Nonbank Market Power in Leveraged Lending

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The Leveraged Loan Market Has Grown Into a Trillion Dollar Market

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Why Is Borrowing In The Leveraged Loan Market So Costly?

- Leveraged loans share many characteristics with bonds.
 - Frequently, the bank retains no share of a leveraged loan.
 - Broadly distributed to nonbank financial institutions, of which many also invest in the bond market.
 - Typically, contain incurrence covenants only, i.e., no maintenance covenants.
 - Trade in a liquid secondary market.

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- However, borrowers in the loan market incur significantly higher costs for the same amount of credit risk.
- A classic view: borrowers and banks engage in mutually beneficial relationships.
 - Loan premium results from relationship banks' information monopoly.
 - The borrower receives additional services such as the provision of liquidity.

Nonbank Market Power Increases the Cost of Leveraged Loans

• Research Question: Do CLO managers have market power in the origination of loans?

Institutional Setting

- Pipeline risk: the risk that the bank has to fund a loan's unsold remainder.
- Information asymmetries arise during loan underwriting because not all CLO managers receive private information about the borrower.
- **Identification**: Mergers in the CLO industry provide exogenous variation in exposure to funding from CLO managers.

• Key Results

- Like traditional bank lending, CLO managers' lending to firms is highly persistent.
- CLO managers exploit the fact that they expose arranging banks to pipeline risk, which increases the cost of borrowing in the loan market.
- Information asymmetries limit banks' ability to perfectly substitute between CLO managers.



- 2 Institutional Setting
- 3 Empirical Strategy & Main Results
- 4 Mergers & Acquisitions in the CLO Industry
- **(5)** Sources of Market Power
- 6 Concluding Remarks



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NOMURA Firm Bank APPLIED









A **CLO** is an actively managed loan fund which is financed with debt.

Assets		Liabilities		
Sen. se	C.	Debt	90	
TLB	95			
Other	5	Equity	10	





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- Bank guarantees the final loan amount to the borrower.
- Pipeline risk: the risk that a bank is unable to sell the entire loan, so that the bank has to fund the unsold remainder.
 - Costly for bank because of high risk-based regulatory capital charges.

Wall Street's Lucrative Leveraged-Debt Machine Is Breaking Down

Big banks are stuck with about \$40 billion of risky debt on their books - blocking the M&A machine that's enriched bankers and private-equity executives over the past decade



By Lisa Lee, Claire Ruckin, and Jill R Shah January 12, 2023 at 7:00 PM EST



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Banks Get Burned by Risky Debt, Imperiling Buyout

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- Can CLO managers exploit the fact that they expose banks to pipeline risk by commanding higher yields?

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- Pipeline risk: the risk that a bank is unable to sell the entire loan, so that the bank has to fund the unsold remainder.
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- Can CLO managers exploit the fact that they expose banks to pipeline risk by commanding higher yields?
- Pipeline risk stemming from a CLO manager for a given loan issue is measured by the demand that the bank expects from that CLO manager at the time that the underwriting contract is signed.
- However, this quantity is unobservable.

Holdings in a Borrower's Outstanding Loans Strongly Predict a CLO Manager's Subsequent Investment



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Loan Controls and Fixed Effects Further Ensure Loan Comparability

 $Spread_{I} = \beta Prior Holding_{f(I)m} + \mu_{mi(I)t(I)} + \rho_{r(I)t(I)} + \phi_{f(I)} + \kappa X_{I} + \varepsilon_{Im}$

- *Prior Holding:* CLO manager's holdings in the borrower's outstanding loans instrumented with the amount of these loans obtained through the CLO manager's M&A activity
- CLO Manager-industry-quarter fixed effects: CLO manager's unobserved time-varying industry-level loan demand
- Rating-quarter fixed effects: time-variation in rating notch-level credit risk premia
- Firm fixed effects: unobserved time-invariant firm heterogeneity
- Loan controls: In Loan Amount_I, In Maturity_I, Covenant-lite_I, Secured_I, Second Lien_I, Sponsored_I, and a set of loan purpose fixed effects, Loan Purpose_{p(I)}

	Spread
<i>Estimation: 2SLS</i> Prior Holding	0.582*** (0.134)
Loan Controls Fixed Effects: CLO Man	Yes ager-Industry-Quarter, Rating-Quarter, Firm
<i>First Stage</i> Prior Holding (Merger) F-statistic	0.546*** 1,459
Observations	130,064

	Spread	Original Issue Discount
<i>Estimation: 2SLS</i> Prior Holding	0.582***	0.404***
Loan Controls Fixed Effects: CLO Man	Yes ager-Industi	Yes ry-Quarter, Rating-Quarter, Firm
<i>First Stage</i> Prior Holding (Merger) F-statistic	0.546*** 1,459	0.539*** 1,138
Observations	130,064	106,618

