Corporate Reputation in Debt Market: Evidence from Lawsuits

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Abstract

How much does firm reputation matter in the public debt market? Using lawsuits that shock firms' reputation, we find corporate bond prices react to lawsuit information, and litigated firms issue bonds with 4.9 percent higher yield spreads, 11 month shorter maturities, and $14.7 million less proceeds than non-litigated issuers. The reputation penalty correlates with case merit and outcome, and is larger for private-owned firms, firms headquartered in low-legal protection but high-social capital regions. Taken together, our evidence shows reputation matters as much in emerging markets as in the U.S., and how institutional environment interacts with reputation mechanism in the market.

Key words: Reputation, Social Capital, Litigation, Public Debt, Bond Return
JEL Code: G12, G14, L14

1. Introduction

The Oxford Handbook defines Corporate Reputation (CR) as "*collective assessment of a company's attractiveness to a specific group of stakeholders relative to a reference group of companies with which the company competes for resources*" (Barnett and Pollock, 2012). Corporate reputation helps firms attract investors, employees, consumers, and facilitate transactions (Fombrun, 2012). Though one can plausibly argue that reputation should matter as much in emerging markets as they do in the U.S., empirical evidence is scarce. Moreover, both theoretical and empirical literature are unclear as to how the institutional environment under which firms operate interacts with reputation mechanism in the market. For example, arguments run both ways on whether legal institution and social capital serve as substitutes or complements to reputation. This paper fills these voids from the perspective of public debt holders by bringing forward novel evidence from China.

Prior literature focuses on the advantages of private bank loans over public debt[1]. A few studies find corporate reputation matters primarily for private debt. For example, Graham, Li and Qiu (2008) find borrowers pay significantly higher bank loan spreads after financial misreporting. Chava, Huang and Johnson (2017) further show this damage is enduring and costly to restore. However, to the extent that firms issuing public debts can be qualitatively different from those choosing bank loans[2], it is unclear whether findings on private debt can apply to public debts. In this paper, we ask whether public debtholders are responsive to firms' reputational damage. One data advantage of public over private

[1] This study, for example, highlights banks' superior ability over public debtholders to produce information at low cost, to keep proprietary information confidential, and flexibility in renegotiations (Rajan 1992; Dahiya et al. 2003; Roberts and Sufi, 2009; Denis and Wang, 2014).

[2] For a survey on the theories and empirical findings on firms' choice between public and private debt, see Kale and Meneghetti (2011).

debt is that the former possesses not only multidimensional contractual features, but also trading prices on the exchanges. The reactions of bondholders can be better observed directly through these properties.

To investigate the impact of reputation on public debt, we follow the classical economic approach (Klein and Leffler, 1981) by observing how bondholders alter the way they transact with the firm following a reputational damage[3]. Specifically, using lawsuits as events that revise bondholders' belief on corporate reputation, we study how bond market price reacts to lawsuit news, and how issuer's bond terms change after material lawsuits. Lawsuits, such as those with investors, creditors, customers, suppliers, business partners or competitors are un-anticipated events that shock firms' reputation. They reveal firms' agency risk, break up relationships, and divert managers' attention, causing bondholder's revised belief about firm's business risk. To compensate these risks (Stiglitz and Weiss 1981; Diamond 1991) we expect bondholders to react to reputational damages through bond prices and subsequent bond terms.

Our sample comprises the corpus of material lawsuits of public firms listed in China from 1998 to 2013, pursuant to mandatory disclosure requirement of stock exchanges. We merge the lawsuit sample with data on the issuance and daily prices of all the corporate bonds regulated by the China Securities Regulatory Commission (CSRC) from 2007 to 2015. Though Chinese corporate bond market is relatively new, its growth has been significantly high and reaching 6.1% in 2014, ranked highest in the world. To our best knowledge, this is the first study on the impact of generalized corporate litigation on public

[3] Following the seminal study of Karpoff and Lott (1993), a growing work in economics and finance finds corporate misconduct leads to significant reputational penalties (Karpoff, Lee and Vendrzyk, 1999; Palmrose, Richardson, and Scholz, 2004; Hribar and Jenkins, 2004; Karpoff, Lee, and Martin, 2008; Graham, Li, and Qiu, 2008; Murphy, Shrieves, and Tibbs, 2009; Deng, Willis and Xu 2014; Chava, Huang and Johnson, 2017).

debt.

Consistent with a reputation penalty hypothesis, we first document large and significant negative price reaction following lawsuit disclosures. The abnormal return by treated over control bonds is -44 basis points on the lawsuit announcement date and -33 basis points over the three-day window (-1,+1). We also find excess trading volume of around US$900,000 for treated over control bonds around the announcement date (-1,+1). This shows public debt investors are sensitive to lawsuit information and that litigation reduces the market value of the debt.

Next, we investigate a subsample of firms that issue public debt both before and after the lawsuits. On average, the *same* firms pay yield spreads that are 8.7 percent higher for the bond issued after than that issued before a lawsuit. We then extend this test to compare an array of bond properties of litigated issuers and propensity-score-matched non-litigated issuers. All else being equal, investment-grade bonds of litigated issuers have, on average, a 4.9 percent higher yield spread, 11-month shorter maturity, and $14.7 million less issuance volume than those of non-litigated issuers.

Three heterogeneity tests suggest the positive correlation between lawsuit and bond pricing reflects deliberate choice of bondholders. First, within litigated issuers we find the yield spread is higher for the defendant than the plaintiff, and higher for losers than winners. This indicates the magnitude of reputation penalty correlates with the probability of wrongdoing. The second test investigates a specific case type: private bank loan defaults. Compared with other case categories, we find that being sued by a bank incurs the largest reputation penalty in the bond market. All else being equal, bank-loan related litigation causes issuers to pay a 22.4 percent higher spread in subsequent bond issuance. This shows

public debt investors weight firms' default history in private debt particularly high in their pricing of public debt. The third test compares the reputation penalty of firms with and without political connection. We find the effect is significant for private owned firms but not state-owned enterprises (SOEs). Furthermore, there is also evidence that *level* of political connection matters: SOEs controlled by the central government suffer less reputation penalty than those owned by local governments. This result suggests political connection mitigates the reputation mechanism in the market.

An important objective of this paper is to study how the legal and social capital environment in the issuer's *home* province affect the reputation mechanism that we document. Prior work shows both a country's legal environment (Djankov et al., 2008; Bae and Goyal, 2009; Qian and Strahan, 2007), and social capital (Guiso, Sapienza and Zingales, 2004, 2006, 2008) are important antecedents for market development. However, it is unclear whether they serve as complements or substitutes to the reputation mechanism in the market. To investigate this, our strategy is to compare the reputation penalties of litigated issuers in provinces with heterogeneous legal and social capital development.

Using data on provincial legal indexes and social capital survey, we find the reputation penalty is larger when the issuer headquarters in high social-capital provinces, but lower when the issuer headquarters in provinces with stronger legal institutions. This evidence suggests that social capital "complements", and legal environment "substitutes" the reputation mechanism in market activities. This is consistent with stronger legal environment weakens firms' reliance on private ordering such as reputation mechanism to compete for resources, whilst high social capital enhances the value of dense social network as a resource for action.

For robustness check, we first reject an alternative hypothesis that our results merely reflect litigation-induced insolvency risk: evidence is that most litigated firms are distant to financial distress even after our control for litigation-related contingent liabilities. Second, our result remains robust to the subsample analysis of each category of bond rating. Third, to tackle the potential selection and omitted variable bias, we employ both switching model regression analysis and instrumental variables. To instrument the probability of lawsuits we investigate the law office density in the issuer's home province, as well as the social capital stock in the issuer's home province measured by national social capital surveys and the region's rice-growing history. The former is positively and the latter is negatively correlated with court use in the community. The two-stage least-squares results support our baseline hypotheses.

This paper first relates to the studies on lawsuits in financial markets, *beyond equities*. Prior work studies the wealth impact of (generalized or specialized) lawsuits in the U.S. market (Karpoff and Lott, 1993; Bhagat, Brickley and Coles, 1994; Bhagat, Bizjak and Coles, 1998; Griffin, Grundfest and Perino, 2004; Karpoff, Lott and Wehrly, 2005; Raghu et al., 2008; Haslem, Hutton and Smith, 2017), yet their focus is exclusively on stockholders. A few studies on bondholders unanimously focus on securities lawsuits. For example, Billings, Klein and Zur (2011) find negative bond return and excess trading volume around the securities class action filing date. To our best knowledge, ours is the first large sample estimates of the reputation impact of lawsuits on corporate bond market.

This paper also contributes to the corporate reputation literature (e.g. Karpoff and Lott, 1993; Karpoff, Lee and Martin, 2008), but our focus on the bondholders is novel. Prior work shows negative events that taint corporate reputation lead to tightened debt terms.

Graham, Li and Qiu (2008) find that borrowers pay significantly higher loan spreads after restatement. Deng, Willis and Xu (2014) find a tightening impact on private bank loan terms following securities lawsuits. Chava, Huang and Johnson (2017) further show the post-restatement spread premium is persistent and costly to restore. However, this work focuses exclusively on *private* debt. It is important to investigate whether findings on the private debt extend to public debt holders, and whether stigmatizing events other than financial misreporting are as important to debt holders. We confirm these findings using data from public debt market.

Most importantly, this paper tackles the interaction of legal and social capital environment with reputation mechanism in the market. We show the reputation penalty is smaller for issuers headquartered in strong legal environment provinces and those with political connections, but larger for those headquartered in strong social capital provinces. Our evidence on legal environment relates to a growing body of work on how stronger legal environments affect financial contracting through reduction of transaction cost (Qian and Strahan, 2007; Bae and Goyal, 2009). The evidence on social capital is consistent with literature showing the impact of dense social network in disciplining opportunistic behavior (Guiso, Sapienza and Zingales, 2004; 2008; Pevzner, Xie and Xin, 2015; Bottazzi, Da Rin and Hellmann, 2016). The evidence on political connection echoes prior findings showing connected firms in emerging markets are shielded from market disciplines (Firth, Rui and Wu, 2011; Lu, Pan and Zhang, 2015). To all this literature, we present new evidence on firms' public debt.

The rest of this paper proceeds as follows: Section 2 introduces the institutional settings of Chinese litigation and corporate bond market; Section 3 describes the sample

and variables; Section 4 presents empirical results; and Section 5 concludes.

2. Institutional Background

2.1 The legal environment and litigation in China

The origins of China's legal system are a mixture of socialist and civil law.[4] Allen, Qian and Qian (2005) assessed China's legal system on multiple aspects and found that the majority of LLSV-sample[5] countries have creditor and shareholder protection better than that of China. China's modern market-supporting laws, such as Contract Law (1994), Company Law (2005), Bankruptcy Law (2006), and Property Law (2007), and Anti-Monopoly Law (2008) resemble their counterpart codes in Germany, Switzerland and Japan. Despite the legal codes in place, their enforcement through courts is fraught with government intervention (Djankov et al. 2003). Firms with state ownership and other political ties tend to prevail in adjudications (Lu, Pan and Zhang, 2015). It is not surprising that alternative governance mechanisms such as reputation and networks play an essential role in safeguarding contracts, especially for the non-listed and non-state sector (Allen and Qian, 2014).

Despite the nascent legal protection, the use of courts as a forum for settling business disputes has increased dramatically since the 1990s, especially for large and listed firms. These firms have modern corporate governance required by the securities regulations, are more likely to use courts and lawyers to resolve disputes. From 2006 to 2015, the number of concluded court cases per year swelled from 8.55 to 16.7 million

[4] La Porta Lopez-de-Silanes and Shleifer (2008) argue that the common law legal origin stands for a strategy that seeks to support private market outcomes, whereas civil law seeks to replace such outcomes with state-desired allocations.

