty percent within a year after its introduction.²³ In short, our data shows that specialized courts were not able to absorb all bankruptcy cases filed in a given city. This is a characteristic of the Chinese system that we will exploit for identification purposes in the empirical analysis described in section 4. In section 4.1 we also discuss and explore in the data the drivers of the allocation of cases between traditional and specialized courts within the same city.

[Figure 8 here]

4 Empirical Analysis

4.1 Identification Strategy

In this section we present the main estimating equations used to study the effect of specialized courts on the outcomes of interest. We start by presenting the specification used to study the effect of specialized courts on judicial outcomes. Judicial outcomes include outcomes at the case level – such as time in court to close a bankruptcy case, or education of the judges assigned to the case – and at the court level – such as total

²³There are, on average, 2.5 courts dealing with bankruptcy cases in every prefecture level city in China. This number increases to 4.3 for cities that will eventually introduce a specialized court (as these cities tend to be larger).

number of bankruptcy cases filed in a given court. We start from the following equation at case-level:

$$y_{icjt} = \alpha_t + \alpha_c + \beta 1(SpecializedCourt)_{ct} + \varepsilon_{icjt} \quad (1)$$

where i indexes a case, c indexes the court in which the case was filed, j indexes the prefecture level city where the court is located and t indexes the year of acceptance of the case. The variable $1(SpecializedCourt)_{ct}$ is a dummy equal to one when the court in which the case is accepted has introduced a specialized tribunal for bankruptcy cases as of year t , and zero otherwise. This specification includes both court fixed effects and year of acceptance fixed effects. We can estimate court fixed effects because, as discussed in section 2.2, courts specialized in bankruptcy cases are not brand new courts, but existing civil courts that introduce a tribunal specialized in bankruptcy proceedings within the court itself.

A first concern with this specification is that the coefficient β might be capturing differences in the type of firms going bankrupt in cities where specialized courts are introduced versus those where they are not, rather than that the differential effect of court specialization on case outcomes. To deal with this concern, we augment our specification at case level by adding city fixed effects interacted with "year of acceptance" fixed effects (α_{jt}), as shown in what follows:

$$y_{icjt} = \alpha_{jt} + \alpha_c + \beta 1(SpecializedCourt)_{ct} + industryFE_i + sizeFE_i + \varepsilon_{icjt} \quad (2)$$

Notice that, in equation (2), the coefficient β captures differences in judicial outcomes between cases filed in different courts within the same city and in the same year. As shown in Figure 8, courts that introduce a tribunal specialized in bankruptcy cases do not absorb all bankruptcy cases filed in a city. In fact, in cities that introduced specialized courts, both traditional courts and specialized courts operate in parallel, each dealing with roughly 50 percent of the filed cases. This feature of the Chinese institutional

setting allows us to exploit variation across courts that are subject to the same city-level shocks.²⁴

Even within a given city and year, the allocation of cases across courts is not random. In particular, there could be selection in the type of cases handled by specialized versus non-specialized courts. To investigate the extent of this concern, we report a balance test comparing characteristics of cases handled by specialized courts vs traditional courts in the same city and year. The results are reported in Table 5. In this table we restrict our sample to cities with specialized courts and try to predict case allocation to specialized courts using a large set of firm and case characteristics including firm size, sector of operation, and case type (reorganization vs liquidation). These characteristics should account for potential differences in the type of company and the level of complexity of different cases. As shown, none of the observable characteristics reported in Table 5 significantly predict case allocation to specialized courts within a city and year. Still, in the empirical analysis we augment our specification with industry fixed effects and firm size category fixed effects and show that the magnitude of our estimates is stable when adding such controls.

Finally, let us briefly discuss the role of year of acceptance fixed effects in these specifications. Comparing cases that started in the same year is particularly important when studying the effect of specialized courts on case length. Since many cases in our dataset are still ongoing as of January 2020, and many specialized courts were introduced towards the end of our sample, one concern is that cases filed in specialized courts are more likely to be right censored. Controlling for year of acceptance fixed effects deals with this concern by exploiting variation across cases that enter our sample at the same time.

Equation (2) is our main estimating equation for case-level outcomes. For court level outcomes we use a similar specification in which the outcome variables – for example, number of cases filed – are at the court level. Similarly to equation (2), this specification exploits variation across courts – traditional vs specialized – that are subject to the same city-level shocks.

²⁴Notice that in equation (2) the year of acceptance fixed effects is absorbed by the city fixed effects interacted with year of acceptance fixed effects.

Next, we present a specification to study the effect of specialized courts on the local economy, intended as the economy of a prefecture-level city. When we focus on city-level outcomes, we can not rely on the same within-city variation described above. For this specification we therefore rely solely on the timing of the staggered introduction of courts specialized in bankruptcy across Chinese cities as a source of identification. Thus, our main specification is as follows:

$$y_{jt} = \alpha_j + \alpha_t + \beta 1(SpecializedCourt)_{jt} + \Gamma X_{jt} + \eta_{jt} \quad (3)$$

In this specification, $1(SpecializedCourt)_{jt}$ is a dummy equal to one in the period in which the first specialized court was introduced in a given city j , and for all the periods thereafter, and zero otherwise. Notice that this specification compares a city that introduced a specialized court with all other cities – including those that will never introduce a specialized court during the period under study.

The main concern with this specification is that the decision to introduce a specialized court in a given city – and the timing of introduction – are not random. In particular, the decision might be driven by local economic conditions that are also correlated with the outcomes of interest. For example, specialized courts might be introduced in cities that are experiencing negative economic shocks and therefore are in need of such courts in order to deal with an increasing number of insolvencies among local firms. Alternatively, specialized courts might be introduced first in cities where local politicians can “afford” to be stricter with financially distressed firms because the local economy is growing fast and can absorb eventual layoffs. This type of correlations with pre-existing and contemporaneous economic trends would bias our estimates of the effect of the introduction of specialized courts on local economic outcomes such as number of firms or capital productivity.

To explore the extent of this concern, in Table 4 we estimate a discrete time hazard model that studies whether differences in economic trends at city level predict the timing of introduction of specialized courts across cities. We measure city-level economic performance as the contemporaneous and lagged annual change in: Gross Regional Product (GRP) per capita, number of firms, average size of firms (in employees) and share

of manufacturing in local GDP. All changes in city-level observable characteristics are standardized so to have a mean of zero and a standard deviation of one. As shown, contemporaneous and lagged changes in measures of local economic performance do not predict the timing of court introduction.

Although Table 4 eases the concern that the timing of introduction of specialized courts is driven by the economic cycle, it cannot deal with potential unobservable city characteristics that vary over time and may drive both the introduction of specialized courts and the outcomes of interest. In the empirical analysis, we show that our results are robust to augmenting equation (3) with city-level controls studied in Table 4. To the extent that unobservable city-level characteristics are correlated with the observable characteristics reported in Table 4, adding these controls to our specification should ease this concern.

[Table 4 here]

In the last part of our analysis, we perform an event-study showing the evolution of city-level outcomes around the introduction of the first specialized court in a given city. Although this analysis is restricted – by construction – to cities that eventually introduced a specialized court, it serves the purpose of documenting the timing of the city-level effects and the absence of pre-existing trends in city-level outcomes.

