Wilshire

CalPERS Private Debt Program

2022 Annual Review

March 2023

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Agenda

- Overview
- Performance
- Implementation
- Conclusion
- Appendix: Market Commentary & Trends

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Overview

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Overview

- Wilshire conducted an annual program review of CalPERS' private debt portfolio
- The private debt program has an official inception date of July 1, 2022; however, underlying investments were held in a different program (Opportunistic Strategies) and have a deeper track record
- As of December 31, 2022, the underlying private debt portfolio consisted of 33 underlying investments totaling approximately $24.0 billion of commitments with an aggregate market value of approximately $8.9 billion
- This review provides insight into performance, implementation, team and policy parameters for the CalPERS private debt portfolio

Wilshire's quarterly report as of December 31, 2022.

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Private Debt Team Assessment

Wilshire's Assessment of CalPERS' Private Debt Team

Key Merits	Key Concerns
Significant progress on building out private debt portfolio	Early stages of building out the portfolio with limited realized performance
Experienced MID and broader team	Team resources are limited given broad scope of portfolio responsibilities
Thoughtful approach with emphasis on co-investment accounts	Challenging to attract and retain talent; three open hires on the team
Portfolio construction to date is in line with policy parameters	

- The team is led by talented staff, with the ability to deeply understand the value drivers in the private debt sector. The team has worked tremendously hard and demonstrated its ability to identify opportunities across multiple sectors, establishing a strong basis for the growth of the private debt portfolio
- Additional resources, on both the personnel and technological fronts will be critical to sustain and support the success of these investments going forward

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Performance

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Private Debt Overall Performance

Private Debt Performance as of December 31, 2022

	3 Month (%)	6 Month (%)	9 Month[2] (%)	1 Year[2] (%)	Since 9/1/2021[2] (%)
CalPERS Private Debt Portfolio	1.8	1.8	3.8	5.3	6.4
Policy Benchmark[1]	1.6	(3.5)	(1.8)	(0.2)	1.6
Excess vs. Policy Benchmark	0.2	5.3	5.7	5.4	4.8

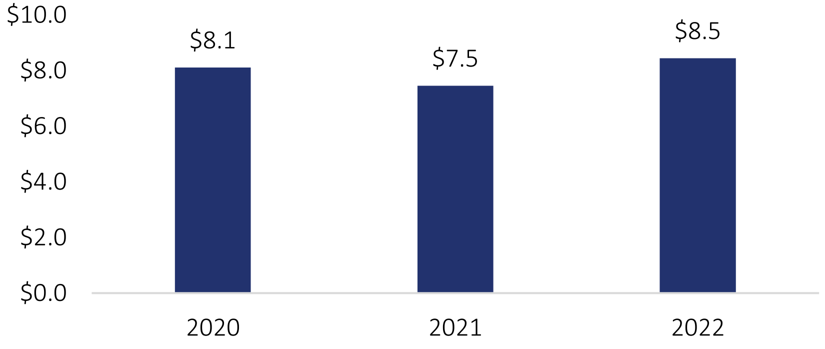
- Given the private debt program has an official inception date of July 1, 2022, there is a relatively limited track record of six months ending December 31, 2022; however, the underlying investments in the portfolio have a longer track record from inclusion in the Opportunistic Strategies program
- From a time-weighted returns perspective, the private debt program has outperformed the policy benchmark across all longer term periods ending December 31, 2022

State Street as of December 31, 2022. Time-weighted returns based on SXSKB1 . 1)Benchmark is S&P LSTA US LL 100 Index 1Q Lagged + 125 bps from 7/1/2022 onward and 7% absolute return prior to 7/1/2022. 2) Time-weighted returns based on SWD3. Underlying investments were held in a different program (Opportunistic Strategies).

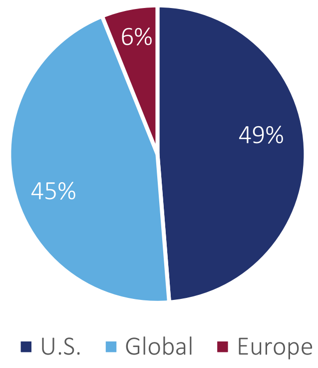
Implementation

Program Implementation Overview

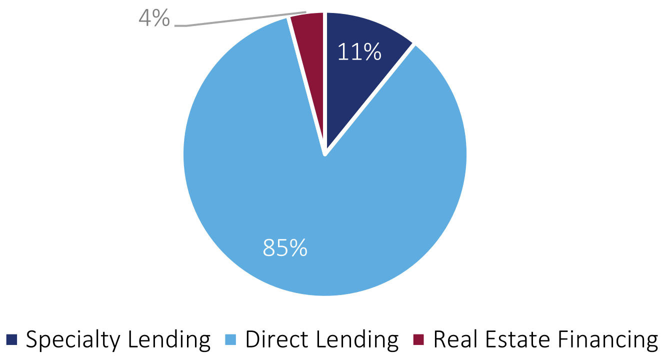
Private Debt Commitments ($B) by Closing Year*



Private Debt Commitments ($B) by Geography



Private Debt Commitments ($B) by Strategy



- As of December 31, 2022, the private debt portfolio NAV was approximately $8.9 billion, which is 2.0% of CalPERS' total portfolio. The private debt target allocation is 5.0%
- Currently, the portfolio consists of 33 underlying investments across $24.0 billion of commitments
- Pacing has been relatively consistent across 2020, 2021 and 2022
- Portfolio exposures are diversified geographically and reasonable based on the broader fundraising market

Wilshire's quarterly report as of December 31, 2022. *Based on year of closing date and not necessarily vintage year.

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Strategy Diversification

Private Debt Commitments – Strategy Diversification vs. Policy Ranges

Strategy	Commitments ($)	Commitments (%)	Market Value ($)	Market Value (%)	Policy Ranges
Specialty Lending	2,600,000,000	11%	796,895,092	9%	5 – 40%
Direct Lending	20,420,150,000	85%	7,525,547,402	85%	20 –100%
Real Estate Financing	1,000,000,000	4%	558,990,443	6%	5 – 40%
Liquidity Financing	0	0%	0	0%	0 – 25%
Private Structured Products	0	0%	0	0%	0 – 25%
Total	**24,020,150,000**	**100%**	**8,881,432,937**	**100%**	

- Private debt commitments to date have been in line with the policy ranges from both a commitment and market value perspective
- Direct lending has been approximately 85% of the current portfolio, which is expected given the 20-100% policy range for this strategy
- Policy ranges are intentionally broad to accommodate the ramp up of the portfolio. Wilshire will evaluate appropriateness on an ongoing basis as the portfolio evolves

Wilshire's quarterly report as of December 31, 2022.