[5] See the cross-country studies on legal origin and finance by La Porta et al. (1998).

(Supreme People's Court Work Report). Over 190,000 judges work in China's 3,500 county-level basic courts, 400 prefecture-level intermediate courts, 32 provincial-level high courts, and the Supreme Court in Beijing. As of 2015, China had around 270,000 registered lawyers, or 1.96 per 10,000 people, a rate far below that of developed countries[6].

2.2 China's corporate bond market

China's private bond market has grown dramatically since the late 2000s. World Bank statistics show that China's corporate bond issuance volume, as a percentage of GDP, was 4.0 percent in 2013 and 6.1 percent in 2014, and ranked highest in the world, followed by France, the U.S., and the U.K. (Figure 1)[7]. By July 2016, the capitalization of China's domestic bond market was 41.63 trillion RMB ($6.24 trillion), approaching that of the domestic equity market, which was 46.32 trillion RMB ($6.95 trillion), including both Shanghai and Shenzhen Exchanges.

Similar to the U.S., China's bond market has several major bond categories: government bonds, central bank bills, financial institution bonds, commercial papers and non-financial corporate bonds. The non-financial corporate bond market is divided into two major sectors: the exchange market (corporate bond or *gongsizhai*) launched in 2007, and the inter-bank market (enterprise bond or *qiyezhai*) launched in 1997. Corporate bonds are issued by listed firms[8], publicly traded on the Shanghai and Shenzhen stock exchanges,

[6] For example, Ramseyer and Rasmusen (2010) document the following numbers of lawyers per 10,000 people for six democracies in the mid- to late 2000s: United States, 39.1; United Kingdom, 25.1; Japan, 2.3; France, 7.2; Canada, 2.6; and Australia, 35.7.

[7] We exclude the countries with a population of less than 11 million and with GDP less than US$ 50 billion from the rankings. Data are extracted from the World Bank Global Financial Development Database in 2016.

[8] Since January 15, 2015, the CSRC and Shanghai Stock Exchange announced a new corporate bond issuance reform, which allows unlisted firms to issue corporate bonds in the stock exchanges as well. However, before this reform, unlisted firms were only allowed to issue small- and medium-sized enterprise (SME) bonds through private placement and only listed firms were allowed to issue bonds publicly in this market.

and regulated by the CSRC. Enterprise bonds, in contrast, are issued predominantly by state-owned enterprises (SOEs) and unlisted firms, traded in the interbank market, and regulated by the National Development and Reform Commission (NDRC). The two markets have been segmented and under two different regulatory systems.

This paper investigates the corporate bond market regulated by the CSRC for three reasons: First, to match corporate litigation and other financial information with bonds, we require all issuers to be stock-market listed. Second, we require variety in the types of issuers. Both SOEs and non-SOEs participate in the exchange bond market, while the inter-bank bond market is dominated by SOEs. Table 1, Panel A and B compare the two markets in various aspects. It shows the SOEs represent 95 percent of issuers in the enterprise bond market, whilst only 53 percent in the corporate bond market. This difference is attributable to the fact that the enterprise bond market is designed for state entities to raise funds for infrastructure and industries supported by the government. For example, 82 percent of bonds traded in the enterprise bond market are *Chengtou* bonds (also known as "Municipal Investment Bonds"). For the same reason, issuers in the corporate bond market also have wider sectoral diversification than those in the enterprise bond market. Third, for event studies we require heterogeneities among market participants and active trading. Both institutional and retail investors can trade in the corporate bond market, while only banks and other non-bank financial institutions are allowed to trade in the enterprise bond market during our sample period[9]. Moreover, price information in Chinese corporate bond market

[9] According to the rules by Shanghai and Shenzhen Stock Exchanges, wealthy individual investors with financial assets (including stocks, bonds, mutual fund products, bank wealth management products) over 3 million RMB are allowed to trade corporate bonds in the exchange markets. Starting from February 2016, the PBOC (the People's Bank of China) announced that wealthy individuals with financial assets over 3 million RMB are also allowed to participate in the interbank market.

is transparent to all investors. Transaction price and volume for each trade are instantaneously revealed through electronic trading platforms throughout the day.

The procedure to issue corporate bonds in China mimics an initial public offering. The *Pilot Rules on the Issuance of Corporate Bonds* in 2007 (CSRC Order No. 49) require each bond issuer to have a sound internal control system, and to obtain a "good" (AA- or above) rating from an approved credit-rating agency. The rules further require an issuer's average distributable profits in the past three years to exceed the one-year interest of the bond, and the issuer's cumulative bond balance (post-issuance) to be less than 40 percent of net assets. Moreover, issuers with a fraud or bond delinquency history over the past three years are barred from issuing new bonds.

Any corporate bond issuance must obtain political approval from the CSRC. The bond prospectus must be signed by the sponsor (typically also the lead underwriter) and directors and officers. After clearance of CSRC approval, the issuer can start the book-building process. At road shows, the underwriter gives the conditions and characteristics of the bond. Investors then send their bid directly to the underwriter, who analyzes the bids, decides the pricing for all offerings, and allocates quota in the event of oversubscription.

3. Data and Descriptive Statistics

3.1 Sample Description

The data used in this paper come from *Wind* and *iFind*, two leading financial market research databases in China. *Wind* contains detailed information on bond issuance, including yield, maturity, volume, rating, collateral, etc. We then match bond issuance data with financial and other information of bond issuers extracted from *iFind*. The firm's

financial data in year *t-1* are matched with bonds issued in year *t*. Some issuers in our sample have multiple bonds, although the majority have only one bond outstanding. Following Klein and Zur (2011) we treat each bond as one observation. Finally we exclude bonds issued by financial and utility firms.

We collect lawsuit information of Chinese listed firms from *Wind* from 1998 to 2013. The Listing Rule of 1998 states that all listed companies must disclose their involvement in litigation/arbitration if the claim is over RMB 10 million (US$ 1.5 million), and/or over 10 percent of the company's net assets. For claims below this threshold, the company should also disclose if, in the directors' opinion, the case would have significant impact on the company's securities. This mandatory requirement essentially covers all lawsuits that have material impact on firms. We hand collect key variables from each lawsuit, including parties and case type, claims (in RMB), whether the firm is a plaintiff or defendant, court information, and case outcome.

Our lawsuit data reveal that the number of cases increased from only 27 in 1998 to 1,186 in 2013, totaling 8,531 cases during our sample period. Among the lawsuits, 36.9 percent (3,145 cases) are related to loans (bank loans or inter-corporate loans), 31.2 percent (2,722 cases) are tort cases such as securities actions, product liabilities, intellectual property infringements and share disputes. The rest, 31.9 percent (2,664 cases) are related contracts incidental to business operation, such as sale and purchase, leasing, construction, and other contracts. We see a strong representation of both SOEs and non-SOEs among both plaintiffs and defendants: SOEs are plaintiffs in 1,394 cases and defendants in 2,565 cases, and privately owned listed firms are plaintiffs in 1,124 cases and defendants in 3,448 cases.

Our bond data cover the period of 2007 to 2015, pursuant to the launch of the Chinese corporate bond market on the Shanghai and Shenzhen Stock Exchanges in 2007. To calculate the wealth effect we extract intraday bond price and trading data from *Wind*. Merging the bond-trading data with lawsuits information allows us to derive 134 trading bonds with lawsuit announcement dates. We then employ a one-to-one propensity-score-matching algorithm based on bond characteristics including rating, time to maturity, and coupon rate to select the control bonds by non-litigated issuers. Finally, we obtain a sample of 268 corporate bonds (134 treated and 134 control bonds) for event study.

To investigate the impact of litigation on bond terms, we merge the bond issuance data with that of lawsuits. This exercise allows us to identify 1,048 bonds from 2007 to 2015. Out of these bonds, 469 are issued by firms with lawsuits before the issuance, and 579 bonds are issued by firms without lawsuits before the issuance. We also employ a one-to-one propensity-score-matching algorithm to select control bonds from the relatively larger control bond sample based on issuer characteristics including firm size, age, tangibility, leverage and profitability. Results of both full and matched sample are reported in our regression analysis.

3.2 Bond characteristics variables

Our main dependent variable is *At-issue bond yield spread*, defined as the difference between the at-issue bond yield and a matched 3-year Treasury bond yield, based on the date of bond issuance.[10] We also consider other key bond characteristics: *Log(maturity)* is the logarithm of bond maturity by year; *Callable* equals one if the bond can be redeemed

[10] For robustness check we use the difference between the at-issue bond yield and a matched 5-year Treasury bond yield, and obtain similar and consistent results.

by the issuer prior to maturity, and zero otherwise; *Collateral* equals one if the bond has collaterals or zero otherwise; and *Log(Issuance_vol)* is the logarithm of the issuance proceeds. The *Bond rating score* is the numeric score of the bond rating at issue, e.g. 9 for AAA+, 8 for AAA, and so on.

For event study, *Bond price* is the daily closing price of the traded bond[11]; *Bond trading vol.* is the daily trading volume of the bond; *Time to maturity* is defined as the number of years between the trading date and the maturity date of the issue. We calculate bond return using two measures: the *Abnormal bond return (ABR)* and the *Excess bond return (EBR)*. For *ABR*, we employ a mean-adjusted return model that accounts for changes in the term structure (Handjinicolaou and Kalay, 1984; Maxwell and Stephens, 2003). Specifically, we first calculate a bond's *premium holding period return (PBR)* as the difference in a bond's raw daily return and a duration-equivalent treasury security. This *PBR* is then used to calculate the average expected excess return for the bond as the *average PBR* for the previous month before the announcement date. The *ABR* is then calculated as the difference in the *PBR* around the announcement and the expected excess bond return.

For *EBR* we follow the method used in Billings, Klein and Zur (2011). The *EBR* is defined as the difference between the raw return for the bond in the lawsuit sample over an event window and its control bond[12]. The daily *clean bond return* is the daily bond price changes. The *daily bond return* is the daily price change plus accrued interest. The *raw return* is the total cumulative bond return over the time period from a set number of trading

[11] One advantage of our dataset is that, unlike in many U.S. corporate bond studies where only monthly bond prices are used, we are able to access daily bond prices, and can thus compute daily bond return.
[12] Bessembinder et al. (2009) provide evidence that calculating a bond's excess return against a matched bond return is superior to using a mean-adjusted abnormal return in terms of minimizing both Type I and Type II errors.

days before the announcement date to the same number of trading days after the announcement date. To reduce the impact of other information confounding the lawsuit announcement or the possibility of information leakage before the announcement, we compute and report several event windows, ranging from one trading day through five trading days before and after the announcement date.

Finally, we calculate the *excess trading volume* as the trading volume for the bonds by litigated firms on a given day over the event window minus the trading volume for its control bond over the same window.

3.3 Firm characteristics variables

Our analyses include an assortment of firm characteristics. *Firm size* is the logarithm of the book value of total assets; *Firm age* is the logarithm of the number of years since incorporation; *Profitability* is the ratio of net profit to total assets; *Leverage* is the ratio of total debt to total assets; *Tangibility* is the ratio of fixed assets to total assets. *SOE* equals one if a firm has the government or its agent as its ultimate controller, and zero otherwise. *Central SOE* equals one if an SOE has the central government or its agent as ultimate controller, and zero otherwise. *Local SOE* equals one if an SOE has the local government or its agent as ultimate controller, and zero otherwise. Table A-1 provides detailed variable definitions.

3.4 Litigation variables

Our lawsuit variables include the following: *Log (Litigation stake)* is the logarithm of the monetary claim of the plaintiff in the lawsuit; *Defendant* equals one if the disclosing firm is the defendant, and zero otherwise; *Loan-related suit* equals one if the case is related to bank and inter-corporate loans, and zero otherwise; *Win* is a dummy variable that equals

one when the disclosing firm wins the lawsuit, and zero otherwise[13].

