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US Market Insights

Introduction

A difficult 2022 has given way to a more upbeat 2023. Equity markets have rebounded, the economy appears to be on firmer footing, and inflation has continued its slow march downward. At the same time, tight credit conditions, especially in commercial real estate, and a yield-curve inversion suggest headwinds still exist. The venture capital environment is still challenged, with capital available to startups lagging the amount needed to maintain valuations and runways. The IPO market is still relatively closed, delaying distributions for LPs. However, market dislocation will offer opportunities for the patient capital allocator.

In this edition of *US Market Insights*, we offer a bird's-eye view of alternative markets through a macroeconomic lens, providing many of the key metrics our research team tracks across equity markets, real estate, real assets, and fixed income. This report includes data on the economy, public markets, private markets, and PitchBook's proprietary quantitative research.

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Macro overview

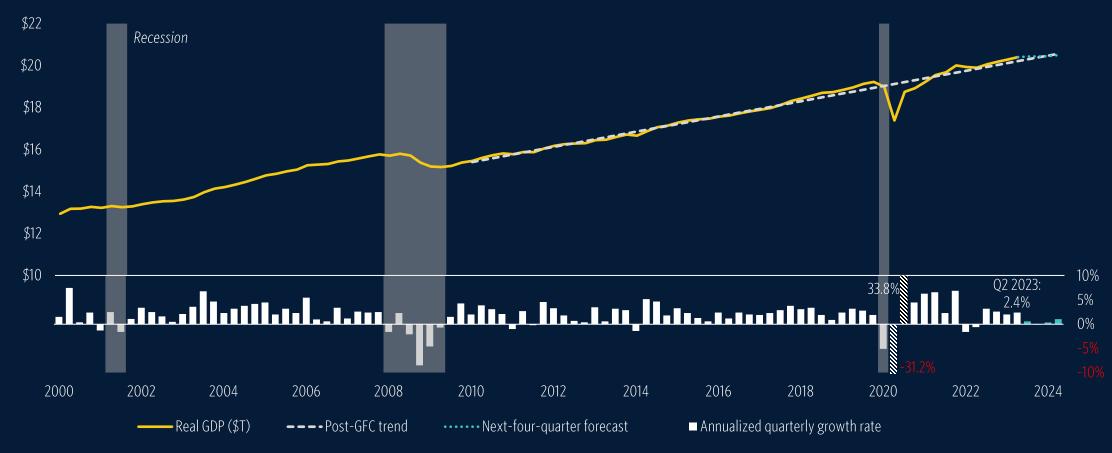


Key takeaways

- Two consecutive quarters of negative GDP growth in Q1 and Q2 of 2022 were not followed by a third. Through June 2023, there have been four consecutive quarters of GDP expansion.
- Inflationary pressures have relaxed considerably, though CPI figures are still above the Fed target of 2%. However, our recession indicator still suggests a recession is more likely than not heading into 2024.
- A severely inverted yield curve has lenders pondering risk and return—why lend at low rates for a long period when short-term rates are more attractive?
- Allocators have seen some relief from the denominator effect, though private market performance declines have not erased the outperformance over public markets in 2020 and 2021.
- Inflation-hedging funds in the real estate and real assets spaces saw the best results in 2022 but still lag far behind strategies such as VC and buyouts over the long term.
- Analysis of historical returns suggests return smoothing in our quarterly return indexes—a phenomenon well documented in private markets. We provide desmoothed volatility estimates to give a more accurate risk measure for private fund strategies.
- VC tops out at 27.0% annualized volatility using our desmoothed estimates, versus just 11.9% if left unadjusted.

Recessionary fears have settled down with four consecutive quarters of positive real GDP growth...

Real GDP growth compared with post-global-financial-crisis (GFC) trend*

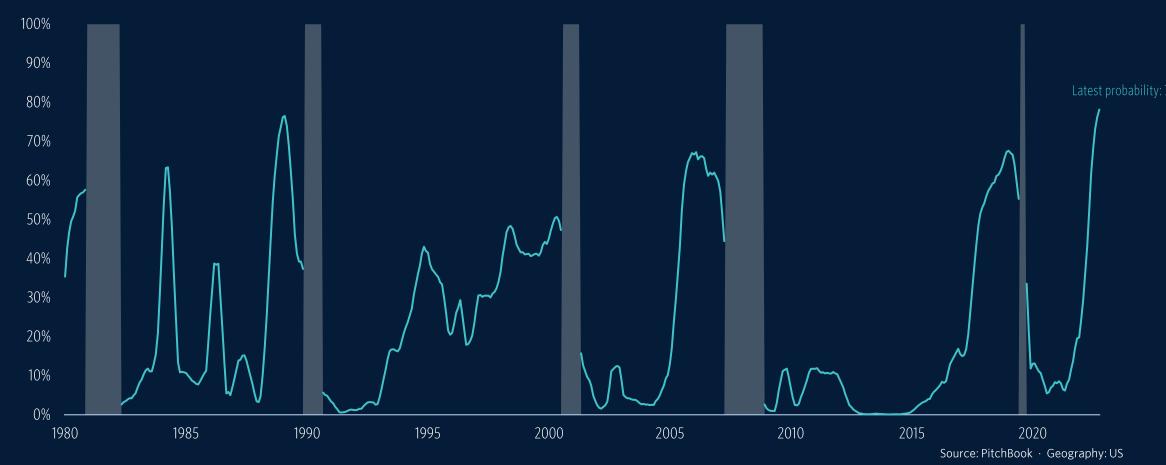


Sources: Bureau of Economic Analysis, Wall Street Journal Economic Forecasting Survey · Geography: US



...which has translated into a rapid improvement in mood in the public markets. However, our quantitative model suggests a recession is more likely than not...

Probability of a US recession occurring in the next 18 months



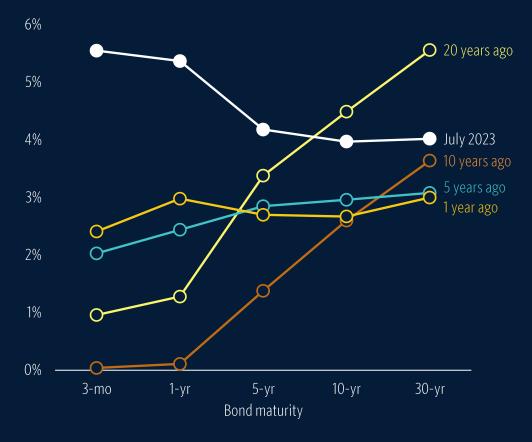


...driven largely by an inverted yield curve. Rising Treasury rates may alter the calculus that institutional investors use for allocations to risky assets.

US pension plan return assumptions versus 10-Year Treasury*



Treasury market yield curve*



 $Sources: \underline{FRED}, \underline{National\ Association\ of\ State\ Retirement\ Administrators}\ \cdot\ Geography: US$

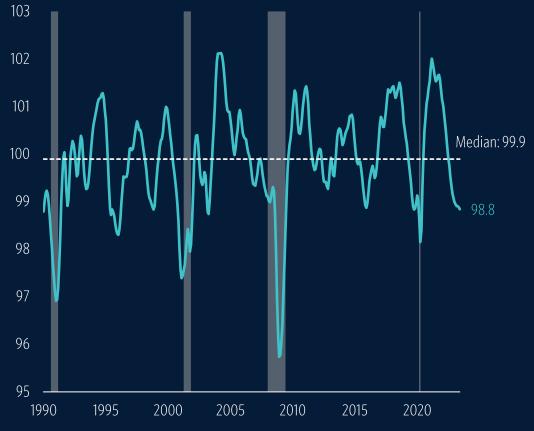


Consumers and businesses have not yet gained trust in the possibility of a soft landing, although consumer sentiment has rebounded from 2022's lows.

