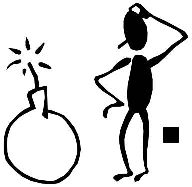
Syndicated loan spreads and the composition of the syndicate

by Lim, Minton, Weisbach (JFE, 2014)

Presented by Hyun-Dong (Andy) Kim

Section 1: Introduction



- Various types of participants in syndicated loans
- Participants have different costs of providing debt capital.

  - Commercial and investment banks vs. non-bank investors (e.g. hedge funds)

- Given their different required ex ante returns, somewhat puzzling that both hedge funds and banks, as well as other institutions, all invest in the same syndicated loan facilities.
- **Why do some facilities have participation of non-bank investors while others do not?**

  Answer: At times when it is difficult to acquire the necessary capital from banks, the loan arrangers have to raise the spreads to attract other non-bank institutional invests such as hedge funds. → **the non-bank premium exists.**

- **When does the non-bank premium create?**

  Answer: 1) the borrowing firm faces financial constraints.

  2) Banks are restricted in providing capital.

Overall Framework

<u>Phenomenon:</u>
Some of these non-bank institutions have substantially higher required returns than banks, yet both banks and non-bank institutions invest in the same loan facilities.

<u>Research Question:</u>
Why some facilities have participation of non-bank investors while others do not?

<u>Paper's Argument:</u>
Loan arrangers approach non-bank institutional investors when they cannot fill the syndicate with banks, and consequently, have to offer a higher spread to attract non-bank institutional investors.

→ Non-bank spread premium comes from **the circumstances under which capital is provided rather than borrowing firm's underlying risk.**

→ The circumstances occur **1) when borrowing firms are facing financial constraints or 2) when banks are restricted in providing capital.**

Overall Framework

Main Results:

Table 3: Describe that the non-bank facilities tend to be more risky than bank-only facilities.

Table 4: Measure the incremental impact of a non-bank institutional investor on spreads by controlling the differences in type of facility and default risk of borrowing firm (that is, controlling observable borrower's risk).

Table 5: Shows that non-bank premium higher when the borrowing firm is more financially constrained.

Table 6: Suggests that non-bank premium comes from the restriction of bank in providing capital.

Table 7: Shows that non-bank premium is not driven by unobservable heterogeneity across firms by employing "within-loan estimates".

Section 2: Data sources and sample construction

- Obtain leveraged loans from DealScan database for the 1997-2007 period.
  - Leveraged loan: a credit rating of BB+ or lower, or unrated.
- A term loan facility: a specified amount, fixed repayment schedule, and maturity.
  - Term loan A facility: amortizing and typically held by the lead arranger.
  - Term loan B facility: one payoff at maturity and sold to third parties.
- Revolvers: shorter maturities and drawn down at the discretion of the borrower.
- The all-in-drawn spread: the spread of the facility over LIBOR + any annual fees paid to the lender group.
- **A sample of 20,031 facilities, associated with 13,122 loans made to 5,627 borrowing firms.**
- Merging with Compustat, CRSP, I/B/E/S/, 13F, and SDC Platium to obtain other firm-level variables.
- **The total number of leveraged loan facilities that have a full set of data is 12,346, of which 3,460 have participation of an institutional investor.**

Section 2: Sample Selection and Data Description

Table 1: Trends in non-bank institutional participation in leveraged loan facilities

						Type of institutional syndicate member				
Year of origination	(1) All facilities	(2) Bank-only syndicate	(3) Non-bank syndicate member	(4) Commercial bank	(5) Investment bank	(6) Insurance company	(7) Finance company	(8) HF/PE	(9) Mutual fund	(10) Other
Panel A: Number of loan facilities										
1997	2,706	2,267	439	2,527	708	79	331	146	128	42
1998	2,264	1,783	481	2,111	598	80	357	154	111	73
1999	1,915	1,424	491	1,791	606	82	394	192	137	73
2000	1,780	1,324	456	1,656	524	48	349	174	93	68
2001	1,777	1,328	449	1,628	603	57	317	192	67	72
2002	1,800	1,178	622	1,653	623	73	442	280	85	79
2003	1,778	982	796	1,644	745	120	565	420	106	106
2004	1,818	941	877	1,643	879	90	638	484	142	119
2005	1,626	921	705	1,463	920	30	539	304	71	63
2006	1,365	805	560	1,198	806	21	406	228	43	27
2007	1,202	799	403	1,087	711	18	265	180	27	29
Total	20,031	13,752	6,279	18,401	7,723	698	4,603	2,754	1,010	751
Panel B: Value of loan facilities (in $ billions)										
1997	298	242	57	294	192	16	45	20	27	8
1998	258	182	76	254	158	21	58	28	24	14
1999	255	182	73	252	167	20	57	31	32	15
2000	237	159	78	232	139	13	61	32	27	17
2001	256	180	76	246	177	14	65	30	15	13
2002	231	132	99	222	162	17	79	45	20	16
2003	257	115	141	247	181	36	115	83	30	25
2004	327	155	172	307	251	22	138	95	38	22
2005	349	196	153	326	278	10	125	60	22	15
2006	342	210	132	318	272	6	107	40	18	6
2007	345	235	110	328	285	7	85	39	12	6
Total	3,160	1,990	1,170	3,026	2,262	182	935	501	266	156

