Issuance overpricing of China's corporate debt securities

Yi Ding, Wei Xiong, Jinfan Zhang

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邢红卫

张三要卖一批东西，价值10块钱。但张三没摊位，找李四帮忙卖，并且答应给**20%**的佣金。

李四想张三有很多东西要卖，应该和张三搞好关系。要么少收佣金，要么帮张三卖出高价。但为了避免恶性竞争，行业规定不允许大幅减少佣金。因此，李四打算尽可能卖个高价。

赵五和其他人都想买这个东西，虽不如李四了解东西的真实价值，但也不至于当冤大头。

李四告诉赵五尽量出高价竞拍，并且返给赵五折扣。其它参加竞拍的人并不知道折扣，也以高价买下了东西。张三、李四都很满意。赵五，你就是个托儿！后来在流通买卖中人们发现这个东西不值那么多钱，被坑了。

1. 李四说只能卖9块，然后自己悄悄买下。**2.** 李四帮张三卖11块，与其给赵五折扣，不如自己买下给折扣的那部分。**3.** 张三值得李四搞好关系吗？**4.** 李四家庭条件在乎和张三的关系吗？

出台禁令，不允许李四给赵五折扣，还市场一个公平价格。这个禁令有没有降低过高定价？

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➢ 摘要

1. We document issuance overpricing of corporate debt securities in China, which is robust across subsamples with different credit ratings, maturities, and issuers. This phenomenon contrasts with underpricing of equity and debt securities in Western countries and reflects China's distinct institutional environment.

2. The average overpricing dropped from 7.44 basis points to 2.41 basis points after the government prohibited underwriters from using rebates in issuances in October 2017.

3. By analyzing overpricing before and after the rebate ban and across different issuers and underwriters, we uncover two channels for underwriters, who compete for future underwriting business, to drive up overpricing: rebates and self-purchases.

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➤ 中国企业债券发行的制度环境

1. 企业融资，银行贷款利率，需要利率市场化，双轨制改革（银行贷款和发行债券），竞争实现利率市场化，贷款利率的参考。

2. 与国外不同，中国的企业债券投资者主要是银行，因此银行间市场是企业债券发行和交易的最主要市场。

3. 有资格参与银行间市场的机构包括商业银行、共同基金、保险公司和证券公司。2018年12月，银行间市场成员总数达到6543个。中国人民银行通过中国银行间市场交易商协会（NAFMII）监管银行间市场，NAFMII负责制定监管银行间市场机构参与者的规则。