University of Michigan Consumer Sentiment Index*



US Business Confidence Index**



Sources: $\underline{\text{University of Michigan}}, \underline{\text{OECD}} + \text{Geography: US}$

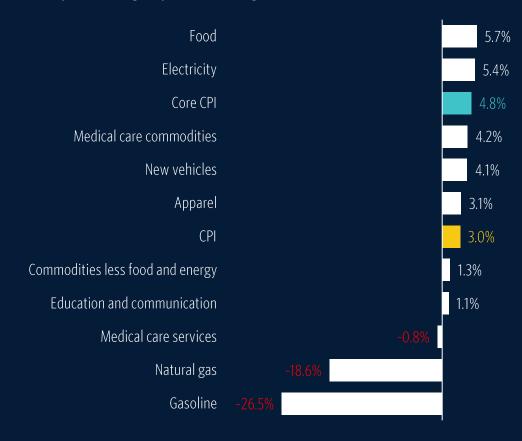


With a vast improvement in supply chain logistics, consumer prices have rapidly slowed their upward pace, though the CPI is still above the Fed's 2% target.





CPI one-year change by select categories for December 2022*





A decade-plus high in real yields signals a more punitive cost-of-capital climate going forward, though short-term rates above 5% are incentivizing lenders not to take risks.

10-Year Treasury real versus nominal rates (monthly series)





Fund performance significantly outpaced fundamentals for several years, but this has now reversed—and potentially overcorrected.

Rolling one-year PE fund returns



Difference between actual and implied rolling one-year PE fund returns



The PitchBook PE Barometer is a factor-based framework that estimates PE fund returns based on key economic and market variables. Historically, it has tracked actual returns reasonably well. However, from late 2020 through 2021, PE fund returns were considerably higher than the implied returns from the PE Barometer. This performance gap has started to reverse over the past three quarters as fund managers slowly mark their valuations to market.

For more information about the PitchBook PE Barometer, please visit this <u>webpage</u>.



LBO valuations have fallen in 2023, translating to slightly higher EBITDA yields, but high-yield bonds look favorably priced relative to history.

Yearly average yields on select asset classes*



Sources: PitchBook | LCD; FRED; Robert Shiller · Geography: US

For each metric, we used the average for the calendar year. Data definitions:

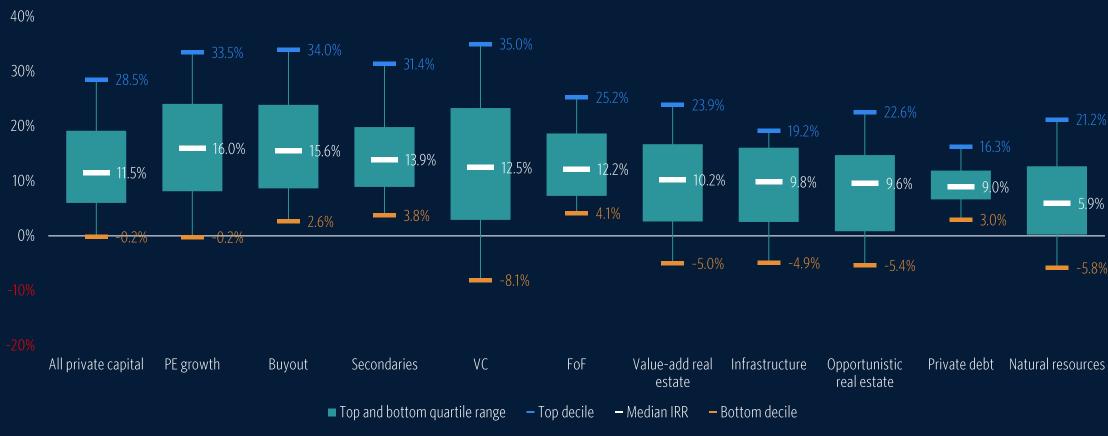
- LBO EBITDA yield: The inverse of the average purchase-price-to-EBITDA multiple in buyout transactions
- S&P 500 earnings yield:
 The inverse of the trailing-12-month price-to-earnings multiple
- ICE BofA high-yield corporate: The yield on high-yield (below investment-grade) corporate bonds as published by ICE and Bank of America

While these yields are not directly comparable, tracking valuations in terms common to the respective asset classes offers a useful exercise for relative pricing analysis.



Understanding the range of outcomes from private market strategies is instructive. Historical returns offer an important starting point when evaluating strategy and manager selection.

Range of private, closed-end fund net IRRs by strategy (vintages 2002 to 2018)*





Outperformance of VC and PE growth pre-2022 has given way to inflation-hedging real assets and real estate. VC returns suffered in 2022, falling 17.6% after seeing outsized gains in 2020 and 2021.