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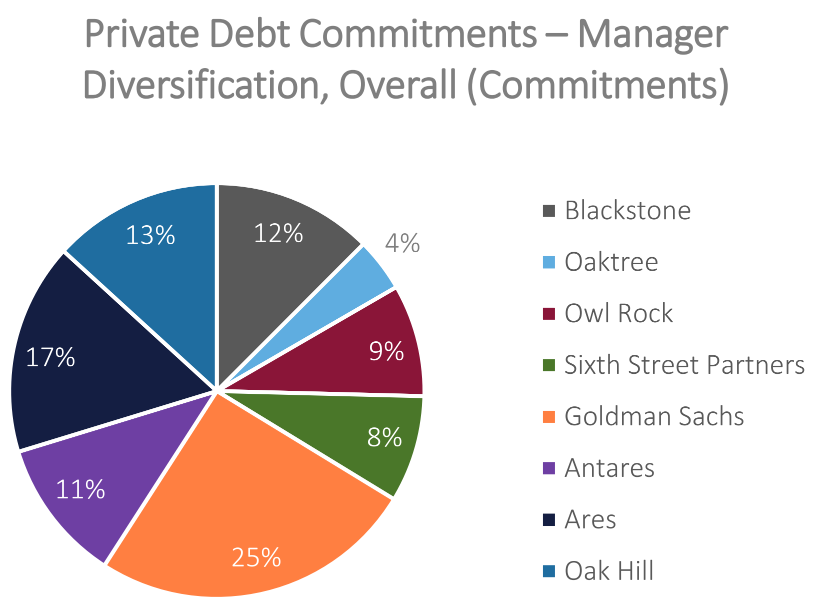
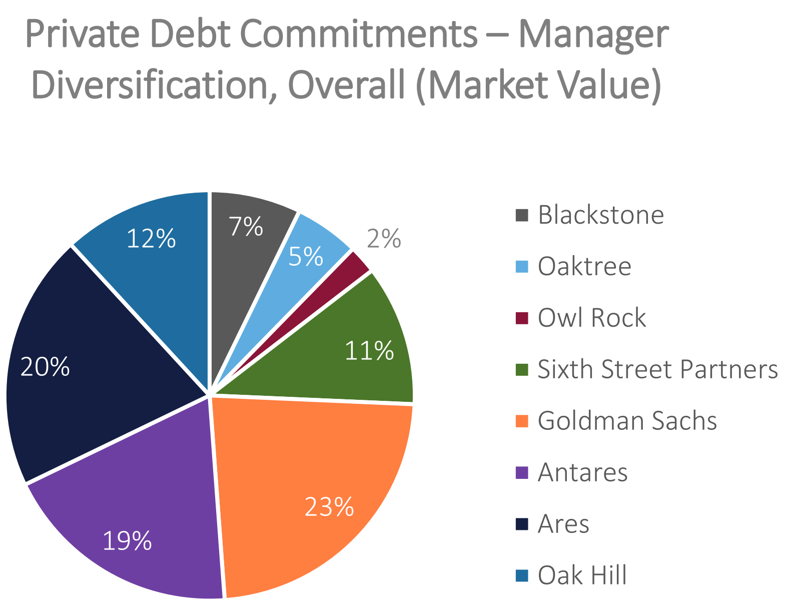
Manager Diversification – Overall



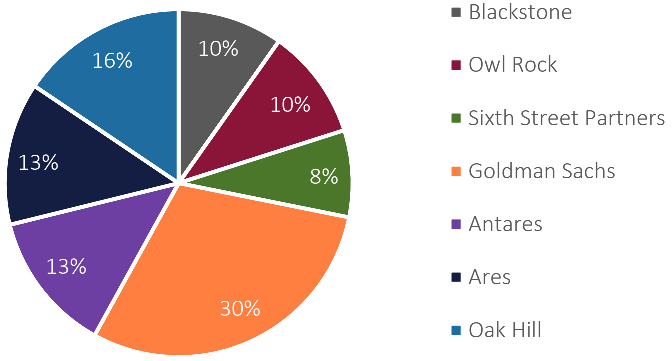


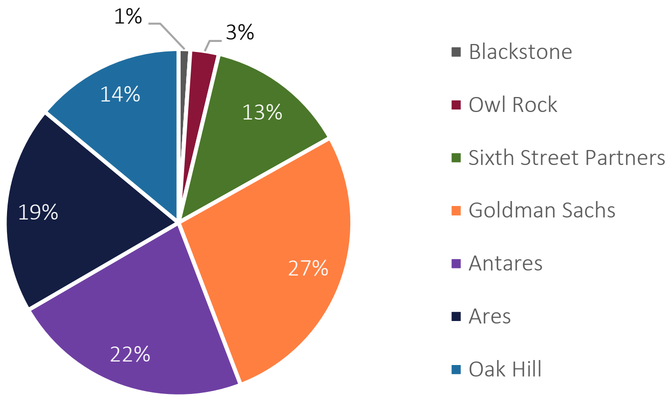
- Overall manager diversification is reasonable for private debt, especially given the portfolio is early in development; however, Wilshire notes some higher levels of concentration at the strategy level (next slide)
- Wilshire will continue to monitor these exposures going forward in relation to CalPERS' policy related procedures (PRPs)

Wilshire's quarterly report as of December 31, 2022.

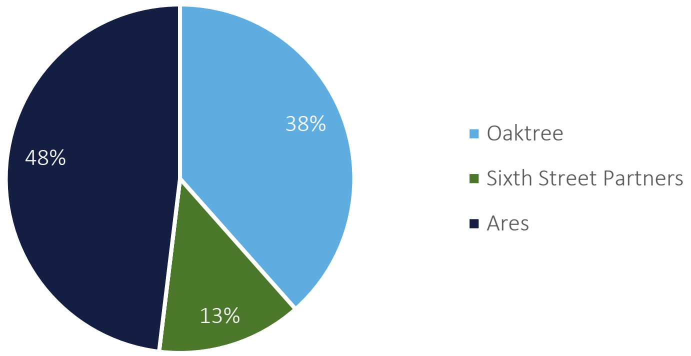
Manager Diversification – By Strategy

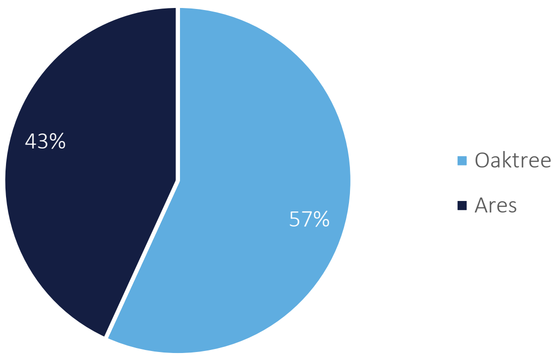
Private Debt – Manager Diversification*, Direct Lending



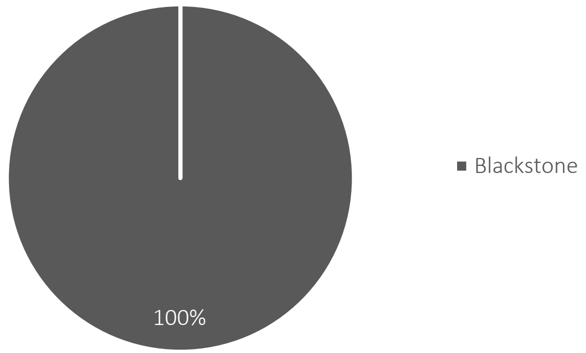


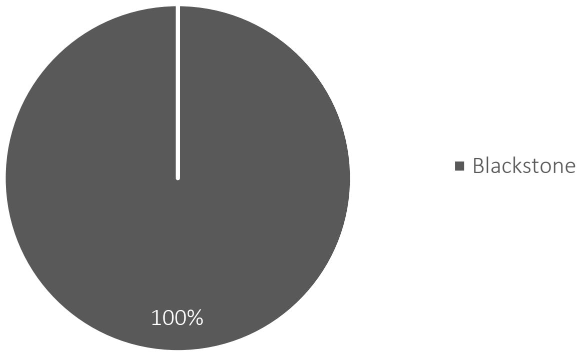
Private Debt – Manager Diversification*, Specialty Lending





Private Debt – Manager Diversification*, Real Estate Financing





Wilshire's quarterly report as of December 31, 2022. *First row pie charts based on commitment amounts and second row of pie charts based on market value.

