iCapital

Alternatives Decoded

Navigating the World of Alternative Investments

As of 4Q 2024

For Investment Professionals and Institutional Investors Only

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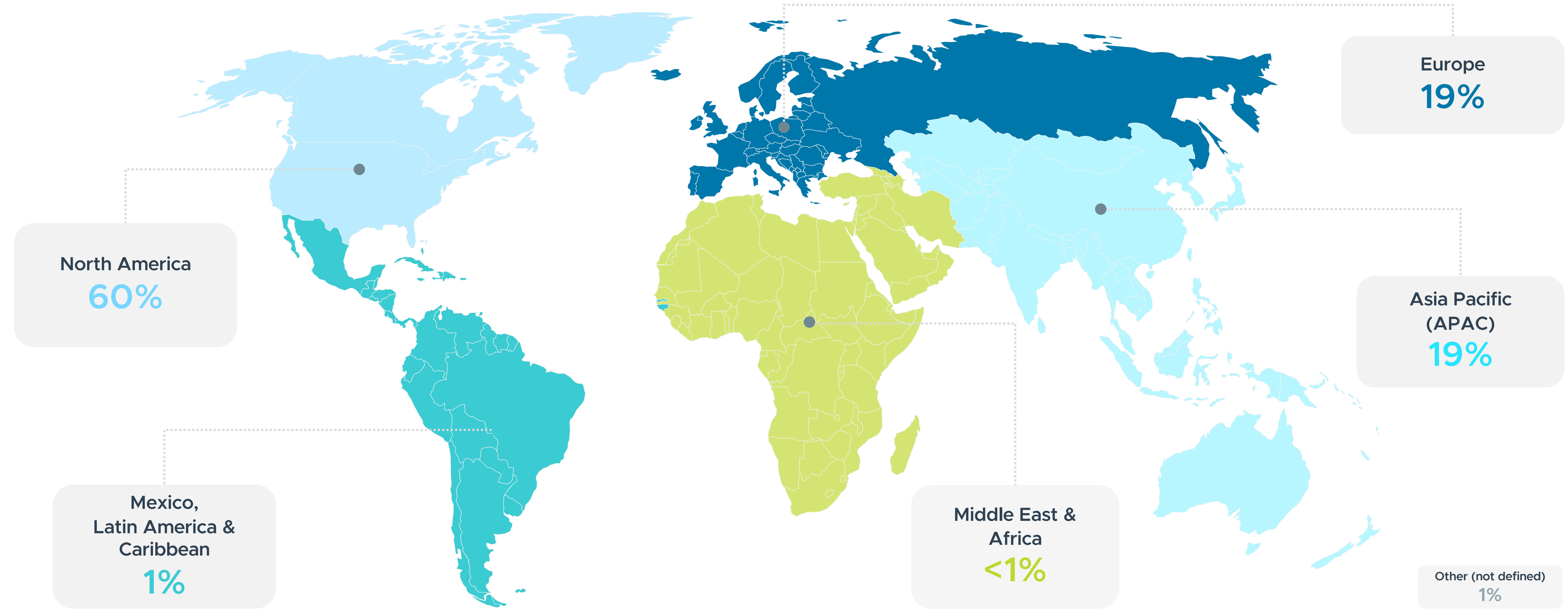
Alternatives Decoded

Overview

Alternatives hold $16.7 trillion in assets under management globally across strategies

Global Alternatives assets under management (AUM)

Share of private capital and hedge fund AUM based on primary region of focus (%, as of March 2024)