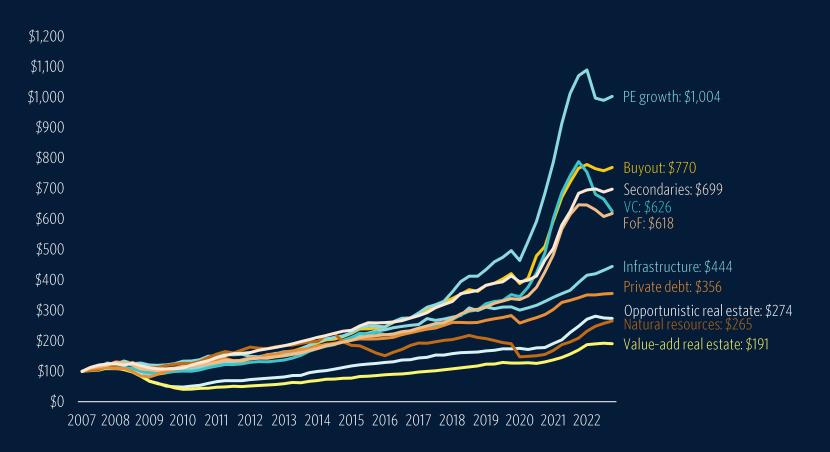
One-year pooled IRRs by strategy

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022*	15-year horizon IRR
Infrastructure 32.4%	Natural resources 0.3%	Private debt 19.9%	Secondaries 23.2%	Secondaries 18.7%	PE growth 15.0%	VC 22.2%	VC 21.0%	Buyout 14.6%	Natural resources 16.6%	PE growth 19.3%	PE growth 22.4%	PE growth 22.1%	PE growth 40.4%	VC 62.0%	Natural resources 27.1%	PE growth 16.2%
Secondaries 25.6%	Infrastructure -8.3%	Buyout 9.1%	Opportunistic real estate 20.0%	Natural resources 16.8%	Private debt 14.8%	Opportunistic real estate 21.6%	Infrastructure 19.5%	PE growth 14.4%	Buyout 14.2%	Buyout 18.1%	VC 19.0%	VC 16.5%	VC 37.9%	PE growth 57.4%	Infrastructure 13.0%	Buyout 12.6%
Buyout 24.0%	Secondaries -8.9%	PE growth 5.7%	Private debt 19.6%	Opportunistic real estate 13.7%	Buyout 14.5%	Buyout 20.9%	PE growth 16.2%	Infrastructure 14.3%	PE growth 11.1%	Secondaries 16.3%	FoF 16.0%	Buyout 16.2%	FoF 25.3%	FoF 51.9%	Value-add real estate 11.6%	Secondaries 12.2%
Opportunistic real estate 21.5%	FoF -11.7%	Natural resources 4.0%	Buyout 18.9%	PE growth 12.9%	Opportunistic real estate 13.4%	Value-add real estate 20.0%	FoF 15.8%	Value-add real estate 14.0%	All private capital 10.7%	All private capital 14.0%	Secondaries 14.8%	Secondaries 12.4%	Buyout 21.8%	Buyout 50.2%	Opportunistic real estate 10.5%	VC 11.3%
All private capital 19.4%	VC -11.8%	All private capital 2.3%	Natural resources 18.3%	Value-add real estate 12.4%	Secondaries 12.8%	All private capital 17.4%	Buyout 15.7%	VC 12.4%	Opportunistic real estate 9.8%	FoF 11.7%	Value-add real estate 13.2%	FoF 12.2%	All private capital 16.0%	Secondaries 47.9%	Private debt 4.0%	FoF 11.2%
FoF 19.0%	PE growth -12.1%	FoF 2.1%	PE growth 17.3%		All private capital 12.7%	PE growth 16.7%	All private capital 14.6%	Secondaries 11.7%	Private debt 9.2%	Opportunistic real estate 11.4%	Buyout 11.3%	All private capital 11.3%	Secondaries 13.2%	All private capital 43.6%	Secondaries 2.8%	All private capital 10.8%
Private debt 15.1%	All private capital -18.9%	VC -0.5%	All private capital 17.1%	Buyout 10.2%	Value-add real estate 11.6%	FoF 13.6%	Opportunistic real estate 14.4%	FoF 11.1%	Value-add real estate 9.2%	Value-add real estate 11.3%	All private capital 10.9%	Private debt 8.9%	Infrastructure 6.4%	Natural resources 33.8%	All private capital 0.9%	Infrastructure 8.4%
VC 13.3%	Buyout -20.4%	Infrastructure -6.0%	Infrastructure 15.6%	All private capital 9.7%	FoF 9.0%	Private debt 11.9%	Value-add real estate 13.6%	All private capital 10.3%	FoF 7.2%	Private debt 11.0%	Infrastructure 10.1%	Value-add real estate 7.8%	Value-add real estate 5.9%	Opportunistic real estate 33.5%	Buyout 0.4%	Private debt 8.3%
Natural resources 11.2%	Opportunistic real estate -20.6%	Secondaries -9.2%	FoF 11.7%	FoF 8.9%	VC 7.5%	Secondaries 7.9%	Secondaries 13.0%	Opportunistic real estate 10.1%	Secondaries 6.2%	VC 9.8%	Opportunistic real estate 6.9%	Opportunistic real estate 5.4%	Opportunistic real estate 3.1%	Value-add real estate 29.9%	FoF -4.5%	Opportunistic real estate 7.8%
PE growth -1.0%	Value-add real estate -23.5%	Opportunistic real estate -41.7%	VC 11.3%	Infrastructure 5.5%	Natural resources 6.7%	Natural resources 7.9%	Private debt 12.8%	Private debt 5.1%	Infrastructure 6.1%	Natural resources 9.1%	Private debt 5.0%	Infrastructure 4.0%	Private debt 2.3%	Infrastructure 18.9%	PE growth -5.6%	Value-add real estate 6.0%
Value-add real estate -5.4%	Private debt -26.8%	Value-add real estate -48.0%	Value-add real estate -1.8%	Private debt 4.0%	Infrastructure 6.4%	Infrastructure 2.9%	Natural resources 0.3%	Natural resources -18.7%	VC -0.4%	Infrastructure 9.1%	Natural resources 4.6%	Natural resources -9.7%	Natural resources -16.9%	Private debt 18.6%	VC -17.6%	Natural resources 5.7%



According to Q1 2023 preliminary data, the real assets winners of 2022 still find themselves behind other strategies going back to 2007.

Hypothetical growth of \$100 invested in Q1 2007 by closed-end fund strategy*



This assumes investing in our universe of funds for which we have cash flows and net asset value (NAV) data available each quarter. It is a hypothetical result if one were able to invest in a "market" portfolio of funds. We use our quarterly returns series available in PitchBook's Benchmarks report to calculate the growth in asset value. This data also constitutes our Private Capital Indexes. Actual results experienced by limited partners will vary widely.

Source: PitchBook · Geography: US



A diversified portfolio should take into consideration strategy return correlations. We desmooth quarterly returns to adjust our metrics...

Correlation matrix of desmoothed quarterly returns over the past 10 years*

	Buyout	PE growth	Opportunistic real estate	Value-add real estate	Infrastructure	VC	Natural resources	Private debt	FoF	Secondaries
Buyout	1.00									
PE growth	0.61	1.00								
Opportunistic real estate	0.27	0.04	1.00							
Value-add real estate	0.03	0.19	0.45	1.00						
Infrastructure	0.33	0.15	-0.11	0.21	1.00					
Venture capital	0.63	0.65	0.12	0.24	0.08	1.00				
Natural resources	0.47	0.48	-0.01	0.09	0.34	0.23	1.00			
Private debt	0.62	0.59	-0.09	0.02	0.36	0.44	0.61	1.00		
FoF	0.53	0.68	0.17	0.18	0.10	0.50	0.29	0.45	1.00	
Secondaries	0.34	0.54	-0.03	0.14	0.19	0.38	0.42	0.51	0.71	1.00

The correlation matrix is calculated based on the desmoothed quarterly returns of each asset class from Q4 2012 to Q3 2022. You can see more details in our <u>Analyst Note: Return Smoothing in Private Markets</u>.

Source: PitchBook · Geography: US



...and provide a more realistic picture for volatility of fund performance. VC, PE growth, and real estate have much higher standard deviation estimates than reported figures suggest.

Reported and desmoothed annualized volatility of quarterly fund returns over the past 10 years*



