

Benchmarking Private Credit

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*Antti Suhonen
Department of Finance
Aalto University School of Business*



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Juha Joenväärä

Aalto University School of Business

Antti Suhonen

Aalto University School of Business

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Abstract

We provide first evidence on the returns and risk characteristics of private credit indexes calculated by MSCI, Pitchbook, and Preqin. Broad private credit indexes have outperformed liquid credit markets in both absolute and risk-adjusted terms from 2001 to 2024. We develop a parsimonious two-factor benchmark model based on traded credit and equity factors, demonstrating that this model accounts for almost 90% of the time variation in private credit index returns. Exposure to the equity factor in private credit is significant, suggesting that models based solely on credit factors may overestimate the alpha in private credit. Among credit and equity benchmarks, our analysis indicates that leveraged loans and small-cap value equities provide the greatest explanatory power for the benchmark model, particularly in the more recent post-financial-crisis data. Additionally, we observe variability in the factor exposures and alphas across private credit sub-strategies, indicating that most of the asset class's outperformance is driven by direct lending funds, while opportunistic and asset-backed lending have detracted from the performance of broad indexes.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=6178638

Agenda

- Motivation
- Research questions
- Data
- Results
- Practical considerations

Motivation: Growth in Private Credit

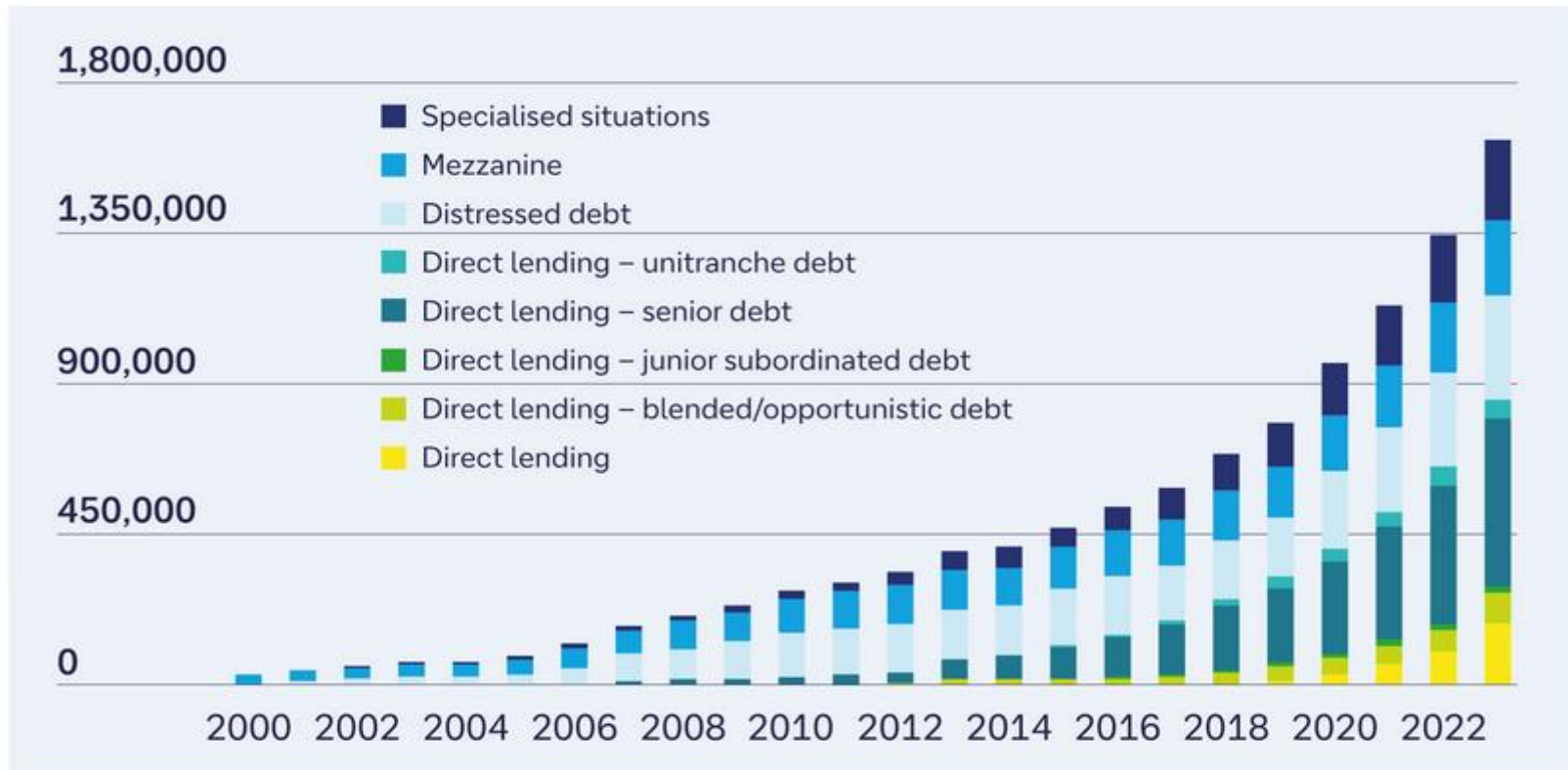
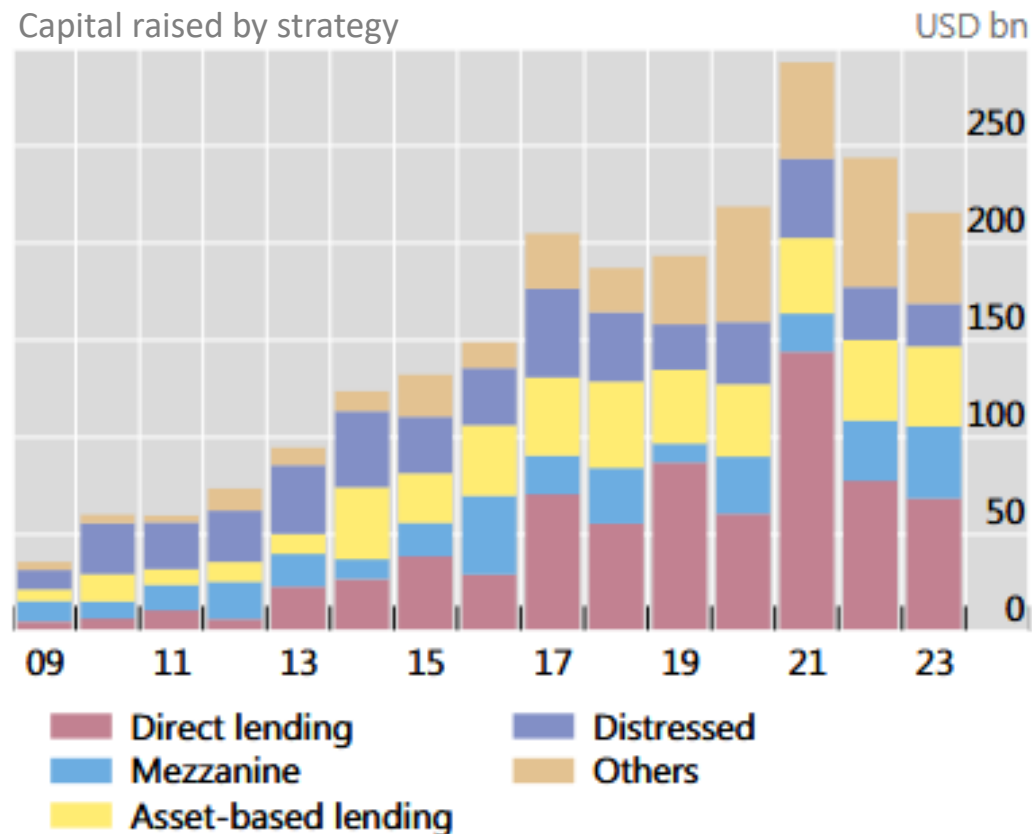


