How Lenders Evaluate Lawsuits? Evidence from Corporate Bond Market

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Motivation

- Reputation capital and contract term
  - Reputation loss & negative market returns (Palmrose, Richardson and Scholz, 2004, JAE; Karpoff and Lou, 2010, JF);
  - Reputation loss and higher risk (Murphy, Shrieves, and Tibbs, 2009, JFQA);
  - Lower future sales (Barber and Darrough, 1996, JPE).
  - Reputation loss and management turnover (Desai, Hogan and Wilkins, 2006, AR)
- Little has know on the reaction of firms' public debt holders
  - Public debt holders often have less control of the firm compared with equity and private debt holders (Diamond, 1991).
  - Bond data contains multidimensional contractual features (e.g. spread, maturity, rating, call option, collateral requirement, etc.) that do not exist in equities.

This Paper

- **Study how reputation damage affect cost of public debt financing**

- Use litigation as special events that shock firms' reputational capital

- Use two unique data sets: the universe of material lawsuits of Chinese listed firms, and the issuance and daily return of all CSRC regulated corporate bonds in China

This Paper

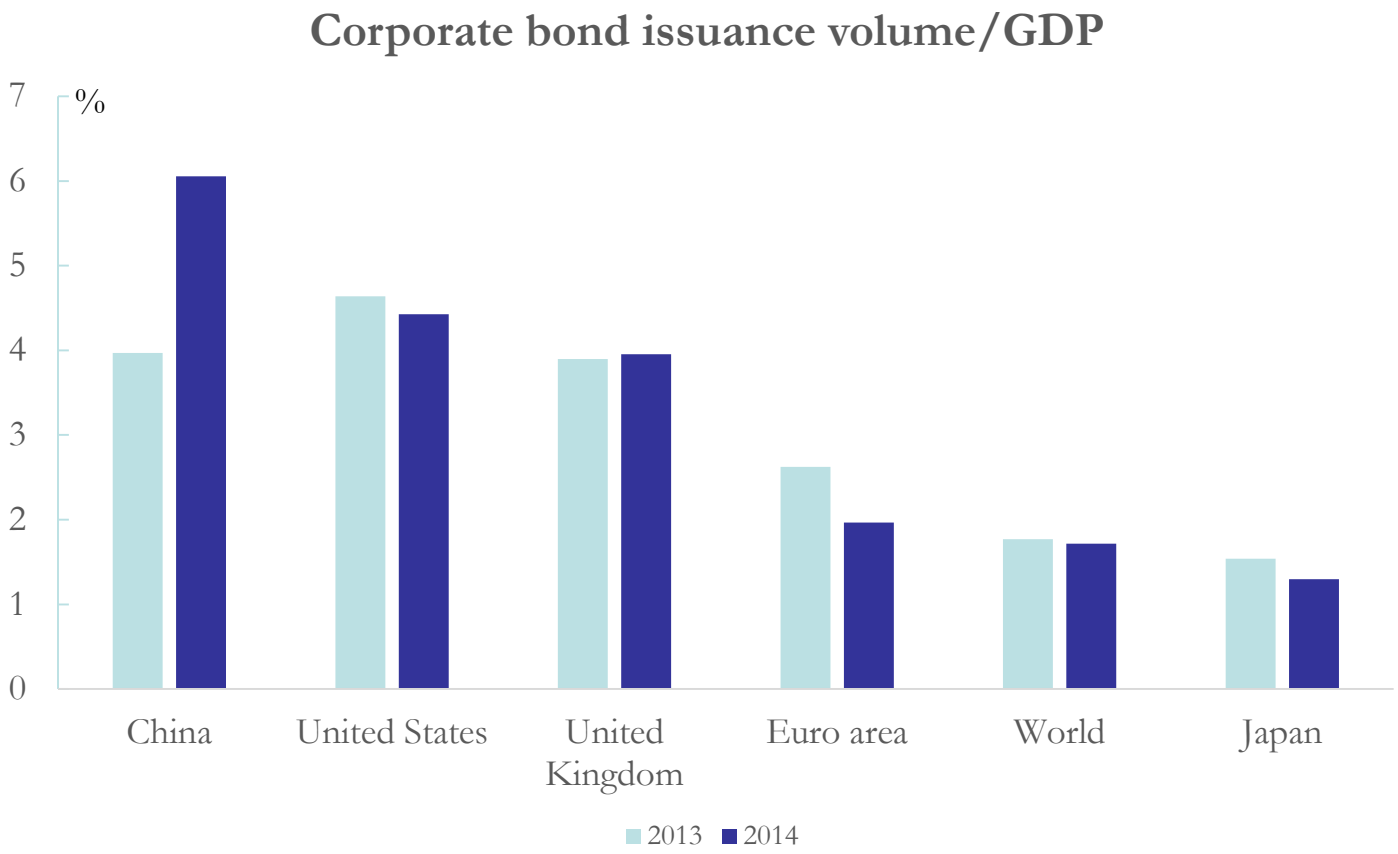
- China provides a **unique setting** where public bondholders have the potential to improve the governance of the firm

  - China's corporate bond issuance volume as a percentage of GDP is 6.1%, ranked 1st in the world in 2014;