4.2 Effect of Specialized Courts on Judicial Outcomes

In this section we study the effect of the introduction of specialized courts on judicial outcomes using case-level data. We start by presenting some basic stylized facts on case length in Table 6. The table reports the average, median and standard deviation of case duration measured from the day of acceptance to the closing date.²⁵ The closing date corresponds to the final approval of the reorganization plan in a reorganization, or the closure of the case after (usually partial) repayment of creditors in a liquidation. These statistics are computed based on the 1,039 cases that were closed as of January 2020.

²⁵There are 22 cases in our dataset for which the date of court acceptance is not available. For those cases we use the date of filing as a proxy for the acceptance date. The median gap between filing date and acceptance date in our data is 19 days.

The average time in court for bankruptcy case in our sample is 594 days, or around 1.6 years. According to the World Bank Doing Business database, the average duration of bankruptcy cases in the United States is around 1 year. There is large variation in the data, with some cases being dealt with in under a month, while others take several years (the case with longest duration in our sample is just under 8 years). On average, reorganizations take around 25 percent less time in court than liquidations, while cases transitioning from reorganization to liquidation (or vice versa) take on average more than 2 years. Average time in court is increasing with size of the debtor firm, with the only exception of very large firms (above 5000 employees) which instead seem to emerge from bankruptcy relatively quickly. Time in court is longer for manufacturing and construction firms, while shorter for firms in the service sector such as hotels, restaurants and retail firms. Bankruptcy cases of state owned firms and privately owned firms show similar average duration.

Table 6 also reports the average time in court for cases filed in traditional civil courts versus specialized courts. As shown, the average time in traditional civil courts is 695 days, against the 337 in specialized courts. Of course, this difference in duration could be driven by right-censoring in our data. Many specialized courts were introduced towards the end of our sample. Thus, when we compare closed cases across courts, the average duration in specialized courts is more likely to capture the selected sample of cases that could be closed relatively quickly. In the empirical analysis that follows we will always include year of acceptance fixed effects, which allow us to compare cases filed in different courts in the same year, thus removing any confounding effect from right-censoring.

Figure 9 reports the distribution of time in court for all cases in our sample (upper graph) and then separately between cases filed in traditional civil courts and cases filed in specialized courts (lower graph). The figure shows that the summary statistics reported in Table 6 are not driven by extreme observations.

[Table 6 and Figure 9 here]

After presenting summary statistics on the raw data, we study the effect of specialized courts on judicial outcomes using the specifications presented in section 4.1. We start by

focusing on the effect of the introduction of specialized courts on case duration. The results are reported in Table 7. In column (1) we estimate an equation that only includes year of acceptance fixed effects and a dummy capturing court specialization. As shown, cases in specialized courts are closed around 78 days faster than cases entering in non-specialized courts in the same year. This magnitude corresponds to 13 percent of the average case duration in our sample. Because specialized courts are effectively a tribunal specialized in bankruptcy cases that is added to an existing court, in column (2) we can add court fixed effects to our specification, which capture any time invariant characteristics of each court. This is the specification described by equation (1) in section 4.1. The coefficient on the post-specialized court dummy reported in column (2) indicates that, after adjusting for time invariant court characteristics and comparing cases started in the same year, we find that the introduction of specialized courts decreases case duration by 174.2 days, around 30% of the average duration observed in our sample.²⁶ In column (3) we show that this result is robust to including firm observable characteristics such as size and sector, which are meant to capture the level of complexity of the case.

Next, in columns (4) and (5), we turn to the specification described in equation (2). This specification includes city times year fixed effects, and thus allows us to compare cases entering in the same year in different courts that are exposed to the same city-level shocks. The coefficient on the post-specialized court dummy remains negative and significant, and it increases in absolute value. After additionally controlling for firm characteristics, the magnitude of the coefficient in column (5) indicates that cases dealt with by specialized courts are closed around 210 days faster than those dealt with by non-specialized courts in the same city and year. This corresponds to around 35% of the average case duration observed in our sample.

[Table 7 here]

Next, we study whether the effect of specialization on case duration documented in Table 7 is heterogeneous across types of cases – liquidations vs reorganizations – and for

²⁶Notice that the number of observations declines to 894, because many courts in our data only deal with one bankruptcy case during the period under study and therefore get dropped adding court fixed effects.

state-owned vs privately-owned firms. To this end, we estimate equations (1) and (2), augmented with an interaction of the post-specialized court dummy with a dummy capturing reorganizations in columns (1) and (2) and with a dummy capturing bankruptcies of state-owned firms in columns (3) and (4), as well as the relative main effects.

The results are reported in Table 8. Columns (1) and (2) show that the effect of introducing specialized courts on case duration is similar between liquidations and reorganizations. In particular, both types of cases experience a similar decline in duration following the introduction of specialized courts, of the magnitude described in our discussion of Table 7. On the other hand, the results reported in columns (3) and (4) indicate that the effect of specialized courts on case duration is significantly larger for bankruptcies of state-owned firms. In particular, our estimates indicate that bankruptcies of state-owned firms handled by specialized courts take 506 days less than those handled by traditional civil courts in the same city. For privately owned firms, the decline in case duration generated by specialized courts according to our estimates is of 198 days. This implies that the introduction of specialized courts cut the average case duration for bankruptcies of state-owned firms by 85 percent, while the decline for privately owned firms is 33 percent.

Overall, the results presented in Tables 7 and 8 indicate that specialized courts are significantly faster at resolving insolvency than traditional civil courts operating in the same city and facing the same city-level shocks, especially when it comes to state-owned firms. Quick resolution of SOE bankruptcies is consistent with specialized court judges being less responsive to the political pressure of local party officials. The latter often tend to delay the liquidation and keep in operation low-productivity and financially distressed state-owned firms in order to contain unemployment, avoid social unrest and promote their political careers.

[Table 8 here]

Next, we examine whether faster resolution of bankruptcies can be explained by the improved human capital of judges appointed by specialized courts. To this end, we study the effect of court specialization on judges' quality of education. The results are reported in Table 9. The unit of observation in this table is a case-judge. Our main outcome

variable to capture judge’s quality of education is a dummy equal to one if the judge has a master degree from an elite school, which include Project 985 universities and the 5 top professional law schools in China listed in section 3. We present results obtained estimating equation (1) in columns (1) and (2), and equation (2) in columns (3) and (4). All estimated coefficient on the post-specialized court dummy indicate that judges hired in specialized courts are significantly more likely to be trained in elite schools. This effect increases to almost 60 percent when we include city-times-year fixed effects and firm-level controls in our most demanding specification in column (4). We also explore potential heterogeneous effects in columns (5) to (8), though we find that judges with higher education are equally likely to be assigned to reorganizations or liquidations, and to bankruptcies of state-owned or privately owned firms. This suggests that, while specialized courts select better-educated judges on average, there seems to be no ex-ante significant differences in the educational background of the specialized judges handling SOE vs. non-SOE bankruptcies.