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Private Debt Portfolio Snapshot

Fund	Geography	Close Date	Commitment ($M)
Total			24,020
Specialty Lending			2,600
Oaktree Gilead Investment Fund, LP - Series A	Global	Jun-20	500
Oaktree Gilead Investment Fund, LP - Series B	Global	Jun-20	500
Sixth Street Mid-Stage Growth Partners (A), L.P.	Global	Dec-21	350
Ares SME (Parallel), L.P.	Global	Jun-22	750
Ares Credit Investment Partnership (CP), L.P.	Global	Aug-22	500
Real Estate Financing			1,000
Blackstone Real Estate Debt Strategies IV-C, LP	Global	Sep-20	1,000
Direct Lending			20,420
Sixth Street TSSP Adjacent Opportunities Partner (B), LP	Global	Jul-20	1,150
West Street Strategic Solutions Fund I, LP	Global	Jul-20	2,000
West Street Co-Invest Partners (C), LP	Global	Sep-20	500
West Street Strategic Solutions Fund I-(C), LP	Global	Sep-20	500
Ares Capital Europe V (D)	Europe	Sep-20	1,084
Sixth Street Cottonwood Strategic Holdings I, LP	North America	Nov-20	500
Ares European Credit Investments VII (CP) L.P.	Europe	Dec-20	379
Antares Credit Opportunities CA LLC	North America	Jan-21	885
OHA Credit Opportunities CA (C), L.P.	North America	May-21	177

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Private Debt Portfolio Snapshot

Fund	Geography	Close Date	Commitment ($M)
Direct Lending (continued)			
Antares Credit Opportunities CA LLC - Series 2	North America	Jun-21	795
Ares Senior Direct Lending Fund II, L.P.	North America	Jun-21	1,250
Antares Credit Opportunities CA LLC - Series 3	North America	Aug-21	500
Antares Credit Opportunities CA LLC - Series 4	North America	Oct-21	500
OHA Co-Invest Opportunities Fund	North America	Nov-21	1,000
OHA Credit Solutions Fund II	North America	Nov-21	500
OHA Credit Solutions Fund II (CA Parallel)	North America	Nov-21	500
OHA Senior Private Lending Fund (CA 3)	North America	Nov-21	500
OHA Senior Private Lending Fund (CA 5)	North America	Nov-21	500
West Street Mezzanine Co-Investment Partners VIII (C), L.P.	Global	Mar-22	600
West Street Mezzanine Partners VIII, L.P.	Global	Mar-22	2,000
West Street Mezzanine Partners VIII, L.P. (Pro-rata co-invest)	Global	Mar-22	500
OR Diversified Lending (CP), L.P.	North America	Aug-22	1,000
OR Diversified Lending (CP), L.P. Co-Investment	North America	Aug-22	600
OR Diversified Lending (CP), L.P. Overflow	North America	Aug-22	500
Blackstone Credit Series-C LP - Series A	North America	Sep-22	800
Blackstone Credit Series-C LP - Series B	North America	Sep-22	200
Blackstone Credit Series-C LP - Series C	North America	Sep-22	1,000

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Conclusion

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Conclusion

- Overall, the private debt portfolio is early in its development and is performing above expectations on both an absolute and relative basis; the private debt portfolio has outperformed the policy benchmark since September 1, 2021
- Current exposures from a strategy perspective are in line with policy ranges; reasonable manager diversification overall with some expected concentration at the strategy level
- CalPERS' private debt team has made strong progress on the buildout of the private debt program to date with the current allocation equal to 2% relative to the 5% target
- The CalPERS' private debt team is experienced and has created a strong foundation for the private debt portfolio, but additional resources are needed to build on that success

Appendix: Market Commentary & Trends

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Key Market Takeaways

- Wilshire’s latest outlook* for U.S. private credit is “highly favorable” on opportunistic credit, “highly favorable” on alternative yield, “favorable” on distressed credit, and “neutral” on direct lending
- Wilshire’s view is that private credit strategies that offer flexible capital solutions to navigate pockets of dislocation and market uncertainty are positioned to perform well in the near term
- Default rates have slowly risen recently and to the extent there is a significant market dislocation or recession, distressed credit strategies are expected to capitalize on these market dynamics
- Private credit is positioned to benefit from the rising rate environment, as most private loans having floating rate exposure; however, rising rates is a headwind for current borrowers, increasing the risk of inability to adequately service debt
- With over $40 billion[1] of hung debt on banks’ balance sheets, highly leveraged loan volume has declined creating greater demand for private debt financing, which should allow private lenders to negotiate better terms
- Alternative yield and specialized strategies remain attractive given less correlation to broader macro environment and markets

*Wilshire’s outlook assessment for any specific private credit strategy can be unfavorable, cautious, neutral, favorable or highly favorable.

[1] Source: Bloomberg.

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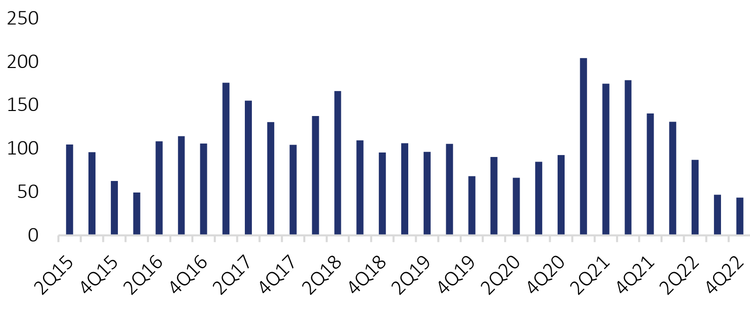
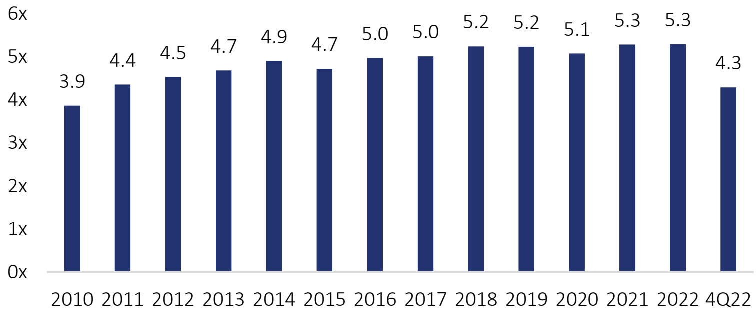
U.S. Senior Direct Lending Outlook: Neutral

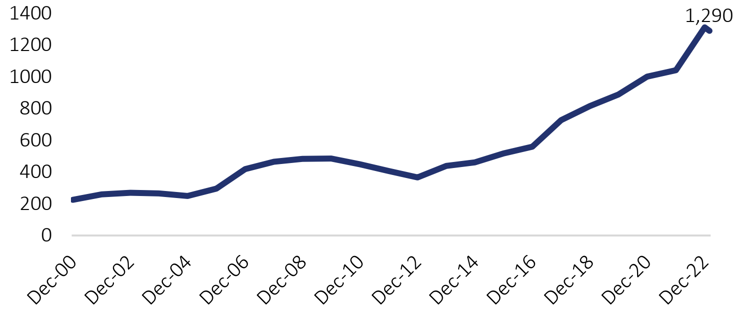
Highly Leveraged Loan Volume (B)[1]



Highly Leveraged Loan Average Debt Multiples[1,2]



Private Equity Dry Powder[3]



Regional Influences

- \+ Continued bank retrenchment
- \+ Private equity dry powder and robust M&A activity further enhanced by multiple compression
- \+ We are currently experiencing a rising rate environment
- ± Uncertain macro-outlook and potential risk of downturn
- \- Increased competition and lack of differentiation weighs negatively on risk/return, further impacted by inability to generate real return in most public credit markets
- \- Middle market managers moving up market because of a lack of deal flow in their space

Local Considerations

- Favorable complexity premium
- Fixed versus floating rate debt
- Increase in non-sponsored versus sponsored direct lending
- Sector-focused lending versus generalist approach
- Defensive-oriented sectors should exhibit resilience in the event of a downturn
- Continued upstream movement of traditional middle-market lenders
- Transition away from LIBOR to SOFR reference rate

Industry / Sector Outlook

Sector	Investment Opportunity
Senior Direct Lending	◐

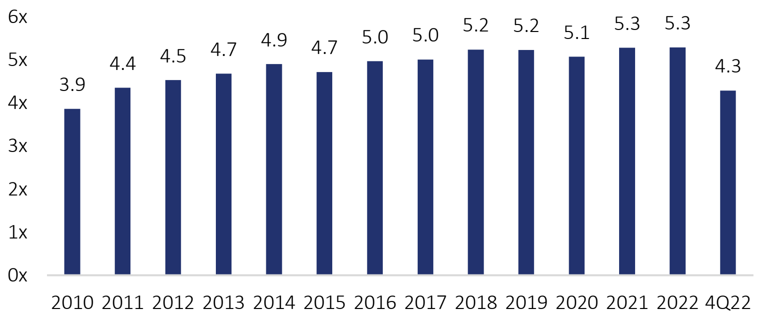
[1] S&P LCD, as of December 31, 2022.