> 中国企业债券的分类

1. 基于发行方：政府债券、金融债券和**非金融企业债券**。

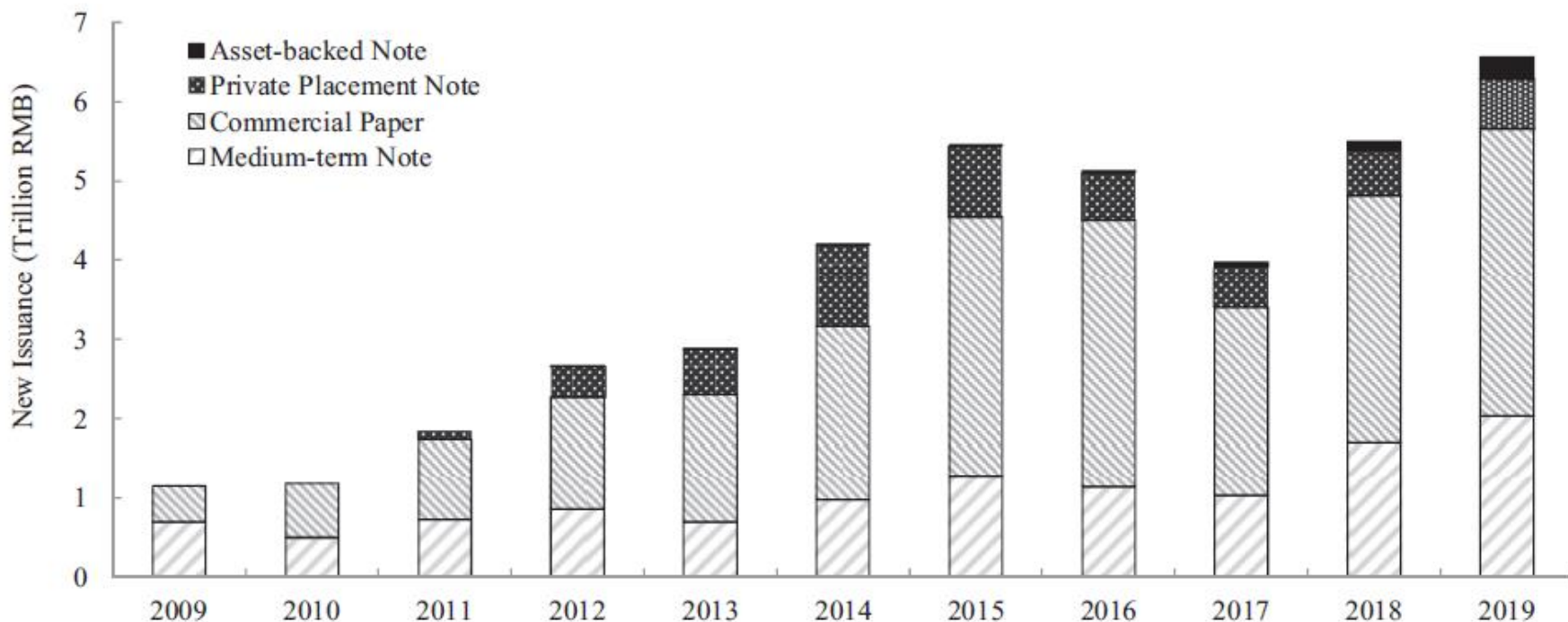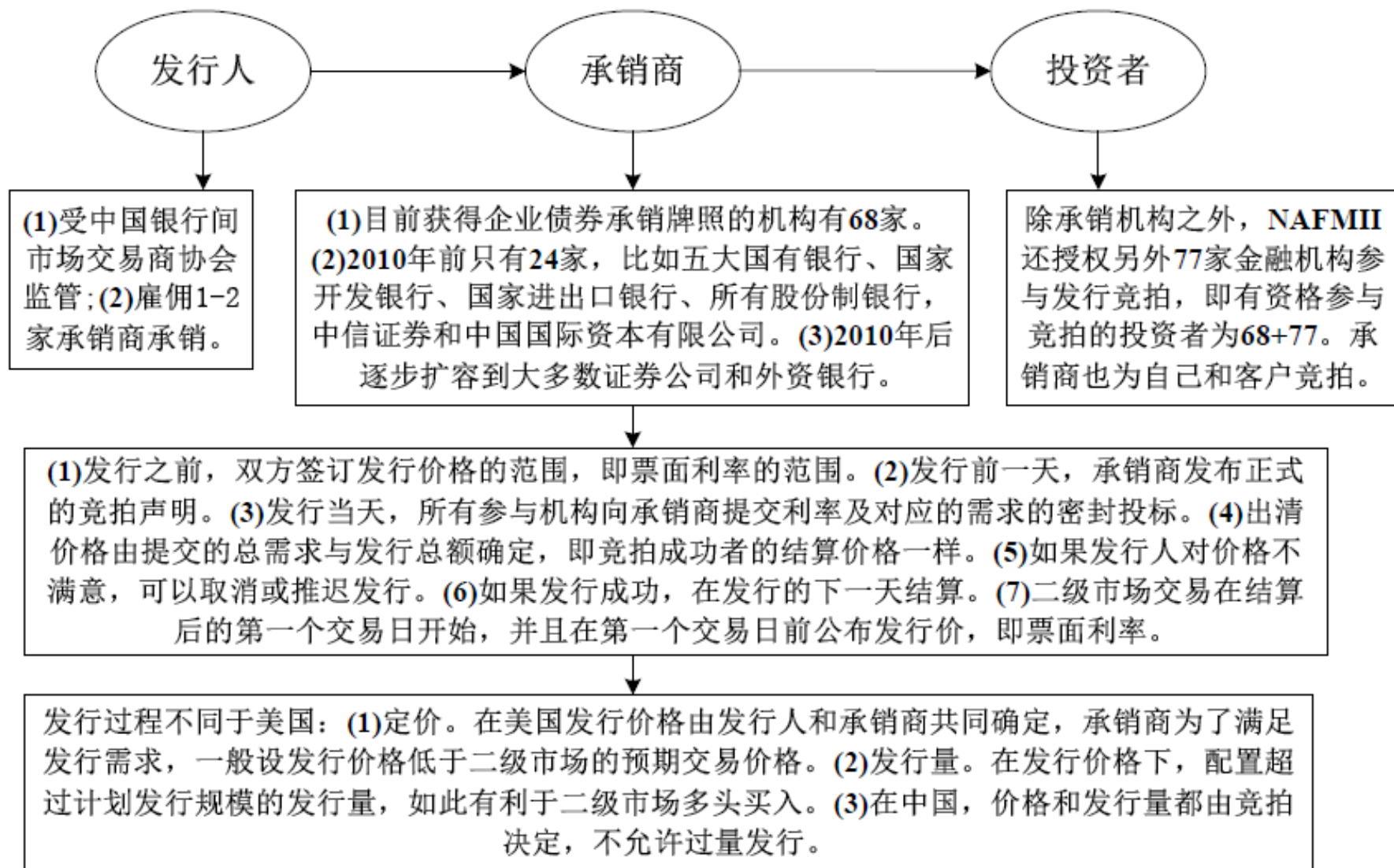2. 基于到期日：**商业票据、中期票据**和企业长期债券，此外还有少量的资产支持型债券和私