Table 2: Selected facilities and lender characteristics (Continued)

	All facilities	Facility type		
		Revolver	Term loan A	Term loan B
Panel A: Facility characteristics				
N	20,031	12,421	956	6,654
Non-bank syndicate member	0.313	0.249	0.482	0.409
Facility amount ($M)	158.0	153.0	174.0	164.0
Number of participating lenders	6.110	5.836	9.476	6.136
Relationship score	0.074	0.076	0.105	0.068
Maturity	46.87	39.91	58.19	58.22
Secured indicator	0.701	0.666	0.719	0.763
Performance pricing indicator	0.429	0.487	0.542	0.303
Covenants indicator	0.756	0.762	0.715	0.750
Sole-lender facility indicator	0.124	0.138	0.022	0.114
All-in-drawn spread (bps)	256.6	230.1	271.4	305.8
Panel B: Participation by syndicate member type - conditional on having loan share information				
All facilities having loan share information	5,624	4,116	139	1,369
All banks	5,333	3,938	134	1,261
Commercial bank	5,274	3,910	133	1,231
Investment bank	1,535	1,127	83	325
All non-banks	1,282	784	61	437
Insurance company	119	27	6	86
Finance company	981	619	53	309
HF/PE	463	246	19	198
Mutual fund	184	47	6	131
Other lenders	125	44	3	78

Table 2: Selected facilities and lender characteristics

	All facilities	Facility type		
		Revolver	Term loan A	Term loan B
Panel C: Average loan share - conditional on participation (%)				
All banks	94.7	96.0	91.8	90.9
Commercial bank	89.8	91.2	80.0	86.3
Investment bank	20.8	19.2	20.0	26.4
All non-banks	44.2	42.2	24.9	50.6
Insurance company	13.6	13.2	6.9	14.2
Finance company	35.2	35.7	19.3	36.9
HF/PE	31.8	35.6	19.0	28.3
Mutual fund	10.8	6.8	17.2	15.2
Other lenders	31.9	18.7	20.9	24.7
Panel D: Percent of syndicate member type as largest lender - conditional on participation				
All banks	96.5	97.2	97.0	94.4
Commercial bank	94.2	95.5	89.5	90.3
Investment bank	28.9	26.4	32.5	36.6
All non-banks	46.4	48.5	19.7	46.5
Insurance company	13.4	18.5	16.7	11.6
Finance company	40.9	44.3	15.1	38.5
HF/PE	29.6	37.0	15.8	21.7
Mutual fund	15.2	17.0	0.0	15.3
Other lenders	23.2	27.3	33.3	20.5

3.1. Univariate Difference

Table 3: Difference in attributes of non-bank facilities and bank-only facilities

