

Private Equity Debt Investors

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Agenda

Motivation

Results

Discussion

CLO managers: Overview

Top 20 CLO managers in terms of AuM as of the end of 2015

Rank	Manager	\$bn USD	Deals
1	GSO Capital Partners	20.07	48
2	Carlyle Group	19.60	46
3	Credit Suisse Asset Management	16.40	29
4	Ares Management	15.57	37
5	CIFC Asset Management	12.91	29
6	Apollo Global Management	12.49	22
7	Alcentra	11.65	32
8	Prudential Investment Management (Pramerica)	11.43	25
9	3i Debt Management	10.98	29
10	Highland Capital Management	10.87	26
11	CVC Credit Partners	10.78	26
12	KKR Financial Advisors	10.67	24
13	Octagon Credit Investors	9.45	17
14	MJX Asset Management	9.12	17
15	Oak Hill Advisors	8.91	18
16	Voya Alternative Asset Management	8.78	20
17	Babson Capital Management	8.59	20
18	Golub Capital	8.19	19
19	Sankaty Advisors	7.93	17
20	Fortress Investment Group	7.75	13

Source: CLO-i

CLO managers and private equity

Private equity affiliated firms are shaded

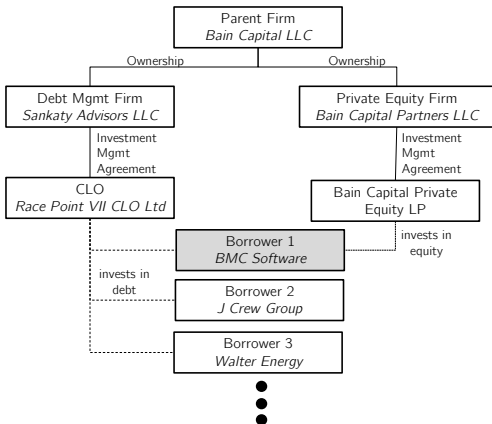
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Source: CLO-i, DealScan, manager websites

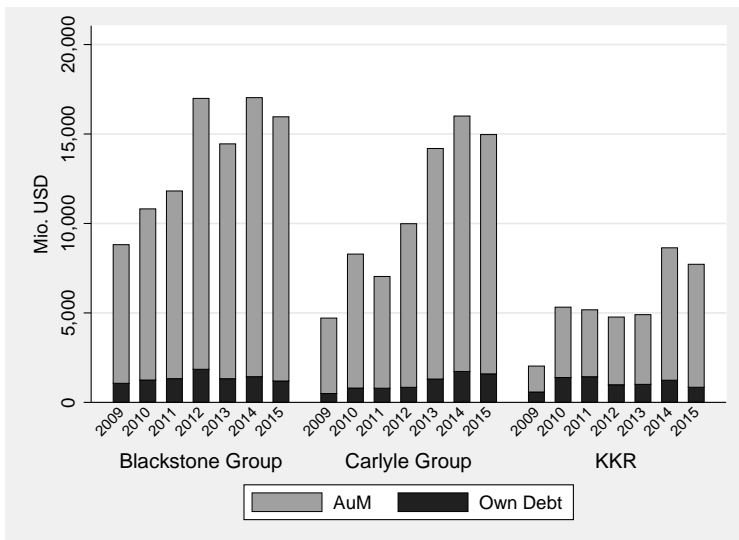
Integration of PE and private debt: One example

Do private equity and private debt arms of the same asset management group invest in the same companies?

- One example involving Sankaty (debt arm of Bain Capital):



Integration of PE and private debt: Manager level



Research questions

1. Is the dual-investment strategy in equity and debt systematically driven?
2. What is the motivation to invest in debt of firms that are majority owned by an affiliated private equity firm?