  - **In a country where legal protection of investors is weak, safeguards for "promise keeping" are largely based on alternative channels such as firms' reputation and political connections (**Allen, Qian and Qian, 2005, JFE**)**

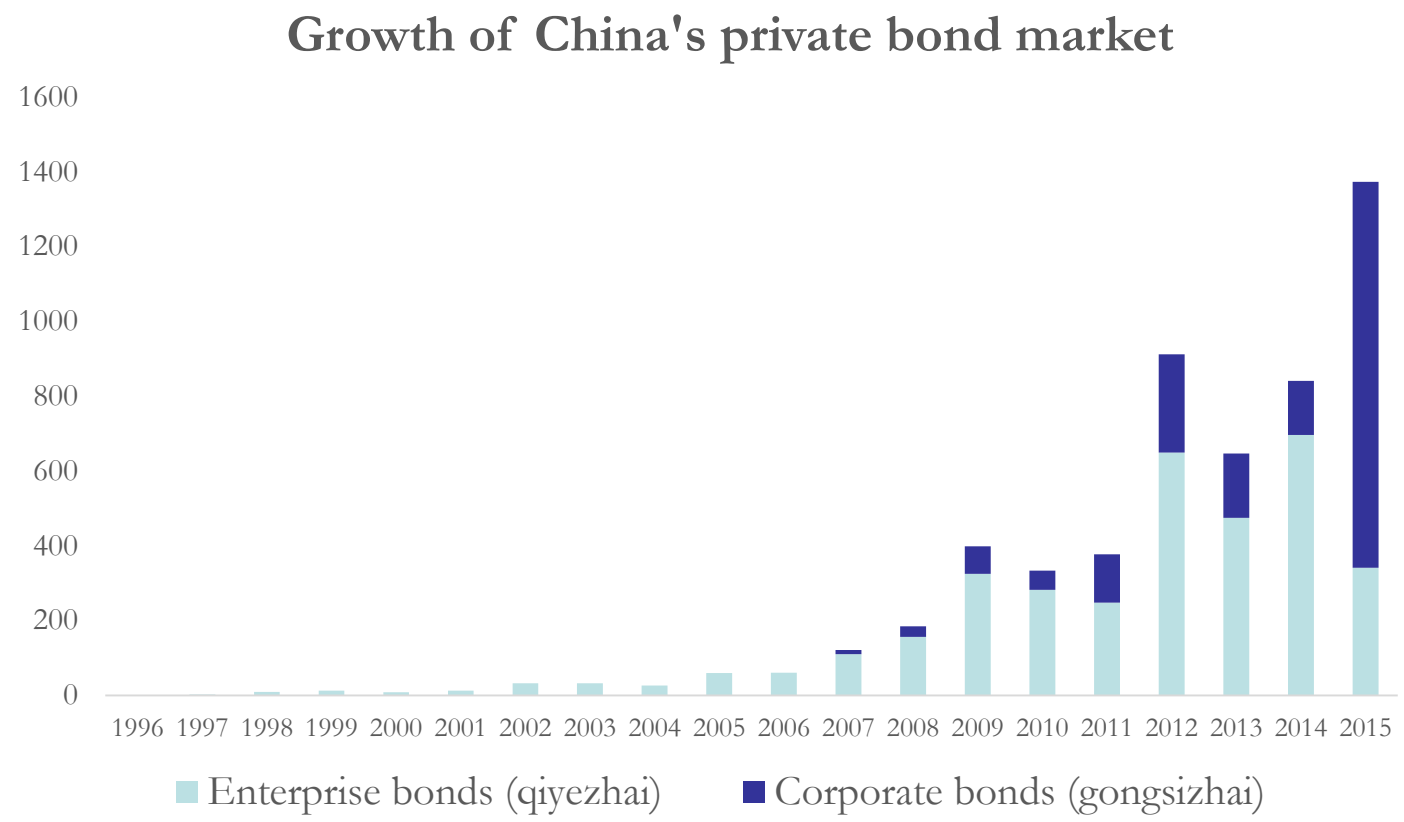
  - Fast growth of public debt market could serve as a complement to, or even substitute for poor governance role

Comparison of corporate bond market growth



Source: World Bank Global Finance Development Database.