	Non-bank facilities (1)		Bank-only facilities (2)		Difference (1)–(2)	
	N	Mean	*N*	Mean	Diff.	(*t*-Value)
Panel A: Facility type						
% Revolver	6,279	49.3	13,752	67.8	–18.5	(–25.36)***
% Term loan A	6,279	7.3	13,752	3.6	3.7	(11.56)***
% Term loan B	6,279	43.3	13,752	28.6	14.7	(20.73)***
Panel B: S&P issuer credit rating						
% Having rating	6,279	52.6	13,752	34.8	17.7	(24.06)***
Conditional on having an issuer credit rating						
% BBB and above	3,301	5.1	4,792	19.4	–14.3	(–18.79)***
% BB	3,301	38.9	4,792	44.6	–5.7	(–5.07)***
% B and below	3,301	56.0	4,792	36.0	19.9	(18.08)***
Panel C: Facility characteristics						
Facility amount ($M)	6,279	186.0	13,752	145.0	41.0	(10.81)***
Number of participating lenders	6,279	8.882	13,752	4.844	4.038	(37.84)***
Relationship score	6,279	0.088	13,752	0.068	0.020	(15.42)***
Maturity (months)	6,279	54.40	13,752	43.43	10.97	(30.91)***
Secured indicator	6,279	0.791	13,752	0.659	0.131	(18.99)***
Performance pricing indicator	6,279	0.405	13,752	0.440	–0.035	(–4.60)***
Covenants indicator	6,279	0.753	13,752	0.757	–0.004	(–0.63)
Sole-lender facility indicator	6,279	0.056	13,752	0.156	–0.100	(20.03)***
Panel D: Borrowing firm characteristics						
Total assets ($M)	5,519	1,975.9	12,910	1,602.2	373.8	(5.48)***
Fixed assets/Total Assets	5,437	0.319	12,678	0.320	0.000	(–0.11)
Z-score	4,032	2.182	10,144	3.546	–1.363	(–19.95)***
Leverage	4,957	0.781	11,979	0.610	0.171	(26.73)***
Industry-adjusted ROA	5,428	–0.110	12,739	–0.074	–0.036	(–10.34)***
Number of analysts following	6,279	3.289	13,752	3.870	–0.581	(–8.03)***
Institutional holdings	6,279	0.290	13,752	0.332	–0.042	(–8.42)***

3.2. Differences in spreads

- Understand why we observe investors with different required returns investing in the same syndicated loan facilities.

- Within a particular facility, all investors receive the same return; however, facilities differ cross-sectionally, both in terms of the syndicate composition and the spreads that they offer investors.

- To attract investors with higher required rates of return, lead arrangers of the facilities must offer higher spreads.

  → Expect to observe higher spreads for loan facilities with non-bank syndicate members than for loan facilities with bank-only participants.

- **Why banks could not be able to fill the entire loan facility by themselves?**

  1) Banks face regulatory lending restrictions aimed to reduce banks' portfolio credit risk.

  2) Banks have internal lending limits that are often even lower than the regulatory limits.

  3) Bank credit supply also is highly cyclical.

- Estimate the incremental effect of a non-bank institutional investor on the spread, holding other factors that could affect the spread constant:

$$\text{All-in-drawn spread} = \alpha + \beta \times \text{Non-bank syndicate member} + \gamma \times X + \varepsilon,$$

3.2. Differences in spreads

Table 4: Difference in attributes of non-bank facilities and bank-only facilities (continued)

Panel A: By facility type

Sample	All facility types (1)		Revolvers (2)		All term loan facilities (3)		Term loan B facilities (4)	
Dependent var.=All-in-drawn spread	Coefficient	(p-Val)	Coefficient	(p-Val)	Coefficient	(p-Val)	Coefficient	(p-Val)
Non-bank syndicate member	53.93***	(0.00)	44.93***	(0.00)	68.90***	(0.00)	74.49***	(0.00)
Log (facility amount)	−11.81***	(0.00)	−19.06***	(0.00)	−1.88	(0.34)	−3.34	(0.13)
Log (number of participating lenders)	−10.15***	(0.01)	−1.38	(0.69)	−22.07***	(0.00)	−22.96***	(0.00)
Relationship score	−43.59*	(0.05)	−56.95***	(0.01)	−33.25	(0.27)	−41.84	(0.18)
Log (maturity)	−10.98***	(0.00)	−6.93***	(0.01)	−18.55**	(0.02)	−17.26**	(0.03)
Secured indicator	45.35***	(0.00)	44.88***	(0.00)	49.18***	(0.00)	48.19***	(0.00)
Performance pricing indicator	−41.32***	(0.00)	−31.13***	(0.00)	−54.93***	(0.00)	−55.22***	(0.00)
Covenants indicator	4.37	(0.27)	0.36	(0.93)	1.86	(0.82)	3.09	(0.69)
Sole-lender facility indicator	1.70	(0.78)	1.75	(0.72)	−4.41	(0.60)	−2.51	(0.79)
Log (total assets)	−1.02	(0.72)	−1.63	(0.52)	−0.62	(0.84)	0.26	(0.93)
Fixed assets/Total Assets	0.54	(0.96)	−3.35	(0.63)	7.16	(0.72)	3.63	(0.86)
Z-score	−2.17***	(0.00)	−2.26***	(0.00)	−1.93	(0.11)	−2.22*	(0.09)
Leverage	33.15***	(0.00)	33.33***	(0.00)	28.96**	(0.02)	29.71**	(0.02)
Industry-adjusted ROA	−70.63***	(0.00)	−68.19***	(0.00)	−74.14***	(0.00)	−71.50***	(0.00)
Log (number of analyst following)	−7.97***	(0.00)	−6.42***	(0.01)	−9.59**	(0.01)	−7.80*	(0.07)
Institutional holdings	−12.42**	(0.04)	−14.79***	(0.00)	−11.56	(0.26)	−9.40	(0.38)
Unrated	−0.29	(0.96)	−5.21	(0.23)	11.03	(0.21)	12.25	(0.19)
High-yield spread	0.09***	(0.00)	0.06**	(0.02)	0.15***	(0.00)	0.16***	(0.00)
Term loan A					−6.43	(0.33)		
Fixed effects								
Loan purpose	Yes		Yes		Yes		Yes	
Facility type	Yes		No		No		No	
Industry	Yes		Yes		Yes		Yes	
Time (year)	Yes		Yes		Yes		Yes	
Number of observations	12,346		8,065		4,281		3,752	
Adjusted R^2	0.435		0.471		0.354		0.345	