Effective Yield = Spread + $\frac{\text{Original Issue Discount}}{4}$

	Spread	Original Issue Discount	Effective Yield	
Estimation: 2SLS				
Prior Holding	0.582***	0.404***	0.709***	
Ũ	(0.134)	(0.139)	(0.166)	
Loan Controls	Yes	Yes	Yes	
Fixed Effects: CLO Man	ager-Indust	ry-Quarter, Rating	-Quarter, Firm	
First Stage				
Prior Holding (Merger)	0.546***	0.539***	0.539***	
F-statistic	1,459	1,138	1,138	
Observations	130,064	106,618	106,618	

Effective Yield = Spread + $\frac{\text{Original Issue Discount}}{4}$

	Spread	Original Issue Discount	Effective Yield	Underpricing
Estimation: 2SLS				
Prior Holding	0.582***	0.404***	0.709***	0.580***
-	(0.134)	(0.139)	(0.166)	(0.189)
Loan Controls Yes		Yes Yes		Yes
Fixed Effects: CLO Man	ager-Indust	ry-Quarter, Rating	-Quarter, Firm	
First Stage				
Prior Holding (Merger)	0.546***	0.539***	0.539***	0.521***
F-statistic	1,459	1,138	1,138	662
Observations	130,064	106,618	106,618	73,302

CLO Managers Exert Less Market Power Over More Flexible Deals

	Spread	Original Issue Discount	Effective Yield	Underpricing
Prior Holding \times Recapitalization	0.341	-0.400	0.081	0.108
	(0.253)	(0.335)	(0.374)	(0.352)
Prior Holding \times Corp. Purpose	0.591***	0.437***	0.740***	0.609***
	(0.133)	(0.135)	(0.156)	(0.213)
Prior Holding \times Acquisition/Buyout	0.829**	1.086***	1.163**	0.909
	(0.377)	(0.377)	(0.456)	(0.805)
Estimation	2SLS	2SLS	2SLS	2SLS
Loan Controls	Yes	Yes	Yes	Yes
Fixed Effects: CLO Manager-Industry	-Quarter, Ra	atıng-Quarter, Fırı	n	
Observations	130,064	106,618	106,618	71,530



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Expensive CLO Liabilities Characterize Acquisition Targets

- **Exclusion restriction**: Portfolio holdings of acquisition target are uncorrelated with the acquirer's beliefs about borrowers within an industry.
- **Main threat**: Target choice may depend on acquirer's beliefs about loans in the target's portfolio.
- **Argument**: Acquisition targets are not determined by their loan portfolios, but by their inferior ability to issue new CLOs.

• Evidence

- 1. Most public statements mention improved issuance conditions.
- 2. M&A activity tends to be low in periods when CLO issuance is high.
- 3. Loan portfolio fails to predict the target out of otherwise similar CLO managers.
- 4. In contrast, expensive CLO liabilities are highly predictive.
- 5. Post-merger, target CLOs are refinanced at significantly elevated rates.



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Why Can Banks Not Perfectly Substitute Between CLO Managers?

- Traditional bank lending: incumbent banks obtain information monopoly by possessing superior information about the borrower.
- Hypothesis: CLO managers may enjoy an "information oligopoly."
 - Suppose that there are information asymmetries across CLO managers that the bank cannot resolve.
 - \Rightarrow CLO managers' investment decisions are informative about borrower quality.
 - Replacing an invested CLO manager is costly because of its negative effect on other CLO managers' demand.

Differential Information Flows Create Information Asymmetries **KKR** С С С NOMURA Private Info. Private Info. С Firm Bank Blackstone С С APPLIED **Private-side Public-side** Public Infr С **PGIM** С С

Information Asymmetries Raise Nonbank Market Power

 $Spread_{I} = \beta_{1}Prior Holding_{f(I)m} \times Opacity_{f(I)m} + \beta_{2}Prior Holding_{f(I)m} + \beta_{3}Opacity_{f(I)m}$

 $+\mu_{\mathrm{mi(I)t(I)}}+\rho_{\mathrm{r(I)t(I)}}+\phi_{\mathrm{f(I)}}+\kappa\mathrm{X}_{\mathrm{I}}+\varepsilon_{\mathrm{Im}}$

		Sprea	d	
Prior Holding	0.626** (0.282)	0.531*** (0.156)	0.829*** (0.230)	0.514**
Prior Holding × Small	1.692* (1.004)	(000)	(0.200)	1.659* (0.932)
Prior Holding \times Uncertain Rating	. ,	0.388* (0.228)		0.851** (0.427)
Prior Holding \times Private			-0.435 (0.393)	
Estimation Loan Controls Fixed Effects: CLO Manager-Industry	2SLS Yes -Quarter, Rating	2SLS Yes J-Quarter, Firm	2SLS Yes	2SLS Yes
Observations	58,018	129,357	130,064	57,953



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CLO Managers Have Market Power in the Origination of Loans

- A key distinction between leveraged loans (*private debt*) and bonds (*public debt*) is that information asymmetries across nonbank investors are more pronounced in the underwriting of loans.
- Resulting market power of CLO managers raises the cost of borrowing in the leveraged loan market.
- Kirscher v JP Morgan: Are leveraged loans securities?
- Future research: Why do firms demand this more costly source of finance?

