Risk-Adjusting the Returns to Private Debt Funds

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The Rise of Private Credit

- Private Credit is one of the largest and fastest-growing asset classes in the private capital market
  - Approximately $1.5 trillion in assets under management as of 2023
  - Credit funds raise money from investors (LPs) and provide mostly direct loans to firms that typically cannot get bank loans based on their creditworthiness
  - Different from other nonbanks (e.g., CLOs) - in that they directly originate and hold the loans

The New Business Banker: A Private-Equity Firm

Firms are lending more where traditional banks won't--and sometimes competing with them, too

The headquarters of Carlyle Group, one of the private-equity firms pushing into lending. PHOTO: SHAWN THEW/EPA/SHUTTERSTOCK

By Miriam Gottfried and Rachel Louise Ensign

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Private-equity firms have long been some of the biggest owners of companies. Now they are vying to become some of their biggest lenders.

Fueled by an influx of cash from yield-hungry investors, firms historically devoted to buyouts are now financing deals banks won't. Nonbanks—many private-equity firms—held more than half a trillion dollars worth of loans to midsize companies at the end of 2017, up from roughly $300 billion in 2012, according to estimates by private-equity firm Ares Management LP.

Returns to Private Credit

- Practioneers tout the high returns of credit funds given their risk
  - "If you can earn 12 percent, maybe 13 percent on a really good day in senior secured bank debt, ... with almost no prospect of loss, that's about the best thing you can do" – Steve Schwarzman, co-founder of Blackstone

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- Important to understand the "alpha" to private debt:
  - Is there skill in private debt?
  - What do these returns mean for the cost of capital of firms?
  - What does this mean for the specialness of private debt lending, which is traditionally bank expertise?

This Paper

- Applies private equity methodologies to evaluate the risk-adjusted performance on a comprehensive sample of private credit funds from Burgiss-MSCI
  - Compute the NPV/alpha of both i) the net of fee cash-flows to LPs and ii) gross cash-flows paid by firms to private debt funds.

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- Risk-Adjustment Methodologies:
  - Risk Adjusted Profit
    - Gupta Van Nieuwerburgh (2021) /Flanagan (2024)
  - GPME
    - Korteweg and Nagel (2016)
  - Account for both corporate debt factors and equity factors

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2. Despite their name, a nontrivial amount of private credit fund investments involves equity-like investments. Alpha to LPs is positive and significant if you only adjust for bond factors.

3. Gross alphas are around 4.0 percent, which is approximately equal to what manager General Partners (GPs) would earn with management fees of around 1.5 percent and carried interest of around 15-20 percent

Where Does Our Paper Fit In The Literature?

- Survey on the returns and returns and cash-flows of private debt funds
  - Fristch, Lim, Montag, and Schmalz (2021); Munday, Hu, True, and Zhang (2018)
- Nonbank Lenders
  - Chernenko, Erel, and Prilmeier (2022); Erel and Inozemtsev (2024)
- Contracting and Renegotiation of Private Debt Lenders
  - Jang (2023)

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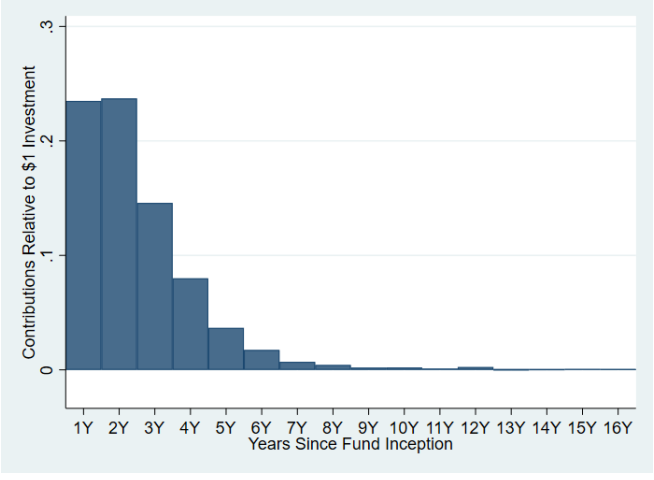
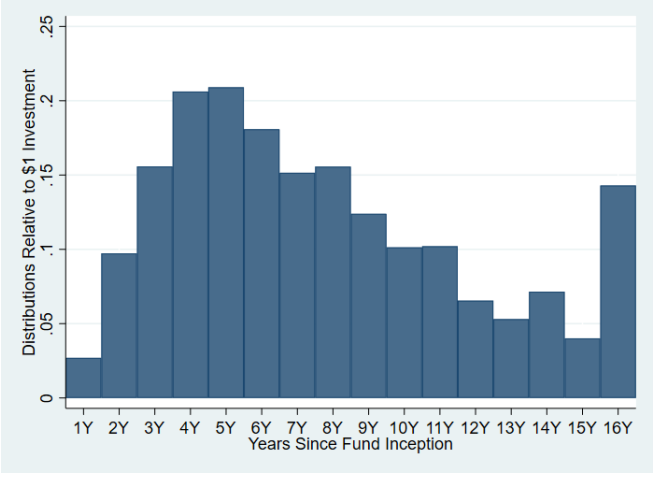
  - Secondary Dataset on the gross of fee cash-flow paid by the borrowers