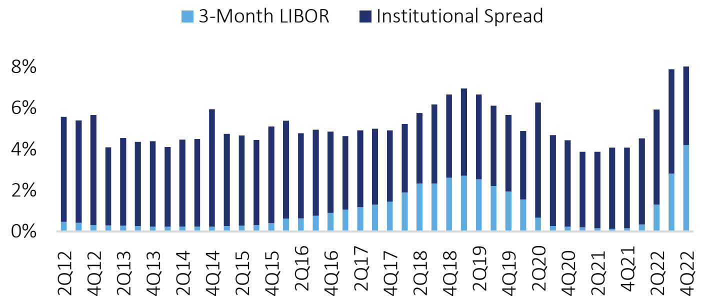
[2] SOFR+225 and higher

[3] Preqin Private Equity Dry Powder, as of December 31, 2022.

U.S. Opportunistic Credit Outlook: Highly Favorable

Highly Leveraged Loan Volume (B)[1]	Highly Leveraged Loan Average Debt Multiples[1]	Weighted Average Absolute Institutional Rate[1]





Regional Influences	Local Considerations	Industry / Sector Outlook

Regional Influences

+ Continued bank retrenchment and negative net interest margin in the CLO market
+ Specialization as prerequisite for traditionally non-banked or otherwise overlooked sectors and assets.
+ Pockets of market dislocation creating attractive secondary credit opportunities
+ COVID-19 disruption highlighting the need for flexible capital solutions
± Rising rate and inflationary environment potential headwind for cash interest borrowers unable to adequately service debt
- Increased competition in primary market from large AUM lenders and secondary market from large hedge fund managers
- Velocity of treasury yield increases outpacing floating rate loan structures (i.e., spread duration risk)

Local Considerations

- Favorable complexity premium for tailored solutions; interest, fees, and upside optionality facilitating multiple return sources
- Floating rate debt structures mitigating interest rate sensitivity
- Specialty finance opportunities capitalizing on tech-enabled asset originators
- Short-duration strategies and high amortization features mitigating interest rate and credit (i.e., repayment) risk
- Government-focused financing solutions to facilitate Inflation Reduction Act capital deployment goals
- Less competitive non-sponsored market
- Defensive-oriented sectors where defaults and correlations are low relative to broad credit markets

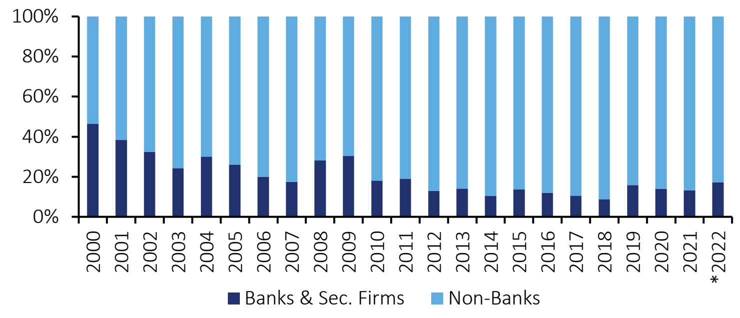
Industry / Sector Outlook

Sector	Investment Opportunity
Opportunistic	●

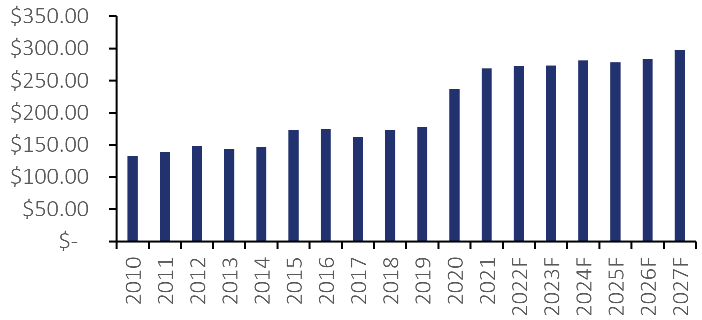
[1] S&P LCD, *as of December 31, 2022.

U.S. Distressed Credit Outlook: Favorable

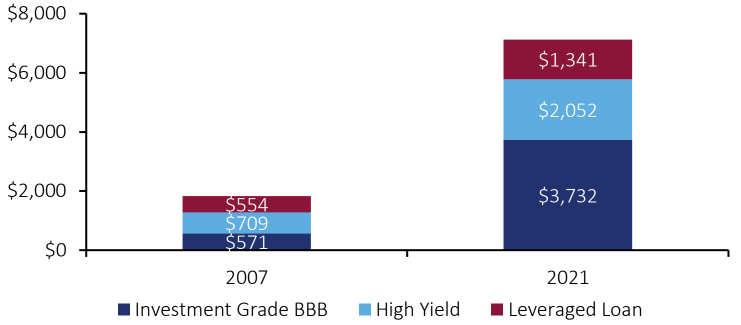
Highly Leveraged Loans[1]



Global Distressed Debt Assets Under Management[2]



Lower Rated Corporate Credit Market Size ($B)[3]



Regional Influences

+ Attractive historical risk-adjusted returns
+ Unprecedented leverage levels and outstanding debt
+ Deterioration of credit quality in loan issuance
+ Higher cost of capital due to interest rate hikes and pull back of liquidity from the Federal Reserve.
+ Increase in spreads across the rating spectrum, with significant moves in the both leverage loan and high yield market
+ Loan issuance are decreasing however the proportion of covenant-lite loans is still increasing
+ Tough leveraged loan issuance market as some recent large poor performing loans have reduced underwriting appetite.
+ Ongoing disruption in supply chains
+ Slowing US GDP growth
± Default rates are likely to increase towards long-term average, but should remain below prior recessionary default peaks
± Substantial fiscal stimulus, strong labor market and strong consumer balance sheets lowering odds of a deep recession.
± Substantial levels of illiquid credit since GFC, with little historical precedent from a credit cycle standpoint

Local Considerations

- Favorable complexity premium
- Fixed versus floating rate debt
- Short-term and long-term distressed debt opportunities
- Broad market stress as opposed to sectors in secular decline
- Large cap issuers vs. middle market
- Liquid versus illiquid distressed debt opportunities
- Distressed trading opportunities versus loan-to-own
- Non-performing loan opportunities
- Industrial and manufacturing sectors placing a significant emphasis on supply chain resiliency through onshoring and digitalization
- Pullback in tech valuations and discretionary spending creates discounted opportunities
- Corporate profit growth turned negative in Q3 2022
- Large shortfall in 2022 credit supply could suggest demand bottomed out in 2022

Industry / Sector Outlook

Sector	Investment Opportunity
Non-Control Distressed Debt	
For-Control Distressed Debt	

[1] Source: S&P LCD, as of June 30, 2022. [2] Source: Preqin, as of December 2022. [3] Source: Investment grade per JP Morgan (represents the par amount of the JULI Index); high yield per BAML (represents global issuers of USD denominated debt); leveraged loan per S&P LCD (represents the S&P/LSTA index; includes BBB rated loans).