Appendix

Novel Linkage of Four Datasets Covers Near Universe of U.S. CLOs and Leveraged Loan Originations in the 2010–2021 Sample Period



Loan Portfolio Alignment Does Not Predict Target CLO Managers

		Tar	get	
Match Level	lss	uer	Loan	
-	(1)	(2)	(3)	(4)
$-1 \times w - w^{Acq.} $	-0.010	-0.003	-0.017	-0.015
	(0.038)	(0.045)	(0.037)	(0.046)
Merger FE Merger-Industry FF	Yes _	– Yes	Yes _	– Yes
CLO Manager Controls Observations	Yes 463,764	Yes 462,951	Yes 607,228	Yes 606,355

Post-Merger, Target CLO Refinancing Exceeds That of Peer Group



If Leveraged Loans Resemble Bonds, Why Are They Priced Like Loans?





"[...] while smaller market participants can continue to add a high level of service to their existing investors, without the scale and global reach of a platform such as Apollo's, the smaller firms are unable to effectively compete in the market to raise new funds, and their growth prospects are limited." – Apollo/Gulf Stream Asset Management





"Silvermine [benefits] from Man Group's access to capital, global distribution platform and highly sophisticated infrastructure." – Man GLG/Silvermine Capital Management

"It will be difficult for [small CLO managers] to remain in the market unless their shareholders have a deep pocket." – Fitch





"These are premier assets and among the best we are going to see in this market. Stanfield's founders [...] have built an impressive business" – Carlyle/Stanfield

"Through this merger, we will significantly increase our market presence, improve our access to capital, and enhance asset diversification, while still staying true to our core strategy of maintaining a high-quality, senior secured, first lien-focused portfolio" – Crescent/Alcentra (BNY Mellon)



Merger Activity is Countercyclical to CLO Issuance and Regulation



Diversification Limits Differentiability of Targets by Holdings

- CLO indentures stipulate tight diversification covenants:
 - Maximum borrower exposure: 1–2%
 - Maximum industry exposure: 10–15%
 - Diversity score
- CLO managers control several CLOs: manager diversification exceeds CLO diversification
- Average target holds >300 from >200 firms



Manager-Level Portfolio Overlap Does Not Predict Target Selection

.

	Total P	Tar ortfolio	get Loan P	ortfolio
Match Level	lssuer	Loan	lssuer	Loan
	(1)	(2)	(3)	(4)
Portfolio Overlap	0.018	0.021	0.021	0.024
	(0.024)	(0.023)	(0.023)	(0.022)
Merger FE	Yes	Yes	Yes	Yes
Target Cand. FE	Yes	Yes	Yes	Yes
Target Cand. Controls	Yes	Yes	Yes	Yes
Observations	2,484	2,484	2,484	2,484



Below-Average CLO Funding Conditions Characterize the Target

	(1)	Target (2)	(3)
Leverage Ratio	-0.036*** (0.007)		
Cost of Debt (in %)	()	0.004** (0.001)	
In (Junior Fee)		(0.00)	-0.005** (0.002)
In (Senior Fee)			-0.001 (0.002)
Vintage-Merger FE Target Candidate FE CLO & Target Cand. Controls Observations	Yes Yes Yes 10,193	Yes Yes Yes 3,838	Yes Yes Yes 6,698

▶ Back

CLO Manager Mergers: Target vs. Target Candidate CLO Refinancing

	CLO Refinanced/Called				
	(1)	(2)	(3)	(4)	_
Target \times Post	0.019*** (0.007)	0.018*** (0.007)	0.018** (0.007)	0.020** (0.008)	-
Target	-0.004 [*] (0.002)	-0.006** (0.002)	. ,		B
Ouarter-Merger FE	Yes	_	_	_	
Vintage-Quarter-Merger FE	_	Yes	Yes	Yes	
Target CandMerger FE	-	_	Yes	_	
CLO-Merger FE	-	-	-	Yes	
CLO Controls	Yes	Yes	Yes	Yes	
Observations	213,877	212,286	212,286	212,286	

The Acquirer Refinances Target- in Lieu of Self-Issued CLOs



CLO Manager Mergers: Acquirer vs. Target Candidate CLO Refinancing

		CLO Refina	nced/Called		-
	(1)	(2)	(3)	(4)	
Acquirer \times Post \times # Target Refi / # Acq. CLOs	-0.045***	-0.046***	-0.049***	-0.061***	
	(0.007)	(0.011)	(0.014)	(0.016)	
Acquirer $ imes$ Post	-0.004	-0.004	-0.004	0.003	
	(0.004)	(0.004)	(0.004)	(0.004)	
Acquirer	0.006**	0.007***		-4.674	
	(0.002)	(0.002)		(10.399)	(▲ Bi
Quarter-Merger FE	Yes	_	_	_	
Vintage-Quarter-Merger FE	_	Yes	Yes	Yes	
Manager-Merger FE	_	_	Yes	_	
CLO-Merger FE	_	_	_	Yes	
CLO Controls	Yes	Yes	Yes	Yes	
Observations	176,081	174,689	174,689	174,689	