募债券。

Fig. 1. Issuance of debt instruments by category. This figure plots the issuance amount of debt-financing instruments of non-financial enterprises in the interbank market by category from 2009 to 2019.

➢ 中国企业债券的发行过程

发行人 → 承销商 → 投资者

发行人:
(1)受中国银行间市场交易商协会监管;(2)雇佣1-2家承销商承销。

承销商:
(1)目前获得企业债券承销牌照的机构有68家。(2)2010年前只有24家，比如五大国有银行、国家开发银行、国家进出口银行、所有股份制银行，中信证券和中国国际资本有限公司。(3)2010年后逐步扩容到大多数证券公司和外资银行。

投资者:
除承销机构之外，NAFMII还授权另外77家金融机构参与发行竞拍，即有资格参与竞拍的投资者为68+77。承销商也为自己和客户竞拍。

(1)发行之前，双方签订发行价格的范围，即票面利率的范围。(2)发行前一天，承销商发布正式的竞拍声明。(3)发行当天，所有参与机构向承销商提交利率及对应的需求的密封投标。(4)出清价格由提交的总需求与发行总额确定，即竞拍成功者的结算价格一样。(5)如果发行人对价格不满意，可以取消或推迟发行。(6)如果发行成功，在发行的下一天结算。(7)二级市场交易在结算后的第一个交易日开始，并且在第一个交易日前公布发行价，即票面利率。

发行过程不同于美国：(1)定价。在美国发行价格由发行人和承销商共同确定，承销商为了满足发行需求，一般设发行价格低于二级市场的预期交易价格。(2)发行量。在发行价格下，配置超过计划发行规模的发行量，如此有利于二级市场多头买入。(3)在中国，价格和发行量都由竞拍决定，不允许过量发行。

➢发行的过高定价

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┌──────────┐        ┌──────────┐        ┌──────────┐
│  发行人   │──────▶│  承销商   │◀──────│  投资者   │
└──────────┘        └──────────┘        └──────────┘
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发行人	承销商	投资者
债券融资成本：**(1)**承销费用，要求**0.3%**左右；**(2)**投资者索取的利息，越低越好。	特点：**(1)**抬高发行价，让发行人满意，实现长期合作；**(2)**并不关心二级市场的价格。	投资渠道：**(1)**在一级市场认购；**(2)**在二级市场买入，但交易成本甚至会高于在一级市场被过高定价的部分
过高定价的好处：二级市场流动性差，价格不具有参考性，银行贷款利率常以发行价为参考	过高定价的渠道：**(1)**给部分认购者折扣，抬高价格；**(2)**以高价自购。虽成本相同，风险更高	监管方 → 中国银行间市场交易商协会于2017年10月1日禁止认购折扣，以公平承销
央企和其它企业，禁令先后的双差分回归模型	四大银行和其它承销商，禁令先后的双差分回归模型	

➢ 过高定价的度量方法

1.
$$\Delta\text{Spread} = \text{Spread}_{first\,trade} - \text{Spread}_{issuance}. \qquad (1)$$

The spread is defined as the difference in yield between a given debt security and the risk-free rate of similar maturity.

Because yield is negatively related to price, a positive spread change implies that the debt security is overpriced at issuance relative to the trading price in the secondary market.

2.
$$\text{Ret}_i = (P_{i,T} - P_{i,t})/P_{i,t}, \qquad (2)$$

where Reti is the raw return of security i that is issued on day t and then first traded on day T. The price Pi,T is the sum of the flat price and accrued interest, and Pi,t is the issuance price.