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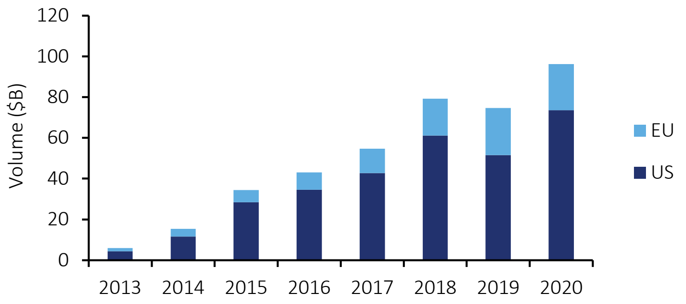
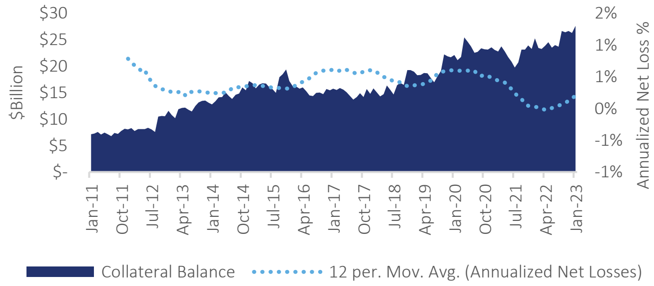
U.S. Alternative Yield Outlook: Highly Favorable

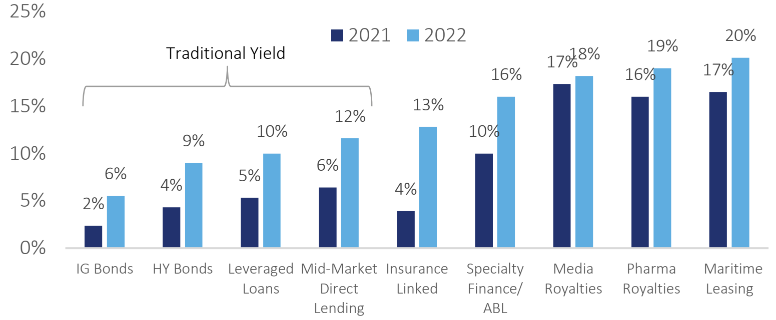
FinTech Annual Origination Volumes [1]



C&I Equipment Leasing Loss Rate & Growth [2]



Yield YoY Comparison [3]



Regional Influences

- \+ Rising interest rates and regulatory pressure leading to more challenging access to traditional capital sources
- \+ Broad based inflation impacting corporate profit margins; operational flexibility initiatives supporting commercial & industrial asset leasing (vs buying assets outright)
- \+ Growth of intangible assets and digital economy influence how consumers shop, pay for goods/services, access credit, create and consume content
- \+ Correlations across asset classes driving demand for uncorrelated risk/return profiles
- \+ Favorable supply-demand dynamics driven by low-cost tech-enabled originations, pre-requisite for specialization and higher margins of safety relative to traditional yield
- ± Historically low loss rates and high recovery rates relative to traditional debt markets
- ± Elevated asset valuations, and lower yields, in certain pockets of real, financial, and intangible assets

Local Considerations

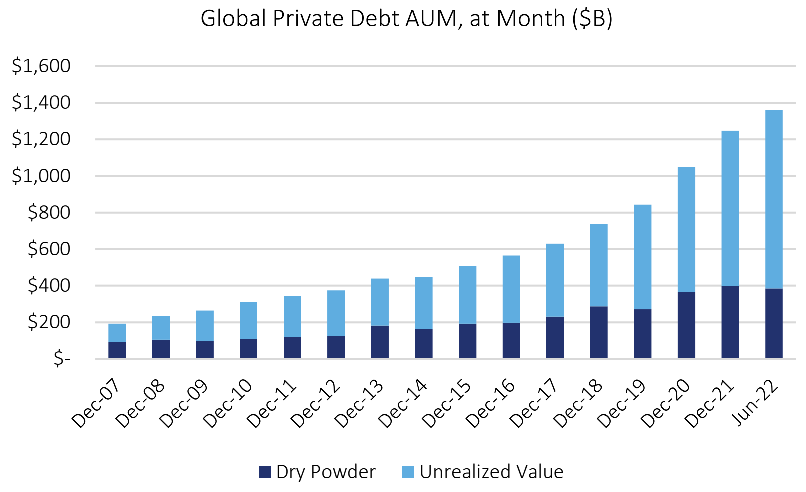
- Intangible asset heavy sectors facing valuation headwinds look to alternative financing solutions linked to their intellectual property (patent, copyright, trademark, etc.) assets
- Nontraditional real asset opportunities where both asset and contractual cash flow/monetization mechanism benefit from sustained elevated inflation (beef/cattle farming, water rights, commodity streaming, etc.)
- Nondirectionally sensitive financing solutions benefiting from transaction volumes including asset servicing rights and royalty/licensing agreements.
- Risk transfer in litigation and/or re/insurance markets where risk drivers have little to no sensitivity to public and private capital markets; life-contingent structured settlements, insurance premium finance, life settlements, and IP litigation finance and medical malpractice.

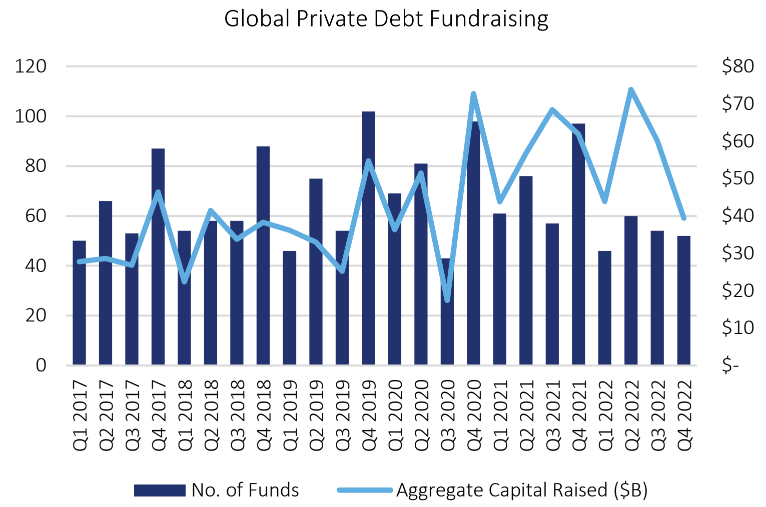
Industry / Sector Outlook

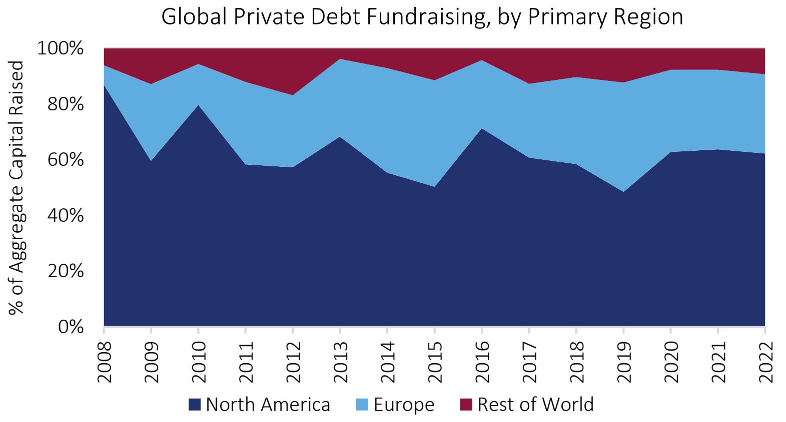
Sector	Investment Opportunity
Niche (Sector) Credit	
Sp. Asset-Based Lending	
Risk Transfer Strategies	
Intangible Assets	