3.5 Descriptive statistics

Table 2, Panel A provides summary statistics for the 1,048 bonds in our bond issuance sample. The statistics reveal substantial heterogeneity. *At-issue bond yield* ranges from 2.98% to 9.90% with a sample mean of 5.66%. Subtracting the monthly averaged 3-year Treasury bond yield, the *at-issue bond yield spread* ranges from 0.41% to 7.01% with a sample mean of 2.59%. The *bond rating score* ranges from 5 to 9 with a standard deviation of 1.25. On average, 70 percent of the bonds in our sample are callable and 38 percent have collaterals. The *Maturity* ranges from 2 years to 15 years, with a sample mean of 5.59 years. The *Issuance volume* ranges from 80 million RMB to 16 billion RMB, with a sample mean of 1.43 billion RMB (US$ 210 million).

Panel B summarizes the characteristics of bond issuers. *Firm size* ranges from 20.37 to 28.41, with a standard deviation of 1.37; *Firm age* ranges from 1 year to 64 years, with a sample mean of 16.26 years (75 percent of the bond issuers have a firm age of longer than 13 years); *Profitability* ranges from -0.03 to 0.40 (75 percent firms have a profitability higher than 0.02); *Leverage* ranges from 0.05 to 0.93 with a sample mean of 0.58, indicating that listed firms issuing corporate bonds have a high level of leverage; *Tangibility* ranges from 0.00 to 0.90 with a sample mean of 0.20. Approximately 53 percent of the firms in our sample are SOEs, the remaining being privately owned firms.

[13] We follow the conventional literature (Clermont and Eisenberg 1992; Kessler, Meites, and Miller 1996) and define plaintiff "success" as when a plaintiff receives monetary benefit at trial. Data show that it is typical for Chinese courts to either support or reject plaintiff claims in full. For robustness check we use the proportion of the trial award to plaintiff's monetary claims as an alternative "win" proxy and find this does not change the result qualitatively.

Panel C describes the 451 unique lawsuits involved in our bond issuance sample. We classify these lawsuits into three lawsuit types: (1) bank loans and inter-corporate loans, (2) regular business contracts, and (3) tort cases. Loan-related cases account for 18.0 percent, regular business dispute cases account for 41 percent, and the remaining 41 percent are tort cases. Both SOEs and non-SOEs are balanced in each lawsuit type. In the SOE and non-SOE subsample, we further divide cases based on whether the issuer is a plaintiff or defendant, and we find that, in loan-related suits, the issuer is most likely the defendant, while, in other types of suits, the plaintiff/defendant ratio is much closer to 1:1.

Panel D compares the bond and firm characteristics of our treated and control group. It indicates that the treated bonds (issued by litigated firms) overall have significantly higher at-issue bond yields and spreads, lower bond rating, shorter maturity, less issuance volume, and are more likely to have collaterals. Moreover, their issuers are significantly less profitable and have a lower ratio of tangible assets. To mitigate the observable differences between treated and control group, we employ a one-to-one propensity-score-matching algorithm. We report results of both full and matched samples in the next section.

4. Empirical Tests

4.1 Event study

We start by comparing the daily bond returns and trading volume around the lawsuit announcement date for treated and control bonds. The control bonds are identified by the one-to-one propensity-score-matching algorithm based on characteristics including bond rating, time to maturity, and coupon rate. Table 3 Panel A contains average bond daily returns around different windows, [-1,0] and [-1, +1]. Columns (1) and (2) report the mean

daily return for the treated and control bonds, respectively; Column (3) reports the statistics for the difference between (1) and (2), which we define as the excess daily bond return. It reveals in narrower event windows, bondholders suffer substantial wealth loss around the lawsuit announcement date in both statistical and economic terms. Over the window of [-1,0], the mean excess bond return is the largest, valued at -22bp and is statistically significant at the 5 percent level. After one more trading day, the excess return reduces to -5bp and is still significant at the 5 percent level. Panel B reports the excess bond daily trading volume around the announcement date. The daily trading volume is abnormally high around the announcement date. Over the window of [-1, +1], the excess trading volume is valued at 5.95 million RMB (US$ 900,000)[14].

We then employ the following regression model:

Excess/Abnormal bond return = f(event window×Treated, bond characteristics, firm characteristics, abnormal stock return) *(1)*

Our controls for bond characteristics include *Bond rating score*, and *Log (time to maturity).* Firm characteristics include *Defendant* (if the disclosing firm is the defendant), *Central SOE*, *Local SOE*, *Firm size*, *Firm age*, *Tangibility*, *Leverage* and *Profitability.* To account for stockholder reactions on the lawsuit information we control for *abnormal stock returns*. Finally, we include year, month, and industry fixed effects.

Table 4 presents the results. It shows a negative and significant price reaction upon lawsuit announcement. Columns (1) and (2) suggest that, on the lawsuit announcement date, the *EBR* by treated over control bonds is -24.4bp. Throughout the three-day period [-1,+1], the excess bond return is -5.9bp. In column (5) to (8), we find the effect is larger:

[14] We also test with longer event windows [-3, +3], [-5, +5] and such effect for bond return vanished; however, the effect for excess bond daily trading is still significant at the 1 percent level.

the *ABR* by treated over control bonds is -44bp on the lawsuit announcement date and -33bp over the window of [-1, +1], both are significant at the 1 percent level[15]. Taken together, our result suggests in narrower event window, lawsuits reduce the market value of public debt.

4.2 Lawsuits and At-issue Bond Yield Spread

We start by using the full sample to test the effect of lawsuits on the at-issue bond yield spread using model (2). *Treated* equals one if the bond is issued by litigated firm, and zero otherwise. Controlling variables are defined above. *Year Dumm* and *Ind Dumm* indicate year and industry fixed effects.

$$Spread_{i,t} = \beta_0 + \beta_1 \cdot (Treated)_{i,t} + \beta_2 \cdot (Bond\ characteristics)_{i,t} + \beta_3 \cdot (Firm\ characteristics)_{i,t} + \beta_4 \cdot (Year\ Dumm)_{i,t} + \beta_5 \cdot (Ind\ dumm)_{i,t} + \varepsilon \quad (2)$$

Table 5 presents our baseline results. Columns (1) and (2) use the full sample covering 1,048 bonds and Columns (3) and (4) use the one-to-one matched sample covering 938 bonds. As Column (1) shows, the spread is significantly higher for litigated firms than for control firms, and the estimated coefficients suggest that the relationship is economically meaningful. *Ceteris paribus*, the bonds issued by litigated firms have a 4.9 percent (0.126/2.59) higher spread than bonds issued by non-litigated firms. If the issuers are SOEs, however, then the spread is 34.4 percent (0.892/2.59) lower than that for non-SOEs. As expected, the spread is negatively associated with bond rating, issuance volume and is positively associated with maturity. Controlling for firm characteristics (Column 2) does not change our baseline results. *Firm size*, *Firm age* and *Profitability* all enter with

[15] The negative excess bond return (*EBR*) of the bonds with litigation vanishes when we expand the window to 7- or 11-days. The effect is similar when we use abnormal bond return (*ABR*) instead.

significantly negative signs and *Leverage* enters with a significantly positive sign. As shown in Table 2, Panel D, litigated issuers are of significantly smaller size and lower profitability, and have less tangibility. To isolate the observable differences between litigated and control firms, we use the one-to-one propensity-score-matched sample to re-run the regressions. Columns (3) and (4) show that our baseline results change little, confirming that the cost of public debt is higher for litigated than for non-litigated issuers.

We then investigate a subsample of firms that issue bonds both before and after litigation. Focusing on these issuers allows us to isolate the effect of cross-firm differences that may bias our result. This refined focus reduces our sample to 281 observations. Table 6 presents the results with firm fixed effects. Column (1) shows that, on average, for non-SOEs, the yield spread is 8.7 percent (0.225/2.59) higher (p=0.003) for the bond issued after than before a lawsuit. In Column (2), we add in the lawsuit number, as some firms were involved in multiple lawsuits over the period. The results show that, *ceteris paribus*, being involved in one additional lawsuit for non-SOEs increases the spread by 0.86 percent (0.0223/2.59). However, such effect is not significant for SOEs. Columns (3) and (4) examine maturity and Columns (5) and (6) examine issuance volume. The results, however, are not significant. To conclude, with the subsample of the firms with bond offerings both before and after a lawsuit, we find stronger impact on spread than on other properties, suggesting that pricing is the primary mechanism that public debt investors use to overcome information problems.

4.3 Heterogeneity Tests: Being a Defendant or Losing the Case

This section presents the results of heterogeneity tests based on party's status (plaintiff

or defendant) and case outcome (win or lose). Table 7 investigates litigated issuers and allows the spread to depend on: (1) whether the issuer is a defendant; and (2) whether the issuer loses the lawsuits. Intuitively, being a defendant (plaintiff) or losing (winning) the lawsuit indicates wrongdoing thus incurs larger (smaller) magnitude of reputational damage. Consistent with this conjecture, Columns (1) and (2) indicate that, if the disclosing firm is the defendant, the spread would be 9.5 percent (0.246/2.59) higher (p=0.005). In Columns (3) and (4), we examine how lawsuit outcomes (i.e., win or lose) impact the spread. For this test we require the case judgment is available before bond issuance. The coefficient indicates that, if the firm loses the case, then the spread is 17.8 percent (0.460/2.59) higher (p<0.001).

4.4 Heterogeneity Test: Being Sued by a Bank

The other heterogeneity we exploit is case type. Haslem, Hutton and Smith (2017) find heterogeneous stock market reactions across different case types. Related to our investigation, we hypothesize that due to the network (or word-of-mouth) effect of financial institutions (Ljungqvist, Marston and Wilhem, 2006; Grullon, Underwood and Weston, 2014) that participate in both private and public debt markets, being sued by a bank in private debt shall constitute a larger shock to an issuer's reputation than do other types of cases. In other words, the common network of investors in debt market intensifies the value of corporate reputation. Table 8 presents strong supporting evidence. All else being equal, bank-loan related litigation causes issuers to pay a 22.4 percent (0.582/2.59) higher spread in subsequent bond issuance (p=0.000), relative to other types of lawsuits.

In sum, the heterogeneity tests in Table 7 and 8 suggest that the positive effect of

lawsuits on spread found in Table 5 and 6 is deliberate rather than an artifact of measurement error or other randomness. Randomness cannot explain why the spread sensitivity to lawsuits is larger when the issuer is a defendant or loses the case, and why it is most prominent when the lawsuits are related to bank loan defaults.

4.5 Lawsuits and Non-spread Bond Characteristics

We next evaluate the impact of lawsuits on non-pricing bond characteristics, including maturity, issuance volume, collateral requirements, and whether the bond is callable. The results are reported in Table 9. Bonds of litigated issuers tend to have significantly shorter maturity, lower bond rating, and marginally lower issuance volume. The economic impact is non-trivial: *Ceteris paribus*, for litigated issuers the bond maturity is 11 months ($e^{(-0.066)}$ years) shorter (p=0.001), the issuance volume is 92.31mn ($e^{(-0.080)}$*100mn) RMB less (p=0.085), and the bond rating score is 0.221 lower (p=0.000) than non-litigated issuer. However, we do not find significant impact on collateral requirements. Finally, bonds issued by SOEs have longer maturity and higher ratings, and they are less likely to be callable.

4.6 Mitigating Factor: Firms' Political Connection

Many studies highlight the role of political connection in helping firms access key market resources, especially in emerging markets (Fisman, 2001; Faccio, 2006; Faccio, Masulis and McConnell, 2006; Goldman, Rocholl, and So, 2009; Li et al., 2008). Firth, Rui and Wu (2011) study the stock market reactions to lawsuit news in China and show the abnormal return of politically connected firms is less negative than that of non-connected

firms. To test how political connections affect our baseline result, we re-run baseline regressions on three subsamples: Central SOEs (state firms owned by central government or its entities), Local SOEs (state firms owned by the local government or its entities), and non-SOEs.