➢ 论文的思路

1. 发行的过高定价现象存在吗？

2. 导致过高定价的动机是什么？

3. 产生过高定价的渠道是什么？

4. 禁令使发行价的质量提高了吗？

Table 1

Summary statistics of debt-security issuance. This table reports summary statistics of the issuance of non-financial corporate debt securities in the interbank market from 2015 to 2019. Panel A reports the number of issuances, issuing companies, and the total issuance amount for each year. Panels B and C report the summary statistics of security and issuer characteristics, respectively. Trading Volume is for the month right after issuance. The subscription ratio is calculated by dividing the total subscription by the issuance amount. The dummy variable First Issue Dummy equals 1, if the security is the issuer's first issuance in the interbank market, and 0 otherwise. Recent Issuance Dummy is another dummy variable and equals 1 if the issuer has issued security in the previous year, and 0 otherwise. We convert letter credit ratings into numerical values, specifically, AAA to 5, AA+ to 4, AA to 3, AA− to 2, and A+ to 1. ROA is defined as net income divided by total assets. Sale is the issuer's annual sales. Panel D summarizes the share of issuances directly acquired by underwriters. The number of observations, the mean, the standard deviation, the 25th percentile, the median, and the 75th percentile are reported in Panels B–D.

Panel A: Issuances across years

	2015	2016	2017	2018	2019	Total
No. of Issues	3,379	3,441	2,880	4,087	4,442	18,229
issued by the Big Four banks	1,258	1,400	957	1,353	1,431	6,399
No. of Companies	1,304	1,238	1,016	1,195	1,354	2,558
Issue Amount (¥bil)	4,457	4,302	3,197	4,488	4,626	21,069

Panel B: Debt-security characteristics

	N	Mean	SD	P25	P50	P75
Coupon rate (%)	18,229	4.54	1.23	3.55	4.44	5.34
Maturity (year)	18,229	1.74	1.71	0.74	0.76	3.01
Issue Amount (¥mil)	18,229	1,156	1,205	500	1,000	1,500
Trading Volume (¥mil)	18,229	1,350	1,730	440	840	1,609
Subscription Ratio	17,416	1.74	0.88	1.10	1.49	2.08
First Issue Dummy	18,229	0.07	0.26	0.00	0.00	0.00
Recent Issuance Dummy	18,229	0.84	0.36	1.00	1.00	1.00
Rating	18,229	4.18	0.83	4.00	4.00	5.00

Panel C: Issuer characteristics

	N	Mean	SD	P25	P50	P75
Leverage	18,222	0.65	0.13	0.57	0.66	0.74
ROA	18,219	0.02	0.02	0.01	0.02	0.03
Asset (¥mil)	18,222	163,611	434,672	25,090	55,627	153,839
Sale (¥mil)	18,148	59,335	163,015	4,269	15,051	54,261
Cash (¥mil)	18,148	13,781	38,005	2,266	5,491	14,391

Panel D: Issuances purchase by underwriters

	N	Mean	SD	P25	P50	P75
Underwriter Share	16,384	0.35	0.31	0.07	0.29	0.56

Table 2

Issuance overpricing. This table reports the summary statistics of the spread change and the excess return after issuance. Panel A reports the summary statistics of ΔSpread, which is the spread difference between the issuance and the first trading day after issuance, ΔSpread$_{15\ days}$, which is the spread difference between the issuance and the 15th calendar day since issuance, and the difference between ΔSpread and ΔSpread$_{15\ days}$. The spread is calculated as the corporate debt yield minus the corresponding Chinese Treasury Yield Index of similar maturity. Panel B reports the summary statistics of the first-trade excess return, the excess return over 15 calendar days after the issuance, and the difference between the Excess return$_{15\ days}$ and the Excess return. If the security is not traded on the 15th calendar day, we use the spread or return of the closest trading day within a five-day window centered on the 15th calendar day. We can only calculate the ΔSpread$_{15}$ and Excess return$_{15\ days}$ for 5,464 issuances due to infrequent trading. The number of observations, the mean, the standard deviation, the t-statistic clustered by issuance date, the skewness, the kurtosis, the 5th percentile, the 25th percentile, the median, the 75th percentile, and the 95th percentile are reported. Both spread change and excess return are in basis points (bps). Our sample is from 2015 to 2019, and the rebate ban became effective on October 1, 2017.

Panel A: Spread change (bps)