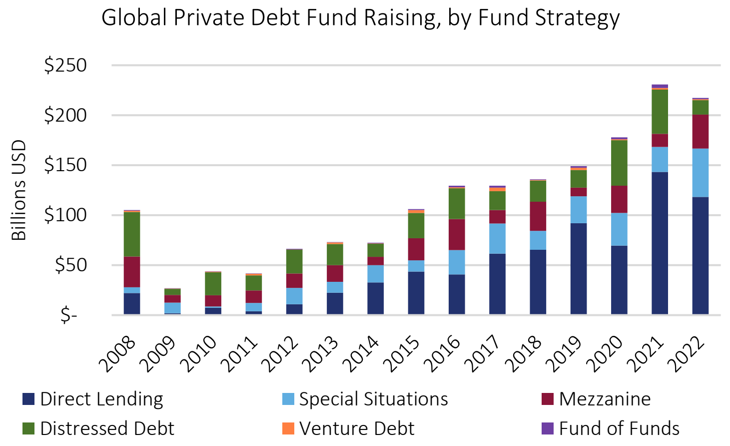
[1] Source: 2nd Biannual Global Alternative Finance Benchmarking Report, Cambridge Centre for Alternative Finance, June 2022 [2] Source: KBRA All Equipment Index
[3] Traditional Liquid Opportunities is presented as yield to maturity as at year end 2021 and 2022. Alternative Yields are qualitative forecast assumptions made by Wilshire's Research team over an assumed 5-year horizon. Assumptions are preliminary and are subject to change.

Fundraising



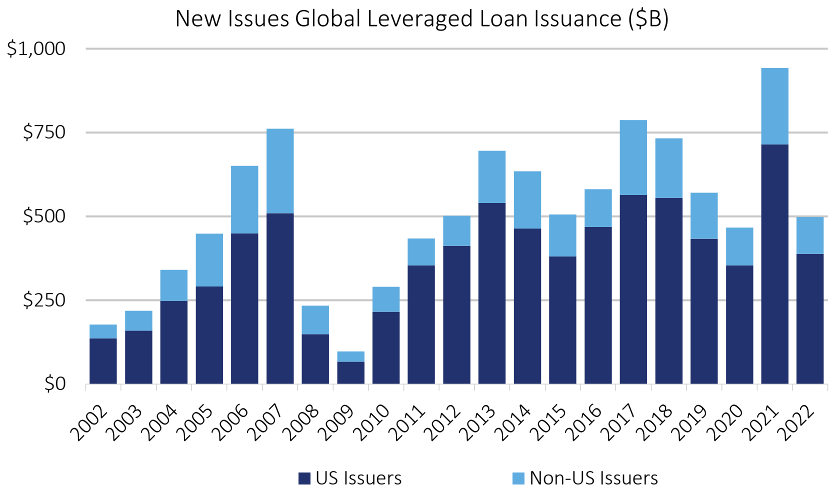


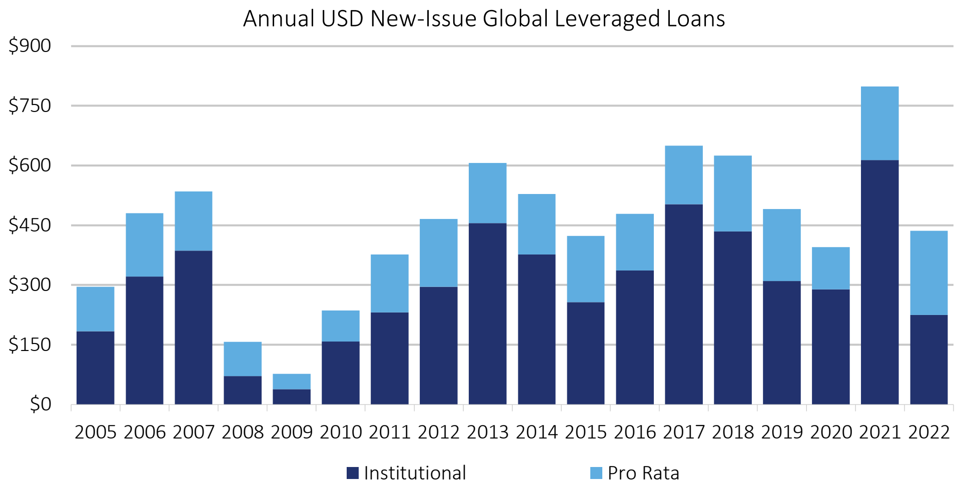


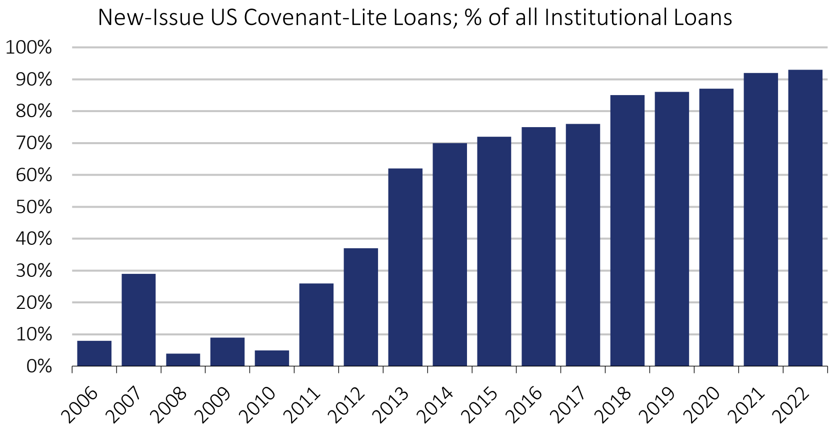


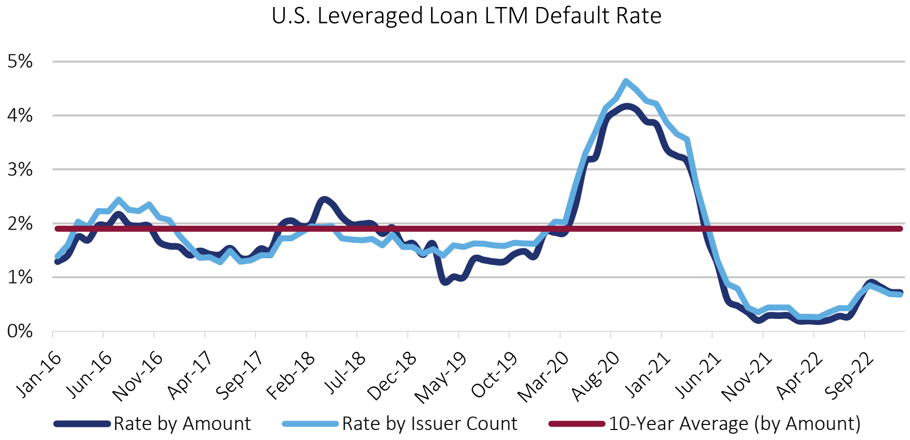
*2022 Global Private Debt Fund of Funds represents aggregate YTD Q3 2022.
Source: Preqin as of February 2023.

Leveraged Loans









Source: PitchBook 2022 Q4 LCD Report.