[Table 9 here]

Finally, we study the effect of the introduction of specialized courts on the number of bankruptcy filings by court. To this end, we create a balanced panel at court-year level and estimate equation (2) at court-level.²⁷ The results are reported in Table 10 and show two main findings. First, courts that became specialized experience a relatively larger increase in accepted bankruptcy cases relative to non-specialized courts. Notice that our estimating equation controls for city fixed effects interacted with year fixed effects, effectively comparing specialized to non-specialized courts subject to the same city-level shocks. This is important to mitigate the potential concern that specialized courts are introduced in cities that ”expect” an increase in bankruptcy cases. The magnitude of the estimated coefficient reported in column (1) indicates that the number of accepted cases increased 23 percent faster in specialized courts than in non-specialized courts. Second,

²⁷For years in which no bankruptcy cases are recorded for a given court in our sample, we assign a zero to the court-year observation. This explains the larger number of observations observed in Table 10 relative to Table 7.

we find that around two-thirds of the relative increase in accepted cases is driven by liquidations, the remaining one-third by reorganizations.

[Table 10 here]

4.3 The Effect of Specialized Courts on the Local Economy

In section 4.2 we showed that the introduction of courts specialized in bankruptcy had a positive effect on the efficiency of court enforcement and the average education of judges in charge of resolving insolvency. In addition, we documented that specialized courts are faster in dealing with bankruptcies of state-owned firms, which is consistent with higher judicial independence from local governments. In this section we study whether the introduction of specialized courts had an impact on the local economy, intended as the economy of the prefecture level city. A more efficient bankruptcy system can promote local development in several ways. First, by facilitating the liquidation of low-productivity firms and favoring a quicker reallocation of their real assets and labor to other firms in the economy. Second, faster bankruptcy resolution should increase the expected recovery rate of creditors, promoting lending to firms that operate under specialized courts.

In this section, we focus on three main real outcomes which are observable in our data: firm entry, average firm productivity, and the local labor share in industries with higher diffusion of "zombie" firms (or Z-industries). To study the effect of specialized courts on city-level outcomes we estimate equation (3) discussed in section 4.1. In all specifications we control for city and year fixed effects, as well as a large set of time-varying characteristics capturing city size and economic development.²⁸

We start in Table 11 by presenting the results on firm entry and productivity. The data to construct these outcomes is sourced from the China Statistical Yearbooks for the period 2011 to 2017, and cover all industrial firms – including private and publicly-traded firms – with annual sales above 20 million RMB operating in a given prefecture level city.²⁹ All regressions in this table are weighted by the number of firms observed

²⁸Controls include number of local firms, average number of employees in local firms, local GDP per capita, labor share in manufacturing.

²⁹One limitation of the analysis of real effects is that the period for which data from the Statistical

in a city in the baseline year 2011. Column (1) shows that cities that introduced courts specialized in bankruptcy experienced a faster increase in the entry of local industrial firms. The magnitude of the coefficient indicates that entry was 3 percent faster in these cities relative to those that did not introduce specialized courts. This correspond to 20 percent of a standard deviation in firm entry during the period under study.

In columns (2) and (3) we focus on two crude proxies for average firm productivity at city level: average product of capital as captured by the ratio of value added divided by value of tangible assets (in logs) and return on assets (ROA), defined as firm profits divided by value of total assets. Notice that our data reports the aggregate value of these two variables at city-level, so these outcomes should be interpreted as a weighted average of firm productivity. As shown, we find that cities that introduced courts specialized in bankruptcy experience a 4.5 percent larger increase in average product of capital of local firms relative to cities where insolvency is still resolved exclusively by civil courts. The magnitude of the coefficient correspond to 8 percent of a standard deviation in the outcome variable. Similarly, we find a large, positive and significant effect of specialized courts on average return on assets. The magnitude of the estimated coefficient in column (3) indicates that cities that introduced specialized courts experienced a 15.5 percent larger increase in average profitability of local firms, which corresponds to around 20 percent of a standard deviation in the outcome variable.

Next, in Table 12 we study the effect of specialized courts on the share of labor employed in "zombie" firms-intensive sectors. We define "zombie" firms following Caballero et al. (2008). More specifically, we define a firm as zombie if two conditions are met. First, the firm borrows at an interest rate that is 0.25 percentage points lower than the hypothetical minimum interest rate it should pay given its debt structure.³⁰ The second condition is that the firm's productivity – as captured by Total Factor Productivity (TFP) – is below the median in its sector. Notice that both conditions need to be met for a firm

Yearbooks is available ends in 2017, while the case level data used in section 4.2 covers the period 2011 to 2019.

³⁰To construct the hypothetical minimum we use the minimum benchmark rate for each maturity class set by the Central Bank of China (PBC) along with the amount of debt in each maturity class in the firm's balance sheet.

to be defined as zombie. We source the information necessary to define zombie firms from the China Stock Market and Accounting Research Database (CSMAR) dataset. Using this dataset – which only covers publicly-listed firms – we rank industries based on the diffusion of zombie firms, and define industries above the median of this measure as zombie-intensive industries, or Z-industries. Finally, we compute the city-level labor share in Z-industries using data from the China Statistical Yearbooks, which cover employment in both publicly listed and private firms.³¹

The results are reported in Table 12. All regressions in this table are weighted by the total number of workers observed in a city in the baseline year 2011. Column (1) shows that cities that introduced courts specialized in bankruptcy experienced a 1.7 percentage points larger decline in the share of local labor employed in Z-industries. This correspond to around 18 percent of a standard deviation in the outcome variable. In column (2) we exclude workers in agriculture when computing the labor share in Z-Industries, because employment in agriculture tends to be poorly measured in the China Statistical Yearbooks due to the high level of informality. In column (3) we restrict our attention to non-financial (and non-agricultural) sectors. As shown, the magnitude of the point estimates is very similar across columns, ranging between 1.5 and 1.7 percentage points, and highly significant. The evidence presented in Table 12 indicates that a more efficient and independent bankruptcy process favors a reallocation of labor from zombie-intensive industries to the rest of the local economy.

[Table 11 and 12 here]

Finally, we perform an event-study exercise to show the evolution of city-level outcomes around the introduction of the first specialized court in a given city. To this end, we use the following specification:

³¹Notice that the Statistical Yearbooks report information on employment across the 20 industrial groups of the Chinese Sector Classification GB/T 4754-2002. Publicly listed firms instead are classified based on the CSMAR industry classification system, which differentiates between 64 industries. We manually matched the two classifications and aggregated the data from CSMAR by the 20 industry groups used in the Statistical Yearbooks. Based on CSMAR data and the methodology to identify zombie firms outlined above, the industries with higher than median share of zombie firms among publicly listed companies are: finance, hotels and restaurants, construction, real estate, extractive industry, transportation, water management and utilities.

$$y_{jt} = \alpha_j + \alpha_t + \sum_{k=-2}^{+2} \beta_k D_{jt}^k + \varepsilon_{jt} \quad (4)$$

where D_{jt}^k is a dummy equal to 1 if year $t = k$ for city j , and captures the time relative to the year of introduction of the first specialized court in city j , which we set at $k = 0$. We include the 2 years prior to the introduction of the first specialized court and the 2 years after.³² The specification has calendar year and city fixed effects, denoted by α_t and α_j , respectively, as well as the same set of time-varying city-level controls used in Tables 11 and 12. Standard errors are clustered at the city level. Notice that, differently from Tables 11 and 12, this analysis is restricted – by construction – to cities that eventually introduced a specialized court.³³

The objective of this exercise is to exploit the different timing of introduction of specialized courts in different cities to document their impact on city-level outcomes in a dynamic specification. The estimated coefficients β_k for all the outcomes studied in Tables 11 and 12 are plotted in Figure 10. The results show that, within two years from the introduction of the first court specialized in bankruptcy, cities experienced a relative increase in firm entry and average capital productivity and profitability, and a relative decline in the share of labor employed in Z-industries. The estimates are noisy due to the small sample of cities introducing specialized courts used in this specification. However, they provide suggestive evidence of a change in the trend in the outcomes of interest after the introduction of the first specialized court. The effect is gradual for firm entry and average product of capital, which become statistically significant at standard levels two years after the introduction of the first specialized court. In the case of average firm profitability and the labor share in Z-industries the effect is visible starting one year after the introduction of the first court, potentially as a result of the swift liquidation of

³²We restrict our event study to this short window because many specialized courts are introduced towards the end of the period for which data is available.