Own Debt Bias (ODB): Computation

ODB Algorithm

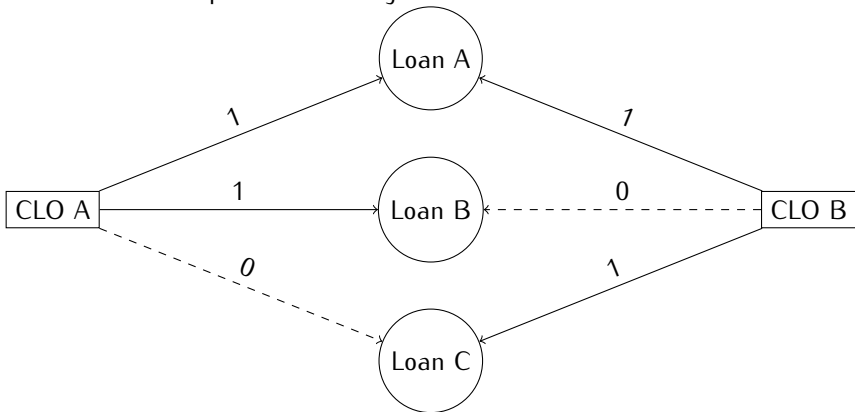
1. Pick one CLO-quarter that is affiliated to a private equity firm.
2. Within the same quarter find all CLOs, that...
 - ...are run by another management firm and
 - are issued in the same year
3. From the sample of potential matches acquired after step 2 find the three CLOs j for which $\arg \min_j \sum_k (x_{i,k} - x_{j,k})^2$ where the variables in k are the percentage invested in USD denominated debt, the weighted average rating and portfolio size.
4. Compute the ODB as $\%CLO^{Aff} - \%CLO^{Unaff}$ where $\%CLO$ is the aggregate portfolio weight of debt to affiliated portfolio companies.
5. Repeat process over all affiliated CLO-quarters.

ODB results: Total sample

Procedure	Estimate	p-value	N
<i>Panel A: No Restriction</i>			
OLS	1.80%	0.001	23,805
Robust Regression	0.40%	0.000	23,805
Median Regression	0.00%	1.000	23,805
<i>Panel B: %CLO^{Aff} > 0 or %CLO^{Unaff} > 0</i>			
OLS	2.74%	0.000	15,610
Robust Regression	1.66%	0.000	15,610
Median Regression	1.48%	0.000	15,610
<i>Panel C: %CLO^{Aff} > 0</i>			
OLS	3.26%	0.000	14,001
Robust Regression	2.04%	0.000	14,001
Median Regression	1.82%	0.000	14,001

Dyads approach explained

Define a realized purchase dummy:



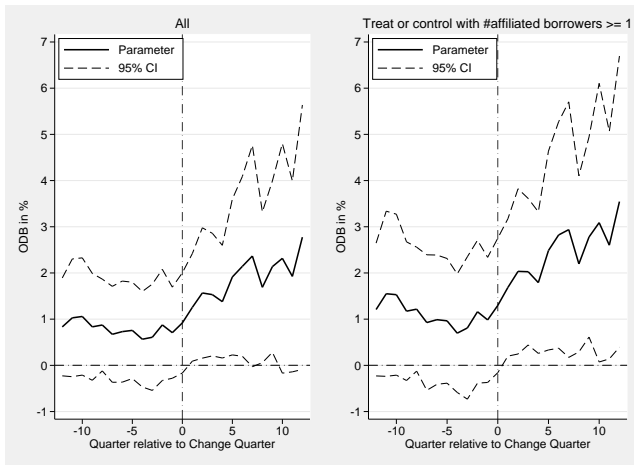
Logit model to separate trades from non-trades: Does affiliation increase likelihood to buy?