China's corporate bond market



Source: WIND

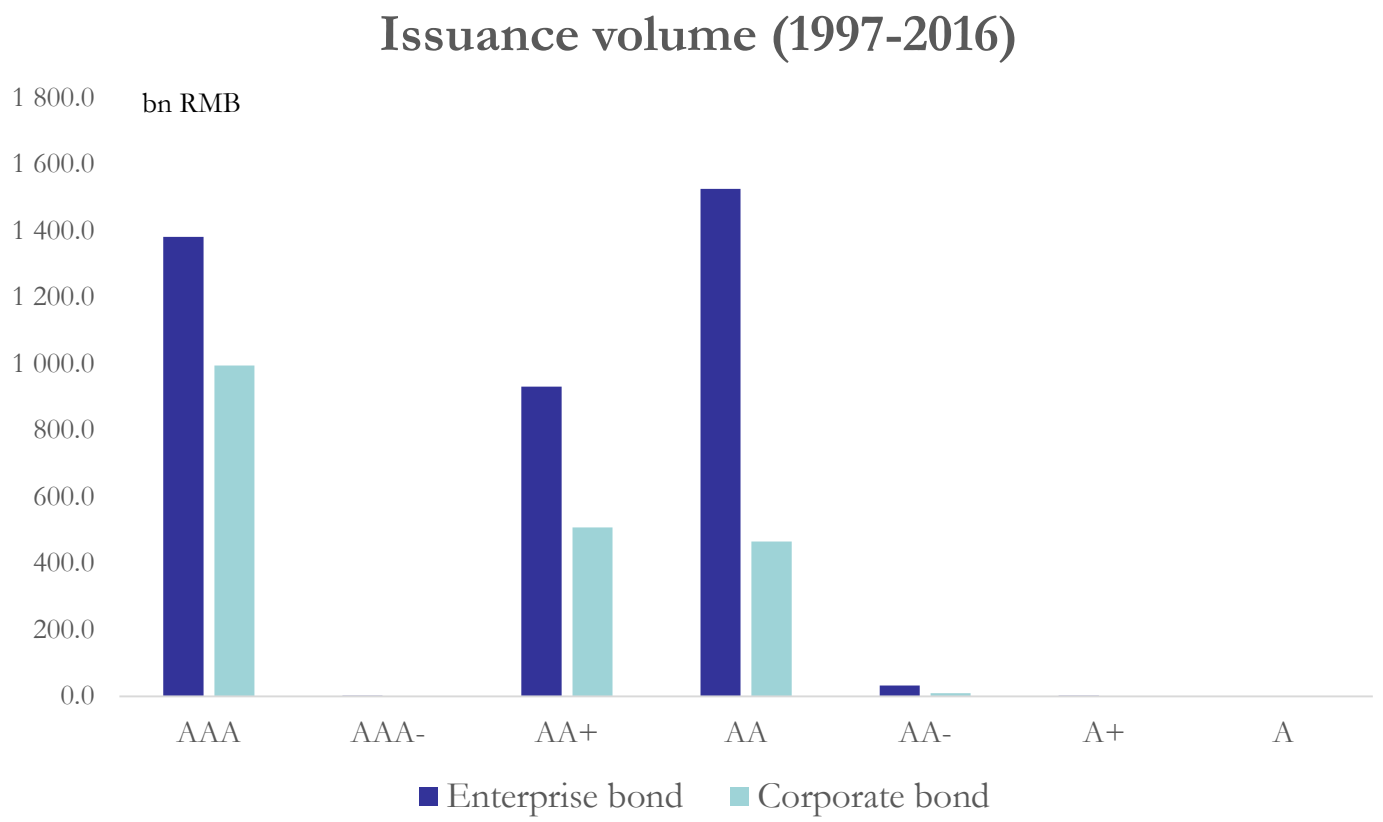
China's corporate bond market

	Regulator	Investors	Trading
Corporate bonds	CSRC (China Securities Regulatory Commission)	Both institutional and retail investors	Shanghai and Shen Stock Exchanges
Enterprise bonds	NDRC (National Development and Reform Commission)	Institutional investors	Interbank market

China's corporate bond market

	Full sample obs.	Mean	Dummy=1 (percent)	Dummy=0 (percent)	Std. Dev.	Min	Max
Corporate bond							
Bond issued by listed firms	743	0.76	561 (76%)	182(26%)	0.43	0	1
Bond issued by SOE	743	0.53	395 (53%)	348 (47%)	0.50	0	1
Chengtou Bond	743	0.09	67 (9%)	676 (91%)	0.29	0	1
Issuance vol. (bn RMB)	743	1.51	-	-	1.66	0.08	16.0
Maturity(year)	743	5.63	-	-	1.79	2	15
Enterprise bond							
Bond issued by listed firms	4,406	0.01	34 (1%)	4,372 (99%)	0.09	0	1
Bond issued by SOE	4,406	0.95	4,204 (95%)	202 (5%)	0.21	0	1
Chengtou Bond	4,406	0.82	3,634 (82%)	772 (18%)	0.38	0	1
Issuance vol. (bn RMB)	4,406	1.35	-	-	1.24	0.02	20.0
Maturity(year)	4,406	7.46	-	-	2.03	3	30

Distribution of bond rating



Outline of the rest of presentation

- Descriptive statistics
- Determinants of bond yield spread and non-spread characteristics
- Solvency concerns or reputation loss
- The credit rating effect
- IVs
- Event study: litigation announcement and abnormal bond return

Data

- Data on corporate bonds,
  - Bond issuance from 2007 to 2015, Source: WIND
    - Bond yield, maturity, issue size, rating, collateral, call option
  - Bond daily price and trading volume from 2007 to 2015, Source: WIND
- Data on bond issuers
  - Firm size, age, profitability, leverage, tangibility, cash flow, etc., Source: iFIND
  - Industry
- Data on litigation,
  - Lawsuit filing date, announcement date, lawsuit type, court information, defendant/plaintiff, case outcome (win or lose), indemnification amount, etc., Source: WIND
- Other information
  - Treasury bond rate, Source: China Bond

Sample

- Bond issuance sample: 1048 bonds from 2007 to 2015
  - 469 bonds (treated) are issued by the listed firms with lawsuits
  - The rests (control) are issued by the listed firm without lawsuits

- Lawsuits: 451 unique suits involved in the bond issuance sample.
  - 3 lawsuit types: bank loans and inter-corporate loans; other (regular business) contracts; and tort cases.
  - A firm is treated only if the firm is or was involved in a lawsuit ***before*** the bond issuance

- Bond return sample: 268 corporate bonds with price and trading information
  - 134 bonds (treated) issued by the listed firm with lawsuits
  - 134 bonds (control) issued by the listed firms without lawsuits
  - A firm is treated only the firm is litigated ***after*** its bond has been actively traded in the secondary market.