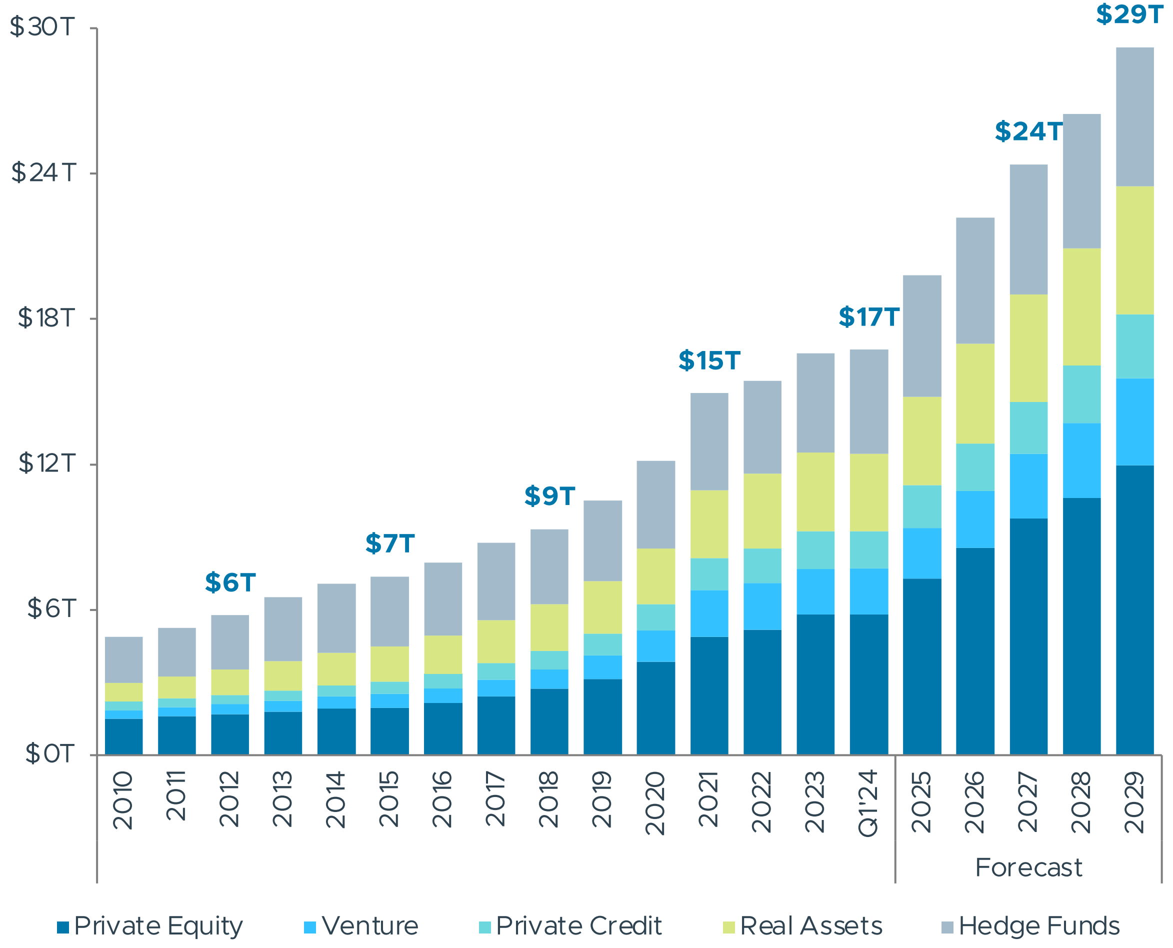


Source: Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Global Alternatives AUM includes all private market and hedge fund AUM broken down by primary region of focus as defined by Preqin. Private market AUM data is as of March 2024. Hedge fund AUM data is as of December 2023. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Alternatives have grown significantly and are projected to grow further in years ahead

Global Assets Under Management (AUM)

Cumulative AUM by asset class, 2010 – 2029E ($ trillion, as of March 2024)



Expected growth rates in alternatives sub-asset classes

Current and estimated global AUM by asset class ($ trillion, as of March 2024)