Dyads approach: Logit results

	Dependent Variable: Realized Purchase					
	Full Sample				Relation = 0	
	(1)	(2)	(3)	(4)	(5)	(6)
Affiliation	0.306 (0.000)	0.075 (0.001)	0.212 (0.000)	0.045 (0.133)	0.886 (0.000)	0.787 (0.000)
Relation		1.200 (0.000)		1.294 (0.000)		
Log(# Syndicate Members)			0.072 (0.000)	0.023 (0.077)		0.319 (0.000)
Log(Facility Amt)			0.118 (0.000)	0.008 (0.271)		0.196 (0.000)
LBO/SBO			0.063 (0.000)	0.068 (0.000)		0.121 (0.000)
Secured			0.014 (0.737)	0.003 (0.933)		0.174 (0.078)
Performance Pricing			-0.017 (0.300)	-0.023 (0.174)		-0.053 (0.214)
Log(1+5yr Lead-Borrower-Vol)			0.008 (0.000)	-0.017 (0.000)		-0.037 (0.000)
5yr Sponsor Market Share			0.014 (0.000)	0.007 (0.034)		0.002 (0.771)
Log(1+5yr Lead-Sponsor-Vol)			-0.004 (0.122)	-0.009 (0.001)		-0.026 (0.000)
Further Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	1,992,940	1,992,940	1,163,358	1,163,358	913,809	533,998
Uncond. Probability	2.5%	2.5%	2.6%	2.6%	1.1%	1.1%
Pseudo R-sq.	0.070	0.098	0.065	0.094	0.093	0.093

ODB quasi-experiment

Exploiting changes in the mandated manager that create variation in the affiliation status of companies in the CLO portfolio.



Motivation for own debt preferences

We test two (complementary) hypotheses:

	Funding Support	Private Information
Notion	CLOs provide funding support for the affiliated portfolio companies.	Private equity firms exploit the private information gained as majority owners via trades in their affiliated CLOs.
Prediction	A larger amount of affiliated funding drives down borrowing costs.	Excess returns in debt market trades.
Effect	Portfolio companies benefit at the cost of CLO investors.	CLO investors benefit at the cost of outside investors.

Funding support hypothesis

- Dependent variable: AISD or Effective Spread (better because incorporates price discounts)
- Effective Spread = AISD in % + $\underbrace{(100 - \text{price})/4}_{OID}$
- Endogeneity of affiliated (and unaffiliated) CLO demand → Use expected investable amount as instrument:

$$\text{Aff Funding}_{i,t} = \alpha + \beta \sum_{s=1}^3 \frac{\text{Aff CLO Investments}_{i,t-s}}{3} + \gamma \text{Controls} + v$$

(1st Stage)

$$y_i = \delta + \zeta \widehat{\text{Aff Funding}}_i + \eta \text{Controls} + \epsilon$$

(2nd Stage)

- Unobserved borrower characteristics → SE clustered on borrower level

Spread regressions

Is affiliated funding driving down borrowing costs?

	Effective Spread				AISD			
	OLS		2SLS		OLS		2SLS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Affiliated Funding	-13.015 (0.000)	-7.981 (0.018)	-42.326 (0.001)	-24.315 (0.094)	-10.399 (0.000)	-5.082 (0.080)	-38.135 (0.001)	-14.422 (0.260)
Unaffiliated Funding	1.598 (0.527)	-2.071 (0.407)	-31.660 (0.293)	-51.779 (0.101)	-0.496 (0.826)	-3.478 (0.123)	-8.525 (0.728)	-24.972 (0.329)
Log(1+5yr Lead-Borrower-Vol)		-9.120 (0.000)		-10.879 (0.000)		-7.083 (0.000)		-7.842 (0.000)
5yr Sponsor Market Share		-0.838 (0.545)		1.184 (0.526)		-2.324 (0.096)		-1.286 (0.446)
Log(1+5yr Lead-Sponsor-Vol)		-2.897 (0.007)		-3.089 (0.008)		-2.388 (0.019)		-2.471 (0.020)
Industry FE	No	Yes	No	Yes	No	Yes	No	Yes
Further Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	3,087	3,087	3,087	3,087	3,087	3,087	3,087	3,087
Adj. <i>R</i> ²	0.376	0.420			0.366	0.403		
Kleibergen-Paap statistic			25.972	23.871			25.972	23.871

Translates into an 69bp higher IRR for a typical LBO (30% equity, 44% leveraged loans) and a four year exit horizon.