Figure 2: Components of private debt 2000 to 2024 (US\$m)

Source Prequin

Motivation: Growth in Private Credit



(BIS, based on data from Pitchbook)

Motivation: Previous Research

- Published academic studies on private credit returns:
 - Munday et al. (2018): “Performance of private credit funds: A first look.” *Journal of Alternative Investments*
 - Boni & Manigart (2022): “Private debt fund returns, persistence, and market conditions.” *Financial Analysts Journal*
 - Suhonen (2023): “Direct lending returns.” *Financial Analysts Journal*
- Main findings:
 - Attractive returns / IRRs of 8.5% - 9.5% p.a.
 - High Sharpe Ratio even after adjustment for autocorrelation
 - Outperformance against debt benchmarks (based on NAV returns)
 - Equity factors are significant in explaining direct lending returns

Motivation: Previous Research

- Erel et al. (2024)
 - Insignificant alpha of 0.6% p.a. with debt and equity factors included
 - With debt factors only, alpha is 2.3% p.a. (statistically significant)
 - Results hold for various sub-samples, except Direct Lending:
 - Weakly significant alpha of $\sim 1.7\%$ p.a.
 - Model explains 72% of fund cash flow variation
 - Gross-of fees returns are positive
- Brown et al. (2025)
 - Positive excess returns vs. leveraged loan benchmark
 - Mezzanine and Senior lending perform best on a risk-adjusted basis
 - Distressed debt has a high credit market beta and zero alpha

Motivation: Research Challenges in Private Credit

- Availability of data
- Quality and nature of data
 - Existing research has used individual fund data
 - Quarterly cash flows and reported valuations (NAV)
 - Index data subject to revision
 - MSCI (Burgiss) data sourced from LPs; others rely on Freedom of Information Act requests and GP reports (e.g. Brown et al. 2015, Munday et al. 2018)
- Representativeness of data
 - Most of the industry growth has happened post-GFC (2007-09)
 - Business model not fully tested in a lengthy recession
- State-of-the-art models rely on realized cash flows, truncating recent vintages from sample