Cash-Flow Data Description - Contributions



Cash-Flow Data Description - Distributions



Burgiss-MSCI LP CF Summary Statistics

	Mean	SD	Min	P25	P50	P75	Max	N
Fund Size	783	1151	2	169	418	903	10744	532
Fund Duration	5.517	1.791	1.748	4.324	5.336	6.637	13.478	532
IRR	0.086	0.104	-0.344	0.049	0.085	0.125	0.811	532
Amt. Distributed	1074	1677	3	224	589	1255	17194	532
Amt. Contributed	796	1162	2	173	437	925	10825	532
Rf NPV	0.339	0.533	-0.783	0.146	0.288	0.464	7.238	532

- Average fund size is \$783 million, Average IRR is 8.6%, Average NPV (discounted at risk-free rate) is \$0.34 per \$1 invested.

Private Credit Examples

Loan Level Example A		
Firm Name	Investment Type	Amount
CHMB	12% Loan	$1.4M
Merrick Systems	13% Loan	$3M
CAI Software	12% Loan	$6.75M
Cody Pools	Preferred Equity + 10.5% Loan	$16M

Fund Level Example A		
Fund/Lender Name	IRR	Fund Size
Main Street Capital II	7%	$159M

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Loan Level Example B		
Firm Name	Investment Type	Amount
Immersive Media	13% Loan	$1.3M
B&W Growers	14% Loan	$10M
SOAR Transportation	Preferred Equity + Warrants	$16M
Abutec	Preferred Equity	$5.4M

Fund Level Example B		
Fund/Lender Name	IRR	Fund Size
CapitalSouth Partners Fund III	12%	$280M

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- Promised Return (Loan Rate) $\geq$ Expected Return (IRR) $\geq$ Risk-Adjusted Return (Alpha)
  - e.g., 12% $\geq$ 7% $\geq$?

PD Fund Holdings

- Most PD investments are LBOs, but nearly 20% of investments are equity-like!
  - The most common type is preferred equity.
  - Riskier investments require higher returns..

	Mean	SD	Min	P25	P50	P75	Max	N
% Equity Investments	0.150	0.233	0.000	0.000	0.059	0.182	1.000	424
% Equity Investments (Dollar Amt)	0.198	0.308	0.000	0.000	0.011	0.282	1.000	407
Any Equity Investments	0.590	0.492	0.000	0.000	1.000	1.000	1.000	424
% LBO Investments	0.623	0.300	0	0.400	0.712	0.857	1.000	424

PE Risk-Adjusted Profit Methodology

- Cashflows in hand, We build on the private-equity methodology from Gupta and Van Nieuwerburgh (2021) and Flanagan (2024).
- Span loan cash-flows using benchmark securities for which we know the price

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- By the law of one price, if we know the prices of the benchmarks that span the loan cash-flows, then we know the price of the loan portfolios.

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- Duration / Interest Rate Risk:
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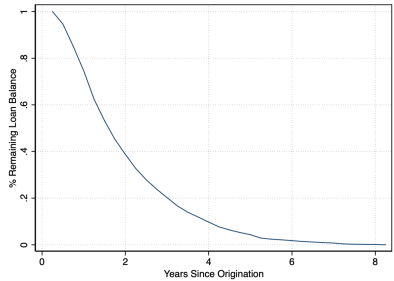
- Equity Risk:
  - Stock Factors: S&P 500, Value Stocks, Small Stock Portfolios

How to Get Public Securities to Span Loan Cash-Flows?