Determinants of yield spread

- Hypothesis 1: Bond yield spread is significantly higher for the litigated firms than non-litigated firms.
  - In China, corporate bond issuers are large listed firms with high investment grade rating- their bankruptcy risk is almost 0.
  - Litigation represents shocks to firms' reputation capital thus expected loss in the present value of future cash flows.
  - Public debt investors are expected to react to firms' litigation by using tighter contract terms to overcome information problems.

Determinants of yield spread

- The at-issue bond yield spread is significantly higher for litigated firms than for control firms.
- Holding all else constant at mean levels, the bonds issued by litigated firms have 4.9% (0.126/2.59) higher yield spread compared to the bonds by non-litigated firms.

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 Characteristics	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Obs.	1,041	1,040	938	938
R-sq.	0.5112	0.5295	0.4962	0.5213

Determinant of yield spread

- Hypothesis 2: Firms' political connection in terms of state-ownership serves as a mitigating factor to the reputation damage of the litigation
  - In countries of weak legal and judicial protection of investors, information institutions such as those based on reputations and networks serve as alternative protection for contract formation (AQQ, 2015).
  - Firms' political connections, in terms of state ownership, to serve as alternative protection to public debt investors.

Determinants of yield spread

- Being a defendant is more harmful to reputation thus impose higher risk on the issuers.
- If the disclosing firm is the defendant, the at-issue bond yield spread would be 9.5% (0.246/2.59) higher.

Table: Effect of lawsuits on bond yield at issue: the defendant effect

Dep. Var.: At-issue Bond Yield Spread				
	(1)	(2)	(3)	(4)
Defendant	0.246***	0.759***	0.189**	0.716***
	(0.087)	(0.119)	(0.086)	(0.121)
SOE	-1.053***	-0.545***	-1.048***	-0.596***
	(0.107)	(0.133)	(0.112)	(0.132)
Defendant * SOE		-0.951***		-0.942***
		(0.157)		(0.158)
Log(Indemnification amount)	-0.005	-0.003	0.017	0.017
	(0.021)	(0.020)	(0.021)	(0.020)
Bond rating score	-0.384***	-0.410***	-0.313***	-0.321***
	(0.053)	(0.051)	(0.059)	(0.056)
Bond characteristics	Yes	Yes	Yes	Yes
Firm characteristics	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Obs.	401	401	401	401
R-sq.	0.4951	0.5377	0.5307	0.5699

"Loan-related" type lawsuits

- Of our primary interest is ***loan-related lawsuits***.

- Many bank loan covenants contain the "cross-default provision" that allows lenders to call a default under the loan agreement when the borrower default on a third party.
  - Loan related lawsuits thus constitute larger shock to borrower's creditworthiness than other types of cases.

- Moreover, we consider being sued by a bank to be particularly damaging to issuer's reputation, for banks have private information and tend to have repeated relationship with the issuer.
  - In a network based and non-litigious environment like China, being sued by "acquaintance" sends strong signal on borrower's loss of reputation.
  - In addition, due to the network effect of financial institutions who participate in both private and public debt market, defaulting on a bank in the private debt market is more likely to induce changes in loan contracts in the public debt market.

"Loan-related" type lawsuits

Table: Effect of lawsuits on bond yield spread at issue: loan related lawsuits

Dependent Variable: At-issue Bond Yield Spread								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Loan related suit	0.492***	0.888***			0.448***	0.869***		
	(0.098)	(0.138)			(0.099)	(0.133)		
Sued by Bank			0.582***	0.948***			0.529***	0.913***
			(0.112)	(0.134)			(0.104)	(0.128)
SOE	-1.063***	-0.810***	-1.043***	-0.812***	-1.072***	-0.853***	-1.052***	-0.862***
	(0.105)	(0.106)	(0.094)	(0.1009)	(0.110)	(0.109)	(0.099)	(0.106)
Loan related suit*SOE		-0.953***				-0.960***		
		(0.158)				(0.158)		
Sued by Bank * SOE				-1.150***				-1.134***
				(0.154)				(0.156)
Log(Indemnification amount)	-0.016	-0.017	-0.222	-0.017	0.005	0.005	-0.000	0.004
	(0.021)	(0.022)	(0.024)	(0.023)	(0.021)	(0.021)	(0.022)	(0.021)
Bond character.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm character.	No	No	No	No	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.	401	401	401	401	401	401	401	401
R-sq.	0.5165	0.5614	0.5363	0.5664	0.5491	0.5973	0.5731	0.6009

"Loan-related" type lawsuits

- If the disclosing firm is involved in a loan related suit, then the bond yield spread is 19.0% (0.492/2.59) higher on average.