Research Questions

- Returns and risk of the main **Private Credit indexes**
- Developing a parsimonious **baseline factor model** for Private Credit
- Model extension to
 - Broad benchmarks of the main index providers
 - MSCI strategy indexes
 - MSCI unlevered and levered indexes

Baseline Factor Model

- Key considerations:
 - Appropriate **lag structure** accounting for smoothed observed returns
 - Dependence of Private Credit returns on both **credit and equity factors**
 - Appropriate **choice of credit and equity factors**
- Baseline model following Suhonen (2023):
 - Start from 2 quarterly lags (credit) and 6 quarterly lags (equity), test down to longest significant lag
 - Liquid and traded explanatory factors based on intuitive priors
 - Credit: High Yield bonds and Leveraged Loans
 - Equity: Large cap, Small cap, Small cap Value, REITs (for Asset-Backed Lending)
- Calculate aggregate betas following Dimson (1979) and Newey-West HAC standard errors

Baseline Factor Model

- Standard univariate factor regression:

$$r_t = \alpha + \beta x_t$$

Benchmark return,
e.g. High Yield index

- If the returns are autocorrelated / artificially smooth, calculate Dimson betas:

$$r_t = \alpha + \beta_t x_t + \beta_{t-1} x_{t-1} + \dots + \beta_{t-L} x_{t-L}$$

Number of lags

$$\text{Dimson } \beta = \sum_{i=0}^L \beta_{t-i}$$

- Add explanatory variables, e.g. an equity factor:

$$r_t = \alpha + \sum_{i=0}^L \beta_{x,t-i} x_{t-i} + \sum_{j=0}^N \beta_{y,t-j} y_{t-j}$$

Benchmark 1,
e.g. High Yield

Benchmark 2,
e.g. Equity

Data

- **Private Credit indexes** from **MSCI** (Burgiss), Pitchbook, and Preqin
- Based on quarterly **cash flows** and **NAVs** of Private Credit funds (net of fees)
- Focus on **North America** indexes
- Common sample from **12/2000 to 12/2024**
 - In addition, we analyze the post-GFC period of 12/2010-12/2024
 - For some MSCI sub-indexes, representative data from 12/2014 only
- In addition, we compare the results to the Cliffwater Direct Lending Index ("CDLI")
 - Calculated from valuations of BDC asset holdings
 - Unlevered, gross of fees
 - Calculated from 2005 onwards

Data

Panel A: Taxonomy

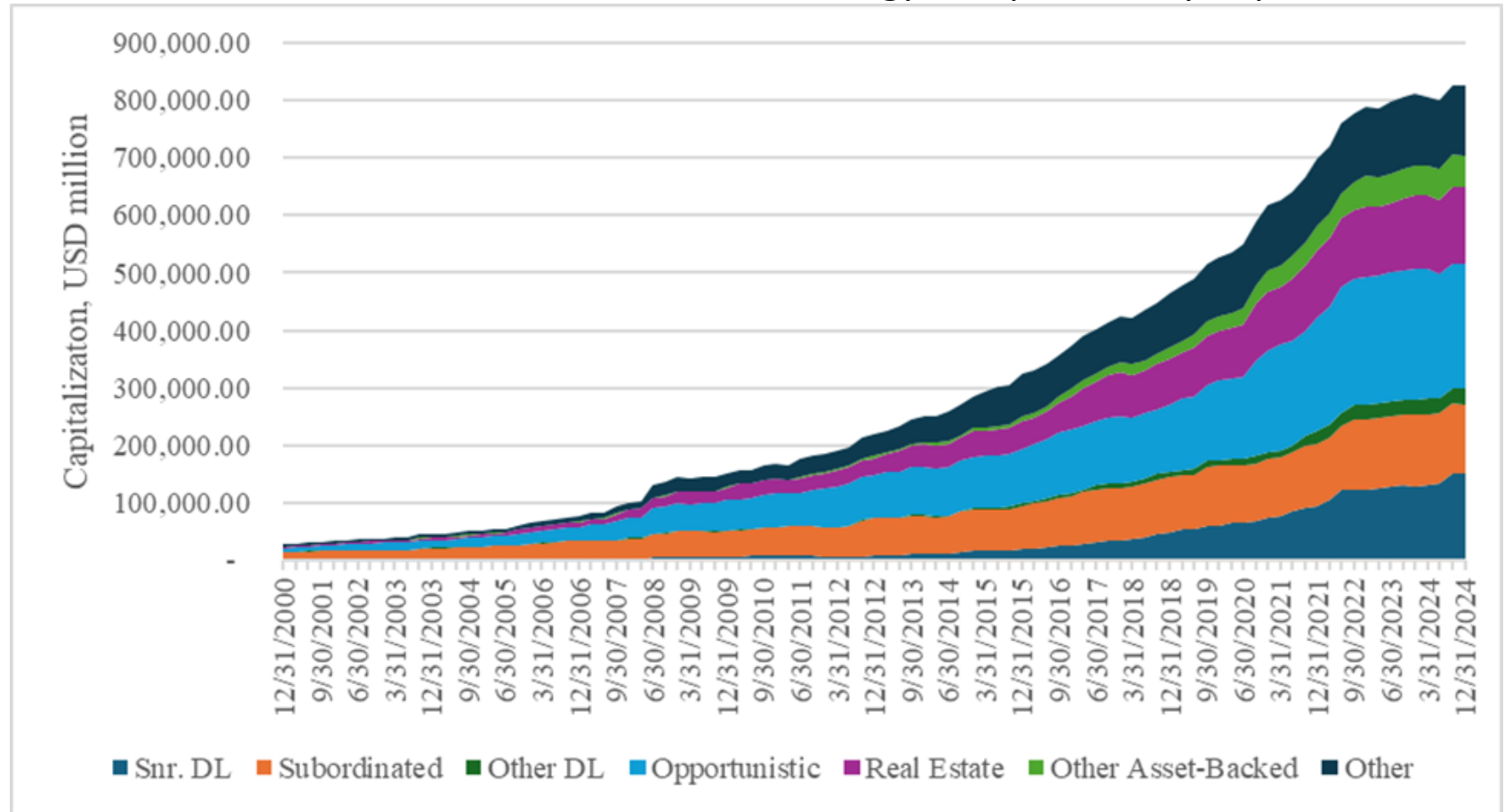
		Strategy	Styles Included
All Private Credit	Corporate Lending	Senior and Other Direct Lending	Senior, Unitranche, Other DL
		Subordinated Direct Lending	Subordinated and Mezzanine Debt, Junior Debt
		Opportunistic	Distressed Debt
			Special Situations
			Opportunistic
	Asset-Backed Lending	Other	Generalist and Venture Debt, Fund of Funds, Unknown
		Real Estate Debt	Real Estate Debt
Other Asset-Backed Lending		Infrastructure, IP, CLO, Real Assets, Generalist	