- Underlying loans paid down over time - their risk sensitivity over time will depend on the outstanding loan balance.



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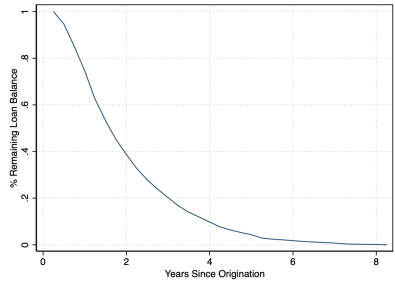
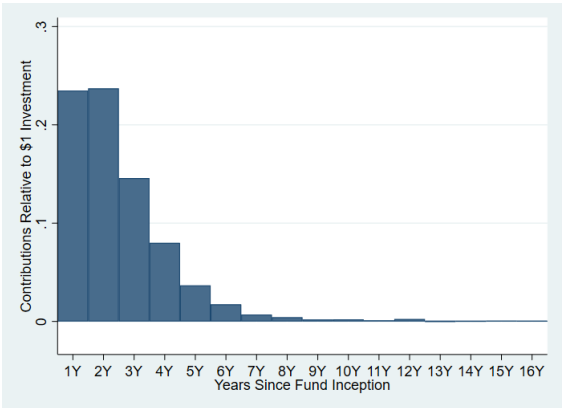


- Construct managed benchmark portfolios that invest in publicly traded securities by instrumenting the investment with the outstanding loan balance
  - Use NAV to approximate outstanding loan balances.

How to Get Public Securities to Span Loan Cash-Flows? (2)

- Unlike in Flanagan (2024), Private debt contributions delayed



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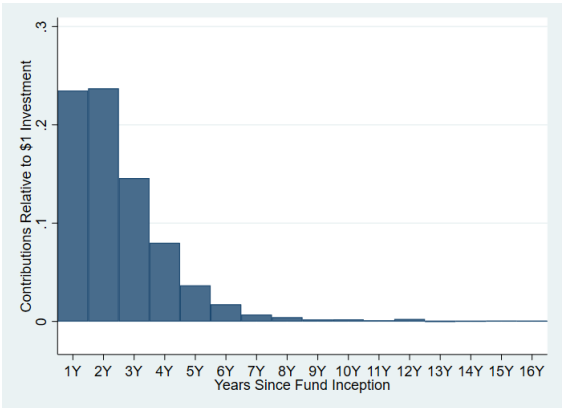

- Adjust for this by constructing benchmarks that have matched contributions

Estimating the Replicating Portfolio

- Estimate loadings on cash flows of publicly traded securities.
  - t is origination time
  - h is periods since origination (16 years max maturity).

$$\underbrace{X^i_{t,t+h}}_{\text{Fund Cash-Flows}} = \underbrace{a_h}_{\text{Risk-Free Intercept}} + \sum_{k=1}^{K}[\ \underbrace{b^k \tilde{F}^{i,k}_{t,t+h}}_{\text{Rollover Loadings}} + \underbrace{c^k_h \tilde{G}^{i,k}_{t,t+h}}_{\text{Gain Loadings}}\ ] + \underbrace{e^i_{t,t+h}}_{\text{Residuals}}$$

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- Standard errors are bootstrapped

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- We estimate corporate bond and equity versions of GPME that use the corporate bond and equity returns to form SDFs that exactly price the rollover capital market benchmarks as well as a rollover benchmark investing in risk-free bonds.

Baseline Results

Panel A: Risk Free Benchmarks

	LP Net of Fee Cash-Flows	
	(1) IRR	(2) NPV
Estimate	0.086***	0.339***
	(19.09)	(14.67)
Observations	532	532

Panel B: Risk-Adjusted Profit

	NPV			Alpha	
	(1) Bonds	(2) Stocks	(3) Both	(4) Bonds	(5) Both
Estimate	0.105**	0.051	-0.001	0.018**	-0.000
	(2.18)	(1.02)	(-0.01)	(2.26)	(-0.01)
Observations	532	532	532	532	532
R2	0.73	0.72	0.73	0.73	0.73