³³This is because the time relative to the introduction of the first specialized court can only be identified for cities that introduced their first specialized court at some point within the period under study. Note that in this type of specification there is no "pure" control group – intended as cities that never introduced a specialized court – because all cities used in this event-study exercise are eventually treated within the period under study.

unprofitable state-owned firms by the new courts.³⁴

Overall, the results presented in Tables 11, 12 and Figure 10 are consistent with specialized courts fostering a faster liquidation of low-productivity state-owned firms, which had a positive effect on entry and the average productivity of surviving firms.

5 Concluding Remarks

In the last decade, China experienced a massive increase in corporate debt. Several factors have contributed to this debt boom: the stimulus policies of 2009-2010 – which fostered bank credit and promoted local government financing vehicles –, the development of a corporate bond market, the fast growth of shadow banking.³⁵ Academics and policy makers have raised concerns about the risks associated with the Chinese credit boom and the recent increase in insolvency.³⁶ In addition, the Chinese central government expressed concerns about the large number of “zombie” firms – low-productivity and often state-owned companies kept in business by preferential credit lines – and recognized the lack of efficient bankruptcy procedures that could facilitate their liquidation or restructuring. Despite the increasing pressure on the Chinese insolvency resolution system, little is still known about how bankruptcy works in China.

This paper starts to close this gap in the literature by providing micro-based evidence on bankruptcy resolution in China. First, it provides new stylized facts based on case-level data on how firms go bankrupt in China. Second, it exploits the staggered introduction of specialized bankruptcy courts and their co-existence with traditional civil courts in many cities – to study their effect on judicial outcomes and the local economy. We find that specialized courts select better trained judges which made insolvency resolution faster. The effects are particularly strong for bankruptcies of state-owned firms, whose average

³⁴The different samples of cities used in Table 11 and Figure 10 explain why the magnitude of the estimated coefficients reported in Table 11 does not correspond to the magnitudes that can be inferred from the estimated coefficients plotted in Figure 10.

³⁵See, among others: Chong-en et al. (2016), Cong et al. (2019), Hachem and Song (2016), Chen et al. (2020).

³⁶The corporate bond market experienced the first defaults by a privately owned firm in 2014, and by a state-owned firm in 2015, followed by many others (Jin, Wang, and Zhang 2018). Local government financing vehicles started to default on their loans (Gao, Ru, and Tang 2017).

duration was cut by 506 days (85%) with the introduction of specialized courts. At city-level, we find that the introduction of specialized courts generated faster entry, an increase in average capital productivity of surviving firms and a decline in the labor share in industries characterized by higher presence of zombie firms. Our findings indicate that the introduction of specialized courts made insolvency resolution in China more efficient, professionally managed, and less influenced by local governments.

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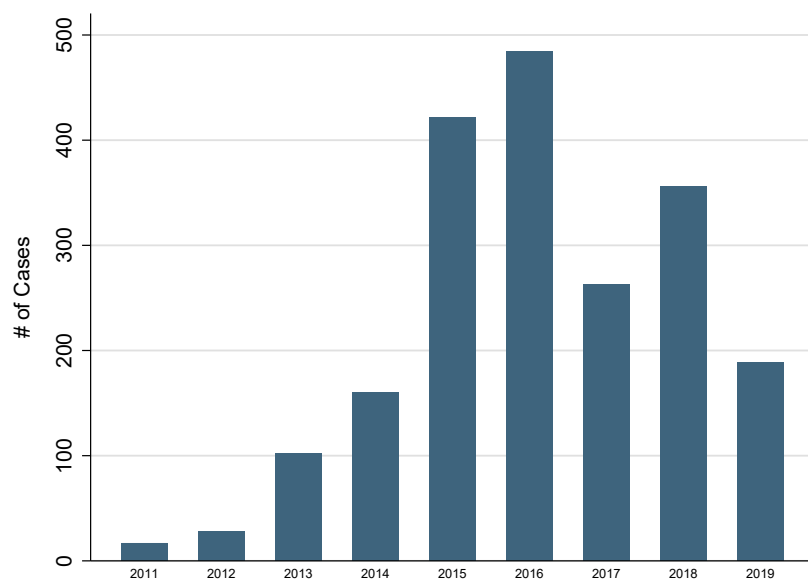
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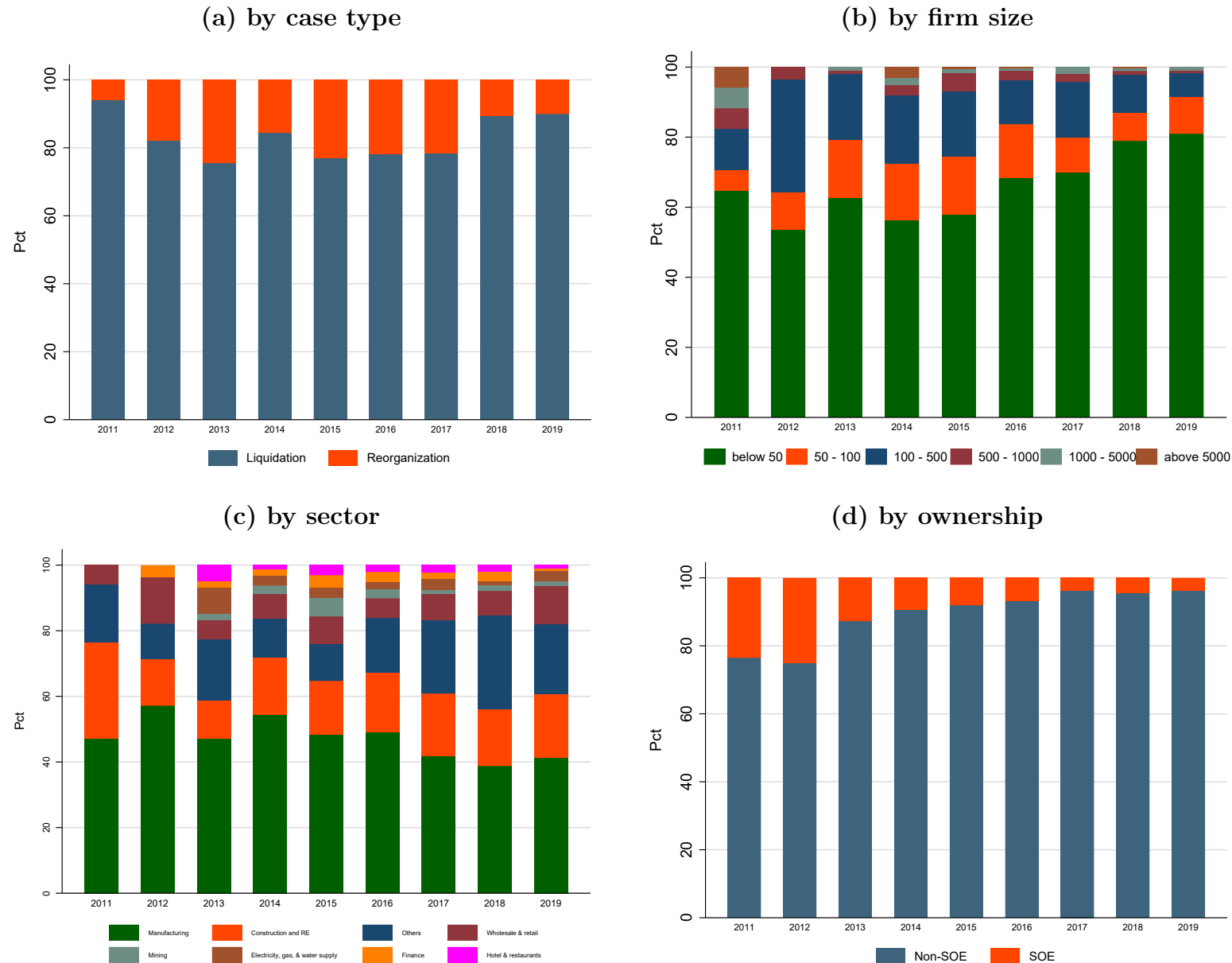
Figures and Tables