Table 10 reports results of the subsample analysis. We find the spread-to-litigation sensitivity is only significant in the sample of non-SOEs, but not SOEs (Central or Local). In non-SOEs, the spread of litigated issuers is 9.9 percent (0.257/2.59%) higher than that of non-litigated issuers (p=0.002). Moreover, the *Chi-square* test shows that the difference on the coefficient between central SOEs and non-SOEs (12.34) is both economically and statistically larger than that between local SOEs and non-SOEs (4.45). This evidence shows that state ownership mitigates the negative impact of lawsuits on spread, and higher level of political connection appears to have stronger mitigating effect.

4.7 The Impact of Issuer's Home Institution: Legal Environment and Social Capital

A key objective of this paper is to investigate how the institutional environment in the issuer's *home* province interacts with the reputation mechanism that we document. Stronger legal environment deters deviants, safeguards contracts, and facilitates businesses (Djankov et al., 2008; Bae and Goyal, 2009; Qian and Strahan, 2007), thus can mitigate firms' reliance on reputation in the market. High social capital environment, on the other hand, intensifies the role of dense network as a resource for action, thus the marginal value of reputation. Following this logic, we hypothesize that stronger legal environment weakens, whilst stronger social capital environment reinforces the reputation mechanism on bond pricing.

To capture heterogeneities in the legal and social capital development among China's 31 provinces we rely on two prominent national surveys. On legal environment, we draw from the Producer Property Rights Index (PPRI), jointly published by the National Economic Research Institute and China Reform Foundation (Fan, Wang, and Zhu 2011). PPRI is a composite index of three components: (1) the number of economic cases filed each year normalized by the GDP, (2) the extent to which the local regulations emphasize on the protection of private firms, and (3) firm-level survey on the local rule of law[16]. Based on the sample mean we divide Chinese provinces into "strong rule of law" and "weak rule of law" regions. We then attribute litigated issuers into those headquartered in strong- or weak-rule of law regions.

On provincial social capital, following Wu, Firth and Rui (2014) we employ data from the China General Social Survey (CGSS). The CGSS was conducted jointly by the Hong Kong University of Science and Technology and Renmin University in 2003, which received 5,894 completed responses. The respondents encompassed Chinese residents in 125 counties within 28 provinces. One central question in the CGSS asks residents to rate the level to which they "trust strangers" in their locality, ranging from 1 ("completely do not trust") to 5 ("completely trust"). We aggregate county level scores into provincial social capital score. We then divide Chinese provinces into "high-social capital" and "low-social capital" regions based on the sample mean. Finally, we attribute litigated issuers into those headquarter under high- and low-social capital regions.

Table 11 presents the interesting results: Column (1) and (2) show the positive effect of lawsuit on spread is highly significant for issuers headquartered in weak rule of law

[16] Prior accounting and finance studies using this index include Wang, Wong and Xia (2008), Fan, Wong and Zhang (2013), and Lu, Pan and Zhang (2015).

regions but not significant for those in strong rule of law regions. Column (3) and (4) show that the positive effect of lawsuit on spread is significant for issuers headquartered in high- but not low-social capital regions. *Chi-square* tests show the difference between the two groups is large and significant at 5 percent level.

The results in Table 11 suggest that better home legal institution weakens, whilst higher social capital reinforces firms' reputational penalties. This is consistent with Allen, Qian and Qian (2005), who argue that in countries of weak investor legal protections, informal institutions such as those based on reputation and networks substitute formal legal institutions in facilitating contracts. To the extent that firms rely more on their home institutional environment for resources, our evidence suggests that legal environment "substitutes", and social capital "complements" firm-specific reputation in competing for resources.

4.8 Robustness Tests

Reputation penalty or Insolvency Risk?

One alternative hypothesis to our result is that investors tightened their bond terms in response to litigation-induced insolvency risk. This is so because the agency conflict between bondholder and stockholder is particularly strong for firms in financial distress. To test this empirically, we investigate the cash stock of the issuer at the time a lawsuit is filed. Specifically, we calculate the ratio of firms' beginning-of-the-year cash holdings relative to the litigation stake (a proxy for contingent liability)[17]. A higher cash-to-litigation

[17] Firms' cash holding can be volatile across years. To determine the "relevant year," the correct date to use is the "court filing date," i.e., the date when the issuer was involved in a lawsuit. Since we want to assess the issuer's cash status prior to any litigation-induced contingent liability, using other dates, such as judgment or litigation announcement dates, does not serve this objective.

stake (*Ch/Lstake*) ratio implies that the firm is more "distant" to financial distress, even if it loses the case. It follows, if the insolvency hypothesis is true, we should find both negative and significant impact of this ratio on yield spread.

Figure 2 presents the ratio distribution. Around 45 percent of the litigated issuers have *Ch/Lstake* ratio higher than 10, thus are far distant to financial distress. Table 12 splits our sample by different ratio levels. It shows in the full sample, the coefficient enters with significantly negative sign, suggesting that a higher *Ch/Lstake* ratio reduces the bond spread. However, the economic magnitude is almost zero (*0.000* for the full sample, *Ch/Lstake*>5 subsample, and *Ch/Lstake*>10 subsample, respectively). To explore this effect further, we separately examine loan-related lawsuits, which bond investors should be particularly concerned. Column (4) shows that the economic magnitude increases to -0.003, with statistical significance at the 5 percent level. Overall, we find little evidence that bond pricing is driven by a litigation-induced insolvency threat.

The Credit Rating Effect

Numerous bond studies show that yield spreads are most sensitive to bond ratings. The grade assigned by credit-rating agencies reflects their private information on the issuer (including issuer's lawsuit history). Indeed, in all our tests, the control variable "credit rating" is both negative and significantly correlated with bond pricing. To isolate the credit rating effect, we perform subsample analysis on each credit rating categories.

Table 13 presents the results. Columns (1) and (2) show for bonds with AA- (score=5) and AA (score=6), the impact of litigation on spread is positive and significant at the 1% level. Columns (3) and (4) show for bonds with AA+ (score=7) and AAA (score=9), the

impact is positive and significant at the 5% and 10% levels, respectively. We also run the tests by introducing the interaction of litigation dummy and bond rating score in column (5). The results also suggest that higher rating score mitigates the positive association between lawsuit and bond spread.

The results in Table 13 inform us in two ways: First, the effect of lawsuit on spread cannot be differenced away by credit rating, as we see the coefficient remains significant from the lowest to the highest rating category. Second, we see both the economic and statistical significance of coefficients decrease monotonically as bond grade increases, suggesting that bondholders react more to litigation that involves lower-quality borrowers. This result is consistent with empirical evidence that low-credit-quality firms face a stronger bondholder/stockholder conflict, which induces risk shifting from stockholders to bondholders (Minton and Schrand, 1999; Eisdorfer, 2008).

Instrumental Variable and Switching Model Analysis

Our key explanatory variable, i.e., whether the issuer had prior lawsuit(s), is endogenous. Though we have controlled for observable heterogeneities among treated and control firms to the best we can, and employ propensity-score matching, it is possible that unobservable heterogeneities can affect both litigation likelihood and bond pricing, causing our observed correlation to be spurious. To tackle such endogeneity concerns, this section employs two methods: instrumental variable (IV) and switching model analyses.

The objective to use an instrument variable is to extract the exogenous component of our potentially endogenous variable, i.e., litigation likelihood, and relate that to our outcome variable. The first set of instruments that we employ is the number of law offices

per 10,000 residents (or per 10,000 urban residents) in the home province of the issuer. The data on number of law offices in a province/year are collected from the Chinese Provincial Yearbook[18]. The number of law offices per 10,000 population in province *i* of year *t-1* is matched with the bond issuance of firms headquarter in province *i* of year *t*. Density of law offices captures the demand for legal services in a given province. It satisfies the relevance condition in that, firms headquartered in a province with higher demand for legal services are more inclined to structure economic activities following the law, and use courts to resolve its disputes (Ray, Shleifer and Vishney, 1996), which enhances litigation probability. For the exclusion restriction, note first that the law-office density in a given province/year is a legal environment variable that hardly affects the pricing of individual bond. Second, it is likely that law firm density is positively correlated with regional economic development and activities. More economic activity means more product market competition. Following this logic, if higher law-firm density affects bond spread through product market competition, it should *reduce*, rather than increase the cost of capital. However we find the opposite, thus rejecting this alternative channel.

The second set of instruments that we use is the social capital level in a given province, which we argue is inversely related to the court use. As Lieberman (1983, p.186) put, "*Litigiousness is not a legal but a social phenomenon. It is born of a breakdown in community, a breakdown that exacerbates and is exacerbated by the growth of law*". Social capital could affect the use of courts in two ways. First, in societies with high levels of social capital, members trust each other to be cooperative than opportunistic. Dense social networks also intensifies internal sanctions such as social ostracism (Uhlaner, 1989),

[18] During our sample period, five provinces, i.e. Guangxi, Hebei, Gansu, Inner Mongolia and Tibet did not report law office numbers. Hence, we exclude firms headquartered in these provinces from our sample.

stigmatization (Posner, 2000), and heighten negative moral sentiments associated with opportunistic behaviors (Elster, 1989). It follows that high social capital communities might have fewer disputes. Second, given a fixed stock of disputes, people in communities with higher levels of social capital might take a smaller fraction of those disputes to court. Given litigation is costly, dense social ties reduce the cost of private settlement relative to litigation, causing lower level of court use. For example, using prefecture-level data in Japan, Ramseyer (2015) shows firms in prefectures with low levels of social capital are more likely to default on their contracts, and residents in low social capital prefectures are more likely to litigate.

To capture provincial social capital in China, our first instrument is the China General Social Survey (CGSS) in 2003 based on the question "how much do residents "trust strangers" in their locality", ranging from 1 ("completely do not trust") to 5 ("completely trust").[19] We aggregate the respondents' answers based on their county of residence to form a provincial social capital index. Our instrumental variable, *Rec social trust*, is therefore the reciprocal of the social capital index from CGSS, high value of the indicator suggests low level of social capital. To argue exclusion restriction, it is hard to conceive that the social capital stock of a province in 2003 would directly affect individual corporate bond yield today, other than through its impact on the litigation probability.

The second social capital measure we employ is a score of the environmental suitability of each province for growing wetland rice, based on the United Nations Food and Agriculture Organization's Global Agro-ecological Zones database[20]. Talhelm et al. (2014)

[19] This is the same data source that we use in Table 11. The only difference is that in Table 11 we divide provincial social capital into high-social capital and low-social capital group, here we use continuous variable of the mean of scores for each province.

[20] The United Nations Food and Agriculture Organization's (UN FAO) Global Agro-ecological Zones

find Chinese regions that have a history of farming rice have a more cooperative culture than those with a history of growing wheat. Farmers in rice-growing regions are more likely to form cooperative labor exchanges, especially when transplanting and harvesting, which are activities that must be completed within a short window of time. In economic terms, paddy rice makes cooperation more valuable, encouraging rice farmers to form tight relationships based on reciprocity and to avoid behaviors that create conflict. In comparison, wheat is easier to grow. Wheat does not need to be irrigated, and wheat farmers can rely on rainfall, which they do not coordinate with their neighbors. Consequently, we calculate the second measure of social capital, *Log (wheat_ov_rice)*, as the natural logarithm of the crop suitability index of wheat versus rice, hence high value of the indicator suggests low level of social capital. To argue the exclusion restriction, it is conceivable that regional rice suitability, developed over many generations, cannot directly affect today's corporate bond properties, other than through its impact on social capital which is inversely related to the court use in specific region.