Full sample	N	Mean	SD	t-Stat.	Skew.	Kurt.	P5	P25	P50	P75	P95
ΔSpread	18,229	4.90	12.30	26.46	3.85	37.97	−6.87	−0.82	2.55	8.08	23.35
ΔSpread$_{15\ days}$	5,464	7.93	39.41	12.18	9.17	268.99	−35.00	−7.25	4.71	17.94	58.44
ΔSpread$_{15\ days}$ -ΔSpread	5,464	1.96	38.15	3.22	9.97	308.23	−39.62	−11.23	−0.17	11.60	46.50
Before rebate ban											
ΔSpread	9,026	7.44	11.00	36.74	2.74	42.86	−4.82	1.96	6.57	10.70	26.28
ΔSpread$_{15\ days}$	2,984	10.53	38.03	11.57	1.66	14.57	−34.81	−5.63	7.37	21.34	66.56
ΔSpread$_{15\ days}$ -ΔSpread	2,984	2.69	37.62	3.07	1.56	14.82	−45.48	−12.26	−0.50	12.95	55.99
After rebate ban											
ΔSpread	9,203	2.41	12.97	9.41	5.02	41.16	−7.68	−2.10	0.36	3.23	15.99
ΔSpread$_{15\ days}$	2,480	4.81	40.79	5.45	16.63	507.77	−35.28	−8.54	2.17	13.69	50.12
ΔSpread$_{15\ days}$ -ΔSpread	2,480	1.07	38.77	1.30	19.23	622.97	−35.26	−9.92	0.18	10.11	36.73

Panel B: Excess return (bps)

Full sample	N	Mean	SD	t-Stat.	Skew.	Kurt.	P5	P25	P50	P75	P95
Excess return	18,229	−7.67	10.50	−42.72	−2.52	62.38	−22.43	−11.60	−6.20	−2.46	3.52
Excess return$_{15\ days}$	5,464	−12.46	44.38	−13.93	−0.84	27.29	−74.60	−29.40	−12.00	6.37	47.31
Excess return$_{15\ days}$ - Excess return	5,464	−4.08	42.60	−5.15	−0.86	33.29	−60.21	−19.48	−3.39	11.88	52.80
Before rebate ban											
Excess return	9,026	−10.30	11.14	−40.87	−2.40	54.20	−25.44	−14.90	−9.65	−4.91	3.04
Excess return$_{15\ days}$	2,984	−16.92	45.85	−13.11	−0.05	12.61	−85.44	−35.63	−16.09	4.69	43.16
Excess return$_{15\ days}$ - Excess return	2,984	−6.39	44.11	−5.61	0.13	15.54	−69.75	−22.77	−4.71	12.77	49.34
After rebate ban											
Excess return	9,203	−5.08	9.12	−26.79	−2.92	95.86	−16.48	−7.14	−4.00	−1.44	3.83
Excess return$_{15\ days}$	2,480	−7.11	41.93	−6.30	−2.06	54.60	−57.02	−23.39	−8.78	7.87	52.08
Excess return$_{15\ days}$ - Excess return	2,480	−1.30	40.55	−1.24	−2.37	63.86	−48.49	−15.71	−2.02	10.69	56.41

Table 3

Overpricing across security and issuer characteristics. This table reports the first trading day spread change in basis points (bps), ΔSpread, across different debt ratings, maturities, issuers' total asset, and issuing history, as well as issuer and underwriter types in the periods before and after the rebate ban. The number of observations, the mean, and the t-statistics clustered by issuance date are presented. The sample is from 2015 to 2019, and the rebate ban became effective on October 1, 2017.