Equity markets



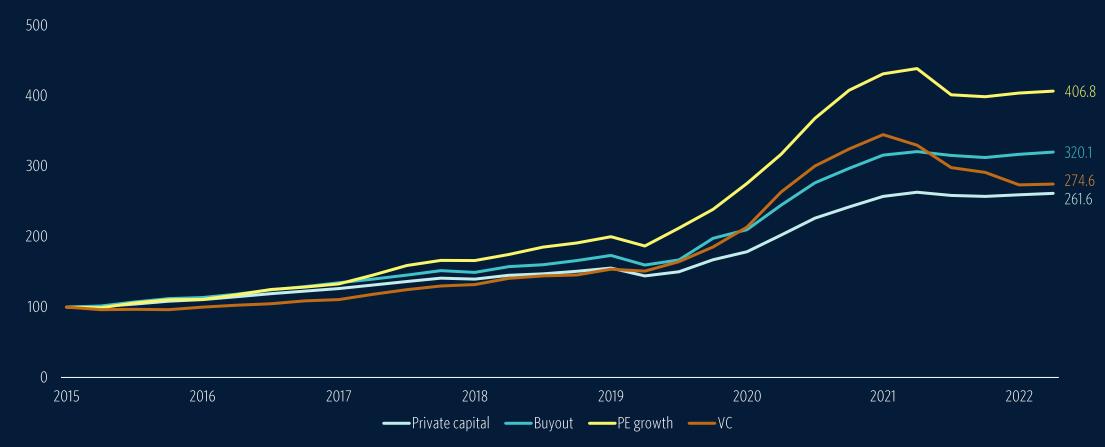
Key takeaways

- H1 2023 saw an uptick in public markets, but this has not yet translated into a healthy exit environment, either in IPOs or in deals.
- The unicorn population has held steady, with very few being added to the herd and few being culled.
- VC demand for capital has become much higher than what VC funds have to offer, spurring belt tightening and down rounds.
- LP commitments appear down but not nonexistent in 2023, racking up nearly \$200 billion to US PE and VC funds. This appears to be down significantly from the pace of recent years despite the denominator effect easing with the rise in public markets and the decline in private fund returns.
- The high-level fundraising trend does mask that the share going to large, established fund managers continues to grow, squeezing out smaller, newer fund managers who might be more LP friendly and hungry for returns.
- IPOs have continued to be rare in the first half of 2023. While they do not represent all possible exits, they signal that hold times may be extending for late-stage VC, forming a headwind for IRRs.
- With money flowing less freely, those with capital to invest in VC are in a better position to command better terms as founders see an end to the frothy times of 2021 and the beginning of 2022.



The 2022 bust was not as dramatic as the 2020-2021 boom, but fund returns appear to have stabilized in recent quarters without giving back all of the outsized performance.

Select PitchBook US Private Market Indexes performance (indexed to 100 in 2015)*





Deal activity remains depressed, with a couple of promising monthly upswings followed by dips.

Monthly buyout megadeal activity (\$500 million+ deal value)

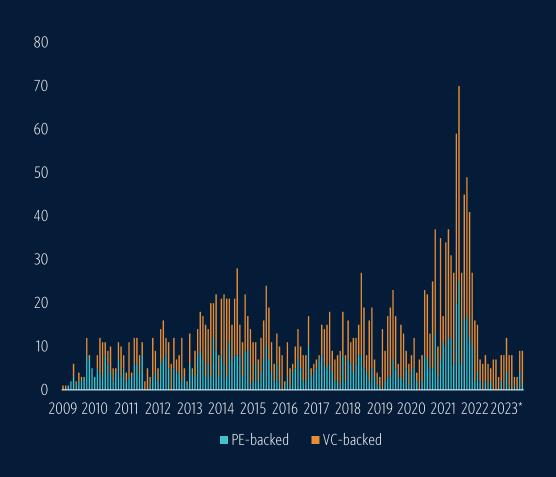




While IPOs are always a minority of exits, they reflect the tone of the exit environment. That tone has been at a pianissimo since mid-2022, though it slightly improved with the rebound in 2023.

PE- and VC-backed public listing count

<u>PitchBook IPO and DeSPAC Indexes</u> total return since start of 2022



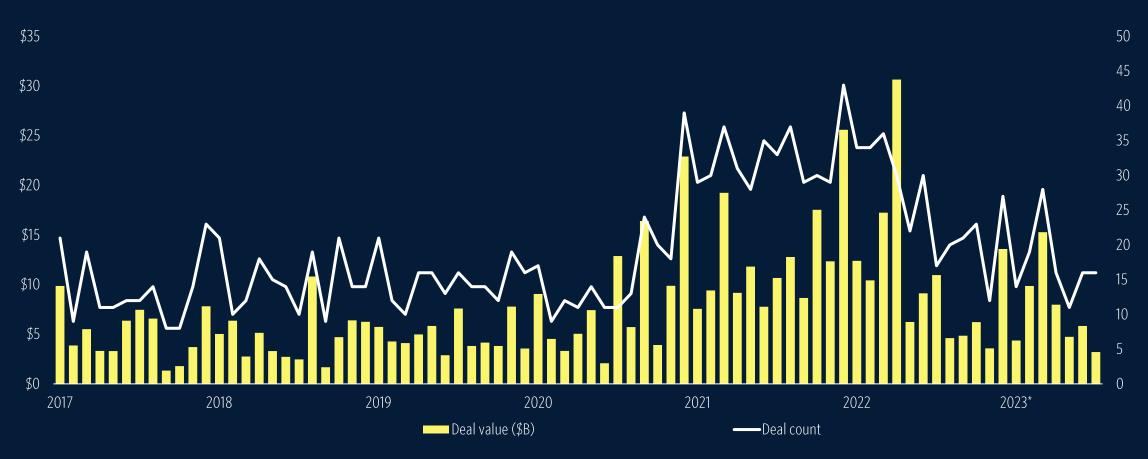


Sources: Morningstar, PitchBook \cdot Geography: US



With IPOs being virtually impossible for several quarters, large growth-equity deals have proven tougher to pencil, offering less support to private growth companies than the 2022 peak.

Monthly PE growth megadeal activity (\$100 million+ deal value)





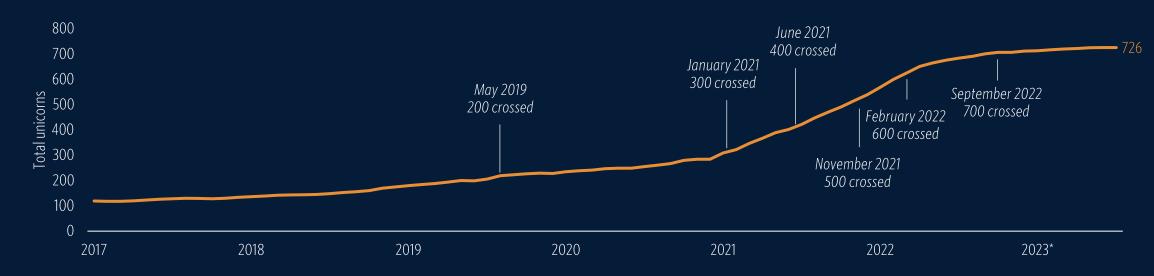
VC deals larger than \$100 million have remained rare, returning to a pace seen pre-2021. The 2021 and 2022 boom in VC megadeal activity has been reined in as valuations became unappealing.

Monthly VC megadeal activity (\$100 million+ deal value)



If unicorns were truly an endangered species five years ago, the population now has healthy numbers, though birth rates have dropped off dramatically.

Total unicorn count



Monthly change in unicorn count



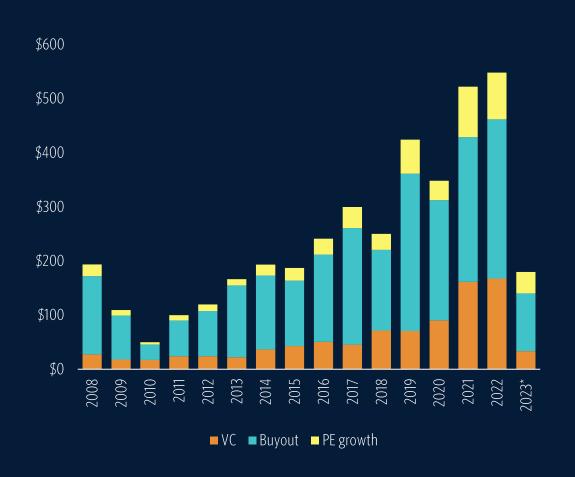
Source: PitchBook · Geography: US

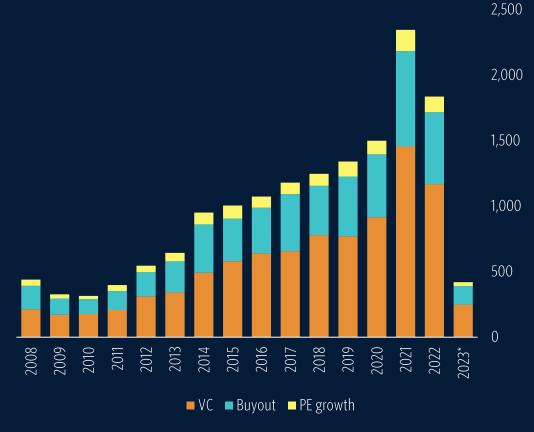


Fundraising for 2023 appears far off the pace of any recent years, but the numbers will grow with the collection of more data and the rounding out of the year.