- No abnormal returns to LPs, but alpha if you don't adjust for equity factors

Risk Loadings

	ZCB	Corp Bond Mkt	Tbills	Stock Mkt
	(1)	(2)	(3)	(4)
Horizon 1	-0.001	0.008	0.042**	0.016*
	(-0.55)	(0.39)	(2.44)	(1.92)
Horizon 2	0.004*	0.031*	0.024	0.023***
	(1.85)	(1.81)	(1.12)	(3.62)
Horizon 3	0.009***	0.031**	-0.007	0.017***
	(3.50)	(2.15)	(-0.36)	(3.88)
Horizon 4	0.007**	0.053***	0.002	0.011**
	(2.45)	(3.01)	(0.08)	(2.04)
Horizon 5	-0.006	0.050*	0.041	0.018
	(-0.80)	(1.70)	(0.94)	(1.15)
Horizon 6	-0.002	0.016	0.037*	0.004
	(-0.59)	(0.78)	(1.89)	(1.00)
Horizon 7	-0.003	0.024**	0.014	0.002
	(-0.79)	(2.05)	(1.12)	(0.54)
Horizon 8	0.001	-0.023	0.041	0.004
	(0.25)	(-1.15)	(1.38)	(0.96)
...				
Horizon 16	0.000	-0.008	-0.005	0.017
	(0.01)	(-0.17)	(-0.15)	(1.62)
Rollover Loading		0.057	-0.204***	0.086**
		(1.02)	(-5.28)	(2.12)
Observations	23101	23101	23101	23101
F-stat p-value	0.015	0.001	0.024	0.001
R^2	0.724	0.724	0.724	0.724

t statistics in parentheses

* $p < .10$, ** $p < .05$, *** $p < .01$

Baseline Results (GPME)

Panel C: GPME

	NPV	
	(1) Bonds	(2) Stocks
Estimate	0.120**	0.041
	(2.47)	(1.48)
$b1$	0.13	0.02
$b2$	12.98	1.89
Observations	532	532

t statistics in parentheses

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Results so Far

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- If your benchmarks are debt, then they're right, but private credit funds invest in riskier types of debt and have substantial exposure to equity factors.
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- Up next:
  - Heterogeneity in alpha across fund types
  - Gross alphas and fees paid to GPs
  - Comparisons to non-bank lending in syndicated loan markets.

Heterogeneity in Fund Types

	IRR	NPV (Rf)	RAP - Bonds	RAP	GPME (Bonds)	GPME	Num Funds
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Full Sample	0.086***	0.339***	0.105**	-0.001	0.120**	0.041	532
	(19.09)	(14.67)	(2.18)	(-0.01)	(2.47)	(1.46)	
Generalist	0.070***	0.235***	-0.194	-0.291	0.007	-0.126***	89
	(6.58)	(5.90)	(-0.37)	(-0.26)	(0.09)	(2.63)	
Mezzanine	0.084***	0.342***	0.083*	0.036	0.128	0.065*	193
	(16.60)	(11.72)	(1.69)	(0.64)	(1.19)	(1.80)	
Distressed	0.083***	0.353***	0.099	0.108	0.054	0.051	163
	(10.84)	(7.00)	(1.02)	(1.08)	(0.65)	(0.84)	
Small	0.080***	0.375***	0.211***	0.020	0.184**	0.058	298
	(10.94)	(8.23)	(2.72)	(0.26)	(2.44)	(1.12)	
Large	0.091***	0.310***	0.046	-0.001	0.074	0.029	234
	(16.11)	(15.19)	(0.78)	(-0.02)	(1.19)	(0.82)	
No Outliers	0.085***	0.314***	0.063*	0.004	0.117**	0.032	520
	(21.96)	(20.94)	(1.89)	(0.12)	(0.12)	(1.28)	

t statistics in parentheses

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Fees to GPs and Gross Alphas

- Typical fee structure for GPs is 1.5 - 2.0% fixed fee plus 15-20% of total return after a 6-8% hurdle rate.