Panel B: Index Universe

	MSCI		Pitchbook		Preqin	
	Global	North America	Global	North America	Global	North America
All Private Credit	✓	✓	✓	✓	✓	✓
All Direct Lending	✓	✓				
Senior Direct Lending	✓	✓	✓		✓	
Subordinated Direct Lending	✓	✓	✓		✓	
Opportunistic / Distressed	✓	✓	✓		✓	
Asset-Backed Lending	✓	✓	✓			
Real Estate Debt	✓	✓	✓		(✓)	

Data

MSCI North America Private Credit Index, Strategy Composition by Capitalization



Key Results

- Strong **absolute and risk-adjusted returns**
 - 9.5% - 10.4% p.a. in full sample, 9.1% - 9.7% post-GFC
 - Adjusted Sharpe ratio of ~ 0.9 (full sample), ~ 1.4 (post-GFC)
 - Outperforming public credit markets
- Baseline factor model of **MSCI North America Private Credit**
 - A parsimonious **liquid factor model** explains $\sim 90\%$ of return variation
 - Leveraged Loans and Small-cap Value equities result in highest R^2
 - Choice of credit and equity benchmark meaningfully impacts R^2 and alpha
 - Up to 6 statistically significant lags in equity factor
 - **Credit beta ~ 0.6 , Equity beta ~ 0.4 , alpha 2% p.a. in full sample**
- The baseline model is reasonably robust across other indexes and sub-strategies, especially post-GFC

Key Results

- Pitchbook and Preqin indexes have higher alphas but lower R^2
- Strategy performance:
 - Direct Lending (Senior and Sub) has produced highest alphas
 - Opportunistic (incl. Distressed), Asset-Backed Lending and Real Estate Debt have considerably higher market betas and insignificant alphas
- Unlevered vs. Levered funds:
 - Levered funds have outperformed on absolute, risk-adjusted and factor basis
 - Levered funds have typically higher credit betas but lower equity betas than unlevered

Returns and Risk

Panel A. Return Statistics 2001-2024

	<u>North America</u>				<u>Global</u>			<u>Liquid Credit</u>	
	MSCI	Pitchbook	Preqin	CDLI*	MSCI	Pitchbook	Preqin	High Yield	Lev. Loan
Total Return, p.a.	9.54%	10.24%	10.39%	9.55%	9.84%	9.81%	10.28%	6.92%	5.07%
Excess Return, p.a.	7.84%	8.54%	8.68%	7.91%	8.14%	8.11%	8.58%	5.23%	3.40%
Volatility, p.a.	6.81%	8.07%	7.30%	3.50%	7.33%	7.84%	7.05%	10.35%	8.65%
Skewness	-1.87	-0.76	-0.07	-2.58	-1.82	-0.68	-0.12	-0.06	-1.11
Excess Kurtosis	8.03	3.95	7.15	9.98	8.14	4.24	8.07	4.88	14.42
ar(1)	0.39	0.35	0.40	0.33	0.43	0.36	0.39	0.28	0.15
Sharpe Ratio	1.15	1.06	1.19	2.26	1.11	1.03	1.22	0.51	0.39
Adjusted Sharpe Ratio	0.92	0.86	0.94	1.85	0.87	0.84	0.97	0.42	0.35

(*) CDLI data from 2005.