Capital raised (\$B) by select strategies

Funds closed by select strategies



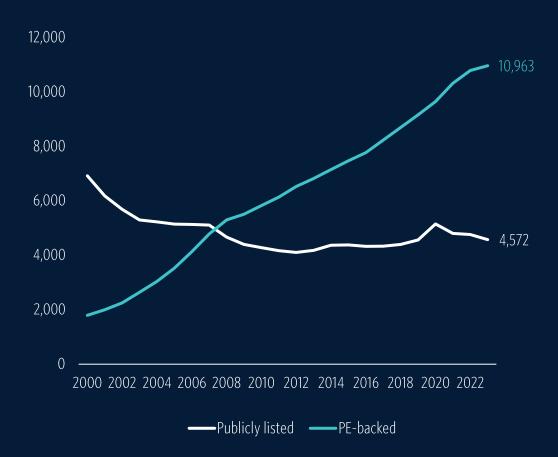


Source: PitchBook · Geography: US



The PE industry has grown considerably, with PE-backed firms more than doubling public counterparts. Still, PE and VC fund assets represent only 7.2% of total public equity market cap.

Number of PE-backed companies (excludes VC)* versus domestic firms publicly listed on NYSE and Nasdag**



PE and VC fund NAV as a proportion of US public equity market cap



Sources: World Bank, Statista, Siblis Research, PitchBook · Geography: US



Need for VC capital is much higher than funding available as VCs pull back and companies run out of funding from prior rounds. Belts will be tightening, and the later stages will be antsy for exits.

Estimated startup demand for VC investment relative to supply





With fewer deals getting done, those seeking funding will have to work harder to attract capital, and those with capital will be able to exert more influence over terms.

PitchBook VC Dealmaking Indicator





Real estate



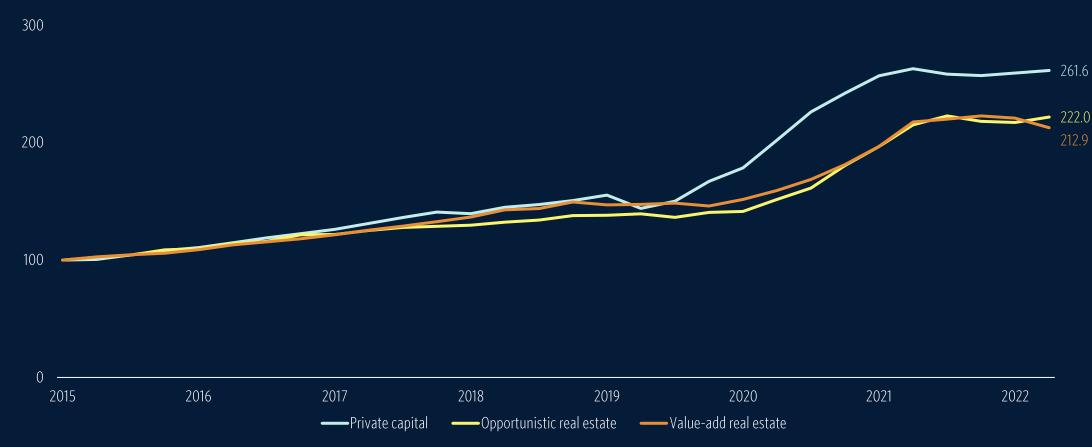
Key takeaways

- Fundraising for real estate strategies has been struggling as the hope for inflation protection was not enough to counter the concern about rising interest rates and troubles in certain property sectors.
- Fund performance for private market real estate funds has held up better than most other strategies in the past year, though it continues to lag over longer time periods.
- Delinquency rates for commercial mortgage-backed securities (CMBS) have ticked up in 2023. Retail has continued to suffer, and office has seen a jump in delinquencies this year as employers and employees struggle to determine the new normal for office needs.
- The reduction in staff at many tech employers has taken a toll on housing markets in tech-heavy markets like San Francisco and Seattle. Those markets have seen significant drops in pricing after having climbed more than average just a couple of years ago.
- All property types are seeing declines in prices with the rise in interest rates, though office and apartments have dropped the most.
- With bank failures and an uncertain economic situation, banks have continued to hold credit standards high, cooperating with rising interest rates to slow capital flows and starve lower-quality borrowers.



While lagging private capital overall since 2015, private real estate held up better in 2022 than other strategies.

Select PitchBook US Private Market Indexes performance (indexed to 100 in 2015)*



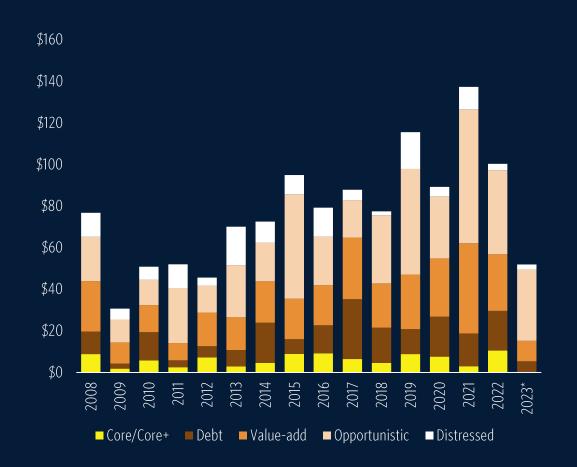
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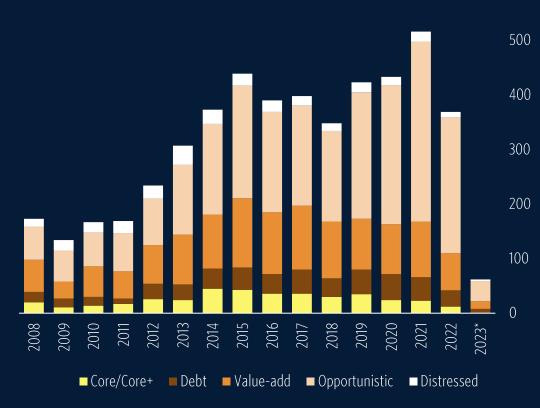


Fundraising for private fund real estate is well off 2021 figures, in part due to much of core and core-plus shifting to evergreen structures or interval funds that are outside of this dataset.