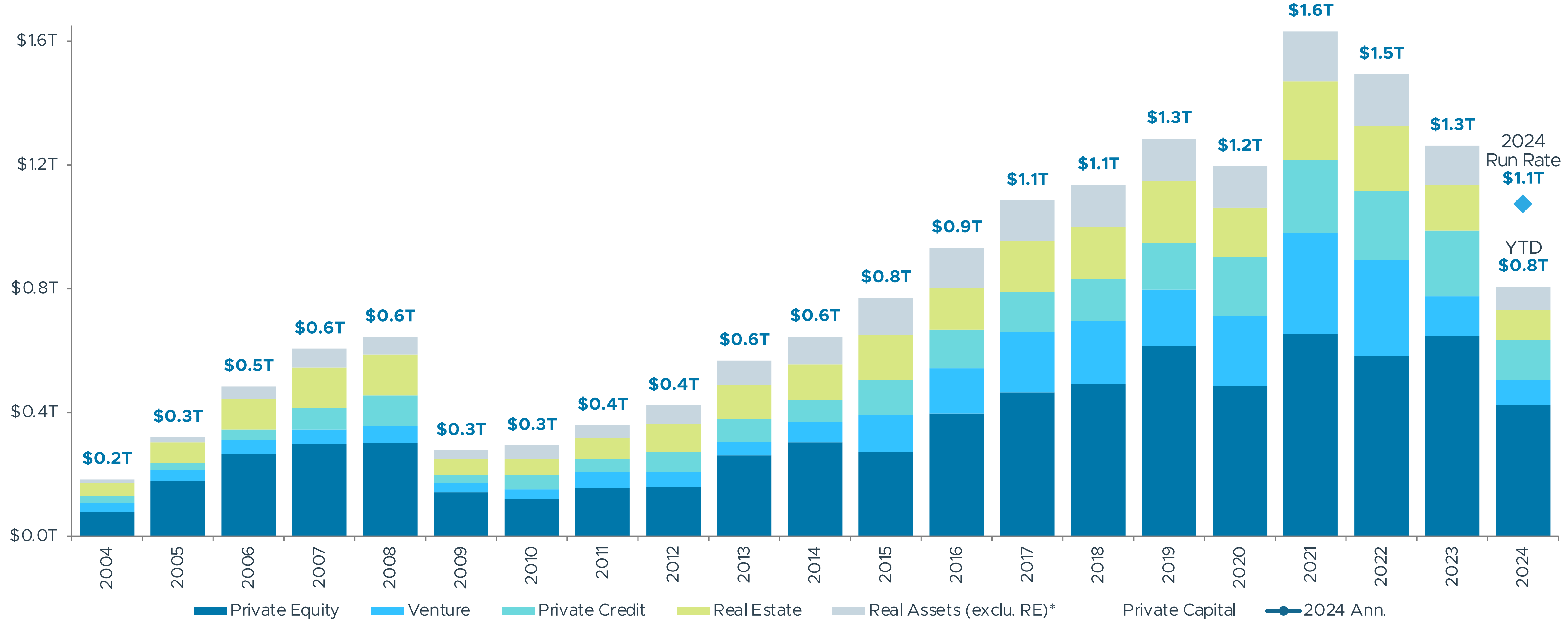
		Q1'24 (Actual)	2029 (Est)	Forecasted Growth CAGR	
Private Equity	Buyout	$3.9T	$8.3T	13.9%	13.4%
	Growth	$1.2T	$2.2T	11.6%	
	Other	$0.7T	$1.4T	13.1%	
Venture Capital		$1.9T	$3.6T	11.7%	
Private Credit	Direct Lending	$0.8T	$1.3T	9.5%	9.9%
	Distressed Debt	$0.3T	$0.5T	10.7%	
	Other	$0.5T	$0.8T	10.1%	
Real Assets	Real Estate	$1.6T	$2.7T	8.8%	9.2%
	Infrastructure	$1.3T	$2.3T	10.8%	
	Natural Resources	$0.2T	$0.3T	2.8%	
Hedge Funds*		$4.3T	$5.7T	5.1%	
Total AUM		$16.7T	$29.2T	10.2%	

Source: (left and right) Hedge Fund Research (HFR), Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Historical AUM is through March 2024 and forecasted AUM is through December 2029. Data is subject to change based on updates to the source(s) database. Both historical and forecasted AUM exclude RMB-denominated funds for data accuracy, as well as fund of funds and secondaries to prevent double counting of available capital and unrealized value. Historical AUM for private equity, venture, private credit, and real assets is sourced from Preqin, while hedge fund data is from HFR. Forecasted AUM for all strategies, including Hedge Funds, is sourced from Preqin and is based on their Future of Alternatives report, which models projected AUM using various variables. AUM figures include all private capital asset classes broken down by primary strategy as defined by Preqin. Natural Resources AUM is limited to pure-play natural resource-type funds only, with more traditional/old-school natural resource-type funds, such as Oil & Gas, categorized under Private Equity as defined by Preqin. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Alternatives fundraising activity is stabilizing and increasing in certain asset classes

Global private capital fundraising activity

Annual aggregate capital raised by asset class ($ trillion, as of September 2024)