Section 3: Empirical Results – Differences between bank-only and non-bank loan facilities

3.2. Differences in spreads

Table 4: Difference in attributes of non-bank facilities and bank-only facilities

Panel B: By issuer credit rating

Sample	All with issuer ratings (1)		BBB-rated and above (2)		BB-rated (3)		B-rated and below (4)		No issuer rating (5)	
Dependent var.= All-in-drawn spread	Coefficient	(p-Val)	Coefficient	(p-Val)	Coefficient	(p-Val)	Coefficient	(p-Val)	Coefficient	(p-Val)
Non-bank syndicate member	22.23***	(0.00)	28.59***	(0.01)	20.77***	(0.00)	21.06***	(0.00)	75.96***	(0.00)
Log (Facility amount)	−15.25***	(0.00)	−4.85	(0.27)	−12.09***	(0.00)	−19.15***	(0.00)	−8.54***	(0.00)
Log (number of participating lenders)	−11.33***	(0.00)	−13.72***	(0.00)	−11.99***	(0.00)	−9.99*	(0.09)	−2.25	(0.64)
Relationship score	−13.07	(0.45)	−6.48	(0.88)	−2.93	(0.89)	−24.93	(0.44)	−118.87***	(0.00)
Log (maturity)	−6.54	(0.17)	2.57	(0.62)	7.43**	(0.01)	−25.72***	(0.00)	−15.30***	(0.00)
Secured indicator	40.39***	(0.00)	52.73***	(0.00)	39.90***	(0.00)	33.98***	(0.00)	38.26***	(0.00)
Performance pricing indicator	−40.36***	(0.00)	−32.43***	(0.00)	−23.47***	(0.00)	−52.47***	(0.00)	−39.63***	(0.00)
Covenants indicator	17.97***	(0.00)	9.63	(0.52)	8.03	(0.34)	28.01**	(0.04)	−0.40	(0.94)
Sole-lender facility indicator	−46.84***	(0.00)	−46.63	(0.14)	−33.30	(0.13)	−55.09***	(0.00)	9.74*	(0.06)
Log (total assets)	7.05***	(0.01)	11.97***	(0.00)	4.32	(0.17)	7.71**	(0.04)	−6.38*	(0.07)
Fixed assets/Total Assets	21.72***	(0.00)	11.56	(0.56)	−10.51	(0.26)	41.52***	(0.00)	−11.11	(0.40)
Z-score									−2.44***	(0.00)
Leverage	19.06***	(0.01)	−0.69	(0.96)	15.64**	(0.02)	19.21*	(0.07)	28.36***	(0.00)
Industry-adjusted ROA	−64.15***	(0.00)	−8.16	(0.90)	−128.68***	(0.00)	−41.79	(0.16)	−63.92***	(0.00)
Log (number of analyst following)	−5.64**	(0.03)	−7.70	(0.17)	−8.94***	(0.00)	−3.32	(0.32)	−6.98**	(0.04)
Institutional holdings	−10.09**	(0.03)	−0.84	(0.97)	−11.95**	(0.02)	−15.05**	(0.04)	−7.20	(0.51)
High-yield spread	0.17***	(0.00)	0.10*	(0.08)	0.19***	(0.00)	0.19***	(0.00)	0.04**	(0.04)
BB-rated	25.79***	(0.00)								
B-rated and below	79.51***	(0.00)								
Fixed effects										
Loan purpose	Yes		Yes		Yes		Yes		Yes	
Tranche type	Yes		Yes		Yes		Yes		Yes	
Industry	Yes		Yes		Yes		Yes		Yes	
Time (year)	Yes		Yes		Yes		Yes		Yes	
Number of observations	6,879		926		2,984		2,969		7,091	
Adjusted R^2	0.500		0.378		0.481		0.360		0.433	