Capital raised (\$B) by select strategies

Funds closed by select strategies



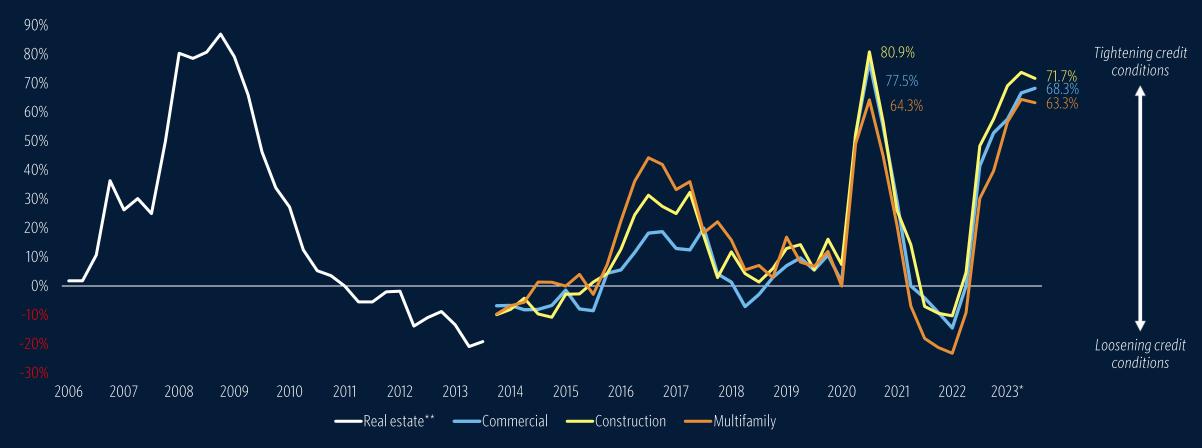


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The shifting macro climate has led to a swift tightening of credit standards on real estate lending. The most cyclical category, construction, has seen the biggest pullback by loan officers.

Net percentage of banks tightening standards on real estate loans by category

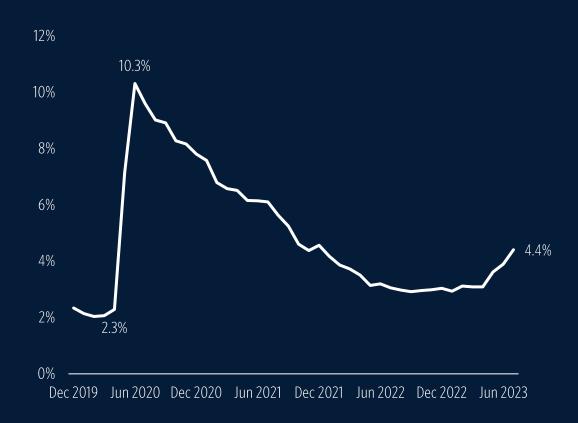


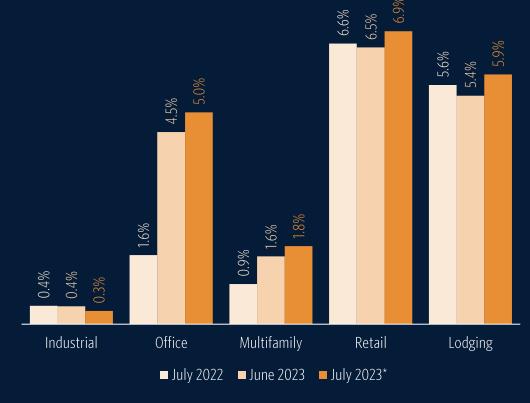


Delinquency rates for commercial mortgage-backed securities (CMBS) have ticked up in 2023. Retail has continued to suffer, but office has also seen a jump in delinquencies this year.

CMBS delinquency rates*

CMBS delinquency rates by property type







Home buyers appear to have normalized the new higher interest rates, growing through the spring to levels approaching those before the COVID-19 pandemic.

US new single-family home sales and average 30-year fixed mortgage rate

1,100
1,000
900
5%
800
700
600
1%

Jun 2020

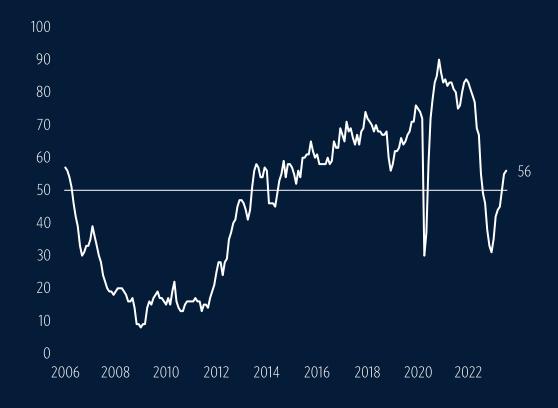
Jun 2022

Jun 2021

—— Avg. 30-yr fixed mortgage rate

Jun 2023[°]

NAHB/Wells Fargo Housing Market Index**



New sales count (thousands)

Jun 2018

Jun 2019

Jun 2017

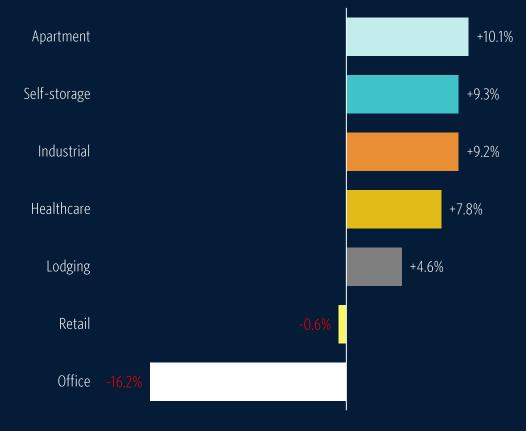


Office is still struggling after the pandemic as employers and workers negotiate to reach a new normal. On the other hand, pandemic-darling industrial has seen a rebound in 2023.

Sector-specific REIT index total returns (rebased to 100 at end of 2015)*

Sector-specific REIT index total return YTD*





Private market real estate has been hit by the rising-interest-rate environment. Office is seeing stress from substantial price declines, particularly in central business districts of major metros.

Green Street All Property Return Index

Green Street Price Index one-year change by property type*



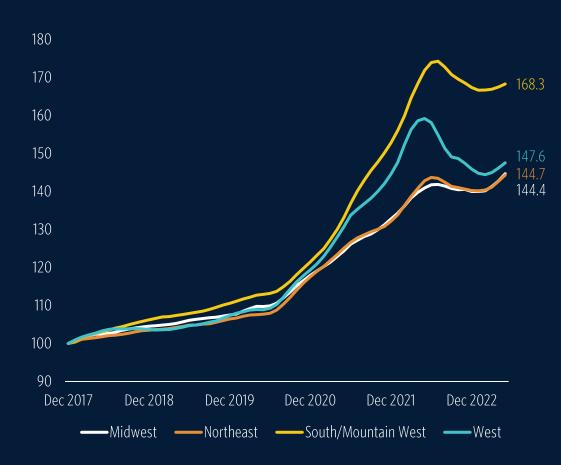


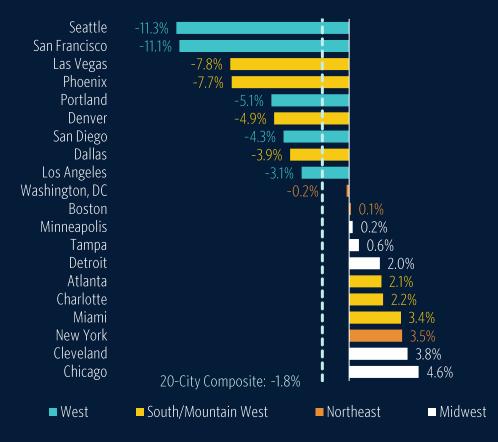


The tech sector has announced significant layoffs, putting some price pressure on housing markets in Seattle and San Francisco. However, low inventories have held up price indexes in 2023 so far.