Panel B. Return Statistics 2011-2024

	<u>North America</u>				<u>Global</u>			<u>Liquid Credit</u>	
	MSCI	Pitchbook	Preqin	CDLI	MSCI	Pitchbook	Preqin	High Yield	Lev. Loan
Total Return, p.a.	9.14%	9.09%	9.65%	9.72%	8.59%	8.54%	9.24%	5.73%	4.95%
Excess Return, p.a.	7.87%	7.82%	8.38%	8.45%	7.33%	7.28%	7.97%	4.47%	3.70%
Volatility, p.a.	5.12%	5.30%	4.36%	2.83%	4.96%	4.87%	4.04%	7.99%	5.70%
Skewness	-2.00	-0.96	-0.59	-2.50	-1.85	-0.52	-0.82	-1.26	-2.13
Excess Kurtosis	8.16	3.82	2.51	11.74	6.95	2.45	2.76	3.16	12.53
ar(1)	0.17	0.05	0.46	0.21	0.13	0.01	0.42	-0.00	-0.19
Sharpe Ratio	1.54	1.48	1.92	2.99	1.48	1.50	1.97	0.56	0.65
Adjusted Sharpe Ratio	1.37	1.43	1.48	2.61	1.35	1.49	1.55		

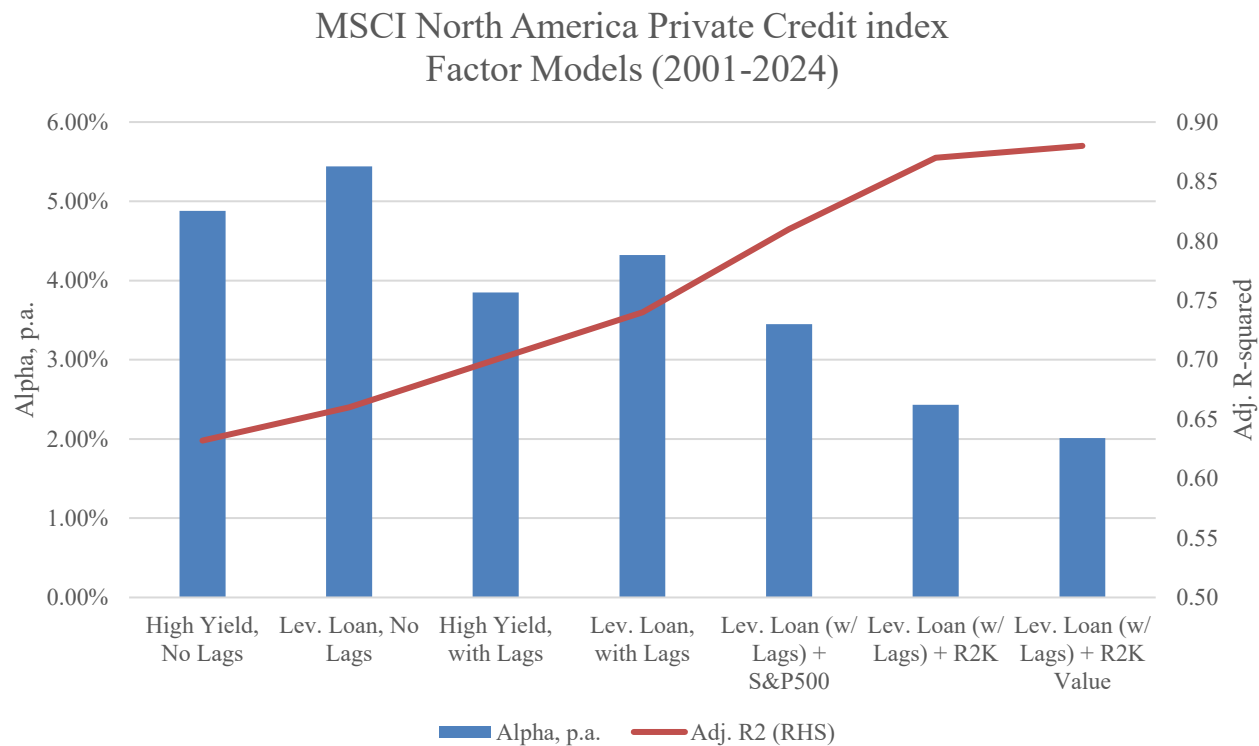
Factor Models

Panel A. 2001-2024

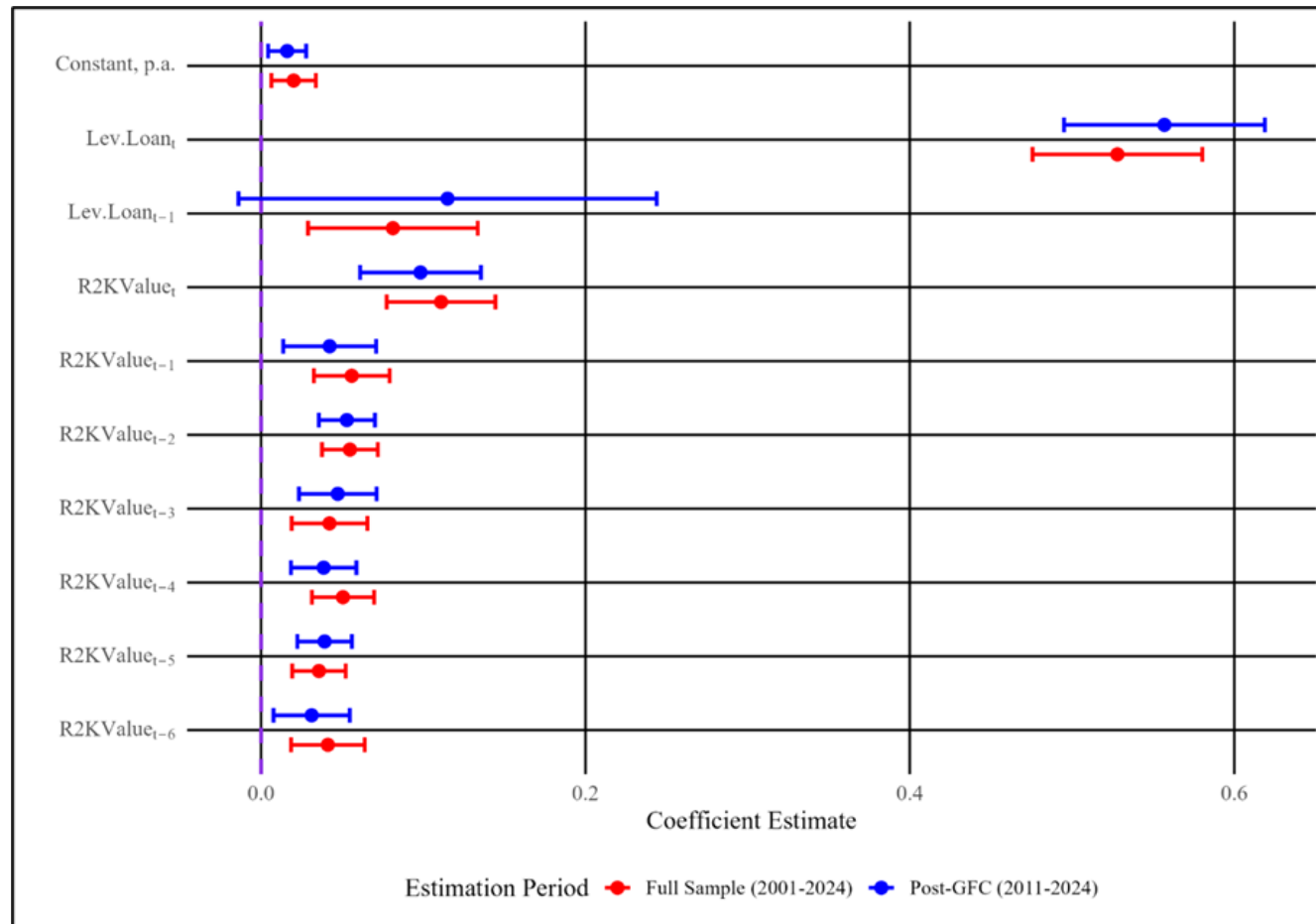
	<u>Credit Only, No Lag</u>		<u>Credit Only, with Lags</u>		<u>Credit and Equity, with Lags</u>		
	High Yield	Lev. Loan	High Yield	Lev. Loan	Lev. Loan + S&P500	Lev. Loan + R2K	Lev. Loan + R2K Value