Section 3: Empirical Results – Differences between bank-only and non-bank loan facilities

3.3. Non-bank premiums and borrower financial constraints

Table 5: Is the non-bank premium higher when the borrowing firm is more financially constrained?

Dependent var. = All-in-drawn spread	(1)		(2)		(3)		(4)		(5)		(6)	
	Coefficient	(p-Val)	Coefficient	(p-Val)	Coefficient	(p-Val)	Coefficient	(p-Val)	Coefficient	(p-Val)	Coefficient	(p-Val)
Non-bank syndicate member*Unrated	47.20***	(0.00)										
Unrated	−15.98***	(0.00)	−1.38	(0.82)	−1.24	(0.83)	0.52	(0.93)	−0.30	(0.96)	−0.79	(0.89)
Non-bank syndicate member*Current debt due			25.34**	(0.05)								
Current debt due			2.25	(0.66)								
Non-bank syndicate member *Hi-current debt due					21.88***	(0.00)						
Hi-current debt due					0.64	(0.85)						
Non-bank syndicate member*Issued public bond-ever							−28.58***	(0.00)				
Issued public bond-ever							9.18*	(0.06)				
Non-bank syndicate member*Issued public bond-prior year									−50.23***	(0.00)		
Issued public bond-prior year									12.01	(0.11)		
Non-bank syndicate member*SA-index											20.85***	(0.00)
SA-index											1.52	(0.64)
Non-bank syndicate member	31.00***	(0.00)	48.29***	(0.00)	48.66***	(0.00)	60.38***	(0.00)	55.20***	(0.00)	123.52***	(0.00)
Other controls	Yes		Yes		Yes		Yes		Yes		Yes	
Fixed effects	Yes		Yes		Yes		Yes		Yes		Yes	
Loan purpose	Yes		Yes		Yes		Yes		Yes		Yes	
Facility type	Yes		Yes		Yes		Yes		Yes		Yes	
Industry	Yes		Yes		Yes		Yes		Yes		Yes	
Time (year)	Yes		Yes		Yes		Yes		Yes		Yes	
Number of observations	12,346		12,346		12,346		12,346		12,346		12,272	
Adjusted R^2	0.442		0.436		0.437		0.437		0.436		0.438	

3.4. Intertemporal variation in non-bank premiums

- If non-bank premiums reflect a return to providing capital at times when banks cannot, then the premiums should vary depending on the supply of bank capital available at a particular point in time.

- Factors that could affect the supply of bank capital

  - the demand for loans from collateralized loan obligations (CLOs), the risk aversion of banks, and the overall state of the economy

Table 6: Does risk aversion and liquidity of the bank affect the size of the non-bank premium?

Panel A: Intertemporal variation in non-bank premiums

Year	Non-bank syndicate member		Non-bank syndicate member × High-yield spread		Number of observations	Adjusted R^2	High-yield spread: Avg of monthly (BB-AAA) spreads
1997	68.93***	(0.00)			1,740	0.568	130.6
1998	47.10***	(0.00)			1,405	0.531	181.0
1999	47.12***	(0.00)			1,212	0.432	218.9
2000	40.11***	(0.00)			1,141	0.450	294.3
2001	54.68***	(0.00)			1,191	0.437	350.8
2002	63.78***	(0.00)			1,138	0.418	452.0
2003	61.01***	(0.00)			1,081	0.419	331.4
2004	62.17***	(0.00)			1,042	0.413	172.8
2005	34.89***	(0.00)			910	0.478	186.7
2006	44.91***	(0.00)			792	0.430	185.9
2007	56.76***	(0.00)			694	0.481	192.8
1997–2007	30.36***	(0.00)	0.10***	(0.00)	12,346	0.437	239.2