Average home price appreciation across select cities in US regions (rebased to 100 at end of 2017)*

One-year change in home prices*





Source: FRED · Geography: US



Growth in new home construction has declined somewhat with rising interest rates and economic headwinds. Relatively low inventory growth should support house prices.

Housing starts as a share of population by region*





Real assets



Key takeaways

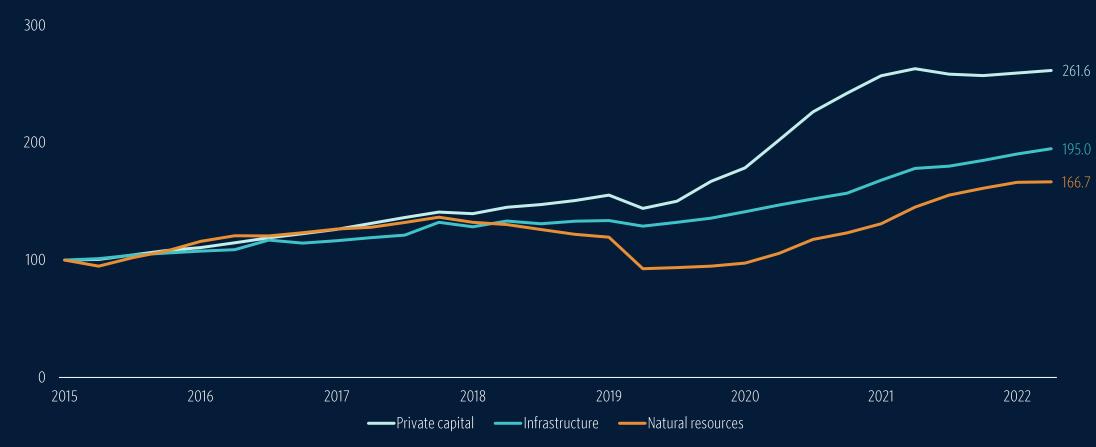
- Infrastructure funds had a blockbuster 2022 in terms of fundraising, but the momentum has not carried over to 2023 yet. Less than \$5 billion has been raised by infrastructure, natural resources, and other real assets funds so far this year.
- Performance by real assets funds has lagged the broader private capital market, according to our Private Capital Indexes. With the rise in commodity price inflation in 2022, though, natural resources funds are starting to catch up.
- However, commodity prices peaked early in 2022, which could signal a regression for the outperformance of real assets. At the same time, freight inflation as measured by the Producer Price Index has also started to regress.



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After lagging private infrastructure funds in 2018 and 2019, natural resources funds have been buoyed by inflation in commodities and are beginning to close the gap.

Select PitchBook US Private Capital Indexes performance (indexed to 100 in 2015)*



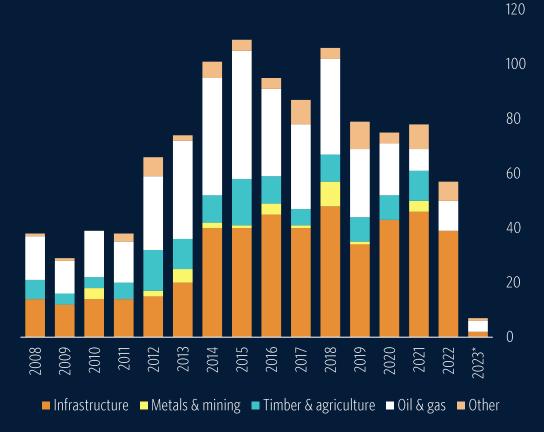


Infrastructure dominated fundraising in 2022, with commitments nearing an all-time high. However, 2023 has seen minuscule fundraising in closed-end vehicles through H1 2023.

Capital raised (\$B) by select strategies

Funds closed by select strategies







After peaking in mid-2022, commodity prices ticked steadily lower, offering a reprieve to inflation measures as CPI readings roll over in 2023.

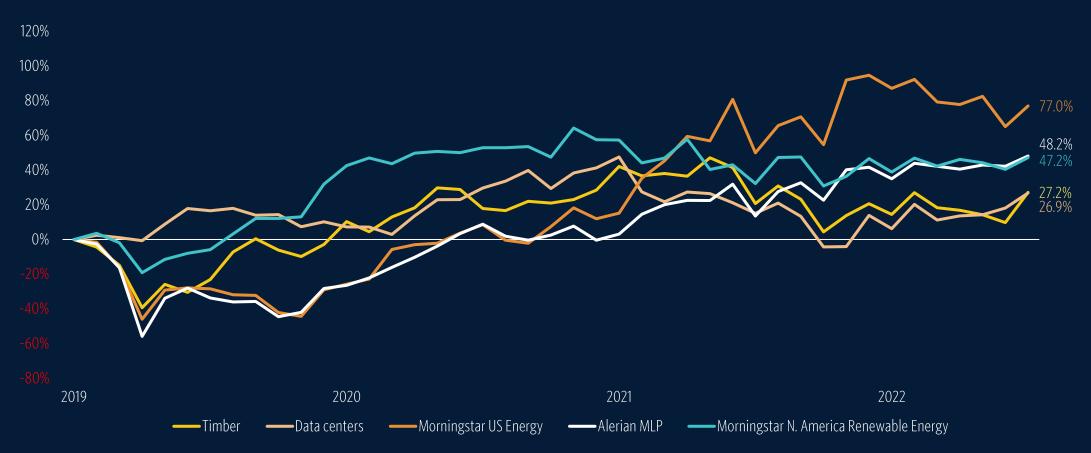
Select commodities price performance*





While commodity prices have reversed course since mid-2022, US energy stocks have given up some gains, though they still outpace other real assets equities.

Select real assets public equity total returns since 2019*





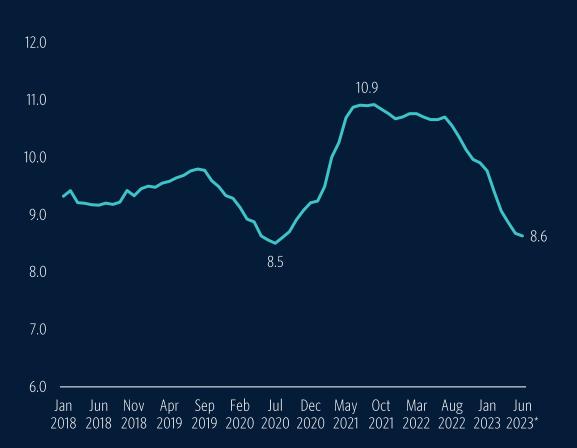
In transportation, freight components of the Producer Price Index saw sizable appreciation in 2022, but air and trucking are normalizing, while water and rail have remained elevated...

Producer Price Index change since 2019 for freight transportation components

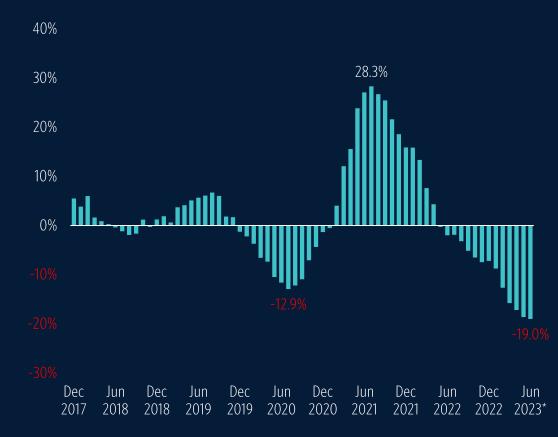


...however, container volumes as reported by the Port of Los Angeles have fallen considerably, signaling further price declines in supply chain logistics may be expected.