Figure 1: Number of bankruptcy cases (2011-2019)



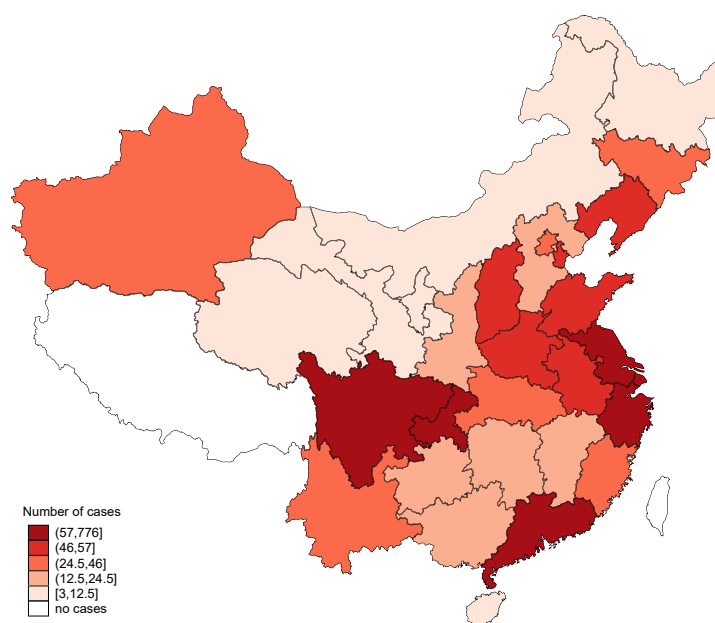
Notes: Number of bankruptcy cases by year of acceptance, 2011 to 2019. Source: authors' calculations using data from the "National Corporate Bankruptcy Information Disclosure Platform".

Figure 2: Number of bankruptcy cases by year and case or firm characteristics (2011-2019)



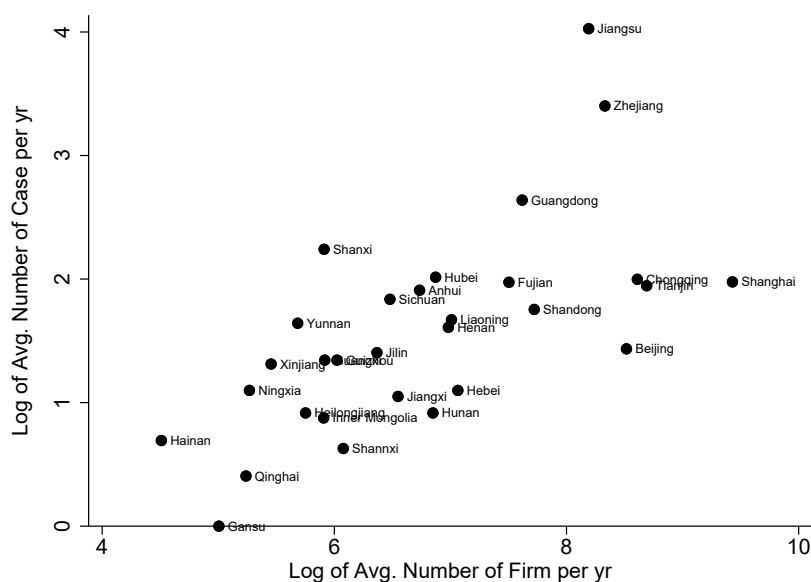
Notes: Number of bankruptcy cases by year of acceptance, 2011 to 2019. Source: authors' calculations using data from the "National Corporate Bankruptcy Information Disclosure Platform". In panel (a), cases switching between types are classified based on their initial filing.

Figure 3: Geographical distribution of bankruptcy cases



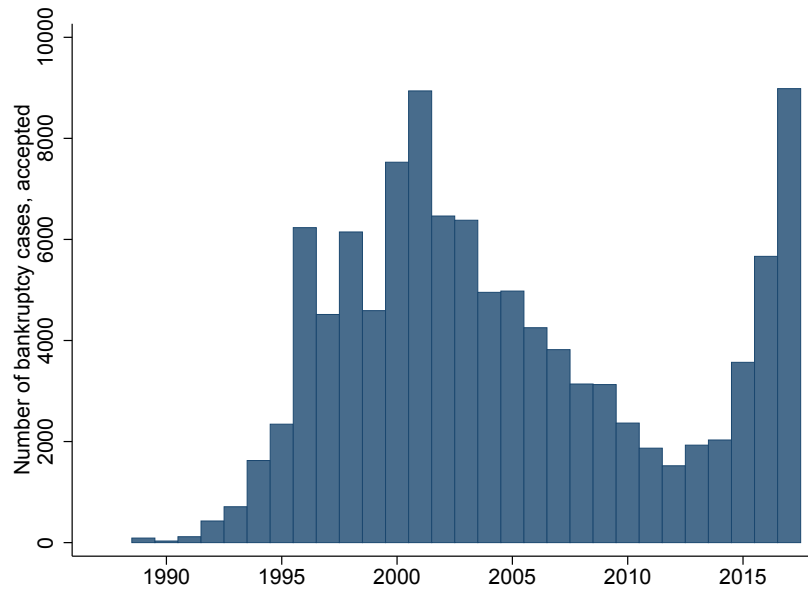
Notes: The Figure shows the total number of bankruptcy cases filed in each Chinese province between 2011 and 2019. Source: authors' calculations using data from the "National Corporate Bankruptcy Information Disclosure Platform".