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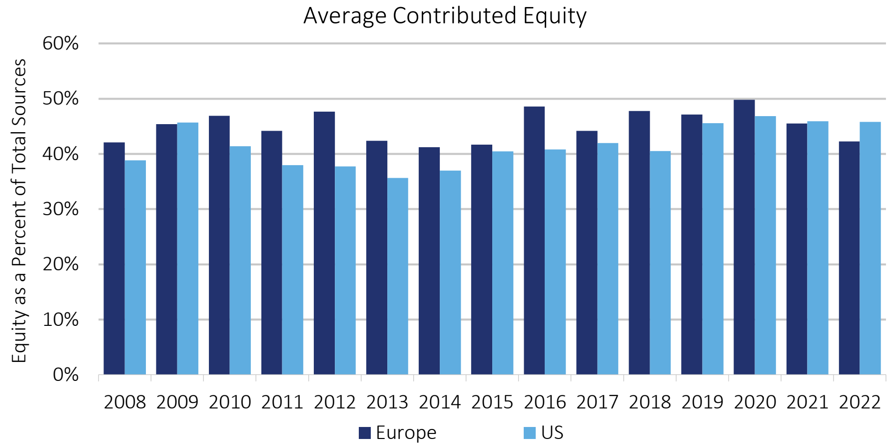
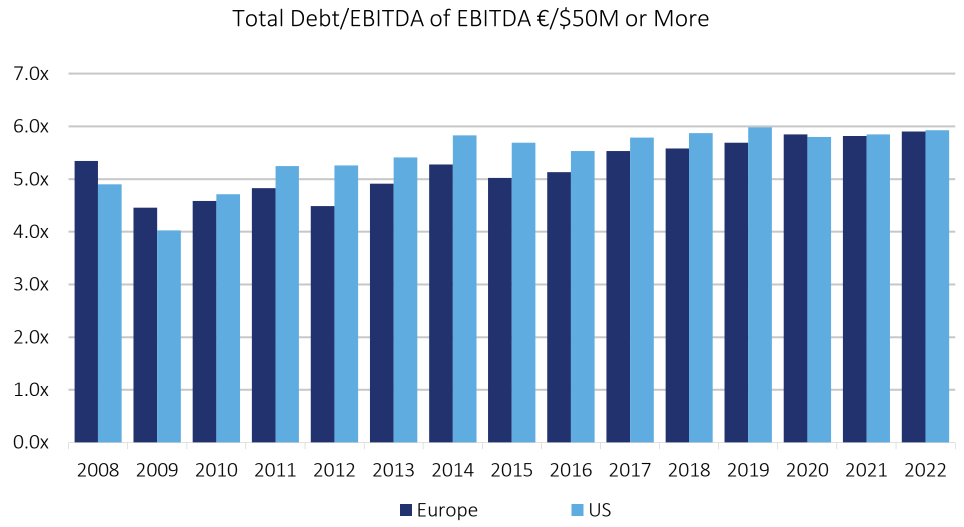
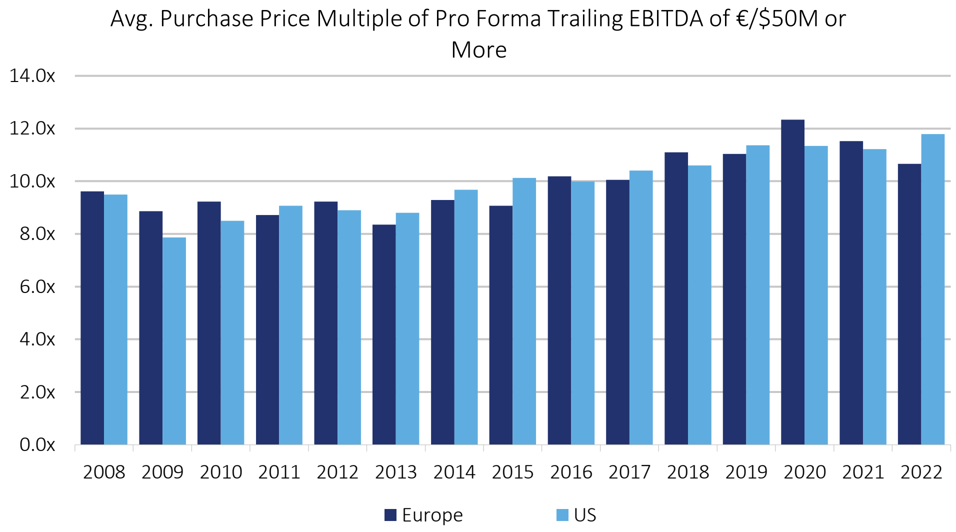
Leveraged Buyouts

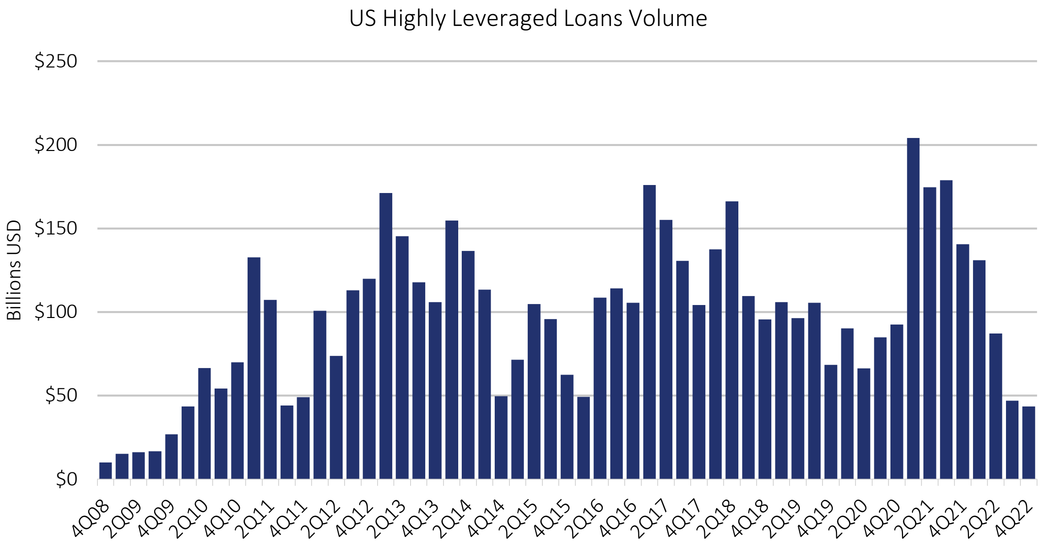


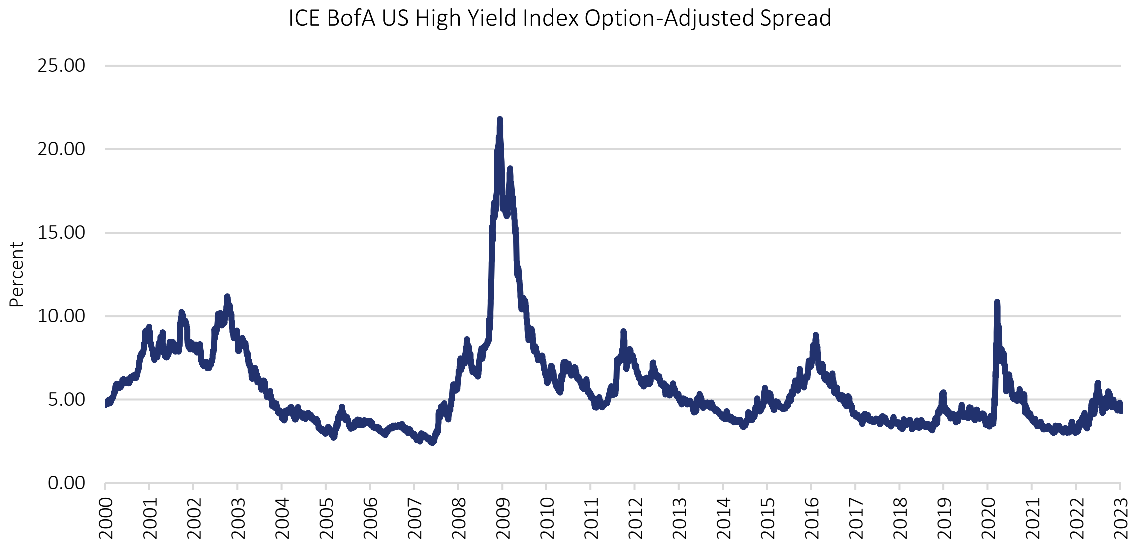




Source: PitchBook 2022 Q4 LCD Report.