3.5. Lead bank liquidity

- The premiums should be higher when the lead bank in the syndicate has limited liquidity itself.
- To measure liquidity of the lead bank, reply on three alternative measures:
  - Securitization-active Lead, Lead's Cash/Total Assets, and Lead's Tier-1 Capital Ratio

Table 6: Does risk aversion and liquidity of the bank affect the size of the non-bank premium?

Panel B: Lead bank's liquidity and the non-bank premium

Dependent var.=All-in-drawn spread	(1)		(2)		(3)	
	Coef.	(*p*-Val)	Coef.	(*p*-Val)	Coef.	(*p*-Val)
Non-bank syndicate member*Securitization-active lead	–40.85***	(0.00)				
Securitization-active lead	15.77***	(0.00)				
Non-bank syndicate member*Lead's cash/Total assets			–176.46***	(0.01)		
Lead's cash/Total Assets			151.87***	(0.00)		
Non-bank syndicate member*Lead's Tier-1 capital ratio					2.06	(0.48)
Lead's Tier-1 capital ratio					3.94***	(0.00)
Non-bank syndicate member	66.57***	(0.00)	64.32***	(0.00)	22.07	(0.36)
Other controls	Yes		Yes		Yes	
Fixed effects	Yes		Yes		Yes	
Loan purpose	Yes		Yes		Yes	
Facility type	Yes		Yes		Yes	
Industry	Yes		Yes		Yes	
Time (year)	Yes		Yes		Yes	
Number of observations	12,346		9,728		8,508	
Adjusted R^2	0.439		0.441		0.442	

3.6. Within-loan estimates

▪ From Table 4, the non-bank premium are smaller when credit ratings are used to control for risk than when using accounting variable-based risk measures, suggesting the estimated non-bank premium could reflect borrower risk.

▪ Credit ratings are themselves imperfect measures of default risk.

▪ Potentially, the positive estimated premium for non-bank participation could reflect residual risk not reflected in ratings rather than a premium to attract non-bank institutional lenders.

▪ A method of measuring non-bank syndicate member premiums that is unlikely to be affected by risk or other potential unobserved firm-level heterogeneity

: Using the relative pricing of different facilities within the same loan.

- Each facility of a multiple facility loan has the same seniority and covenants.

→ the default risk of facilities and the creditor rights attached to the facilities in the same loan are essentially the same (That is, share the same underlying risk).

- Different facilities in the same loan will have different maturities and implicit options.

→ Once these other differences are controlled for econometrically, the incremental effect of a non-bank participant on the relative pricing of facilities within a given loan should reflect the impact of non-bank syndicate participation rather than risk differences.

3.6. Within-loan estimates

Table 7: Is the non-bank premium driven by unobservable heterogeneity across firms? (continued)

Panel A: Within-loan spread gap between facilities

Dependent variable	(Term loan B facility – Term loan A facility) spread in the same loan				(Term loan B facility – Revolver) spread in the same loan			
	(1)		(2)		(3)		(4)	
	Coef.	(*p*-Val)	Coef.	(*p*-Val)	Coef.	(*p*-Val)	Coef.	(*p*-Val)
Non-bank syndicate member in term loan B facility	8.08	(0.36)	9.63	(0.38)	33.24***	(0.00)	42.46***	(0.00)
Differences in log (facility amount)	−6.64	(0.13)	−4.85	(0.31)	−8.69***	(0.00)	−7.21***	(0.00)
Differences in log (number of participating lenders)	4.56	(0.28)	4.55	(0.41)	−9.36**	(0.01)	−6.15	(0.14)
Differences in relationship score	61.37***	(0.01)	27.89	(0.48)	−63.29	(0.40)	−14.71	(0.67)
Differences in log (maturity)	−18.08	(0.21)	−18.13	(0.33)	−0.04	(0.99)	−0.98	(0.77)
Differences in security	−3.63	(0.86)	−50.33	(0.17)	0.93	(0.93)	−7.47	(0.61)
Differences in performance pricing	−5.45	(0.50)	−2.03	(0.84)	−16.39***	(0.00)	−25.26***	(0.00)
High-yield spread	−0.03	(0.38)	−0.12**	(0.03)	0.06	(0.24)	0.03	(0.49)
Firm-level controls	No		Yes		No		Yes	
Fixed effects								
Time (year)	Yes		Yes		Yes		Yes	
Number of observations	391		245		2,339		1,604	
# Non-bank syndicate member in term loan B facility	94		59		213		131	
# Non-bank syndicate member in term loan A facility	18		9		–		–	
# Non-bank syndicate member in revolver	–		–		53		34	
Adjusted R^2	0.057		0.101		0.070		0.093	