Table 14 reports the two-stage least-squares regression results. Columns (1) and (2) use the number of law offices scaled by the total population in the home province as the instrument, and Columns (3) and (4) use the number of law offices scaled by urban population, since the Chinese urban population often has a greater demand for legal services than does the rural population. Columns (1) and (3) show the first-stage regression results, where we regress the *Treated* dummy on the instrumental variables and a set of other bond and firm characteristics. The coefficients of both instrumental variables are positive and significant at the 1 percent level, suggesting that both instruments positively

database: http://www.fao.org/nr/gaez/en/

correlate with litigation probability. Columns (2) and (4) show the results for the reduced form estimation, where we regress the bond spread directly onto the instrument and other bond and firm characteristics. Both instruments enter with significant and positive signs.

In column (5) to (8) we use social capital measures as the instruments, and obtain consistent result. In the first stage, both measures are positively correlated with litigation likelihood, consistent with the existing studies. In the reduced form estimation, both instruments are significant and positive at least at the 5 percent level. In sum, we show that the instrumented measure of litigation probability is positively and significantly associated with bond pricing.

Table 15 employs a two-step switching model regression to tackle the self-selection bias of the simple OLS estimator of the litigation effect (See, e.g. Heckman, 1978; Li and Prabhala, 2008). In the first step, the dependent variable is the dummy *Treated bond*, and we assume that a set of firm characteristics can affect the likelihood of litigation, which might cause the selection issue. To meet the exclusion restrictions, we only control for bond characteristics and firm ownership dummy in the second step. The results in Table 15 suggest stronger effect of litigation on at-issue bond yield spread after correcting the self-selection issue. If the bond is issued by a litigated issuer, then the yield spread is 14.6% higher (0.377/2.59), with the P-value of 0.049.

5. Conclusion

Using lawsuits as events that revise bond investors' belief, this paper examines the effect of reputation on firms' cost of public debt. We find that lawsuits reduce the market value of public debt, and that litigated firms issue debt with higher yield spreads, shorter

maturities, and smaller proceeds than the bonds issued by matched non-litigated firms. The effect is more pronounced for private- than state-owned issuers, for issuers headquartered in regions of weak legal environments, and those in high social capital regions. Firms' political connections appear to moderate the reputation penalty of lawsuits.

Taken together, we present evidence that the reputation mechanism matters as much in emerging market as it does in the U.S., as we find investors alter the terms that they transact with the firm following reputational damages. More importantly, we shed lights on how the institutional environment under which the firm operates interacts with the reputation mechanism in market activities. Stronger legal environment substitutes, and stronger social capital complements firms' reliance on reputation to compete for resources.

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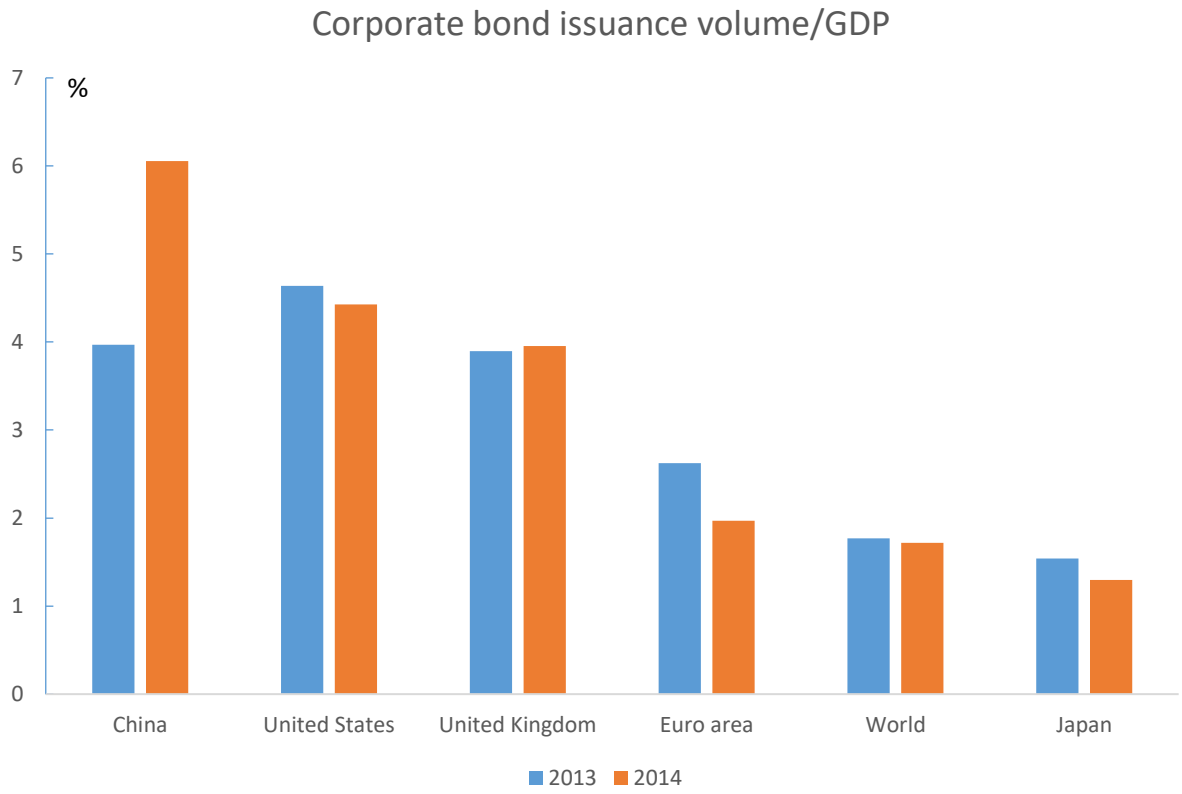

Figure 1: Corporate bond market growth: China vs. Other countries

This figure plots the corporate bond issuance volume as a percentage of GDP for different regions around the globe in 2013 and 2014. The vertical axis presents the ratio of corporate bond issuance to GDP. Data source: World Bank Global Finance Development Database.

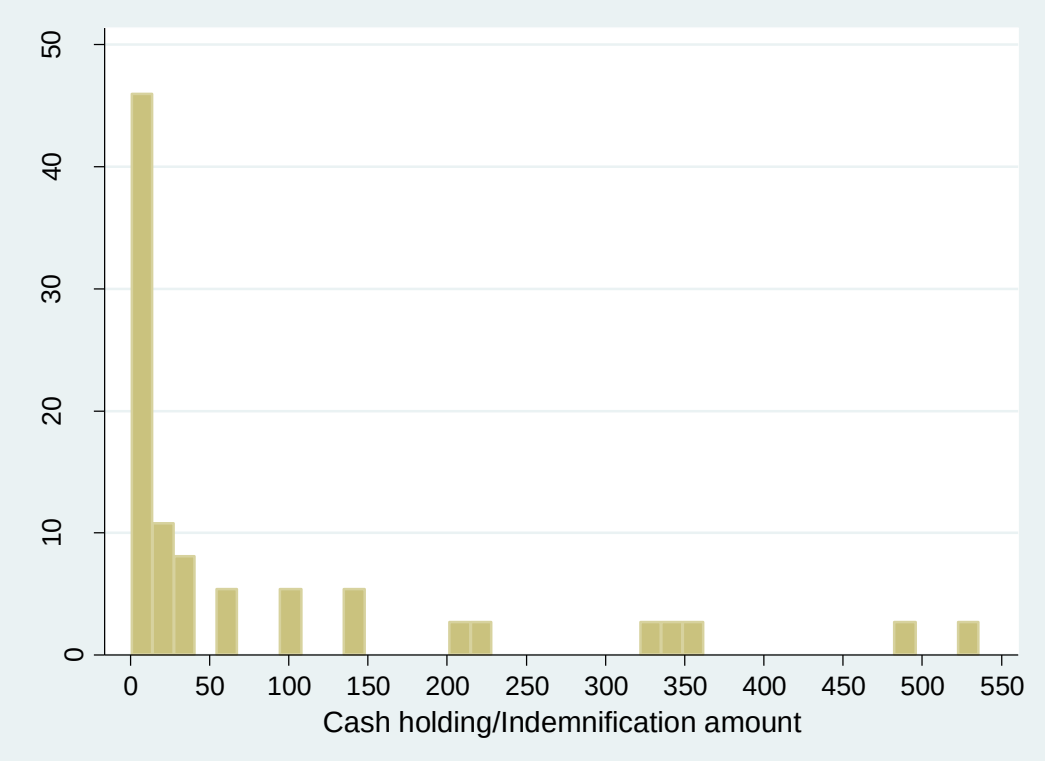

Figure 2: Distribution of cash holding over litigation stake

This figure plots the percentage distribution of the ratio of firm's beginning-of-the-year cash holdings relative to the litigation stakes (a proxy for contingent liability). A higher ratio means that the firm is more "distant" to financial distress even if it loses the case.

Table 1: China's Corporate Bond Market: An Overview

Panel A: Bond issuance: enterprise bonds vs. corporate bonds

	Enterprise bond			Corporate bond (incl. bonds issued by private SMEs)		
	Issuance vol. (bn RMB)	*Bond number*	*Issuer number*	*Issuance vol. (bn RMB)*	*Bond number*	*Issuer number*
1996	0.9	4	4	-	-	-
1997	2.96	6	6	-	-	-
1998	9.804	27	26	-	-	-
1999	12.806	42	41	-	-	-
2000	8.53	10	9	-	-	-
2001	12.9	4	4	-	-	-
2002	32.5	14	12	-	-	-
2003	32.8	16	14	-	-	-
2004	27.2	15	14	-	-	-
2005	60.4	33	29	-	-	-
2006	61.5	42	42	-	-	-
2007	110.935	80	78	11.2	3	3
2008	156.69	57	56	28.8	14	14
2009	325.233	166	162	73.49	45	45
2010	282.703	160	156	51.15	16	15
2011	248.548	187	185	129.12	72	70
2012	649.931	479	461	262.631	270	255
2013	475.23	367	357	171.949	374	339
2014	697.198	578	529	144.562	579	410
2015	342.102	297	285	1031.38	1316	659

Panel B: Characteristics of the outstanding bonds by sectors (by March 2016)

	Obs.	Obs.(dummy=1) (percent)	Obs.(dummy=0) (percent)
Corporate bond			
Bond issued by listed firms	743	561 (76%)	182(26%)
Bond issued by SOEs	743	395 (53%)	348 (47%)
Chengtou Bond	743	67 (9%)	676 (91%)
Enterprise bond			
Bond issued by listed firms	4,406	34 (1%)	4,372 (99%)
Bond issued by SOEs	4,406	4,204 (95%)	202 (5%)
Chengtou Bond	4,406	3,634 (82%)	772 (18%)

Table 2: Descriptive Statistics

This table reports summary statistics for the bond issuance sample employed in the analysis. The full dataset consists of 1,048 bonds. Out of these bonds, 469 are issued by listed firms with lawsuits before the issuance and 579 bonds are issued by listed firms without lawsuits before the issuance. Bonds issued by financial firms and utilities are excluded. The matched sample consists of 469 treated bonds and 469 control bonds that are defined by a one-to-one propensity-score-matching algorithm based on firm characteristics including firm size, firm age, tangibility, leverage, and profitability. Bond ratings are obtained from leading Chinese rating agencies, converted to integer values ranging from 9 for AAA+ to 5 for AA-. Standard deviations are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. Definitions of all the variables are provided in the Table A-1 of the Appendix.