		Full sample			Before rebate ban			After rebate ban		
Panel A: Sort by rating (bps)		N	Mean	t-Stat.	N	Mean	t-Stat.	N	Mean	t-Stat.
AAA		8,038	6.53	25.19	3,433	9.33	33.12	4,605	4.44	12.02
AA+		5,706	3.23	15.98	2,665	6.38	26.82	3,041	0.47	1.90
AA		4,275	4.03	19.23	2,724	6.22	25.09	1,551	0.19	0.78
AA- and A+		210	5.84	7.87	204	5.88	7.72	6	4.41	2.22
Panel B: Sort by rating and maturity (bps)		N	Mean	t-Stat.	N	Mean	t-Stat.	N	Mean	t-Stat.
	Maturity									
AAA	<1 year	4,905	9.18	24.82	2,248	11.99	32.88	2,657	6.80	11.75
	1–2 year	734	4.76	10.87	394	7.71	12.49	340	1.34	2.55
	≥2 year	2,399	1.65	8.24	791	2.57	7.34	1,608	1.20	4.96
AA+	<1 year	3,001	4.06	16.07	1,306	8.73	30.20	1,695	0.47	1.69
	1–2 year	1,005	4.23	10.13	621	6.63	14.68	384	0.34	0.48
	≥2 year	1,700	1.17	5.09	738	2.00	6.10	962	0.53	1.71
AA, AA-, and A+	<1 year	1,658	5.04	16.23	979	8.45	22.49	679	0.12	0.38
	1–2 year	1,289	6.06	16.20	1,074	7.21	17.44	215	0.34	0.56
	≥2 year	1,538	1.49	7.85	875	2.44	9.13	663	0.25	1.02
Panel C: Sort by rating and total assets (bps)		N	Mean	t-Stat.	N	Mean	t-Stat.	N	Mean	t-Stat.
	Total Assets									
AAA	Larger	4,026	7.69	22.17	1,718	10.17	26.35	2,314	5.92	11.68
	Smaller	4,012	5.36	19.18	1,715	8.48	24.63	2,291	2.94	7.86
AA+	Larger	2,853	3.25	13.35	1,338	6.59	21.43	1,521	0.73	2.43
	Smaller	2,853	3.21	14.28	1,327	6.16	21.67	1,520	0.21	0.79
AA, AA-, and A+	Larger	2,244	3.86	16.01	1,465	6.38	21.39	779	0.11	0.40
	Smaller	2,241	4.37	17.68	1,463	6.02	19.70	778	0.31	1.10
Panel D: Sort by issuance history (bps)		N	Mean	t-Stat.	N	Mean	t-Stat.	N	Mean	t-Stat.
First-time issuance		1,305	2.82	11.53	762	4.40	13.63	543	0.61	1.94
Seasoned offering		16,924	5.06	26.45	8,264	7.72	36.75	8,660	2.52	9.60
Panel E: Sort by issuer type (bps)		N	Mean	t-Stat.	N	Mean	t-Stat.	N	Mean	t-Stat.
Central SOE		1,635	10.31	20.15	923	12.24	22.99	712	7.81	8.39
Other		16,594	4.37	23.92	8,103	6.89	34.11	8,491	1.96	7.85
Panel F: Sort by underwriter type (bps)		N	Mean	t-Stat.	N	Mean	t-Stat.	N	Mean	t-Stat.
Big Four banks		6,399	4.71	22.20	3,415	7.53	30.87	2,984	1.49	5.38
Other		11,830	5.00	24.28	5,611	7.39	31.70	6,219	2.86	9.67

Table 4

Logit regression of underwriter switching. This table reports the logit regressions of an issuer's underwriter change on the underwriter's performance in the issuer's last debt-security issuance. The dependent variable, $Switch_{j,n+1}$, equals 1 if issuer j changes the underwriters of its $n+1$th issuance as compared to its nth issuance, and 0 otherwise. Performance is measured by an indicator variable, $Underperformed_{j,n}$, which equals 1 if the spread of issuer j's n^{th} issuance is greater than the corresponding benchmark spread. $Underwriter\ Share_{j,n}$ is the share purchased by the underwriter in issuer j's n^{th} issuance. Heteroskedasticity-consistent z-statistics clustered by issuance date are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Dependent: $Switch_{j,n+1}$	Full sample (1)	Full sample (2)	Before ban (3)	After ban (4)	Full sample (5)
$Underperformed_{j,n}$	0.281***	0.212***	0.288***	0.105**	0.202***
	(8.77)	(5.87)	(5.73)	(2.01)	(5.26)
$Underwriter\ Share_{j,n}$					−0.222***
					(−3.46)
Ln(Issue Amount)		−0.017	0.067	−0.086	−0.018
		(−0.38)	(1.12)	(−1.19)	(−0.37)
Subscription Ratio		−0.022	−0.009	−0.040	−0.038*
		(−1.02)	(−0.29)	(−1.38)	(−1.67)
Maturity		−0.037***	−0.020	−0.054***	−0.039***
		(−3.18)	(−1.26)	(−3.12)	(−3.14)
Ln(Trading Volume)		−0.034	0.026	−0.065	−0.052*
		(−1.18)	(0.69)	(−1.45)	(−1.70)
First Issue Dummy		−0.140	−0.011	−0.344**	−0.141
		(−1.40)	(−0.09)	(−2.27)	(−1.32)

$$\Delta\text{Spread}_{i,j,t} = \theta_0 + \theta_1\text{Treat}_j + \theta_2\text{Post}_t + \theta_3\text{Treat}_j \times \text{Post}_t$$
$$+ \sum \theta_m\text{Control}_{m,i,j} + \varepsilon_{i,j,t} \qquad (3)$$