3.6. Within-loan estimates

Table 7: Is the non-bank premium driven by unobservable heterogeneity across firms?

Panel B: Differences in spreads between non-bank facilities and matching bank-only facilities

Matching	Same facility type within the same loan				Same facility type to the same borrower in the same calendar year			
Dependent var.: All-in-drawn spread	(1)		(2)		(3)		(4)	
	Coef.	(*p*-Val)	Coef.	(*p*-Val)	Coef.	(*p*-Val)	Coef.	(*p*-Val)
Non-bank participated	38.77***	(0.00)	25.89*	(0.08)	26.94***	(0.01)	27.04***	(0.01)
Log (facility amount)	−14.39**	(0.03)	−4.53	(0.60)	−18.08***	(0.00)	−11.56*	(0.09)
Log (number of participating lenders)	−19.86***	(0.00)	−13.77	(0.11)	−26.13***	(0.00)	−21.77**	(0.04)
Relationship score	71.40	(0.47)	2.98	(0.97)	−58.39	(0.40)	−119.43	(0.32)
Log (maturity)	28.47**	(0.05)	11.41	(0.42)	−6.66	(0.52)	−2.83	(0.79)
Secured indicator	69.42***	(0.00)	45.24***	(0.00)	57.25***	(0.00)	46.65***	(0.00)
Performance pricing indicator	−46.62***	(0.00)	−38.23***	(0.01)	−69.57***	(0.00)	−77.03***	(0.00)
Covenants indicator	−77.59*	(0.09)	−26.39	(0.35)	18.22	(0.39)	43.51**	(0.05)
Sole-lender indicator	2.04	(0.94)	86.22	(0.11)	−57.54*	(0.10)	13.07	(0.84)
High-yield spread	0.10*	(0.07)	0.08	(0.23)	0.12*	(0.06)	0.11	(0.47)
Firm level controls	No		Yes		No		Yes	
Fixed effects								
Loan purpose	Yes		Yes		Yes		Yes	
Facility type	Yes		Yes		Yes		Yes	
Time (year)	Yes		Yes		Yes		Yes	
Number of observations	207		126		841		496	
♯ Non-bank participating facilities	106		64		420		243	
Adjusted R^2	0.469		0.650		0.317		0.374	

4.1. Abnormal spreads across types of non-bank institutional syndicate members

Table 8: Does the type of non-bank syndicate member affect the pricing of the loan facility?

Panel A: Estimates using all observations

Sample	All loan facilities (1)		Non-bank facilities (2)	
Dependent var.=All-in-drawn spread	Coef.	(*p*-Val)	Coef.	(*p*-Val)
Insurance company syndicate member	−12.85	(0.19)	−8.16	(0.39)
Finance company syndicate member	28.22***	(0.00)	1.47	(0.79)
HF/PE syndicate member	49.38***	(0.00)	31.13***	(0.00)
Mutual fund syndicate member	−10.27	(0.33)	−3.67	(0.73)
Other non-bank institutional syndicate member	35.43***	(0.00)	27.97***	(0.00)
Log (facility amount)	−11.69***	(0.00)	−23.72***	(0.00)
Log (number of participating lenders)	−11.06***	(0.01)	−17.12**	(0.03)
Relationship score	−45.84**	(0.05)	−85.48*	(0.09)
Log (maturity)	−10.09***	(0.00)	−13.74***	(0.01)
Secured indicator	46.27***	(0.00)	34.38***	(0.00)
Performance pricing indicator	−40.03***	(0.00)	−43.08***	(0.00)
Covenants indicator	3.11	(0.41)	9.23	(0.49)
Sole-lender facility indicator	1.43	(0.81)	10.08	(0.52)
Log (total assets)	−1.11	(0.71)	1.11	(0.78)
Fixed assets/Total Assets	−1.78	(0.86)	24.33*	(0.05)
Z-score	−2.24***	(0.00)	−2.40**	(0.02)
Leverage	33.15***	(0.00)	11.99	(0.27)
Industry-adjusted ROA	−71.47***	(0.00)	−55.63***	(0.01)
Log (number of analyst following)	−8.46***	(0.00)	−8.71**	(0.02)
Institutional holdings	−12.11**	(0.02)	−17.97*	(0.06)
Unrated	−2.57	(0.64)	7.72	(0.38)
High-yield spread	0.09***	(0.00)	0.08	(0.14)
Fixed effects				
Loan purpose	Yes		Yes	
Facility type	Yes		Yes	
Industry	Yes		Yes	
Time (year)	Yes		Yes	
Number of observations	12,346		3,460	
Adjusted R^2	0.433		0.445	