Figure 4: Bankruptcy cases and number of firms, by province



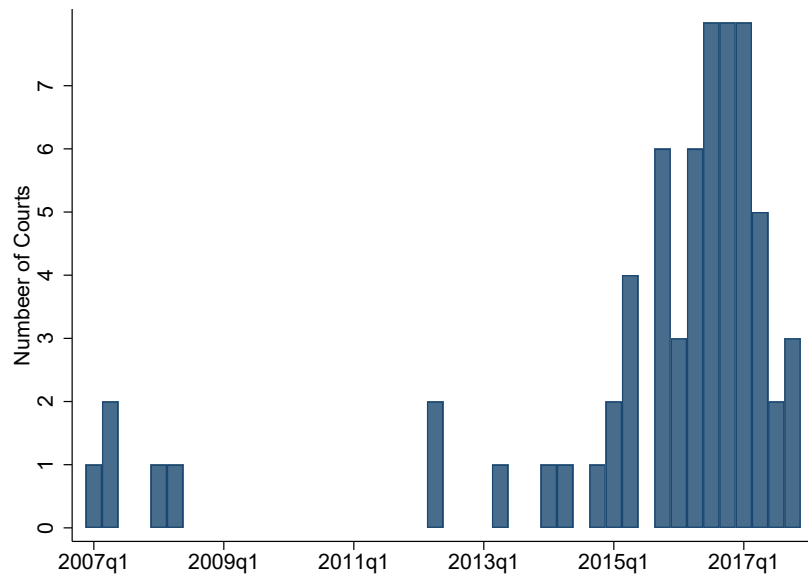
Notes: The Figure shows in a scatterplot the correlation between the average number of firms and the average number of bankruptcy cases observed in each province. Source: China Statistical Yearbooks (number of firms) and the "National Corporate Bankruptcy Information Disclosure Platform" (number of bankruptcies).

Figure 5: Number of bankruptcy cases in China



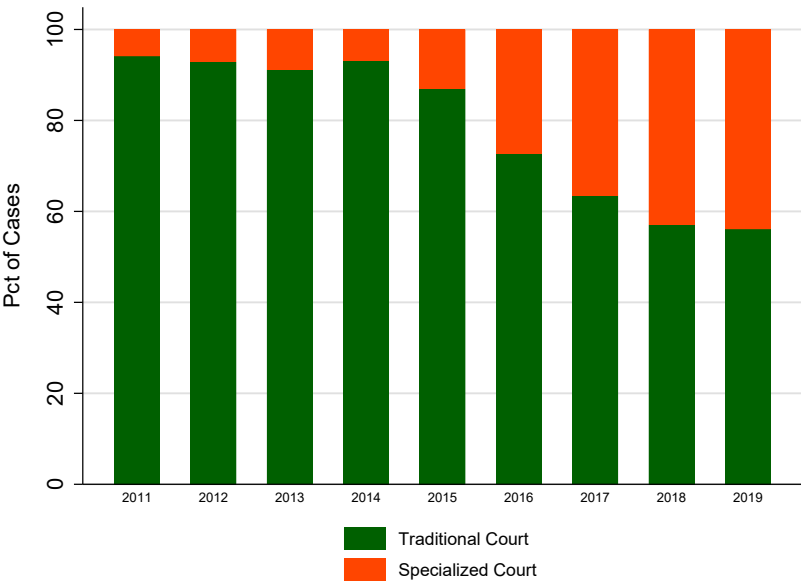
Notes: The Figure shows the total number of bankruptcy cases accepted in Chinese courts between 1989 and 2017 according to the aggregate statistics of the China Supreme Court (INSOL 2018).

Figure 6: Introduction of specialized courts over time



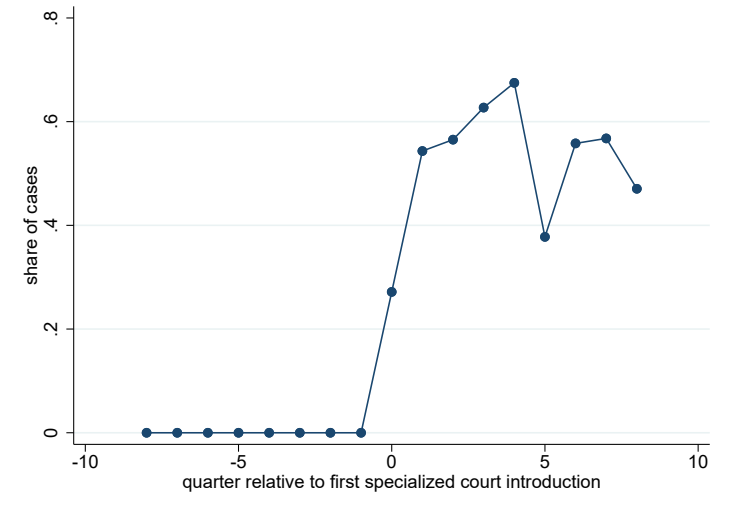
Notes: The Figure shows the number of new courts specialized in bankruptcy introduced in each quarter between 2007Q1 and 2017Q4. We only count the first specialized court introduced in each city (for cities that introduced more than one).

Figure 7: Cases in traditional vs specialized courts (2011-2019)



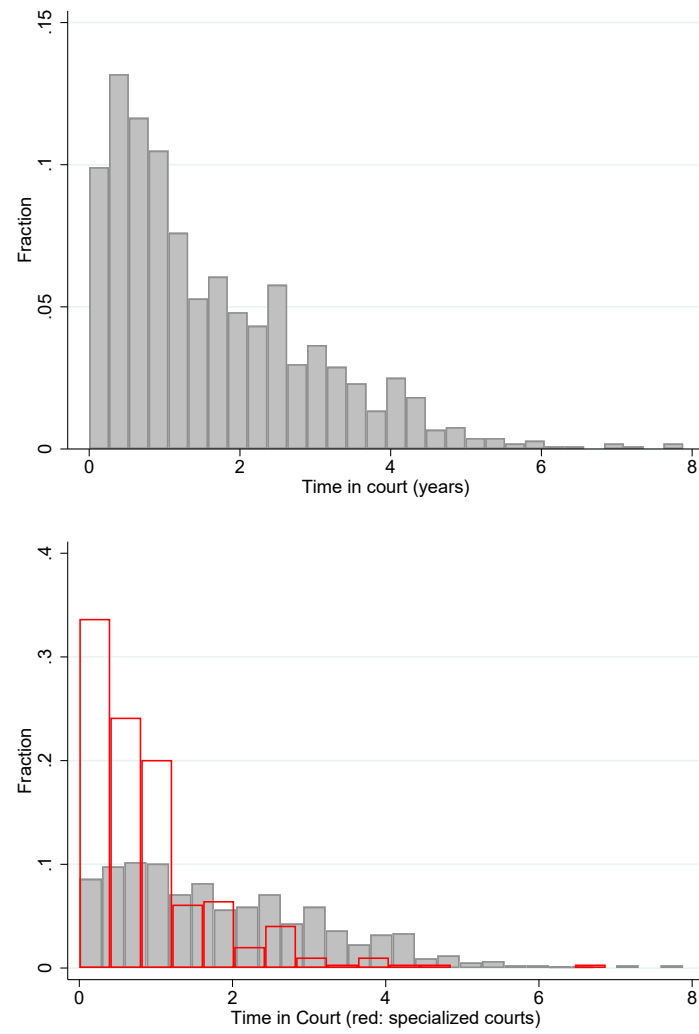
Notes: The Figure shows the percentage of total bankruptcy cases entering in traditional civil courts vs specialized courts by year between 2011 and 2019.