Table 5

Effect of the rebate ban on overpricing: variation across issuers. This table reports results of the difference-in-differences analysis of how the rebate ban affected issuance overpricing. The sample includes all MTN and CP issued by nonfinancial firms in China's interbank market from April 1, 2017, to March 31, 2018, a 12-month window around the rebate ban on October 1, 2017. Treat equals 1 if the issuance is by a central SOE, and 0 otherwise. Post equals 1 in the months following the rebate ban. Columns (1) and (2) use the full sample. Columns (3) and (4) use the matched sample, which includes only sequential issuances before and after the rebate ban. Heteroskedasticity-consistent t-statistics clustered by issuance date are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Full sample		Matched sample	
Dependent: ΔSpread (bps)	(1)	(2)	(3)	(4)
Treat	9.709***	6.441***	9.772***	6.545***
	(6.37)	(4.50)	(5.06)	(3.54)
Post	−6.043***	−6.273***	−7.043***	−7.139***
	(−10.70)	(−11.17)	(−9.16)	(−9.48)
Treat × Post	−7.225***	−6.182***	−8.407***	−7.861***
	(−3.62)	(−3.22)	(−3.65)	(−3.71)
Ln(Issue Amount)		0.430		1.839*
		(0.67)		(1.87)

$$\Delta\text{Spread}_{i,j,t} = \theta_0 + \theta_1\text{Treat}_j + \theta_2\text{Post}_t + \theta_3\text{Treat}_j \times \text{Post}_t$$
$$+ \sum \theta_m\text{Control}_{m,i,j} + \varepsilon_{i,j,t} \qquad (3)$$

Table 6

Effect of the rebate ban on overpricing: variation across underwriters. This table reports results of the difference-in-differences analysis of how the rebate ban affected issuance overpricing. The sample includes all MTN and CP issued by nonfinancial firms in China's interbank market from April 1, 2017, to March 31, 2018, a 12-month window around the rebate ban on October 1, 2017. Treat equals 1 if the issuance is underwritten by one of the Big Four banks in China, and 0 otherwise. Post equals 1 in the months following the rebate ban. Columns (1) and (2) use the full sample. Columns (3) and (4) use the matched sample, which includes only sequential issuances before and after the rebate ban. Heteroskedasticity-consistent t-statistics clustered by issuance date are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Dependent: ΔSpread (bps)	Full sample		Matched sample	
	(1)	(2)	(3)	(4)
Treat	−0.791	−1.536***	−2.459***	−2.698***
	(−1.39)	(−2.89)	(−2.96)	(−3.35)
Post	−7.187***	−7.363***	−9.147***	−8.842***
	(−11.51)	(−12.04)	(−10.00)	(−10.20)
Treat $\times$ Post	1.362*	1.616**	2.712**	2.316**
	(1.89)	(2.37)	(2.51)	(2.34)

Table 7

Underwriter purchases and overpricing. Panel A reports summary statistics of the share purchase by the underwriter, *Underwriter Share*, across issuances with and without overpricing, as well as across different ratings, issuer and underwriter types, and sample periods. Number of observations, the mean, the standard deviation, the 25th percentile, the median, and the 75th percentile are presented. Our sample is from 2015 to 2019, and the rebate ban became effective on October 1, 2017. Panel B reports the average overpricing (in basis points) of issuances acquired by qualified investors (column 1), acquired by licensed underwriters but underwritten by others (column 2), and acquired and underwritten by the same licensed underwriters (column 3). We first calculate both the equal-weighted average spread change and the value-weighted average spread change (using purchase amount as the weight) for each institution and then take the average across the institutions in each category. Panel B also reports t-statistics for the differences between (1) and (3) and between (2) and (3), with *, **, and *** indicating statistical significance at the 10%, 5% and 1% levels, respectively.

Panel A. Summary statistics of underwriter purchase

Underwriter purchase by overpricing	N	Mean	SD	P25	P50	P75
Overpriced issuances	11,058	0.37	0.31	0.10	0.32	0.60
Other	5,326	0.29	0.29	0.00	0.20	0.46
Underwriter purchase by rating						
AAA	7,321	0.38	0.32	0.10	0.31	0.60
AA+	5,239	0.29	0.28	0.00	0.22	0.50
AA	3,720	0.35	0.31	0.06	0.30	0.56
AA- and $A+$	104	0.60	0.32	0.30	0.68	0.86
Underwriter purchase by issuer type						
Central SOE	1,405	0.49	0.31	0.23	0.47	0.74
Other	14,979	0.33	0.30	0.05	0.27	0.54
Underwriter purchase by underwriter type						
Big Four banks	5,594	0.36	0.30	0.10	0.30	0.56
Other	10,790	0.34	0.31	0.05	0.27	0.56
Underwriter purchase by rebate ban						
Before rebate ban	7,191	0.44	0.30	0.20	0.44	0.68
After rebate ban	9,193	0.27	0.29	0.00	0.20	0.41

Panel B. Overpricing of issuances acquired by qualified investors and licensed underwriters