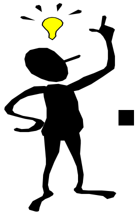
4.2. Within-loan estimates by type of non-bank institutional investor

Table 8: Does the type of non-bank syndicate member affect the pricing of the loan facility?

Panel B: Within-loan estimates

Dependent variable	(Term loan B facility – Term loan A facility) spread in the same loan				(Term loan B facility - Revolver) spread in the same loan			
	(1)		(2)		(3)		(4)	
Insurance company in term loan B facility	5.88	(0.18)	23.73	(0.13)	−5.57	(0.53)	−4.95	(0.65)
Finance company in term loan B facility	0.59	(0.96)	−6.77	(0.51)	−3.94	(0.69)	−14.70	(0.41)
HF/PE in term loan B facility	9.26	(0.34)	16.87**	(0.03)	53.84***	(0.01)	78.21**	(0.02)
Mutual fund in term loan B facility	−6.02	(0.35)	−15.15	(0.13)	−25.64**	(0.04)	−44.49**	(0.02)
Other non-bank in term loan B facility	−6.54	(0.19)	−2.14	(0.88)	12.97	(0.32)	17.74	(0.28)
Differences in log (facility amount)	−6.48	(0.14)	−3.51	(0.46)	−8.79***	(0.00)	−7.42***	(0.00)
Differences in log (number of participating lenders)	5.25	(0.29)	5.07	(0.41)	−8.71**	(0.01)	−5.16	(0.20)
Differences in relationship score	51.50**	(0.01)	28.17	(0.39)	−65.94	(0.38)	−40.29	(0.34)
Differences in log (maturity)	−17.77	(0.23)	−18.45	(0.32)	0.32	(0.90)	−0.22	(0.94)
Differences in security	−4.13	(0.84)	−52.11	(0.15)	1.44	(0.89)	−8.19	(0.56)
Differences in performance pricing	−5.78	(0.48)	−1.26	(0.90)	−17.85***	(0.00)	−28.12***	(0.00)
High-yield spread	−0.04	(0.38)	−0.14***	(0.01)	0.06	(0.24)	0.02	(0.59)
Firm-level controls	No		Yes		No		Yes	
Fixed effects								
Time (year)	Yes		Yes		Yes		Yes	
Number of observations	401		252		2,357		1,615	
# Insurance company in term loan B facility	51		32		87		54	
# Finance company in term loan B facility	67		45		141		87	
# HF/PE in term loan B facility	83		53		172		110	
# Mutual fund in term loan B facility	83		55		151		87	
# Other non-bank in term loan B facility	43		30		86		59	
Adjusted R^2	0.057		0.112		0.077		0.108	

Section 5: Conclusion



- Some of these non-bank institutions have substantially higher required returns than banks, yet both banks and non-bank institutions invest in the same loan facilities.
- One explanation for this phenomenon is that loan arrangers approach non-bank institutional investors when they cannot fill the syndicate with banks, and consequently, have to offer a higher spread to attract non-bank institutional investors.
- The result shows that loan facilities with a non-bank syndicate member receive a higher spread than otherwise similar facilities with bank-only syndicates.
- Use a “within-loan” estimation approach that compares differences in spreads across facilities of the same loan to exclude the possibility that the result is driven by unobservable difference in risk.
- Overall, non-bank spread premium appears to be due to the circumstances under which capital is provided rather than unobserved borrower risk.