Sum of Credit Betas	0.52***	0.64***	0.72***	0.95***	0.64***	0.61***	0.61***
Sum of Equity Betas	N/A	N/A	N/A	N/A	0.27***	0.38***	0.39***
Intercept, p.a.	4.88%***	5.44%***	3.85%***	4.32%***	3.45%***	2.43%***	2.01%***
Adj. R-squared	0.63	0.66	0.70	0.74	0.81	0.87	0.88
Lags (Credit/Equity)	0/0	0/0	2/0	2/0	1/4	1/6	1/6

(Regressions of MSCI North America Private Credit Index)

Factor Models



Factor Models: Lag Structure



(Regressions of MSCI North America Private Credit Index)

Factor Models: Choice of Credit Benchmark

Panel B. 2001-2010

	<u>Credit and Equity, with Lags</u>	
	High Yield + R2K Value	Lev. Loan + R2K Value
Sum of Credit Betas	0.67***	0.54***
Sum of Equity Betas	0.45***	0.46***
Intercept, p.a.	0.30%	2.60%*
Adj. R-squared	0.88	0.90
Lags (Credit/Equity)	2/6	0/6

Panel C. 2011-2024

	<u>Credit and Equity, with Lags</u>	
	High Yield + R2K Value	Lev. Loan + R2K Value
Sum of Credit Betas	0.29***	0.67***
Sum of Equity Betas	0.41***	0.35***
Intercept, p.a.	2.20%***	1.61%**
Adj. R-squared	0.81	0.89
Lags (Credit/Equity)	0/6	1/6