- If the disclosing firm is sued by a bank in loan-related suits, the bond yield spread is 22.4 (0.582/2.59) higher on average.

Win or lose the case?

- If the disclosing firm loses the case, then the reputation damage should be significantly higher than winning the case.

- If a firm loses, then the bond yield spread is 17.8% (0.460/2.59) higher. Compared to the baseline average situation, the effect is much stronger here.

Table: Effect of lawsuits on bond yield spread at issue: win or lose?

Dependent Variable: At-issue Bond Yield Spread				
	(1)	(2)	(3)	(4)
Lose	0.460***	0.884***	0.366***	0.736***
	(0.092)	(0.123)	(0.091)	(0.127)
SOE	-1.024***	-0.614***	-1.020***	-0.711***
	(0.112)	(0.136)	(0.115)	(0.135)
Lose * SOE		-0.854***		-0.702***
		(0.170)		(0.172)
Log(Indemnification amount)	-0.005	-0.009	0.022	0.014
	(0.023)	(0.021)	(0.023)	(0.022)
Bond rating score	-0.335***	-0.363***	-0.278***	-0.293***
	(0.055)	(0.054)	(0.061)	(0.059)
Other bond characteristics	0.016	-0.008	-0.023	-0.051
Firm characteristics	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Obs.	333	333	333	333
R-sq.	0.5326	0.5669	0.5793	0.5750

The Role of Political Connections

Table: Effect of lawsuits on bond yield spread: within SOEs difference

Dependent Variable: At-issue Bond Yield Spread						
	Full sample			Matched sample		
	Central SOE	Local SOE	Non-SOE	Central SOE	Local SOE	Non-SOE
Treated Bond	-0.115	0.019	0.257***	-0.118	0.028	0.272***
	(0.707)	(0.076)	(0.088)	(0.072)	(0.078)	(0.089)
Rating score	-0.288***	-0.236***	-0.542***	-0.264***	-0.242***	-0.522***
	(0.038)	(0.038)	(0.072)	(0.043)	(0.041)	(0.080)
Callable	-0.161**	-0.401***	0.200	-0.072	-0.444***	0.229
	(0.079)	(0.081)	(0.146)	(0.092)	(0.088)	(0.154)
Collateral	-0.044	-0.016	0.363***	-0.084	0.003	0.354**
	(0.091)	(0.084)	(0.131)	(0.107)	(0.089)	(0.137)
Log(Maturity)	0.628***	0.409***	0.433*	0.592***	0.432***	0.490**
	(0.116)	(0.139)	(0.239)	(0.126)	(0.153)	(0.250)
Log(Issuance vol.)	0.012	-0.135**	0.030	0.035	-0.130*	0.039
	(0.069)	(0.066)	(0.086)	(0.083)	(0.073)	(0.089)
Firm character.	No	No	No	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Chi-sq.	(Central, Non-SOE)=12.34*** (Local, Non-SOE)=4.45** (Central, Local)=1.67			(Central, Non-SOE)=11.75*** (Local, Non-SOE)=4.47** (Central, Local)=1.69		
Obs.	172	376	492	145	333	460
R-sq.	0.7953	0.5164	0.4532	0.7988	0.5035	0.4408

The Role of Political Connections

- The within-SOE differences in political connection is insignificant.

- Political connections matter for the cost of bond, however, public investors care less about the level of political connection in terms of connection to central government or to local government.

- Implicit guarantee by the state is priced in the corporate bonds at issue.

Impact on non-spread characteristics

Table: Effect of lawsuits on non-spread bond characteristics

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 character.	Yes	Yes	Yes	Yes	Yes
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

Impact on non-spread characteristics

- The bonds issued by litigated firms tend to have significantly
  - Shorter maturity
  - Lower issuance volume
  - Lower bond rating

- Holding other controls at the average levels, the bond maturity drops by around **11 months** on average if issued by a litigated firm; the issuance volume drops by **92.31mn RMB** and the bond rating score drops by **0.221** if issued by a litigated firm.

Isolate the cross-firm differences

Table: Subsample for litigated firms with bond offerings both before and after the suits

Dependent variable	Bond Yield Spread		Log(Maturity)		Log(Issuance vol.)	
	(1)	(2)	(3)	(4)	(5)	(6)
After	0.225***		-0.026		0.076	
	(0.073)		(0.033)		(0.080)	
Non-SOE	1.601	1.702	-0.026	0.013	-0.172	-0.361
	(1.054)	(1.074)	(0.355)	(0.354)	(2.356)	(2.353)
After * non-SOE	0.245***		0.029		-0.232	
	(0.082)		(0.042)		(0.149)	
Lawsuit Num.		0.028***		-0.000		0.001
		(0.009)		(0.001)		(0.004)
Lawsuit Num.* non-SOE		0.029***		-0.001		-0.007
		(0.009)		(0.002)		(0.011)
Bond rating score	0.322	0.387	0.004	0.011	0.375	0.322
	(0.407)	(0.417)	(0.173)	(0.174)	(0.988)	(0.989)
Other bond character.	Yes	Yes	Yes	Yes	Yes	Yes
year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	281	281	281	281	281	281
R-sq.	0.9542	0.9542	0.8631	0.8624	0.7502	0.7476