Panel A: Bond Characteristics

	Obs.	Mean	Std. Dev.	Min	Max	25%	50%	75%
Bond yield at Issue (%)	1,048	5.66	1.14	2.98	9.90	4.90	5.50	6.40
Bond yield spread at issue (%)	1,048	2.59	1.11	0.41	7.01	1.74	2.36	3.26
Bond rating score	1,048	7.07	1.25	5	9	6	7	9
Callable	1,048	0.70	0.46	0	1	0	1	1
Collateral	1,048	0.38	0.49	0	1	0	0	1
Maturity (years)	1,048	5.59	1.72	2	15	5	5	6
Issuance volume (bn RMB)	1,048	1.43	1.47	0.80	16	0.56	1.00	1.60

Panel B: Bond Issuer Characteristics

	Obs.	Mean	Std. Dev.	Min	Max	25%	50%	75%
Total assets (bn RMB)	1,048	52.3	167	0.703	2170	6.01	13.5	34.3
Total liabilities (bn RMB)	1,048	34.2	92.1	0.052	988	2.97	8.29	24.6
Total equity (bn RMB)	1,048	18.1	81.2	0.304	1180	2.88	4.8	12.3
Fixed assets (bn RMB)	1,048	12.2	54	0.001	703	0.457	1.51	5.94
Firm size	1,048	23.49	1.37	20.37	28.41	22.52	23.32	24.26
Firm age	1,048	16.26	5.73	1	64	13	17	19
Profitability	1,048	0.04	0.03	-0.03	0.40	0.02	0.03	0.06
Leverage	1,048	0.58	0.17	0.05	0.93	0.47	0.61	0.71
Tangibility	1,048	0.20	0.19	0.00	0.90	0.05	0.14	0.33
SOE	1,048	0.53	0.50	0	1	0	1	1

Panel C: Case distribution for the Bond Issuance Sample

	SOE			*non-SOE*			Total
Suit type	Plaintiff	Defendant	P/D ratio	Plaintiff	Defendant	P/D ratio	
1 (loan related)	10	29	34.48%	2	40	5.00%	81
2 (regular business)	61	64	95.31%	33	27	122.22%	185
3 (tort)	55	54	101.85%	32	44	72.73%	185
Total	126	147	85.71%	67	119	56.30%	451

Panel D: Comparative Descriptive Statistics by Group

	Treated Firms		*Control Firms*		*Difference*
Bond yield at Issue	5.783	469	5.554	578	0.229***
	(0.053)		(0.050)		(0.074)
Bond yield spread at Issue	2.663	469	2.503	572	0.160**
	(0.052)		(0.048)		(0.071)
Bond rating score	6.893	469	7.092	579	-0.198***
	(0.054)		(0.053)		(0.076)
Callable	0.723	469	0.701	579	0.022
	(0.021)		(0.019)		(0.028）
Collateral	0.380	469	0.323	579	0.056**
	(0.022)		(0.019)		(0.029)
Log(Maturity)	1.639	469	1.678	579	-0.038**
	(0.234)		(0.297)		(0.017)
Log(issuance vol.)	2.207	469	2.356	579	-0.149***
	(0.033)		(0.035)		(0.049)
Firm size	23.267	469	23.636	579	-0.369***
	(0.055)		(0.061)		(0.084)
Firm age	18.322	469	15.497	579	2.825***
	(0.208)		(0.251)		(0.335)
Leverage	0.586	469	0.574	579	0.012
	(0.008)		(0.007)		(0.010)
Profitability	0.039	469	0.043	579	-0.003**
	(0.002)		(0.001)		(0.002)
Tangibility	0.174	469	0.229	579	-0.055***
	(0.008)		(0.008)		(0.011)

Table 3: Excess Bond Return (EBR) and Trading Volume Around Lawsuit Announcements

This table reports the comparative excess bond return and excess bond daily trading volume in the analysis. The sample consists of 134 treated bonds issued by listed firms with lawsuits and 134 control bonds issued by listed firms without lawsuits. The control bonds are identified by the one-to-one propensity-score-matching algorithm based on characteristics including bond rating, time to maturity, and coupon rate. All the other variables are defined in Appendix Table A.1. Standard deviations are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Panel A: Excess Bond Daily Returns Around Lawsuit Announcements

	Obs.	Treated Bonds	Control Bonds	Difference
		(1)	(2)	(3)
Day [-1, 0]	134	-0.0030	-0.0008	-0.0022**
		(0.0013)	(0.0006)	(0.0012)
Days[-1,+1]	394	-0.0009	-0.0004	-0.0005**
		(0.0004)	(0.0003)	(0.0002)

Panel B: Excess Bond Daily Trading Volume Around Lawsuit Announcements

	Obs.	Treated Bonds (thd RMB)	Control Bonds (thd RMB)	Difference (thd RMB)
		(1)	(2)	(3)
Days [-1, 0]	134	8,813.4	6,224.8	2,588.5
		(1,875.8)	(1,066.3)	(2,215.1)
Days[-1,+1]	402	12,703.1	6,753.5	5,949.6***
		(2,091.4)	(790.2)	(2,233.8)

Table 4: The Effect of Lawsuit Announcement on Bond Return: Regression Analysis

This table reports the baseline results of the regression examining the effects of lawsuits on excess bond return and abnormal bond return during various event windows. All the other variables are defined in Appendix Table A.1. Robust standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Dep. Var.	*Excess bond return (EBR)*				*Abnormal bond return (ABR)*			
	Day[-1,0]		Day[-1,+1]		Day[-1,0]		Day[-1,+1]	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated	-0.00244**	-0.00244**	-0.000590*	-0.000588*	-0.00439***	-0.00437***	-0.00328***	-0.00327***
	(0.00118)	(0.00118)	(0.000298)	(0.000299)	(0.00117)	(0.00117)	(0.000749)	(0.000750)
Bond rating	0.0000296	-0.0000951	0.0000293	-0.0000968	0.00000369	0.0000659	0.00000519	0.0000718
	(0.000183)	(0.000223)	(0.000183)	(0.000223)	(0.000180)	(0.000218)	(0.000180)	(0.000218)
Log(Time to maturity)	0.000989	0.00166	0.000986	0.00166	0.00112	0.00132	0.00114	0.00136
	(0.000774)	(0.00102)	(0.000774)	(0.00102)	(0.000760)	(0.00100)	(0.000760)	(0.00100)
ABR_stock	-0.000154	-0.000174	-0.000148	-0.000168	0.00712*	0.00717*	0.00729*	0.00733*
	(0.00410)	(0.00410)	(0.00410)	(0.00410)	(0.00398)	(0.00399)	(0.00398)	(0.00399)
Defendant		0.0000218		0.0000221		0.000214		0.000206
		(0.000284)		(0.000284)		(0.000279)		(0.000278)
Central SOE		0.000739		0.000742		-0.000183		-0.000186
		(0.00100)		(0.00100)		(0.000980)		(0.000980)
Local SOE		0.000997*		0.000992*		-0.0000859		-0.0000480
		(0.000572)		(0.000572)		(0.000563)		(0.000563)
Firm size		0.000544		0.000550		0.0000919		0.0000763
		(0.000388)		(0.000388)		(0.000383)		(0.000383)
Firm age		-0.0000408		-0.0000411		-0.0000724		-0.0000731
		(0.0000635)		(0.0000635)		(0.0000626)		(0.0000626)
Tangibility		0.0000680		0.0000381		-0.000480		-0.000384
		(0.00193)		(0.00193)		(0.00189)		(0.00189)
Leverage		-0.00291		-0.00295		-0.00172		-0.00169
		(0.00261)		(0.00261)		(0.00258)		(0.00258)
Profitability		0.00599		0.00602		-0.00487		-0.00494
		(0.00570)		(0.00570)		(0.00561)		(0.00561)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	24,024	24,024	24,024	24,024	23,896	23,896	23,896	23,896
R-sq.	0.0031	0.0032	0.0029	0.0031	0.0025	0.0026	0.0027	0.0028

Table 5: Effect of Lawsuits on Bond Yield Spread at Issue

This table reports the results of the regressions examining the effects of lawsuits on the at-issue bond yield spread. *Treated bond* equals 1 if the bond is issued by litigated firm, and 0 otherwise. The matched sample is defined by the one-to-one propensity-score-matching algorithm based on bond rating and firm characteristics including firm size, firm age, leverage, profitability and tangibility. All the other variables are defined in Appendix Table A.1. Robust standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Dep. Var.: At-issue Bond Yield Spread				
	Full sample		Matched sample	
	(1)	(2)	(3)	(4)
Treated bond	0.126**	0.109**	0.121**	0.126**
	(0.051)	(0.053)	(0.054)	(0.055)
SOE	-0.892***	-0.942***	-0.917***	-0.986***
	(0.060)	(0.059)	(0.065)	(0.063)
Bond rating score	-0.416***	-0.372***	-0.414***	-0.351***
	(0.026)	(0.028)	(0.031)	(0.031)
Callable	-0.103*	-0.147**	-0.082	-0.118**
	(0.056)	(0.058)	(0.073)	(0.061)
Collateral	0.325***	0.241***	0.348***	0.225***
	(0.065)	(0.067)	(0.069)	(0.074)
Log(Maturity)	0.416***	0.425***	0.441***	0.434***
	(0.116)	(0.116)	(0.122)	(0.128)
Log(Issuance vol.)	-0.147***	-0.107**	-0.139***	-0.091*
	(0.037)	(0.046)	(0.040)	(0.052)
Firm size		-0.095***		-0.139***
		(0.033)		(0.041)
Firm age		-0.008**		-0.012**
		(0.004)		(0.005)
Leverage		0.567***		0.746***
		(0.211)		(0.248)
Profitability		-3.285***		-4.182***
		(0.983)		(0.119)
Tangibility		-0.149		-0.110
		(0.144)		(0.167)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Obs.	1,040	1,040	938	938
R-sq.	0.5112	0.5295	0.4962	0.5213

Table 6: Lawsuits and bond properties: Subsample for firms with bond offerings both before and after lawsuits

This table reports the results of the regressions on the effects of lawsuits on at-issue bond spread using the subsample for firms that issued bonds both before and after lawsuit announcements. *After* equals 1 if the bond is issued after the litigation announcement, or 0 otherwise. *Lawsuit Num* equals the number of lawsuits that the disclosing firm has been involved in. *Non-SOE* equals 1 if the disclosing firm is a non-SOE, or 0 otherwise. All the other variables are defined in Appendix Table A.1. Robust standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Dep. Var.	*Bond Yield Spread*		*Log(Maturity)*		*Log(Issuance vol.)*	
	(1)	(2)	(3)	(4)	(5)	(6)
After * Non-SOE	0.225***	0.160**	0.00389	0.0107	-0.159	-0.178
	(0.0738)	(0.0659)	(0.0255)	(0.0277)	(0.112)	(0.113)
Lawsuit Num * After * Non-SOE		0.0223***		-0.00164		0.00371
		(0.00810)		(0.00190)		(0.0107)
Lawsuit Num.		-0.000633		0.000312		-0.00200
		(0.000878)		(0.000689)		(0.00365)
Lawsuit Num.* After		-0.000748		-0.000293		0.000315
		(0.00109)		(0.000931)		(0.00421)
Bond rating score	0.328	0.348	0.0110	0.00871	0.358	0.364
	(0.409)	(0.403)	(0.174)	(0.175)	(0.989)	(0.993)
Callable	-0.0186	-0.00696	0.0324	0.0312	0.723*	0.725*
	(0.223)	(0.219)	(0.0465)	(0.0464)	(0.378)	(0.381)
Collateral	-0.178	-0.195	-0.403***	-0.402***	1.567	1.566
	(0.525)	(0.517)	(0.0827)	(0.0834)	(1.056)	(1.061)
Log(Maturity)	0.577***	0.582***	-	-	0.452	0.453
	(0.120)	(0.118)	-	-	(0.352)	(0.355)
Log(Issuance vol.)	-0.0506	-0.0513	0.0400*	0.0401*	-	-
	(0.0556)	(0.0549)	(0.0232)	(0.0233)	-	-
year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	281	281	281	281	281	281
R-sq.	0.9441	0.9452	0.8341	0.8324	0.6974	0.6935