(Regressions of MSCI North America Private Credit Index)

Factor Models: Choice of Equity Benchmark

Panel B. 2011-2024

	<u>Credit Only, No Lag</u>		<u>Credit Only, with Lags</u>		<u>Credit and Equity, with Lags</u>		
	High Yield	Lev. Loan	High Yield	Lev. Loan	Lev. Loan + S&P500	Lev. Loan + R2K	Lev. Loan + R2K Value
Sum of Credit Betas	0.48***	0.74***	0.66***	1.17***	1.28***	0.74***	0.67***
Sum of Equity Betas	N/A	N/A	N/A	N/A	0.33***	0.33***	0.35***
Intercept, p.a.	5.52%***	4.92%***	4.56%***	3.21%***	-1.55%**	1.21%	1.61%**
Adj. R-squared	0.56	0.68	0.58	0.75	0.84	0.87	0.89
Lags (Credit/Equity)	0/0	0/0	2/0	2/0	2/6	1/6	1/6

(Regressions of MSCI North America Private Credit Index)

Factor Models: Other Private Credit Indexes

Panel A. 2001-2024

	<u>North America</u>				<u>Global</u>		
	MSCI	Pitchbook	Preqin	CDLI*	MSCI	Pitchbook	Preqin
Sum of Credit Betas	0.61***	0.73***	0.56***	0.28***	0.68***	0.73***	0.57***
Sum of Equity Betas	0.39***	0.40***	0.42***	0.19***	0.39***	0.36***	0.39***
Intercept, p.a.	2.01%***	2.16%**	2.65%***	5.12%***	2.08%*	2.14%**	2.76%***
Adj. R-squared	0.88	0.66	0.65	0.83	0.83	0.63	0.64
Lags (Credit/Equity)	1/6	1/5	1/5	0/5	1/6	1/5	1/5

(*) CDLI data from 2005.

Panel B. 2011-2024

	<u>North America</u>				<u>Global</u>		
	MSCI	Pitchbook	Preqin	CDLI	MSCI	Pitchbook	Preqin
Sum of Credit Betas	0.67***	0.56***	0.32**	0.54***	0.42**	0.48***	0.28**
Sum of Equity Betas	0.35***	0.29***	0.37***	0.15***	0.35***	0.18***	0.37***
Intercept, p.a.	1.61%**	2.60%***	3.29%***	4.60%***	2.18%***	3.50%***	3.04%***
Adj. R-squared	0.89	0.65	0.82	0.89	0.86	0.57	0.82
Lags (Credit/Equity)	1/6	1/5	2/5	1/6	2/6	0/2	2/6

Factor Models: MSCI North America Strategies

Panel B. 2015-2024

			Corporate Lending				Asset-Backed Lending	
		All Private Credit	All Direct Lending	Senior Direct Lending	Subordinated	Opportunistic	All Asset-Backed Lending	Real Estate Debt
Returns and Risk	Total Return, p.a.	7.80%	8.66%	8.10%	9.29%	7.69%	7.73%	7.86%
	Volatility, p.a.	5.08%	3.10%	2.69%	3.52%	8.28%	4.70%	4.23%
	Skewness	-2.22	-1.51	-1.67	-0.89	-2.01	-3.83	-3.77
	Excess Kurtosis	10.68	7.59	7.89	5.03	8.90	20.38	19.39
	Sharpe Ratio	1.19	2.23	2.37	2.14	0.72	1.27	1.45
	Adjusted Sharpe Ratio	1.07	1.82	1.92	1.79	0.69	1.31	1.41
Regression Model	Sum of Credit Betas	0.58***	0.51***	0.49***	0.38***	0.96***	0.75***	0.65***
	Sum of Equity Betas	0.34***	0.20***	0.13***	0.26***	0.50***	0.27***	0.37***
	Intercept, p.a.	1.28%***	3.40%***	3.52%***	3.96%***	-1.28%	1.57%	1.42%
	Adj. R-squared	0.89	0.86	0.82	0.78	0.92	0.73	0.66
	Lags (Credit/Equity)	0/6	1/6	1/6	0/6	0/6	1/5	1/6

Factor Models: MSCI NAm Unlevered / Levered

		<u>All Private Credit</u>		<u>All Direct Lending</u>		<u>Senior Direct Lending</u>		<u>Subordinated</u>	
		Unlevered	Levered	Unlevered	Levered	Unlevered	Levered	Unlevered	Levered
Returns and Risk	Total Return, p.a.	7.48%	8.74%	8.63%	9.33%	7.52%	8.94%	9.30%	10.11%
	Volatility, p.a.	5.29%	4.84%	3.34%	2.96%	2.70%	3.23%	4.30%	3.39%
	Skewness	-1.84	-2.91	-1.55	-1.01	-0.74	-2.48	-1.13	0.79
	Excess Kurtosis	8.31	15.38	7.44	4.98	2.08	12.00	6.29	1.48
	Sharpe Ratio	1.09	1.44	2.06	2.56	2.15	2.23	1.75	2.46
	Adjusted Sharpe Ratio	0.96	1.34	1.71	2.03	1.76	1.92	1.51	1.99
Regression Model	Sum of Credit Betas	0.38**	0.73***	0.45***	0.57***	0.42***	0.56***	-0.03	0.54***
	Sum of Equity Betas	0.39***	0.28***	0.22***	0.16***	0.11***	0.16***	0.40***	0.08***
	Intercept, p.a.	1.26%*	2.14%***	3.41%***	4.20%***	3.41%***	3.82%***	4.24%***	5.64%***
	Adj. R-squared	0.94	0.91	0.79	0.82	0.65	0.80	0.71	0.48
	Lags (Credit/Equity)	2/6	1/6	1/6	1/6	1/5	1/6	2/6	2/2