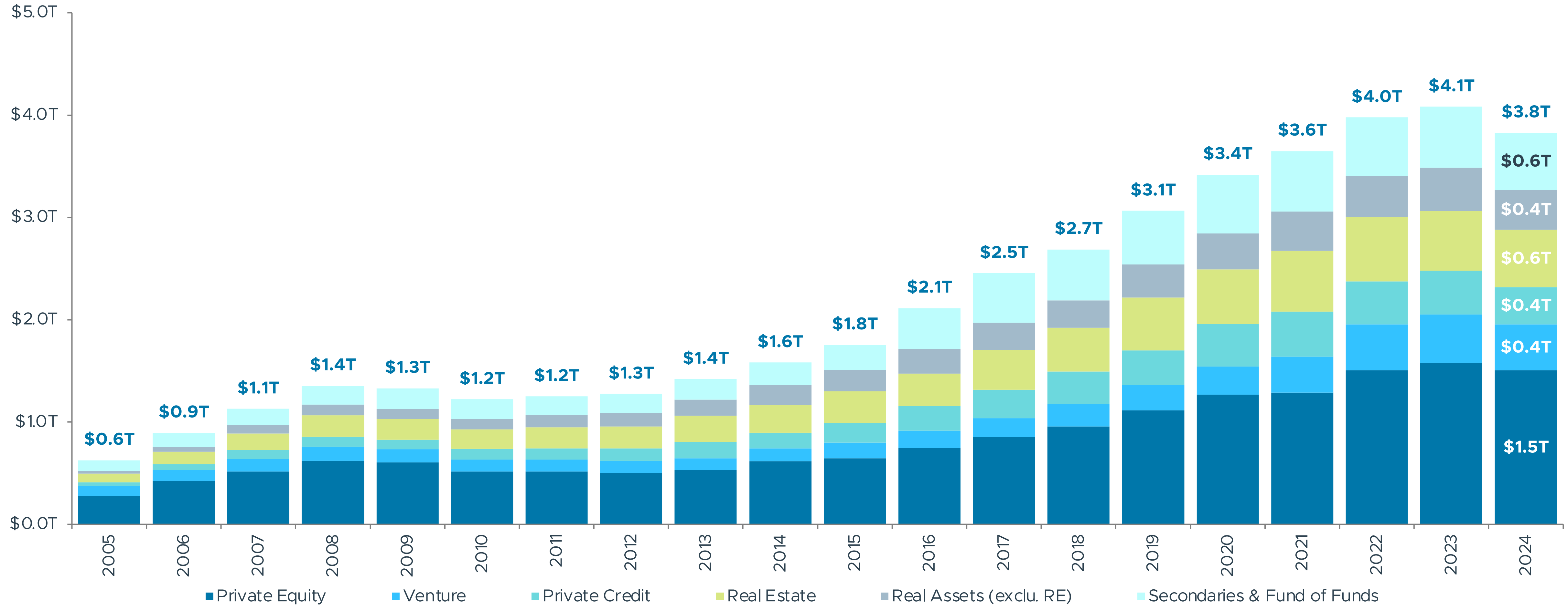


Source: Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is year-to-date through September 2024 as of Oct. 14, 2024. Data is subject to change based on potential updates to source(s) database. Prior four quarters' fundraising levels are extremely likely to be revised higher/lower as data is updated in the source database and/or funds get re-classified per Preqin. Fundraising activity shown is for all private capital asset classes as defined by Preqin. Real Assets includes Infrastructure and Natural Resources-type funds. Natural Resources is based on pure-play natural resource-type funds only, with more traditional/old-school natural resource-type funds, such as Oil & Gas, categorized under Private Equity as defined by Preqin. To avoid double counting of capital raised, fund of funds and secondaries are excluded where applicable. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Dry powder has declined to $3.8 trillion as committed capital begins to get deployed globally

Global private capital dry powder

Cumulative dry powder by asset class ($ trillion, as of March 2024)