Isolate the cross-firm differences

Table: Subsample for litigated firms with bond offerings both before and after the suits

Dependent variable	Bond Yield Spread		Log(Maturity)		Log(Issuance vol.)	
	(1)	(2)	(3)	(4)	(5)	(6)
After	0.225***		-0.026		0.076	
	(0.073)		(0.033)		(0.080)	
Non-SOE	1.601	1.702	-0.026	0.013	-0.172	-0.361
	(1.054)	(1.074)	(0.355)	(0.354)	(2.356)	(2.353)
After * non-SOE	0.245***		0.029		-0.232	
	(0.082)		(0.042)		(0.149)	
Lawsuit Num.		0.028***		-0.000		0.001
		(0.009)		(0.001)		(0.004)
Lawsuit Num.* non-SOE		0.029***		-0.001		-0.007
		(0.009)		(0.002)		(0.011)
Bond rating score	0.322	0.387	0.004	0.011	0.375	0.322
	(0.407)	(0.417)	(0.173)	(0.174)	(0.988)	(0.989)
Other bond character.	Yes	Yes	Yes	Yes	Yes	Yes
year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	281	281	281	281	281	281
R-sq.	0.9542	0.9542	0.8631	0.8624	0.7502	0.7476

Isolate the cross-firm differences

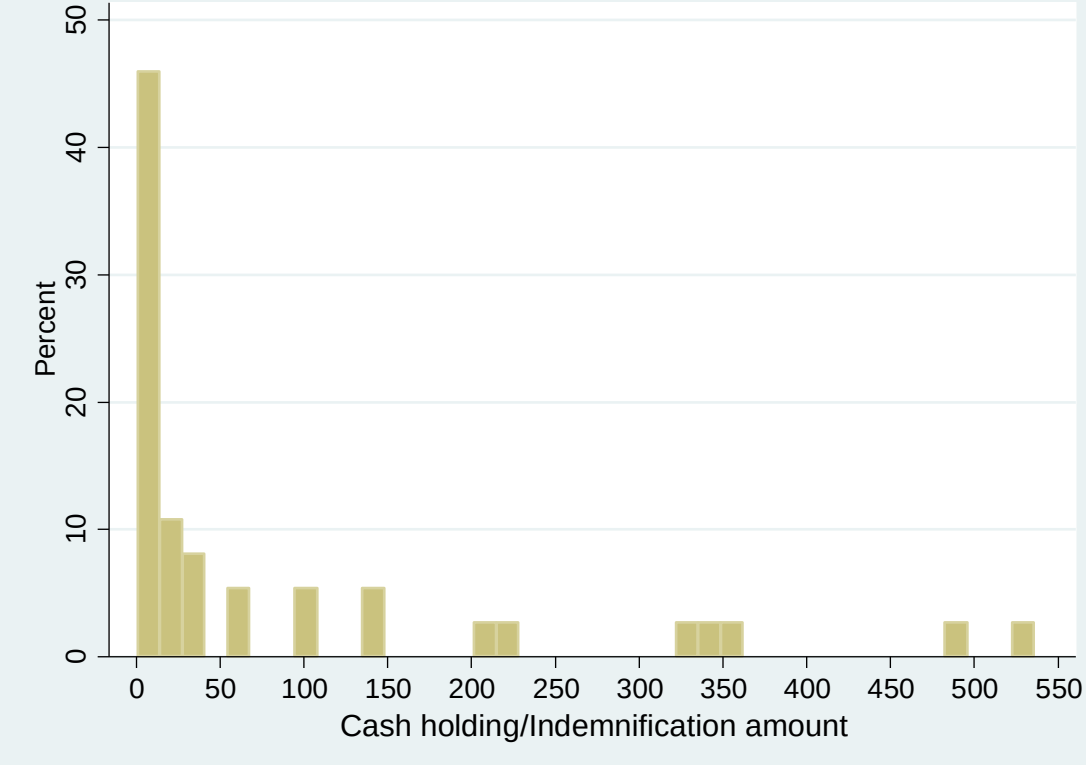
- **Subsample:**
- The impact of litigation on the bond contract terms of ***the same firm*** before and after the announcement of lawsuits:
  - Overall for the same firm, the yield spread is significantly higher (0.225/2.59=8.7%) for the bonds issued **after** lawsuit announcements than the bonds issued **before**.
  - The impact on the yield spread is ***larger*** if the litigated firm is not politically connected.
  - Involving in **one more** lawsuit increases the bond yield spread additionally. Similarly the impact is **economically larger** for non-SOEs than for SOEs.

Solvency concerns or reputation loss?

- The exact **channel** that litigation affects bond properties
  - **"Solvency hypothesis"**
    - Litigation generates contingent liability which threats the solvency of the firm.
    - The enhanced liquidity concerns could lead to tighter loan contracts
  - **"Reputational loss hypothesis"**
    - Litigation is a shock to firms' reputational capital.
    - Litigated firms are assigned higher probability to behave opportunistically than non-litigated firms.
    - The need for monitoring translates into tighter loan contracts.

Firms' liquidity condition

- Cash holding/indemnification amount
  - A higher ratio means the firm is less likely to have liquidity condition even if it loses the cases.
  - Around **45%** of the litigated firms have the ratio higher than 10.