Table 7: Heterogeneity Tests: Being a Defendant or Losing the case

This table reports the results of the regressions examining whether the disclosing firm is a plaintiff or a defendant and whether the lawsuit outcome (i.e. win or lose) impacts the bond yield spread at issue. *Defendant* equals 1 if the disclosing firm is a defendant and 0 otherwise. *Lose* equals 1 if the disclosing firm loses the case and 0 otherwise. All the other variables are defined in Appendix Table A.1. Robust standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Dep. Var.: At-issue Bond Yield Spread				
	(1)	(2)	(3)	(4)
Defendant	0.246***	0.189**		
	(0.087)	(0.086)		
Lose			0.460***	0.366***
			(0.092)	(0.091)
SOE	-1.053***	-1.048***	-1.024***	-1.020***
	(0.107)	(0.112)	(0.112)	(0.115)
Log(Litigation stake)	-0.005	0.017	-0.005	0.022
	(0.021)	(0.021)	(0.023)	(0.023)
Bond rating score	-0.384***	-0.313***	-0.335***	-0.278***
	(0.053)	(0.059)	(0.055)	(0.061)
Callable	-0.006	-0.029	0.016	-0.023
	(0.119)	(0.116)	(0.125)	(0.121)
Collateral	0.342***	0.081	0.334**	0.102
	(0.122)	(0.130)	(0.131)	(0.136)
Log(Maturity)	0.813***	0.628***	0.986***	0.732***
	(0.215)	(0.210)	(0.236)	(0.231)
Log(Issuance vol.)	-0.161***	-0.218***	-0.156***	-0.194**
	(0.061)	(0.083)	(0.058)	(0.083)
Firm size		-0.082		-0.089
		(0.076)		(0.079)
Firm age		-0.004		-0.001
		(0.011)		(0.011)
Leverage		0.885**		0.588
		(0.451)		(0.453)
Profitability		-4.122**		-5.001***
		(1.704)		(1.707)
Tangibility		-0.908***		-1.093***
		(0.255)		(0.258)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Obs.	401	401	333	333
R-sq.	0.4951	0.5307	0.5307	0.5793

Table 8: Heterogeneity Test: Being Sued by a Bank

This table reports the results of the regressions examining the effect of lawsuits on bond yield spread at issue if the firm is sued by a bank. The dummy *Sued by Bank* equals one if the firm is sued by a bank in loan related cases. *Log(litigation state)* is defined as the logarithm of the money amount of the plaintiff's claims. All the other variables are defined in Appendix Table A.1. Robust standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Dep. Var.: At-issue Bond Yield Spread		
	(1)	(2)
Sued by Bank	0.582***	0.529***
	(0.112)	(0.104)
SOE	-1.043***	-1.052***
	(0.094)	(0.099)
Log(Litigation stake)	-0.222	-0.000
	(0.024)	(0.022)
Bond rating score	-0.386***	-0.308***
	(0.049)	(0.055)
Callable	-0.006	-0.037
	(0.106)	(0.109)
Collateral	0.412***	0.146
	(0.120)	(0.131)
Log(Maturity)	0.768***	0.593**
	(0.282)	(0.282)
Log(Issuance vol.)	-0.119**	-0.171**
	(0.057)	(0.074)
Firm size		-0.110
		(0.072)
Firm age		-0.008
		(0.010)
Leverage		1.052**
		(0.453)
Profitability		-3.648**
		(1.909)
Tangibility		-0.710***
		(0.261)
Year FE	Yes	Yes
Industry FE	Yes	Yes
Obs.	401	401
R-sq.	0.5363	0.5731

Table 9: Effect of Lawsuits on Non-Pricing Bond Characteristics

This table reports the results of the regressions on the effects of lawsuits on non-spread bond characteristics, including bond maturity, issuance volume, bond rating, call option and collateral terms, using the propensity-score-matched sample. *Treated bond* equals 1 if the bond is issued by litigated firm and 0 otherwise. All the other variables are defined in Appendix Table A.1. Robust standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Dep. Var.	*Log(Maturity)*	*Log(Issuance vol.)*	*Callable*	*Collateral*	*Bond Rating Score*
	(1)	(2)	(3)	(4)	(5)
Treated Bond	-0.066***	-0.080*	0.052*	-0.048	-0.221***
	(0.019)	(0.041)	(0.031)	(0.036)	(0.061)
SOE	0.075***	-0.017	-0.127***	0.074*	0.387***
	(0.024)	(0.048)	(0.041)	(0.042)	(0.084)
Treated Bond* SOE	0.059**	0.161**	-0.134**	0.136**	0.245**
	(0.029)	(0.067)	(0.052)	(0.053)	(0.106)
Bond rating score	0.021**	-0.041**	-0.077***	0.020***	-
	(0.010)	(0.020)	(0.018)	(0.014)	-
Callable	0.218***	0.091**	-	-0.127***	-0.330***
	(0.023)	(0.047)	-	(0.035)	(0.079)
Collateral	0.016	0.048	-0.129***	-	0.885***
	(0.023)	(0.042)	(0.036)	-	(0.072)
Log(Maturity)	-	-0.092	0.612***	0.043	0.247**
	-	(0.076)	(0.063)	(0.062)	(0.119)
Log(Issuance vol.)	-0.020	-	0.054*	0.028	-0.103**
	(0.016)	-	(0.029)	(0.024)	(0.051)
Firm size	0.063***	0.571***	-0.134***	-0.201***	0.683***
	(0.016)	(0.021)	(0.025)	(0.022)	(0.042)
Firm age	-0.001	0.003	-0.002	0.001	-0.002
	(0.002)	(0.003)	(0.003)	(0.003)	(0.005)
Leverage	-0.271***	-1.144***	0.654***	0.867***	-2.682***
	(0.089)	(0.162)	(0.135)	(0.144)	(0.280)
Profitability	-0.664**	-0.615	1.191**	-0.661	-0.816
	(0.274)	(0.654)	(0.490)	(0.503)	(1.019)
Tangibility	0.193***	-0.457***	-0.173	-0.236**	-0.141
	(0.060)	(0.130)	(0.110)	(0.103)	(0.238)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Obs.	938	938	938	938	938
R-sq.	0.3606	0.6441	0.3824	0.4771	0.6338

Table 10: Mitigating Factor: Firms' Political Connection

This table reports the results of the regressions examining the impact of firms' political connection as a mitigating factor on spread-to-litigation sensitivity. *Treated bond* equals 1 if the bond is issued by litigated firm and 0 otherwise. All the other variables are defined in Appendix Table A.1. Robust standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Dep. Var.: At-issue Bond Yield Spread		
	Central SOE	Local SOE	Non-SOE
	(1)	(2)	(3)
Treated Bond	-0.115	0.019	0.257***
	(0.707)	(0.076)	(0.088)
Bond rating score	-0.288***	-0.236***	-0.542***
	(0.038)	(0.038)	(0.072)
Callable	-0.161**	-0.401***	0.200
	(0.079)	(0.081)	(0.146)
Collateral	-0.044	-0.016	0.363***
	(0.091)	(0.084)	(0.131)
Log(Maturity)	0.628***	0.409***	0.433*
	(0.116)	(0.139)	(0.239)
Log(Issuance vol.)	0.012	-0.135**	0.030
	(0.069)	(0.066)	(0.086)
Firm size	-0.131***	-0.140**	-0.307***
	(0.042)	(0.059)	(0.086)
Firm age	-0.007	-0.008	-0.012
	(0.005)	(0.006)	(0.009)
Leverage	-0.774**	0.376	1.398***
	(0.321)	(0.294)	(0.396)
Profitability	-6.916***	-2.053*	-6.700***
	(1.812)	(1.103)	(1.651)
Tangibility	0.123	-0.045	-0.630**
	(0.162)	(0.186)	(0.304)
Chi-sq.	(Central, Non-SOE)=12.34***		
(Treated bond)	(Local, Non-SOE)=4.45**		
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Obs.	172	376	492
R-sq.	0.7953	0.5164	0.4532

Table 11: Testing the Effect of Legal Environment and Social Capital

In this table, we examine the effect of lawsuits on bond yield spread in provinces with different levels of legal environment and social capital. *Treated bond* equals 1 if the bond is issued by litigated firm and 0 otherwise. Here, we use the Producer Property Rights Index in 2009 to measure legal environments and the social trust index from China General Social Survey in 2003 (Wu, Firth and Rui 2014) to measure the social capital levels of different provinces. Strong-legal environment and weak-legal environment regions, and High-social capital and low-social capital regions are defined based on the sample mean. All the other variables are defined in Appendix Table A.1. Robust standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Dep. Var.: At-issue Bond Yield Spread			
	Strong legal environment	Weak legal environment	High social capital region	Low social capital region
	(1)	(2)	(3)	(4)
Treated bond	0.0373	0.313***	0.197***	0.0457
	(0.0627)	(0.114)	(0.0746)	(0.0770)
SOE	-0.943***	-1.085***	-1.024***	-0.948***
	(0.0665)	(0.130)	(0.0881)	(0.0886)
Bond rating score	-0.393***	-0.343***	-0.228***	-0.432***
	(0.0328)	(0.0550)	(0.0490)	(0.0424)
Callable	-0.199***	0.0104	-0.130	-0.131
	(0.0642)	(0.155)	(0.0983)	(0.0994)
Collateral	0.263***	0.0779	0.0339	0.427***
	(0.0767)	(0.159)	(0.0964)	(0.0957)
Log(Maturity)	0.521***	0.194	0.869***	-0.0727
	(0.140)	(0.210)	(0.163)	(0.155)
Log(Issuance vol.)	-0.00852	-0.317***	-0.0682	-0.0965
	(0.0577)	(0.0795)	(0.0735)	(0.0736)
Firm size	-0.133***	0.0407	-0.259***	-0.00942
	(0.0403)	(0.0775)	(0.0670)	(0.0520)
Firm age	-0.00344	-0.0406***	-0.00696	-0.00931
	(0.00451)	(0.0140)	(0.00761)	(0.00629)
Leverage	0.463**	0.743	0.431	0.827***
	(0.228)	(0.715)	(0.311)	(0.317)
Profitability	-3.011***	-3.098	-3.821***	-2.650**
	(1.040)	(2.617)	(1.278)	(1.288)
Tangibility	-0.248	-0.0518	-0.255	-0.0608
	(0.174)	(0.273)	(0.223)	(0.206)
Cons	8.762***	6.369***	10.71***	6.824***
	(0.800)	(1.682)	(1.394)	(1.229)
Chi-sq. (Treated bond)	(Strong legal envir, weak legal envir) =8.65**		(High social capital, low social capital) =8.73**	
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Obs.	843	197	532	508
R-sq.	0.527	0.571	0.5340	0.5558

Table 12: Robustness: Reputation Penalty or Insolvency Risk?