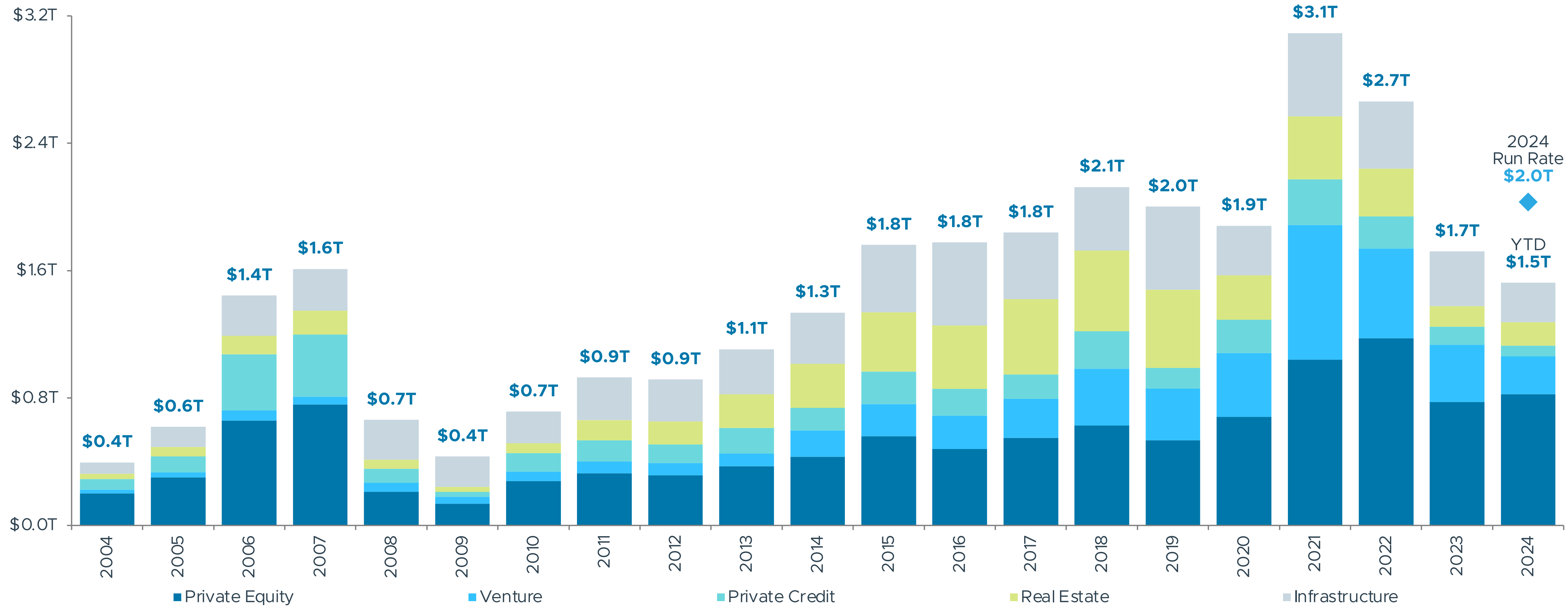


Source: Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through March 2024 and is subject to change based on potential updates to source(s) database. Dry powder refers to committed but uninvested capital. Dry powder shown is for all private capital asset classes as defined by Preqin. In this analysis, Real Assets includes Infrastructure and Natural Resources but excludes Real Estate. Within Real Assets, Natural Resources is based on pure-play natural resource-type funds only, with more traditional/old-school natural resource-type funds, such as Oil & Gas, categorized under Private Equity as defined by Preqin. Secondaries and Fund of Funds includes all available secondaries and fund of funds categories as defined by Preqin. RMB-denominated funds are excluded for greater data accuracy. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Deal momentum is rebounding to more normalized levels as GPs put dry powder to work

Global private capital deal activity

Aggregate deal value by asset class ($ trillion, as of September 2024)



Source: Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is year-to-date through September 2024 as of Oct. 14, 2024. Data is subject to change based on potential updates to source(s) database. Prior four quarters' deal activity levels are extremely likely to be revised higher/lower as data is updated in the source database and/or funds get re-classified per Preqin. Deal activity shown is based on the aggregate deal value for Private Equity (Buyout), Venture Capital, Private Debt, Real Estate, and Infrastructure, as defined by Preqin. Due to the size of the dataset, there may be a select few instances of duplicative transactions across asset classes; however, the figure should be insignificant and not impact the overall figures. To limit duplication, Preqin has distinctions made between what they classify as an RE Deal/Asset and a PE Deal/Asset. Real Estate would be a property or properties portfolio/property management, while Private Equity/Venture Capital/Private Debt would be an actual company with a business that goes beyond the objective of property management. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed

Alternatives offered strong outperformance vs. traditional 60/40 portfolio over time

Alternative asset class historical returns

Annual and time-period returns ranked in order of performance (%, as of June 2024)