(Sample from 2015 to 2024)

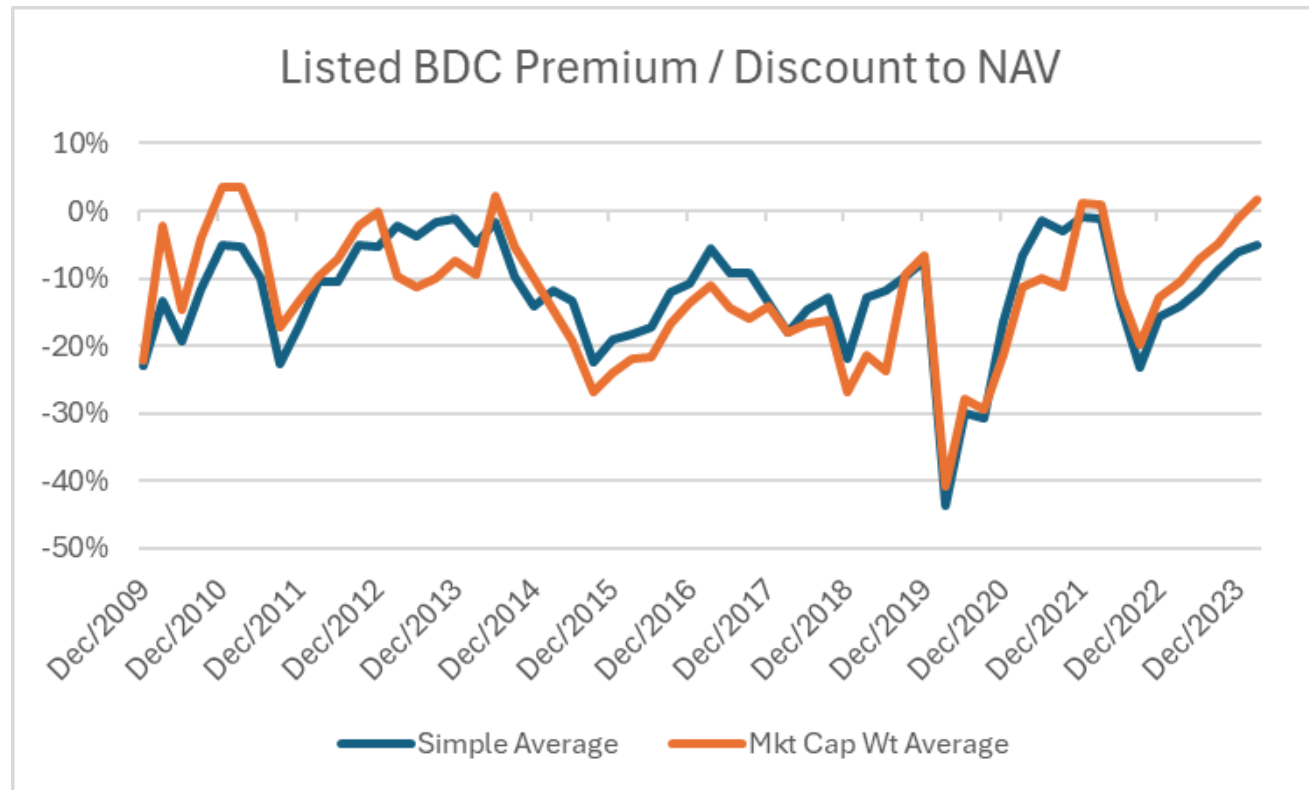
Practical Considerations: Equity Factor Exposure

- Why is it there?
 1. Equity and equity-linked securities in the fund portfolios
 2. Merton (1974), Blume, Keim & Patel (1991), Cornell & Green (1991)
- Implications for portfolio construction

Practical Considerations: Positive Alpha?

- Why might Private Credit outperform?
 - Regulatory arbitrage and superior lending technology?
 - Compensation for liquidity provision?
- Our liquid factors are calculated gross of fees → Conservative
- Private Credit indexes are not investable (cf. Brown et al. 2024)
 - Dispersion in underlying fund returns
 - Commitment vs. Exposure
- Private Credit indexes use cash flows and NAVs
 - Reliable?
 - Smoothing: A feature or a bug?
- Peso problem?

Practical Considerations: Private Credit and BDCs



(Datastream)