Port of Los Angeles 12-month container volume (millions TEUs)







48



Debt markets



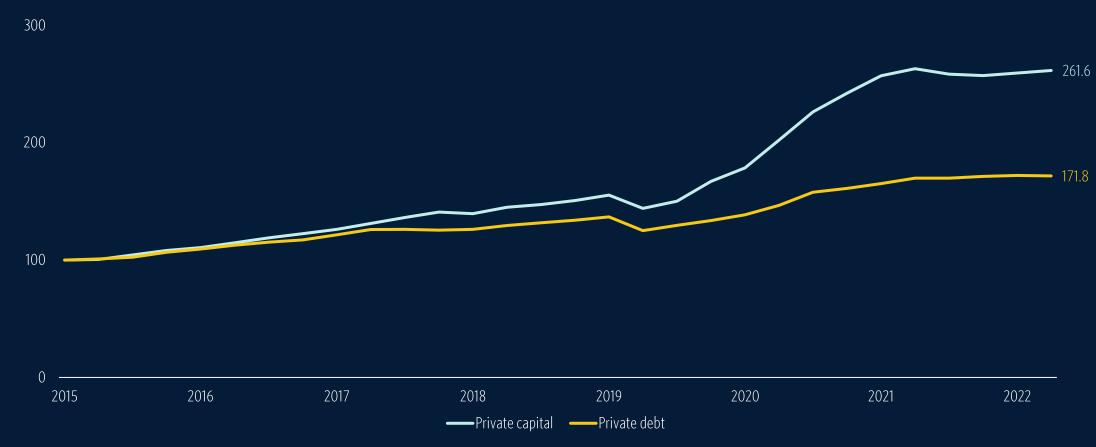
Key takeaways

- With the failure of several banks in 2023 and rising interest rates drawing in others willing to provide debt, private debt is prepared to jump into the breach.
- However, fundraising has been slow in 2023 thus far, but several funds targeting more than \$10 billion are in market. More and more evergreen strategies are taking share.
- New issuance of leveraged loans and high-yield bonds all but stopped in the back half of 2022. 2023 has seen a soft rebound.
- Notably, new-issue yields on private debt instruments broadly remain elevated, which has led to higher lending costs for institutional borrowers.



Private debt funds have lagged the broader private capital asset class since 2015, with 2021 being particularly favorable to PE and VC. Credit has maintained good, but not great, performance since.

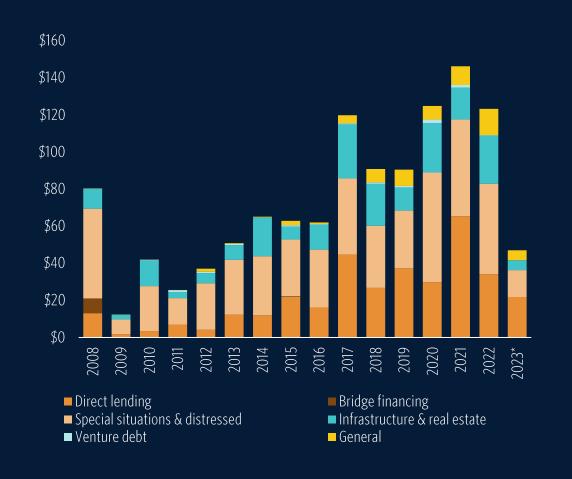
PitchBook US Private Debt Index performance (indexed to 100 in 2015)*

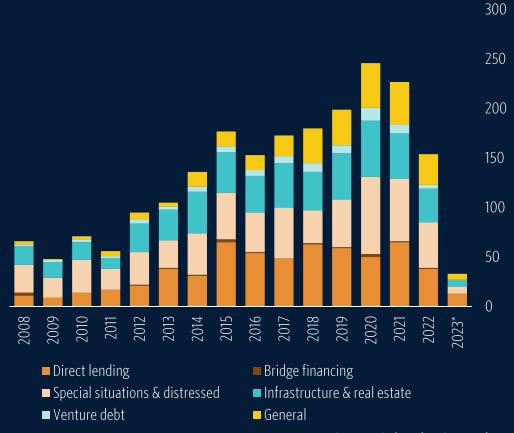


After three consecutive years with more than \$100 billion in fund closings, private debt is well off that pace for 2023. Much of the growth in private credit is likely coming from open-ended funds.

Capital raised (\$B) by select strategies

Funds closed by select strategies







The pullback in bank lending has led to an opening for private credit managers. The tightening credit conditions worsened following the Silicon Valley Bank collapse.

Net percentage of banks tightening standards on loans to small firms and medium-sized to large firms



Source: <u>Senior Loan Officer Survey</u> · Geography: US

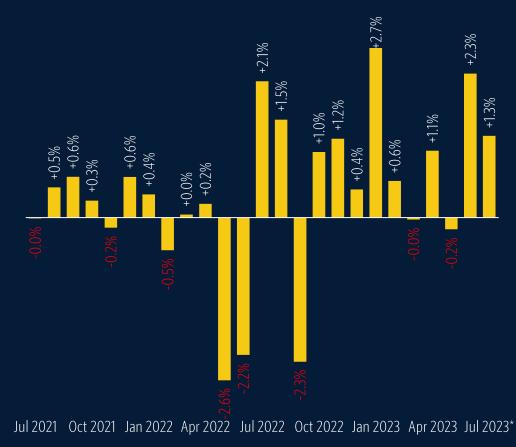


Leveraged loan markets have stabilized a bit with yields coming down from their recent peaks; however, new-issue volumes are well off the 2021 highs.

Leveraged loan volume (\$B) and yields



Weighted average bid of leveraged loans



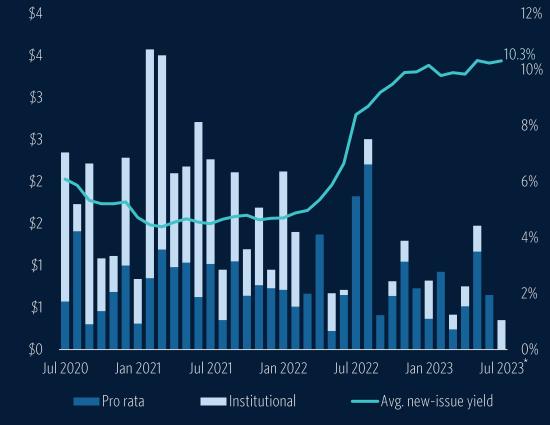
Source: PitchBook | LCD · Geography: US

Meanwhile, high-yield bond issuance has bounced back a bit in 2023, although July was a light month for new volumes. Middle-market new-issue yields are back to multiyear highs.

High-yield bond volumes and yields

Middle-market loan volumes and yields





Additional research

Market updates



2023 Global Fund Performance Report (as of Q4 2022 with preliminary Q1 2023 data)

Download the report <u>here</u>



2022 PitchBook Global Manager Performance Score League Tables

Download the report <u>here</u>



Q2 2023 Global M&A Report

Download the report here



Q2 2023 US PE Breakdown

Download the report <u>here</u>



2022 PitchBook Benchmarks (as of Q4 2022 with preliminary Q1 2023 data)

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Q2 2023 PitchBook-NVCA Venture Monitor

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