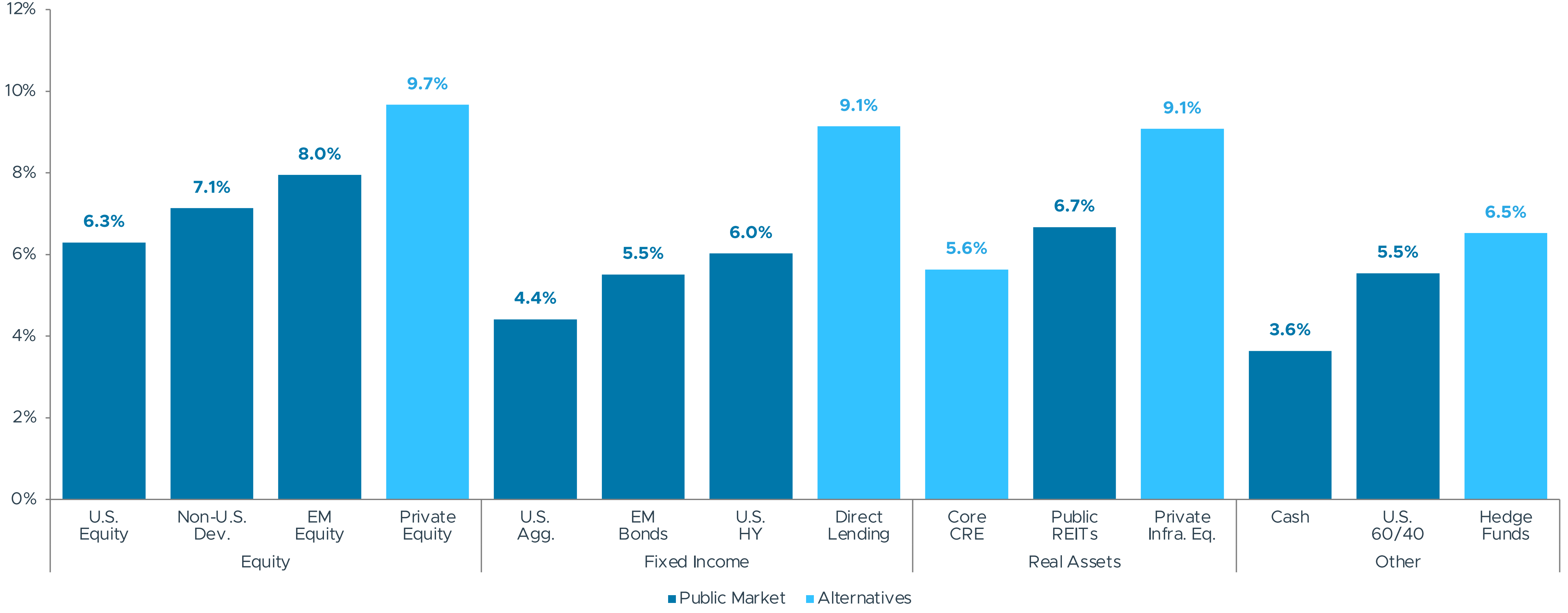
Annual Return (%)										Time-Period Return (%, per annum)			
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 YTD	3YR	5YR	10YR	15YR
15.0% Core CRE	14.1% Buyout	21.6% Buyout	13.9% Venture	18.7% Global 60/40	38.3% Venture	49.5% Secondaries	15.9% Infrastructure	15.6% Global 60/40	5.7% Direct Lending	12.6% Infrastructure	15.4% Buyout	14.3% Buyout	15.1% Buyout
11.3% Growth	11.2% Direct Lending	20.7% Growth	12.2% Growth	17.1% Growth	34.5% Growth	48.5% Venture	7.5% Core CRE	12.1% Direct Lending	5.5% Global 60/40	9.9% Secondaries	14.9% Growth	14.1% Growth	14.2% Growth
11.0% Buyout	8.8% Growth	17.3% Global 60/40	11.0% Secondaries	16.8% Venture	25.0% Buyout	36.5% Buyout	6.3% Direct Lending	10.5% Buyout	5.1% Hedge Funds	9.8% Direct Lending	14.9% Secondaries	11.6% Secondaries	12.5% Secondaries
10.5% Infrastructure	8.8% Core CRE	16.0% Secondaries	10.0% Infrastructure	15.3% Buyout	13.4% Global 60/40	33.8% Growth	4.2% Secondaries	8.1% Hedge Funds	4.6% Growth	7.7% Buyout	11.5% Infrastructure	10.8% Venture	11.2% Venture
8.8% Venture	8.6% Infrastructure	12.3% Venture	9.4% Buyout	11.7% Secondaries	11.8% Hedge Funds	22.2% Core CRE	1.5% Cash	7.8% Infrastructure	3.7% Infrastructure	3.2% Growth	10.9% Venture	10.5% Infrastructure	10.6% Infrastructure
6.5% Secondaries	5.6% Global 60/40	10.1% Infrastructure	8.3% Core CRE	10.6% Infrastructure	11.7% Secondaries	19.8% Infrastructure	-0.5% Buyout	7.1% Growth	2.8% Cash	3.2% Cash	9.2% Direct Lending	8.8% Direct Lending	10.3% Direct Lending
5.5% Direct Lending	5.4% Hedge Funds	8.6% Direct Lending	8.1% Direct Lending	10.4% Hedge Funds	5.5% Direct Lending	12.8% Direct Lending	-4.1% Hedge Funds	5.3% Cash	2.2% Secondaries	2.9% Hedge Funds	6.7% Hedge Funds	6.4% Core CRE	7.6% Core CRE
0.0% Cash	0.6% Secondaries	8.6% Hedge Funds	1.9% Cash	9.0% Direct Lending	4.7% Infrastructure	10.2% Hedge Funds	-6.7% Growth	5.1% Secondaries	1.9% Buyout	1.9% Core CRE	5.6% Global 60/40	4.9% Global 60/40	6.7% Global 60/40
-1.1% Hedge Funds	0.3% Cash	7.6% Core CRE	-4.7% Hedge Funds	5.3% Core CRE	1.2% Core CRE	9.2% Global 60/40	-17.5% Global 60/40	-4.9% Venture	1.1% Venture	1.1% Global 60/40	3.1% Core CRE	4.8% Hedge Funds	5.3% Hedge Funds
-2.7% Global 60/40	-0.6% Venture	0.8% Cash	-6.1% Global 60/40	2.3% Cash	0.6% Cash	0.0% Cash	-20.1% Venture	-12.1% Core CRE	-2.8% Core CRE	-4.7% Venture	2.2% Cash	1.5% Cash	1.0% Cash