Figure 8: Allocation of cases around introduction of specialized courts



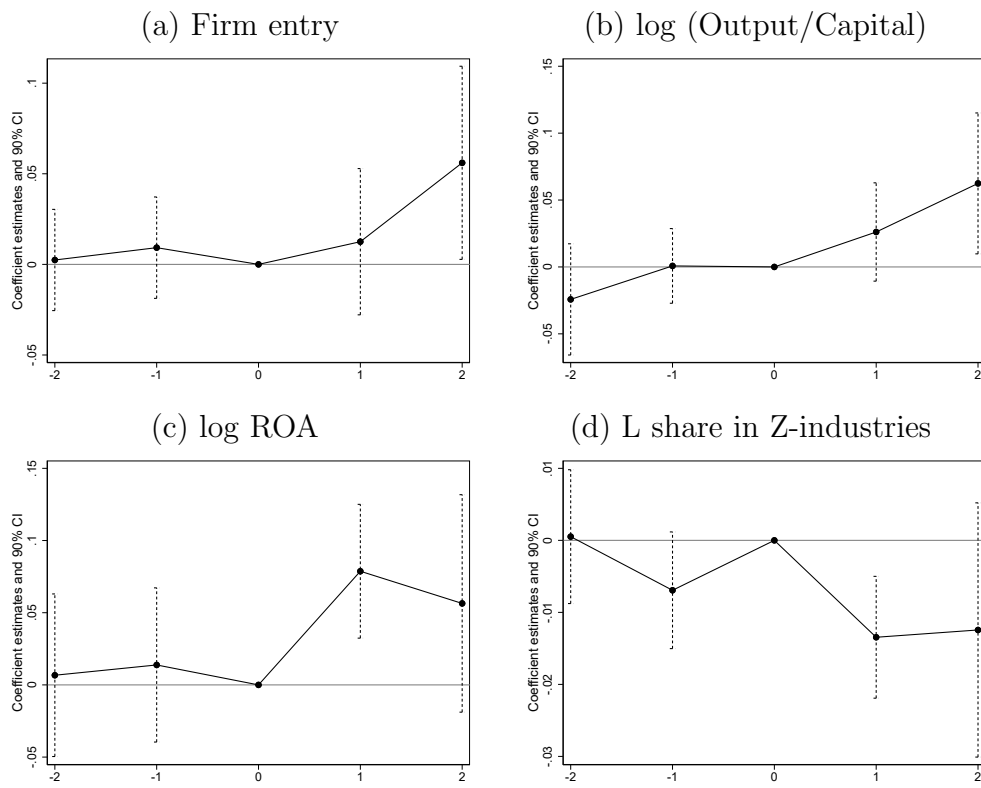
Notes: The Figure shows that average share of cases allocated to specialized courts in each city, by quarter relative to the introduction of the first specialized court in that city (which we set as $t = 0$).

Figure 9: Distribution of Time in Court



Notes: The Figure shows the distribution of the variable "time in court", which captures the duration of each case in years. Panel (a) pools all closed cases in our sample. Panel (b) differentiates between cases initiated in traditional civil courts vs specialized courts.

Figure 10: Average Firm Productivity Relative to Court Introduction - Event Study



Notes: This figure reports the point estimates and confident intervals obtained estimating equation (4). The sample is restricted to cities that introduced specialized courts at some point between 2011 and 2017.

Table 1: Total number of cases by case type and firm characteristics

	Num of Cases	Percent
Case Type		
Liquidation	1550	76.69
Reorganization	323	15.98
Both	148	7.32
Firm Type		
Number of Employees:		
Below 50	1374	67.99
50 - 100	265	13.11
100 - 500	294	14.55
500 - 1000	54	2.67
1000 - 5000	23	1.14
Above 5000	11	0.54
Ownership:		
Non-SOE	1882	93.12
SOE	139	6.88
Sector:		
Mining	56	2.77
Manufacturing	927	45.87
Electricity, gas, & water supply	56	2.77
Construction	100	4.95
Wholesale & retail	156	7.72
Hotel & restaurants	45	2.23
Finance	53	2.62
Real Estate	255	12.62
Small sectors(<2%)	165	8.16
Others	208	10.29
Total number of cases: 2,021		

Notes: Source: authors' calculations using data from the "National Corporate Bankruptcy Information Disclosure Platform". Two cases have missing employment information in the raw data.

Table 2: Applicants by case type

(1)		
Applicant	Percent(%)	# of cases
Liquidation		
Creditor		
Non-Bank	63.53	627
Bank	7.50	74
Debtor	28.98	286
Total		987
Reorganization		
Creditor		
Non-Bank	34.21	65
Bank	6.32	12
Debtor	59.47	113
Total		190
Both		
Creditor		
Non-Bank	38.89	42
Bank	5.56	6
Debtor	55.56	60
Total		108

Notes: Source: authors' calculations using data from the "National Corporate Bankruptcy Information Disclosure Platform".

Table 3: Recovery Rates

Creditors:	Average Recovery Rate	# of cases
Secured creditors	88.9%	94
Labor claims	94.7%	94
Tax authority claims	82.0%	94
Ordinary unsecured creditors	13.3%	94

Notes: Source: authors' calculations using data from the "National Corporate Bankruptcy Information Disclosure Platform".

Table 4: Introduction of Specialized Courts and City-level Characteristics

City-level characteristics:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta \log (\text{GRP per capita})_t$	-0.014 (0.098)							
$\Delta \log (\text{GRP per capita})_{t-1}$		-0.112 (0.110)						
$\Delta \log (\text{N Firms})_t$			-0.165 (0.119)					
$\Delta \log (\text{N Firms})_{t-1}$				0.005 (0.153)				
$\Delta \log (\text{Average Firm Size})_t$					0.096 (0.184)			
$\Delta \log (\text{Average Firm Size})_{t-1}$						-0.112 (0.153)		
$\Delta (\text{Manuf GDP share})_t$							-0.088 (0.094)	
$\Delta (\text{Manuf GDP share})_{t-1}$								-0.039 (0.099)
Observations	1,889	1,887	1,897	1,884	1,896	1,850	1,891	1,889

Notes: Cox model with time-varying observable city characteristics. Significance level: *** p<0.01, ** p<0.05, * p<0.1

Table 5: Case allocation Across Specialized vs Traditional Courts

Case and firm characteristics	(1) 1(Case Filed in Specialized Court)
Case type: 1(Reorganization)	0.00112 (0.0341)
Firm size dummies:	
50-99,	0.117 (0.118)
100-499	-0.0365 (0.0390)
500-999	0.0541 (0.0754)
1000-4999	0.240 (0.201)
Above 5000	-0.0136 (0.0321)
Firm sector dummies:	
Mining	-0.0494 (0.0772)
Manufacturing	0.0269 (0.0362)
Electricity, gas, & water supply	-0.0804 (0.0846)
Construction	-0.0718 (0.0573)
Wholesale & retail	0.0334 (0.0493)
Transport & storage	-0.0204 (0.0967)
Hotels & restaurants	-0.0472 (0.0764)
Information technology	-0.0155 (0.0826)
Finance	-0.0669 (0.0676)
Real Estate	0.00554 (0.0467)
Business services	0.121 (0.190)
Research & technical services	0.0220 (0.0825)
Public facilities management	0.137 (0.136)
Education	0.209 (0.375)
Culture, sport and entertainment	0.0539 (0.113)
Sector code not reported	-0.0182 (0.110)
Observations	1,336
R-squared	0.467