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- We don't observe the exact contract rate, but we can back out the fees by assuming one of these contracts and looking at the fund's IRR.
- For a subset of funds, we have data on the gross cash-flows, which we can risk-adjust

Fees to GPs and Gross Alphas

Panel A: GP Fee Estimates

	1.5 / 15 Contract	2.0 / 20 Contract
	(1)	(2)
Estimate	0.031***	0.039***
	(44.00)	(37.85)
Observations	532	532

Fees to GPs and Gross Alphas

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	1.5 / 15 Contract	2.0 / 20 Contract
	(1)	(2)
Estimate	0.031***	0.039***
	(44.00)	(37.85)
Observations	532	532

Panel B: Gross Risk-Adjusted Cfs

	IRR	NPV (Rf)	RAP (Bonds)	RAP	Alpha (Bonds)	Alpha
	(1)	(2)	(3)	(4)	(5)	(6)
Estimate	0.139***	0.415***	0.308***	0.232**	0.053***	0.041**
	(6.02)	(12.43)	(3.98)	(2.18)	(4.44)	(2.56)
Observations	65	65	65	65	65	65

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	1.5 / 15 Contract	2.0 / 20 Contract
	(1)	(2)
Estimate	0.031***	0.039***
	(44.00)	(37.85)
Observations	532	532

Panel B: Gross Risk-Adjusted Cfs

	IRR	NPV (Rf)	RAP (Bonds)	RAP	Alpha (Bonds)	Alpha
	(1)	(2)	(3)	(4)	(5)	(6)
Estimate	0.139***	0.415***	0.308***	0.232**	0.053***	0.041**
	(6.02)	(12.43)	(3.98)	(2.18)	(4.44)	(2.56)
Observations	65	65	65	65	65	65

- Gross alpha roughly equals GP fees
- If 14% is the typical cost of capital of firms, 10% covers risk compensation, 4% goes to paying private debt for monitoring/effort, etc.

Nonbanks Gross Risk-Adjusted Returns of Syndicated Loans

Panel A: Bank Estimates

	NPV		Alpha	
	(1) Bonds Only	(2) Both	(3) Bonds Only	(4) Both
Estimate	0.027***	0.024***	0.016***	0.014***
	(20.96)	(16.51)	(20.99)	(16.54)

Panel B: Nonbank Estimates

	NPV		Alpha	
	(1) Bonds Only	(2) Both	(3) Bonds Only	(4) Both
Estimate	0.036***	0.029***	0.021***	0.017***
	(11.96)	(9.10)	(12.62)	(9.50)

- Gross alpha of private debt is much higher than that of non-banks in the syndicated loan market

Nonbanks Gross Risk-Adjusted Returns of Syndicated Loans

Panel A: Bank Estimates

	NPV		Alpha	
	(1) Bonds Only	(2) Both	(3) Bonds Only	(4) Both
Estimate	0.027***	0.024***	0.016***	0.014***
	(20.96)	(16.51)	(20.99)	(16.54)

Panel B: Nonbank Estimates

	NPV		Alpha	
	(1) Bonds Only	(2) Both	(3) Bonds Only	(4) Both
Estimate	0.036***	0.029***	0.021***	0.017***
	(11.96)	(9.10)	(12.62)	(9.50)

- Gross alpha of private debt is much higher than that of non-banks in the syndicated loan market
- In general, nonbank alpha, including private debt, is much higher that of banks.

Nonbanks Gross Risk-Adjusted Returns of Syndicates Loans

Panel A: Bank Estimates

	NPV		Alpha	
	(1) Bonds Only	(2) Both	(3) Bonds Only	(4) Both
Estimate	0.027***	0.024***	0.016***	0.014***
	(20.96)	(16.51)	(20.99)	(16.54)

Panel B: Nonbank Estimates

	NPV		Alpha	
	(1) Bonds Only	(2) Both	(3) Bonds Only	(4) Both
Estimate	0.036***	0.029***	0.021***	0.017***
	(11.96)	(9.10)	(12.62)	(9.50)

- Overall, the results are consistent with Diamond '84 in which banks can provide intermediation services at a lower cost than other financial intermediaries, but some riskier borrowers are segmented from borrowing from banks

Implications/Conclusions

- The paper provides some of the first direct evidence on the risk-adjusted returns of private debt funds.
- Despite the high returns, LPs do not earn *abnormal* returns because private debt is riskier than other forms of debt
  - Equity factors must be accounted for
- Gross alpha pays GPs for monitoring services, but 4% seems high relative to what banks require, suggesting these borrowers are segmented from borrowing from traditional lenders.

Bond Placebo Test

Model:	Bonds + Stocks
ψ	0.074
	(0.118)

Bootstrapped standard errors in parentheses.

- A passive investor in the corporate bond market adds no value.

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