Round trip trades univariate

- Trades are driven by covenant structure of CLOs (“par-building”) → Sort by holding time
- Consider overall market conditions → Returns in excess of the LLI

	Excess Return			Annualized Excess Return		
	Unaffiliated	Affiliated	Difference	Unaffiliated	Affiliated	Difference
Q1	0.8%	1.1%	0.3%	30.3%	33.6%	3.3%
	9,190	193	(0.022)	9,190	193	(0.366)
Q2	0.3%	1.4%	1.1%	2.6%	5.0%	2.4%
	9,165	148	(0.000)	9,165	148	(0.004)
Q3	-0.3%	1.4%	1.7%	0.1%	2.4%	2.3%
	8,966	246	(0.000)	8,966	246	(0.000)
Q4	-2.5%	0.6%	3.1%	-2.3%	0.4%	2.7%
	9,103	225	(0.000)	9,103	225	(0.000)
Q5	-5.4%	-4.5%	0.8%	-2.4%	-2.0%	0.4%
	8,997	265	(0.176)	8,997	265	(0.244)

Round trip trades multivariate

	Dependent variable: Annualized Excess Return in %								
	Full Sample			Only Affiliated Managers			Only Affiliated Borrowers		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Affiliation	2.867 (0.044)	2.608 (0.004)	3.401 (0.056)	2.826 (0.042)	2.185 (0.031)	3.294 (0.028)	4.060 (0.003)	2.335 (0.017)	4.186 (0.025)
Log(Trade Volume)	0.314 (0.166)	0.105 (0.506)	0.483 (0.064)	0.163 (0.577)	-0.035 (0.884)	0.237 (0.366)	0.815 (0.023)	0.411 (0.231)	0.961 (0.008)
Log(Holding Time)	-9.682 (0.000)	-9.811 (0.000)	-9.668 (0.000)	-9.831 (0.000)	-9.842 (0.000)	-9.784 (0.000)	-8.620 (0.000)	-8.848 (0.000)	-8.642 (0.000)
Bond Dummy	5.268 (0.000)	6.977 (0.001)	5.189 (0.000)	5.785 (0.000)	6.837 (0.000)	6.079 (0.000)	8.770 (0.004)	12.730 (0.010)	8.957 (0.014)
USD Dummy	1.719 (0.138)	-0.092 (0.962)	2.833 (0.051)	0.587 (0.628)	0.570 (0.799)	2.093 (0.131)	3.371 (0.068)	0.705 (0.711)	5.894 (0.034)
Borrower FE	No	Yes	No	No	Yes	No	No	Yes	No
Manager FE	No	No	Yes	No	No	Yes	No	No	Yes
Rating Letter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	44,484	44,484	44,484	22,107	22,107	22,107	10,299	10,299	10,299
Adj. R^2	0.293	0.408	0.311	0.312	0.469	0.318	0.293	0.350	0.326

Current revision of paper considers potential shortcomings:

- ODB in quasi-experiment is already above the zero baseline before the event \implies Match on pre-event ODB (additionally)
- Instrument in IV-regressions is measured on different level than other variables \implies Aggregate information to same level and test price support by taking price differences between facilities in same loan package.

Discussion

- There is indeed a private debt - private equity integration.
- PE affiliated private debt managers benefit twofold from this:
 - Being able to use cheap debt to leverage their investments.
 - Being able to exploit private information in loan markets.
- With the growth of “private lending” the ODB phenomenon is likely to stay raising different questions worth further investigation, e.g.:
 - How does funding available through CLOs affect pricing in LBO markets?
 - How persistent can price effects in secondary markets be when knowledge about dual ownership becomes more widespread?