	Overpricing of issuances acquired by qualified investors (1)	Overpricing of issuances acquired by licensed underwriters but underwritten by others (2)	Overpricing of issuances acquired and underwritten by the same licensed underwriters (3)	Difference (3)-(1)	Difference (3)-(2)
Equal-weighted portfolio average					
Full sample	1.54	2.19	3.85	2.32***	1.67***
Before rebate ban	4.95	5.39	7.35	2.40**	1.96**
After rebate ban	0.66	1.01	2.19	1.52**	1.18**
Value-weighted portfolio average					
Full sample	1.57	2.95	6.40	4.83***	3.45***
Before rebate ban	5.49	5.80	8.15	2.65**	2.35**
After rebate ban	0.50	1.50	5.61	5.11***	4.11***

Table 8

Regressions of overpricing on underwriter purchases. This table reports regressions of issuance overpricing on the share purchase by the underwriter. The dependent variable is the overpricing measure, ΔSpread. The independent variable *Underwriter Share* is the share purchased by the underwriter. Columns (1) and (2) report regression results for the full sample. Columns (3) and (4) report regression results for issuances before and after the rebate ban, respectively. Heteroskedasticity-consistent t-statistics clustered by issuance date are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Dependent: ΔSpread (bps)	Full sample (1)	Full sample (2)	Before ban (3)	After ban (4)
Underwriter Share	10.494***	9.118***	1.802**	14.943***
	(17.32)	(16.43)	(2.06)	(12.71)
Issuance Controls	No	Yes	Yes	Yes
Firm Controls	No	Yes	Yes	Yes
Constant	1.004***	−8.392***	−1.458	−3.128
	(4.10)	(−5.13)	(−0.78)	(−0.91)
Observations	16,384	15,465	7,091	8,374
R-squared	0.069	0.120	0.118	0.144

Table 9

Quality of issuance price. This table reports regressions of issuance yield spread on issuance and issuer characteristics. The dependent variable is Spread$_{issuance}$, measured as the coupon rate minus Treasury yield with similar maturity. Columns (1)–(4) report the regression results for all issuances in each of the four years around the rebate ban, respectively. Heteroskedasticity-consistent t-statistics clustered by issuance date are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Dependent: Spread$_{issuance}$ (%)	Two years before rebate ban (1)	One year before rebate ban (2)	One year after rebate ban (3)	Two years after rebate ban (4)
Ln(Issue Amount)	−0.001	−0.055***	−0.156***	−0.164***
	(−0.03)	(−2.78)	(−5.95)	(−6.24)
Maturity	0.095***	0.103***	0.087***	0.108***
	(12.81)	(10.53)	(9.95)	(12.58)
First Issue Dummy	0.067	−0.158***	0.018	0.051
	(1.11)	(−2.74)	(0.30)	(0.61)
Recent Issuance Dummy	0.044	−0.038	0.136***	0.041
	(0.83)	(−0.83)	(2.86)	(0.70)
Dummy$_{AAA}$	−2.930***	−1.507***	−1.897***	−1.835**
	(−20.11)	(−8.89)	(−6.03)	(−2.43)
Dummy$_{AA+}$	−2.391***	−0.901***	−0.990***	−0.783
	(−17.07)	(−5.37)	(−3.20)	(−1.03)
Dummy$_{AA}$	−1.728***	−0.383**	−0.347	0.022
	(−12.55)	(−2.30)	(−1.13)	(0.03)
Leverage	0.472***	0.796***	0.603***	1.032***
	(4.89)	(6.92)	(4.84)	(7.83)
ROA	−4.691***	1.409*	0.174	−0.370
	(−6.56)	(1.90)	(0.23)	(−0.58)
Ln(Asset)	−0.163***	−0.079***	−0.105***	−0.124***
	(−6.99)	(−3.22)	(−4.04)	(−4.33)
Ln(Sales)	0.173***	0.082***	0.062***	0.100***
	(14.80)	(6.68)	(5.46)	(9.53)
Ln(Cash)	0.066***	0.117***	0.150***	0.121***
	(4.81)	(6.81)	(8.59)	(5.86)
Constant	2.884***	1.573***	3.136***	2.465***
	(15.50)	(6.33)	(9.55)	(3.16)
Observations	3,610	2,942	3,562	4,517
R-squared	0.339	0.348	0.436	0.392

问题：

作者阐述，与银行贷款相比，债券融资是企业融资的次要选择，但银行贷款的利率往往会参考债券利率。由于债券在二级市场流动性较差，交易价格不具有参考价值，因而债券的发行价就显得尤为重要。这是本文关注债券发行价问题的动机。

作者在度量债券发行的过度定价程度时，又以在二级市场的交易价格作为相对标准。发行价超过二级市场交易价格的程度越高，过度定价即越高。二级市场的交易价格不值得银行参考，却值得作者参考？