Source: Bloomberg Index Services Limited, Cliffwater Direct Lending Index, FTSE Russell, Hedge Fund Research (HFR), MSCI, NCREIF, Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. Buyout proxied by Preqin Private Equity Buyout Index. Growth proxied by Preqin Growth Equity Index. Venture proxied by Preqin Venture Capital Index. Secondaries proxied by Preqin Secondaries Index. Infrastructure proxied by Preqin Infrastructure Index. Direct Lending proxied by Cliffwater Direct Lending Index. Real Estate proxied by NCREIF Open End Diversified Core Equity (NFI-ODCE) Index. Hedge Funds proxied by Hedge Fund Research HFRI Fund Weighted Composite Index. Global 60/40 proxied by 60% MSCI ACWI Total Return Index and 40% Bloomberg Global Aggregate Index. Cash proxied by the FTSE 3 Month US T Bill Index, which is intended to track the daily performance of 3-month US Treasury bill, a measure we consider a proxy for cash returns. It is important to note that the returns listed are based on indices that are meant to estimate the asset class performance, hypothetically creating a return if one had access to all active funds. Not all the above indices are practically investable and are subject to change as datasets are continually updated. All returns are calculated in U.S. dollars. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed..

Over the next decade, alternatives are projected to outperform their public counterparts

Capital market returns for public and private markets asset classes

Average 2024 long-term capital market assumptions (LTCMA) expressed as expected compound returns over next 10 years, net of fees where applicable (%)