Solvency concerns or reputation loss?

- The magnitude of the sensitivity of bond pricing to the "real" liquidity concern, is larger for the loan-related suit sample than for the full sample.
- The "real" liquidity concern has only little effect on the at-issue bond yield spread.

Dependent Variable: At-issue Bond Yield Spread						
	Full sample			Sub-sample: loan-related suits		
	Full	Ch/Ind_am>5	Ch/Ind_am>10	Loan-related suits	Ch/Ind_am>5	Ch/Ind_am>10
Ch/Ind_am	-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 characteristics	Yes	Yes	Yes	Yes	Yes	Yes
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

The Credit Rating Effect

- The effect of litigation on bond pricing cannot be differenced away by credit rating.
- Bond holders react more on litigations that involve low quality borrowers. Low credit quality firms face stronger bondholder-stockholder conflict (Minton and Schrand, 1999; Eisdorfer, 2008)

Dependent Variable: At-issue Bond Yield Spread						
	Rating score=5	Rating score=6	Rating score=7	Rating score=9	Rating score<=6	Rating score>=7
	(1)	(2)	(3)	(4)	(5)	(6)
Treated	5.379***	0.318***	0.136**	0.028*	0.406***	0.031*
	(0.000)	(0.101)	(0.053)	(0.013)	(0.101)	(0.013)
SOE	0.734***	-1.036***	-0.979***	-0.425***	-0.972***	-0.749***
	(0.000)	(0.126)	(0.146)	(0.145)	(0.126)	(0.100)
Treated * SOE	-	-0.130**	-0.124**	-	-0.206*	-0.196*
	-	(0.066)	(0.058)	-	(0.165)	(0.092)
Bond rating score	-	-	-	-	-2.295***	-0.203***
	-	-	-	-	(0.351)	(0.029)
Callable	-	-0.196	-0.343***	-0.107*	-0.138	-0.179***
	-	(0.131)	(0.108)	(0.061)	(0.132)	(0.055)
Collateral	-	0.408***	0.283**	0.009	0.426***	0.241***
	-	(0.117)	(0.134)	(0.082)	(0.117)	(0.077)
Log(Maturity)	5.717***	0.415*	1.294***	0.221**	0.174	0.602***
	(0.000)	(0.234)	(0.282)	(0.100)	(0.236)	(0.100)
Log(Issuance vol.)	-3.998***	-0.197**	-0.037	0.096	-0.159**	-0.029
	(0.000)	(0.082)	(0.100)	(0.062)	(0.082)	(0.046)
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	13	485	285	206	498	542
R-sq.	0.9999	0.3785	0.4922	0.5880	0.4593	0.5381

Instrumental variables

- Some unobservable heterogeneities (e.g. corporate governance) could be correlated with both litigation likelihood and bond pricing.
- The instrument:
  - The number of law offices per 10,000 residents (or urban residents) in the province where the headquarter of the bond-issuing firm is located
  - Data source: Chinese Provincial Yearbook
  - Sample: propensity score matched sample, 182 bonds issued by litigated firms and 182 bonds by non-litigated firms

Instrument variables

	IV model			
	Treated bond	Bond yield spread	Treated bond	Bond yield spread
Treated bond	-	1.282*	-	1.231**
	-	(0.768)	-	(0.620)
SOE	0.055	-1.024***	0.055	-1.021***
	(0.065)	(0.132)	(0.064)	(0.130)
Bond rating score	-0.029	-0.388***	-0.029	-0.389***
	(0.037)	(0.080)	(0.037)	(0.077)
Callable	0.215***	-0.632***	0.209***	-0.620***
	(0.078)	(0.238)	(0.078)	(0.214)
Collateral	0.126*	0.172	0.131*	0.178
	(0.076)	(0.205)	(0.076)	(0.194)
Log(Maturity)	-0.215	0.429	-0.223	0.420
	(0.168)	(0.403)	(0.167)	(0.393)
Log(Issuance vol.)	0.078	0.020	0.076	0.025
	(0.063)	(0.124)	(0.063)	(0.116)
Lawsuit office number per 10,000 residents	0.492**	-		
	(0.203)	-		
Lawsuit office number per 10,000 urban residents			0.710***	-
			(0.228)	-
Firm characteristics	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Obs.	364	364	364	364
R-sq.	0.1134	0.2437	0.1229	0.2663

Instrument variables

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R-sq.	0.1134	0.2437	0.1229	0.2663

Instrument variables

- If a firm is located in a province with higher demand for legal service, it is more inclined to structure their economic activities following the law and use courts to resolve their disputes, enhancing the litigation incidence.
  - The instruments are positively correlated with litigation probability (relevance condition).
  - The instruments are province-level variables therefore are unlikely to have an impact on individual bond spread, except through the channel of litigation likelihood (exclusive condition).

- The instrumented measure of litigation probability is positively and significantly associated with cost of public debt issuance.

Event study: abnormal bond return

- The announcement of lawsuits are supposed to impact the bond trading and return.
  - Use event window to capture the leakage of information about the lawsuits prior to the filing date.
  - Construct different length of event windows to minimize other information on the disclosing firm coming out during announcement period (e.g. Gande and Lewis, 2007; Billing, Klein and Zur, 2011; Firth, Rui and Wu)

- Hypothesis 3: During the public announcement of corporate lawsuits, there is significant negative abnormal bond return and excess trading volume.