In this table we test the alternative, insolvency hypothesis, by taking into account litigation-induced contingent liability to firm's cash flow status. *Ch/Lstake* is the ratio of cash holdings at the beginning of the year to the litigation stake when the firm is litigated. We use both the full sample and the subsample of loan-related lawsuits. All the other variables are defined in Appendix Table A.1. Robust standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

	Dep. Var.: At-issue Bond Yield Spread					
	Full sample			Sub-sample: loan-related cases		
	Full sample	Ch/Lstake >5	Ch/Lstake >10	Loan-related cases	Ch/Lstake >5	Ch/Lstake >10
	(1)	(2)	(3)	(4)	(5)	(6)
Ch/Lstake	-0.000***	-0.000*	0.000	-0.003**	-0.002	-0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
Bond rating score	-0.375***	-0.327***	-0.296***	-0.544***	-0.431**	-0.075
	(0.059)	(0.061)	(0.069)	(0.186)	(0.167)	(0.093)
Callable	0.307**	0.271*	0.375***	0.272	0.250	1.349***
	(0.136)	(0.145)	(0.143)	(0.413)	(0.327)	(0.180)
Collateral	-0.115	-0.046	-0.057	-1.106*	-0.538	-1.796***
	(0.138)	(0.141)	(0.155)	(0.562)	(0.450)	(0.224)
Log(Maturity)	0.257	0.243	0.236	-2.162	0.635	0.964***
	(0.361)	(0.362)	(0.405)	(1.621)	(1.267)	(0.261)
Log(Issuance vol.)	-0.344***	-0.176**	-0.163**	0.757	0.836	-2.817***
	(0.098)	(0.084)	(0.081)	(0.684)	(0.536)	(0.343)
Firm size	0.115	0.000	-0.017	-0.909	-0.524	-2.685***
	(0.080)	(0.074)	(0.073)	(0.628)	(0.526)	(0.331)
Firm age	-0.005	-0.017	-0.028**	-0.041	-0.126***	-0.088***
	(0.013)	(0.012)	(0.014)	(0.039)	(0.041)	(0.014)
Leverage	-0.248	0.691	0.671	-0.192	0.368	3.501***
	(0.449)	(0.428)	(0.409)	(1.250)	(2.014)	(0.802)
Profitability	-4.512**	-0.294	0.469	-11.399**	0.665	-1.552
	(1.936)	(1.759)	(1.730)	(4.791)	(7.089)	(1.455)
Tangibility	-1.247***	-0.366	-0.169	0.137	-0.106	0.692**
	(0.379)	(0.435)	(0.410)	(1.539)	(1.229)	(0.257)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	247	216	196	37	27	23
R-sq.	0.4252	0.4009	0.4435	0.9136	0.9344	0.9954

Table 13: Robustness: Isolating the Credit Rating Effect

This table reports the results of the effects of lawsuits on at-issue bond yield spread using sub-samples of different rating scores. *Treated bond* equals 1 if the bond is issued by litigated firm and 0 otherwise. All the other variables are defined in Appendix Table A.1. Robust standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Dep. Var.: At-issue Bond Yield Spread					
	Rating score=5	Rating score=6	Rating score=7	Rating score=9	Full sample
	(1)	(2)	(3)	(4)	(5)
Treated bond	5.379***	0.318***	0.136**	0.028*	1.063***
	(0.000)	(0.101)	(0.053)	(0.013)	(0.317)
SOE	0.734***	-1.036***	-0.979***	-0.425***	-0.948***
	(0.000)	(0.126)	(0.146)	(0.145)	(0.0597)
Treated * SOE	-	-0.130**	-0.124**	-	-
	-	(0.066)	(0.058)	-	-
Rating score	-	-	-	-	-0.314***
	-	-	-	-	(0.033)
Treated bond* Rating score					-0.138***
					(0.042)
Callable	-	-0.196	-0.343***	-0.107*	-0.163***
	-	(0.131)	(0.108)	(0.061)	(0.057)
Collateral	-	0.408***	0.283**	0.009	0.263***
	-	(0.117)	(0.134)	(0.082)	(0.068)
Log(Maturity)	5.717***	0.415*	1.294***	0.221**	0.420***
	(0.000)	(0.234)	(0.282)	(0.100)	(0.115)
Log(Issuance vol)	-3.998***	-0.197**	-0.037	0.096	-0.105**
	(0.000)	(0.082)	(0.100)	(0.062)	(0.046)
Firm size	0.478***	-0.033	-0.215**	-0.156***	-0.109***
	(0.000)	(0.093)	(0.092)	(0.037)	(0.0336)
Firm age	-	-0.013	-0.000	-0.005	-0.00909**
	-	(0.008)	(0.010)	(0.004)	(0.00421)
Leverage	-	0.349	0.180	0.345	0.578***
	-	(0.336)	(0.432)	(0.358)	(0.210)
Profitability	-	-4.973***	-5.358**	-1.836	-3.453***
	-	(1.616)	(2.197)	(1.299)	(0.972)
Tangibility	-	-0.753**	0.315	0.047	-0.186
	-	(0.320)	(0.333)	(0.109)	(0.145)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Obs.	13	485	285	206	1,040
R-sq.	0.9999	0.3785	0.4922	0.5880	0.5250

Table 14: Robustness: Instrumental Variable Analysis

This table presents the two-stage least-squares (2SLS) regression results to address the omitted variable concern. The instrumental variables in the first stage are the number of law offices per 10,000 population in Columns (1) and (2), the number of law offices per 10,000 urban population in Columns (3) and (4), the reciprocal of social capital measure from CGSS in Columns (5) and (6), and the natural logarithm of wheat index over rice index in Column (7) and Column (8), respectively. We report 1st stage results as well as the reduced form estimation. All the other variables are defined in Appendix Table A.1. Robust standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Dep. Var.	*Treated*	*Bond spread*	*Treated*	*Bond spread*	*Treated*	*Bond spread*	*Treated*	*Bond spread*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated bond	-	1.282*	-	1.231**	-	0.427**	-	0.154***
	-	(0.768)	-	(0.620)	-	(0.154)	-	(0.0408)
Law_off num	0.492**	-						
	(0.203)	-						
Law_off num urban			0.710***	-				
			(0.228)	-				
Rec social trust					0.463***	-		
					(0.126)	-		
Log (wheat_ov_rice)							0.0351**	-
							(0.0146)	-
SOE	0.055	-1.024***	0.055	-1.021***	0.0734**	-0.885***	0.103***	-0.885***
	(0.065)	(0.132)	(0.064)	(0.130)	(0.0360)	(0.0539)	(0.0364)	(0.0564)
Bond rating score	-0.029	-0.388***	-0.029	-0.389***	-0.0176	-0.343***	-0.0193	-0.339***
	(0.037)	(0.080)	(0.037)	(0.077)	(0.0170)	(0.0246)	(0.0173)	(0.0261)
Callable	0.215***	-0.632***	0.209***	-0.620***	-0.00589	-0.172***	-0.0125	-0.206***
	(0.078)	(0.238)	(0.078)	(0.214)	(0.0387)	(0.0514)	(0.0387)	(0.0531)
Collateral	0.126*	0.172	0.131*	0.178	0.0231	0.216***	0.0281	0.207***
	(0.076)	(0.205)	(0.076)	(0.194)	(0.0392)	(0.0595)	(0.0398)	(0.0622)
Log(Maturity)	-0.215	0.429	-0.223	0.420	-0.118*	0.433***	-0.106	0.520***
	(0.168)	(0.403)	(0.167)	(0.393)	(0.0666)	(0.107)	(0.0669)	(0.112)
Log(Issuance vol.)	0.078	0.020	0.076	0.025	0.00508	-0.134***	0.0131	-0.117***
	(0.063)	(0.124)	(0.063)	(0.116)	(0.0282)	(0.0397)	(0.0291)	(0.0404)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	364	364	364	364	1,046	1,046	1,009	1,009
R-sq.	0.1134	0.2437	0.1229	0.2663	0.1381	0.5202	0.1453	0.5124

Table 15: Robustness: Switching Model Analysis

This table presents the switching model regression results to address the self-selection bias of the simple OLS estimator of the treatment effect (the treated dummy). The dependent variable in the first step (a Probit model regression) is the dummy *Treated bond*, and we assume that a set of firm characteristics affect the probability of litigation. To meet the exclusion restrictions, we only control for bond characteristics and firm ownership dummy in the second step. All the other variables are defined in Appendix Table A.1. Robust standard errors are in parentheses. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Dep. Var.	*Treated bond*	*Bond yield spread*
	(1)	(2)
Treated bond		0.377**
		(0.161)
SOE		-0.873***
		(0.070)
Bond rating score		-0.396***
		(0.034)
Callable		-0.034
		(0.077)
Collateral		0.289***
		(0.073)
Log(Maturity)		0.564***
		(0.135)
Log(Issuance vol.)		-0.067
		(0.043)
Firm size	-0.087*	
	(0.046)	
Firm age	0.043***	
	(0.012)	
Leverage	1.337***	
	(0.439)	
Profitability	3.593*	
	(2.076)	
Tangibility	-1.757***	
	(0.302)	
Z-score	-0.218**	
	(0.101)	
Year FE	Yes	Yes
Industry FE	Yes	Yes
Obs.	767	767
Lambda	-	-0.198*
	-	(0.120)

APPENDIX

Table A-1: Variable Definitions

Variable	Definition
Log (Issuance vol.)	= the logarithm of issuance volume of bonds.
Coupon rate	= the annual coupon rate of the bond.
At-issue bond yield	= the at-issue yield of the bond.
At-issue bond yield spread	= the difference between the at-issue yield of the bond and the 3-year treasury bond yield at the date of issuance.
Log (maturity)	= the logarithm of the maturity of the bond in years.
Callable	= 1 if the issue is callable on a pre-determined schedule; 0 otherwise.
Collateral	=1 if the issue is based on collateral; 0 otherwise.
Bond rating score	= the numeric score of the bond rating, e.g. 9 for AAA+, 8 for AAA, etc.
Bond price	= the daily closing price of the bond.
Bond trading vol.	= the daily trading volume of the bond in thousands of RMB.
Time to maturity	= the number of years between the trading date and the maturity date of the issue.
Daily bond return	= the actual daily bond return, calculated as: $$BR_t = \frac{BP_{t+1} + C_t - BP_t}{BP_t}$$ where BP_{t+1} is the bond price on day t+1; BP_{t+1} is the bond price on day t; C_t is the coupon payments between day t and t+1.
Clean daily bond return	$$BR_t = \frac{BP_{t+1} - BP_t}{BP_t}$$ where BP_{t+1} is the bond price on day t+1; BP_{t+1} is the bond price on day t;
Excess bond return	= the difference between the treated firm's and its control firm's daily bond returns.
Premium Bond return (PBR)	=daily bond return minus the return on a matched Treasury security (TR)
Abnormal bond return (ABR)	= premium bond return minus the average PBR in the previous month
Excess trading vol.	= the difference between the treated firm's and its control firm's daily trading volume in thousands of RMB.
ABR_stock	= abnormal stock return of the issuers.
Firm size	= the logarithm of total assets.
Firm age	= the logarithm of the difference between the issuance/trading year and the firm's establishment year.
Profitability	= the ratio of net profit to total assets.
Leverage	= the ratio of total debt to total assets.
Tangibility	= the ratio of fixed assets to total assets.
SOE	= 1 if the firm is state-owned enterprise (SOE); 0 otherwise.
Central SOE	= 1 if the firm is central SOE; 0 otherwise.
Local SOE	= 1 if the firm is local SOE; 0 otherwise.
Defendant	=1 if the firm is the defendant in the case; 0 otherwise
Log (Litigation stake)	= the logarithm of the money amount of the plaintiff's claims.
Loan related suit	= 1 if the lawsuit is loan-related (bank loan or inter-corporate loan); 0 otherwise.
Sued by bank	= 1 if the firm is sued by a bank; 0 otherwise.

Lose	=1 if the litigated firm lost the case; 0 otherwise.
Lawsuit Num.	= the number of lawsuits in which the firm has been involved.
Ch/Lstake	=the ratio of cash holding at the beginning of the year when the case is filed to the litigation stake.
Law_off num	=the number of law offices per 10 thousands residents in the province.
Law_off num urban	= the number of law offices per 10 thousands urban residents in the province.
Rec social trust	= the reciprocal of the social capital index from China General Social Survey (CGSS) of 2003.
Log (wheat_ov_rice)	= the natural logarithm of the wheat index over rice index. The indices suggest the crop suitability for low input level rain-fed wheat and wetland rice, respectively. The data are from Food and Agriculture Organization of the United Nations.