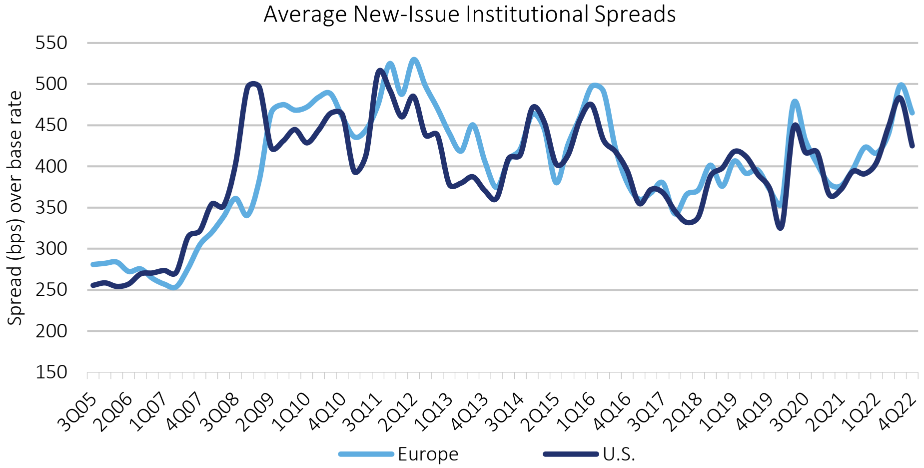
U.S. High Yield

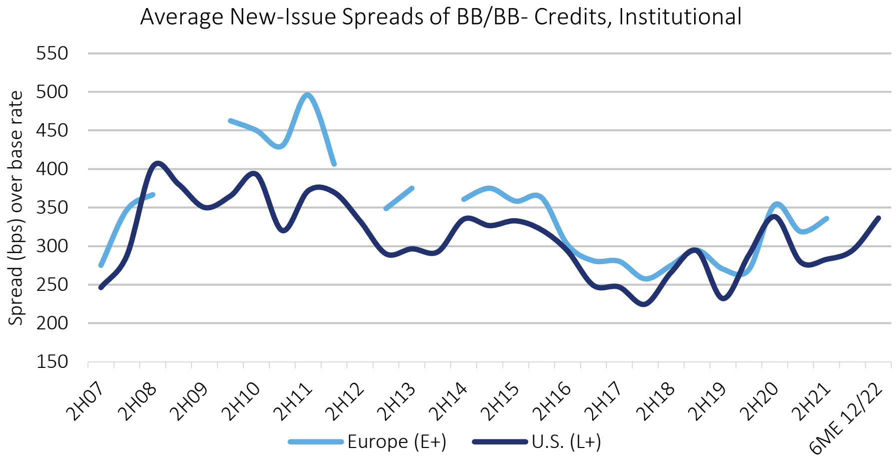


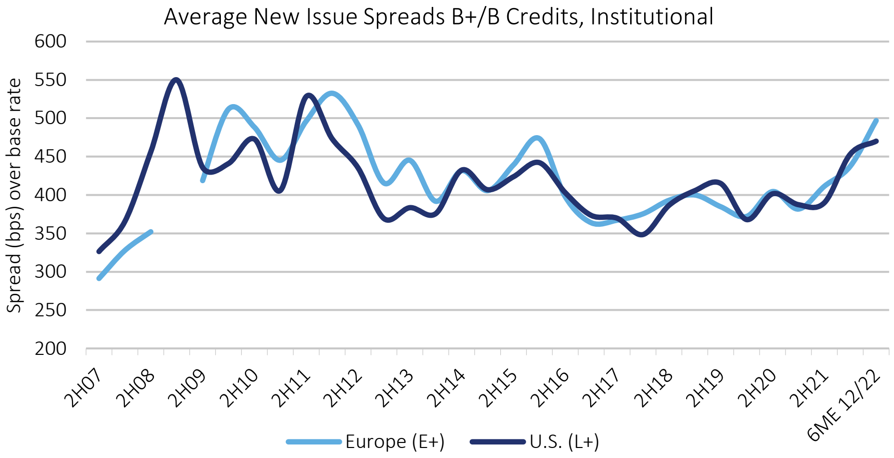


Source: PitchBook 2022 Q4 LCD Report; Ice Data Indices, LLC

Pricing



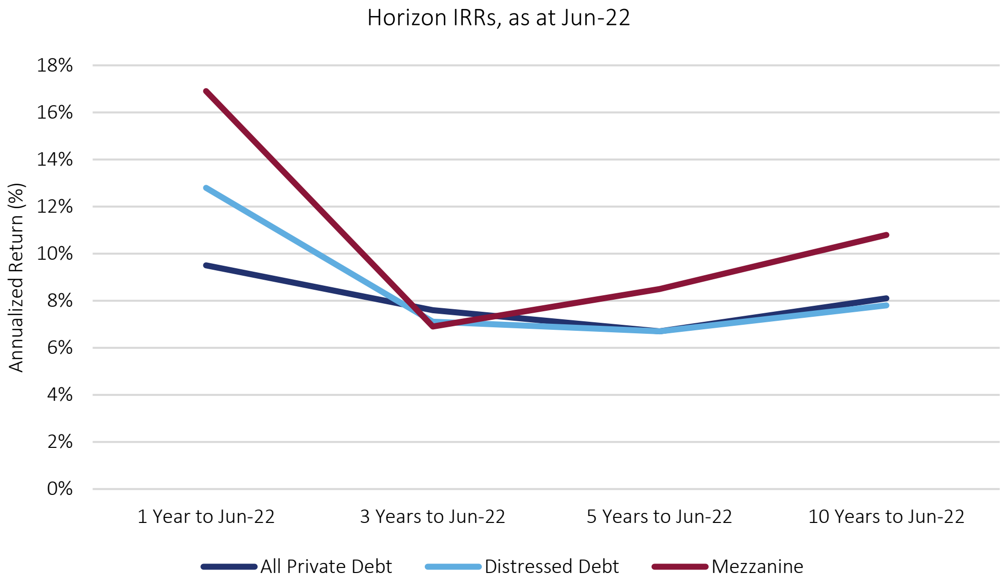


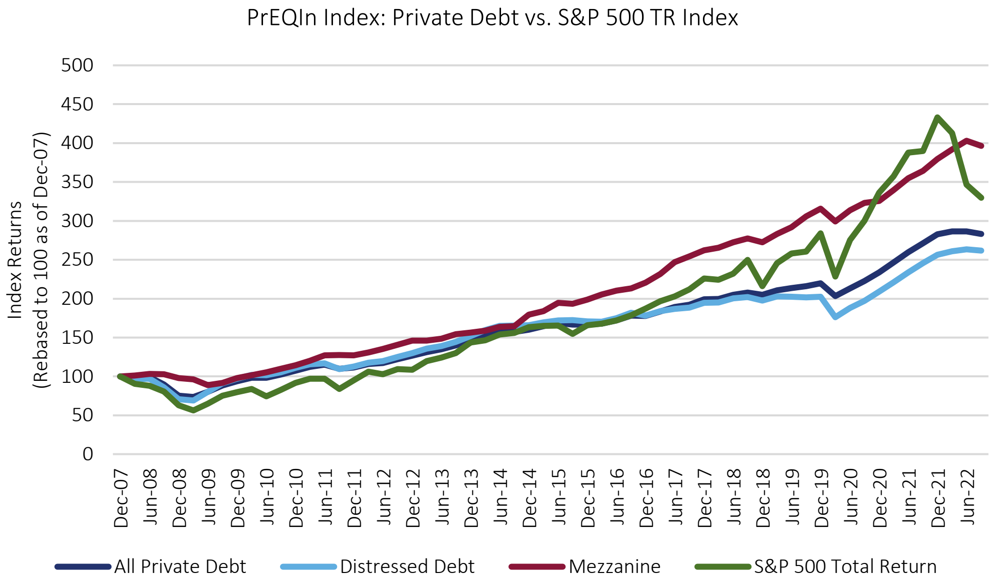


Source: PitchBook 2022 Q4 LCD Report.

Wilshire

Performance





Source: Preqin as of February 2023.

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