Measures of bond returns

- Daily bond return
  - The actual daily bond return:

$$BR_t = \frac{BP_{t+1} + C_t - BP_t}{BP_t}$$

- Excess bond return
  - The difference between raw return (total cumulative bond return) for the bond in the lawsuits sample over an event window and its control bond
- Abnormal bond return
  - Premium bond return minus the average PBR in the previous month
  - PBR: the difference between the daily bond return and the return on a matched Treasury bond.

Excess bond daily returns

Table: Excess bond daily returns around the lawsuit announcement

	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)
Days [-3,+3]	921	0.0003	-0.0004	0.0006
		(0.0005)	(0.0003)	(0.0005)
Days [-5, +5]	1,312	0.0003	-0.0002	0.0004
		(0.0004)	(0.0002)	(0.0004)

- In narrower windows, existing bondholders suffer substantial wealth loss around the lawsuit announcement date in both statistical & economic terms.

Excess bond daily trading

Table: Excess bond daily trading volume around the lawsuit announcement

	Obs.	Treated Bonds (10thd RMB)	Control Bonds (10thd RMB)	Difference (10thd RMB)
		(1)	(2)	(3)
Days [-1, 0]	134	881.34	622.48	258.85
		(187.58)	(106.63)	(221.51)
Days[-1,+1]	402	1270.31	675.35	594.96***
		(209.14)	(79.02)	(223.38)
Days [-3,+3]	935	970.59	663.68	306.91***
		(100.01)	(49.82)	(112.06)
Days [-5, +5]	1,331	900.98	690.07	210.90***
		(72.92)	(48.71)	(87.91)

- Daily trading volume is abnormally high around the announcement date.

Effect on excess bond return

Regression analysis of the effect of lawsuits on bond return: PANEL A

Dependent variable: Excess bond return								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Day [-1, 0] * Treated	-0.0025***	-0.0025***						
	(0.0005)	(0.0005)						
Day [-1, +1] * Treated			-0.0007**	-0.0008**				
			(0.0003)	(0.0003)				
Day [-3, +3] * Treated					0.0006	0.0006		
					(0.0005)	(0.0005)		
Day [-5, +5] * Treated							0.0004	0.0004
							(0.0004)	(0.0004)
Bond rating	0.0002	0.0000	0.0001	0.0000	0.0001	0.0000	0.0001	0.0000
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0002)	(0.0002)
Log(Time to maturity)	0.0001	0.0002	0.0001	0.0002	0.0000	0.0002	0.0000	0.0002
	(0.0008)	(0.0010)	(0.0008)	(0.0010)	(0.0008)	(0.0010)	(0.0008)	(0.0010)
Suit characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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.	24,638	24,638	24,638	24,638	24,638	24,638	24,638	24,638
R-sq.	0.0028	0.0030	0.0027	0.0028	0.0027	0.0029	0.0027	0.0028

Effect on abnormal bond return

Regression analysis of the effect of lawsuits on bond return: PANEL B

Dependent variable: Abnormal bond return (ABR)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Day[-1, 0]* Treated	-0.0044***	-0.0044***						
	(0.0012)	(0.0011)						
Day[-1, +1] * Treated			-0.0033***	-0.0033***				
			(0.0007)	(0.0008)				
Day[-3, +3] * Treated					-0.0002	-0.0002		
					(0.0005)	(0.0004)		
Day[-5, +5]* Treated							-0.0002	-0.0001
							(0.0004)	(0.0004)
Bond rating	-0.0000	0.0001	-0.0000	0.0001	-0.0000	0.0001	-0.0000	0.0001
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(000001)	(0.0002)	(0.0002)	(0.0002)
Log(Time to maturity)	0.0010	0.0012	0.0010	0.0012	0.0009	0.0012	0.0010	0.0012
	(0.0008)	(0.0010)	(0.0008)	(0.0010)	(0.0008)	(0.0010)	(0.0008)	(0.0010)
Suit characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
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.	24,368	24,368	24,368	24,368	24,368	24,368	24,368	24,368
R-sq.	0.0025	0.0026	0.0027	0.0028	0.0019	0.0020	0.0019	0.0020

Effect on bond returns

- On the lawsuit announcement date the ***excess*** return of bonds by litigated firms over control bonds is on average **-25bp**.
  - The negative excess bond return of bonds with litigation vanished over the [-3, +3] or [-5, +5] window.

- The bonds issued by litigated firms have the ***abnormal*** bond return of **-44bp** on the lawsuit announcement date and **-33bp** over the [-1,+1] window.

- The lawsuit announcements reduce the market value of public debt in a narrow event window.

Conclusion

- This paper presents one of the first evidence that litigation affects contracts of firms' public debt and bondholder wealth.
- In countries of weak legal protection of investors, litigations are likely to be viewed as firms' reputational damage thus enhanced risk for monitoring.
- Public debt investors react to litigation by tightening subsequent debt contract
  - increase in bond yield, reduction in maturity and issuance volume
- Firms' political connection serves as complements to firms' reputation as it moderates issuers' bond price sensitivity to litigations.

Thank you!