Notes: The outcome variable is a dummy equal to 1 if the case was filed in a specialized court. The sample is restricted to cities that have both specialized and traditional courts. Regression includes year and city fixed effects. Heteroskedasticity-consistent (Huber-White) standard errors reported in brackets. 47 Significance level: *** p<0.01, ** p<0.05, * p<0.1

Table 6: Time in Court by Case, Firm and Court Characteristics

	Mean	Median	Std Dev	1%	99%	# of non-missing ob
Time Interval	594.3	440	491	10	2071	1039
By Case Type						
Liquidation	599.6	429	512	9	2115	771
Reorganization	445.0	363	291	10	1322	152
Both	754.5	675	503	128	2357	116
By Firm Size (number of employees)						
Below 50	518.6	362	472	10	1990	698
50 - 100	750.0	699	458	29	1793	142
100 - 500	766.9	626	508	10	2511	160
500 - 1000	886.8	866	625	3	2194	17
1000 - 5000	634.3	458	521	174	2149	15
Above 5000	246.7	303	142	71	460	7
By Firm Sector						
Mining	611.0	486	469	82	1840	19
Manufacturing	631.6	505	498	30	1990	540
Electricity, gas, & water supply	590.9	396	530	69	2357	34
Construction	630.5	437	514	1	2149	44
Wholesale & retail	434.2	342	382	9	1548	84
Hotel & restaurants	450.6	234	442	49	1553	16
Finance	493.3	338	429	77	1575	22
Real Estate	624.3	458	486	13	2880	89
Small sectors(<2%)	669.4	487	558	4	2511	77
Others	485.6	363	457	21	2071	114
By Court						
Traditional	695.6	596	510	29	2149	745
Specialized	337.7	249	320	4	1548	294
By Ownership						
POE	594.3	443	490	17	2071	973
SOE	594.9	369	519	3	2149	66

Notes: Time in court captures the time from case acceptance by the court to case closing (in days). Sample restricted to cases that were closed as of December 2019. Source: authors' calculations using data from the "National Corporate Bankruptcy Information Disclosure Platform".

Table 7: Time in Court for Bankruptcy Cases

outcome:	Case duration (in days)				
	(1)	(2)	(3)	(4)	(5)
1(Specialized Court)	-78.25*** (21.08)	-174.2*** (53.49)	-161.8*** (54.66)	-219.2*** (66.37)	-210.7*** (67.94)
Observations	1,039	894	887	810	802
R-squared	0.512	0.719	0.728	0.730	0.734
Year Accept FE	y	y	y	n	n
Court FE	n	y	y	y	y
Sector FE	n	n	y	n	y
Firm size FE	n	n	y	n	y
City FE $\times$ Year Accept FE	n	n	n	y	y

Notes: The unit of observation is a case. The time period is 2011 to 2019. Heteroskedasticity-consistent (Huber-White) standard errors reported in brackets. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 8: Time in Court for Bankruptcy Cases: Heterogeneous Effects by Case Type and Firm Ownership

outcome:	Case duration (in days)			
	(1)	(2)	(3)	(4)
1(Specialized Court)	-166.4*** (55.01)	-213.2*** (68.68)	-147.0*** (54.61)	-197.6*** (67.57)
1(Specialized Court) $\times$ 1(Reorganization)	120.0 (106.8)	109.8 (140.9)		
1(Reorganization)	-90.33 (65.21)	-59.14 (71.79)		
1(Specialized Court) $\times$ 1(SOE)			-282.0** (110.2)	-308.2* (162.6)
1(SOE)			59.14 (88.62)	55.07 (141.3)
Observations	887	802	887	802
R-squared	0.729	0.735	0.730	0.736
Year Accept FE	y	n	y	n
Court FE	y	y	y	y
Sector FE	y	y	y	y
Firm size FE	y	y	y	y
City FE $\times$ Year Accept FE	n	y	n	y

Notes: The unit of observation is a case. The time period is 2011 to 2019. Heteroskedasticity-consistent (Huber-White) standard errors reported in brackets. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 9: Judge Education

outcome:	1(Elite Law School)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1(Specialized Court)	0.310*** (0.0328)	0.308*** (0.0326)	0.592*** (0.0465)	0.590*** (0.0478)	0.584*** (0.0474)	0.582*** (0.0486)	0.591*** (0.0466)	0.589*** (0.0480)
1(Specialized Court) $\times$ 1(Reorganization)					0.0877 (0.0977)	0.0652 (0.108)		
1(Reorganization)					-0.115** (0.0521)	-0.143*** (0.0528)		
1(Specialized Court) $\times$ 1(SOE)							0.0643 (0.0927)	0.0679 (0.0961)
1(SOE)							-0.0103 (0.0735)	-0.0265 (0.0730)
Observations	1,255	1,249	1,127	1,122	1,127	1,122	1,127	1,122
R-squared	0.176	0.206	0.530	0.537	0.533	0.542	0.530	0.537
Year Accept FE	y	y	y	y	y	y	y	y
Sector FE	n	y	n	y	n	y	n	y
Firm size FE	n	y	n	y	n	y	n	y
City FE	n	n	y	y	y	y	y	y
City FE $\times$ Year Accept FE	n	n	y	y	y	y	y	y

Notes: The unit of observation is a judge-case. The time period is 2011 to 2019. Heteroskedasticity-consistent (Huber-White) standard errors reported in brackets. Significance level: *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Number of Cases at Court Level

outcome:	log (1 + number of cases)		
	all cases (1)	liquidations (2)	reorganizations (3)
1(Specialized Court)	0.229*** (0.0660)	0.183*** (0.0600)	0.0665* (0.0374)
Observations	3,285	3,285	3,285
R-squared	0.598	0.619	0.381
Court FE	y	y	y
City FE $\times$ Year Accept FE	y	y	y

Notes: The unit of observation is a court. The time period is 2011 to 2019. Heteroskedasticity-consistent (Huber-White) standard errors reported in brackets. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 11: Real Effects: Firm Entry, Average Capital Productivity, and ROA

outcome:	Firm Entry (1)	log(Output/Capital) (2)	log(ROA) (3)
1(Specialized Court)	0.0310** (0.0137)	0.0449** (0.0181)	0.155*** (0.0357)
Observations	1,989	1,989	1,915
R-squared	0.691	0.892	0.771
Year FE	y	y	y
City FE	y	y	y
City-level controls	y	y	y

Notes: The unit of observation is a city. The time period is 2011 to 2017. Observations weighted by number of firms operating in each city in the baseline year 2011. Standard errors clustered at the city-level reported in brackets. Significance level: *** p<0.01, ** p<0.05, * p<0.1

Table 12: Labor Share in Zombie-intensive industries

	(1)	(2)	(3)
sectors:	L share Z-Industries all	L share Z-Industries ex: agriculture	L share Z-Industries ex: agriculture, finance
1(After Special Court)	-0.0174*** (0.00476)	-0.0150*** (0.00458)	-0.0168*** (0.00516)
Observations	1,941	1,933	1,932
R-squared	0.906	0.904	0.907
Year FE	y	y	y
City FE	y	y	y
City-level controls	y	y	y

Notes: The unit of observation is a city. The time period is 2011 to 2017. Observations weighted by number of workers in each city in the baseline year 2011. Standard errors clustered at the city-level reported in brackets. Significance level: *** p<0.01, ** p<0.05, * p<0.1