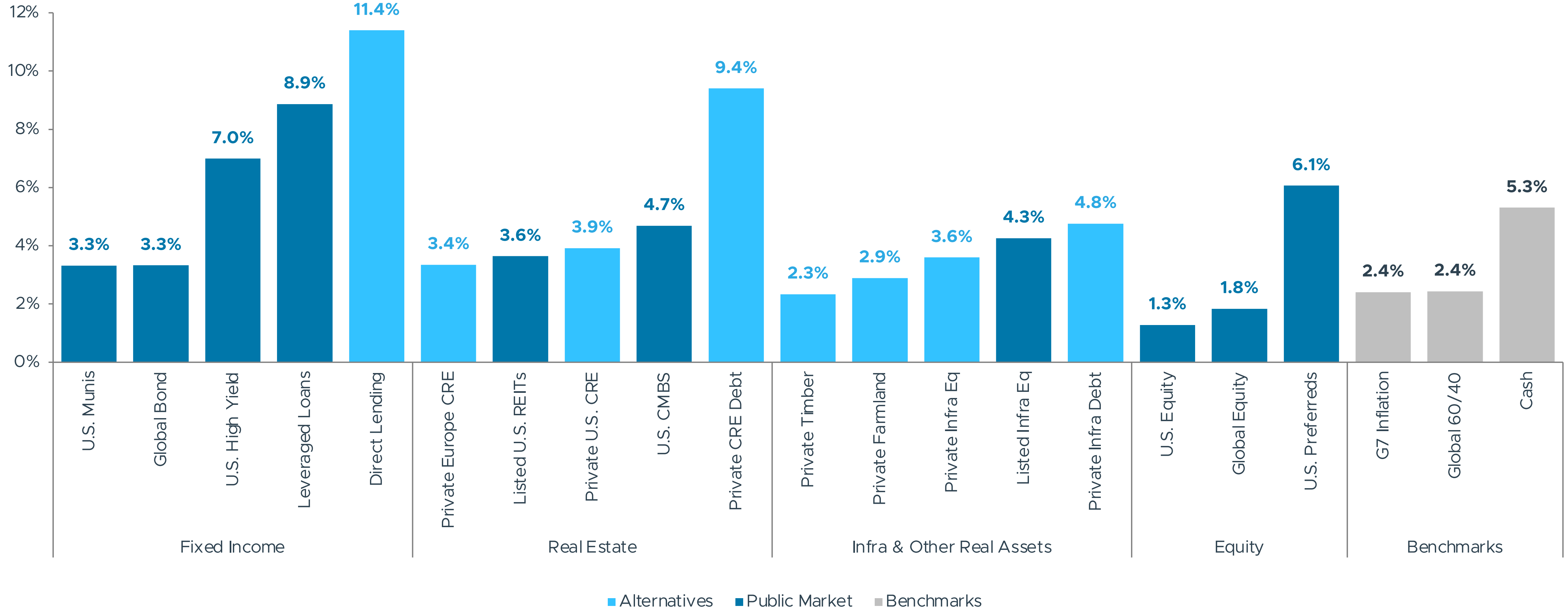


Source: BlackRock, Cliffwater, Envestnet, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Analysis is based on the average long-term capital market assumption for each strategy, using 2024 long-term capital market assumptions from BlackRock, Cliffwater, and Envestnet. For the selected sub-asset classes and strategies, returns are expressed as compound returns over a 10-year outlook period, net of applicable fees. Data is subject to change based on potential updates to source(s) database. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Several private market strategies offer higher yields than those available in public markets

Public and private markets cross-asset class yields

Yields (%, as of September 2024)



Source: Bloomberg Index Services Limited, Federal Reserve, FTSE Russell, INREV, Lincoln International, MSCI, Morningstar, NCREIF, OECD, S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Public market yields are as of September 2024. Alternative yields are as of June 2024 with an exception to Private Infrastructure Equity, which is as of March 2024, and Private Infrastructure Debt ,which is as of September 2024. Data is subject to change based on potential updates to source(s) database. Indices used to derive yield data: Direct Lending via Lincoln Senior Debt (Direct Lending) Index, Private U.S. CRE via NCREIF Open End NFI-ODCE Index, Private Europe CRE via INREV European ODCE Index, Private CRE Debt via NCREIF/CREFC Open-end Debt Fund Aggregate Index, Private Infra Equity via MSCI Global Private Infrastructure Asset Index, Private Infra Debt via EDHCinfra300 Debt Index, Private Timber via NCREIF Timberland Property Index, Private Farmland via NCREIF Farmland Property Index, Leveraged Loans via Morningstar LSTA US Leveraged Loan 100 Index, Listed U.S. REITs via FTSE NAREIT Equity REITs Index, Listed Infra Equity via DJ Brookfield Global Infrastructure Composite Index, Global Equity via MSCI ACWI Net Total Return USD Index, Global Bond via Bloomberg Global Aggregate Index, U.S. High Yield via Bloomberg US Corporate High Yield Index, U.S. Preferreds via iShares Preferred and Income Securities ETF, U.S. CMBS via Bloomberg CMBS Investment Grade Index, U.S. Munis via Bloomberg Municipal Bond Index, Cash via US 90 Day Average SOFR Secured Overnight Financing Rate, G7 Inflation via OECD Major 7 CPI Inflation Rate YoY Index. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Alternatives can be a powerful diversifier due to their low correlation to public markets

Alternative asset class correlations

Public and private market correlation matrix based on trailing 15 years of quarterly data (as of June 2024)

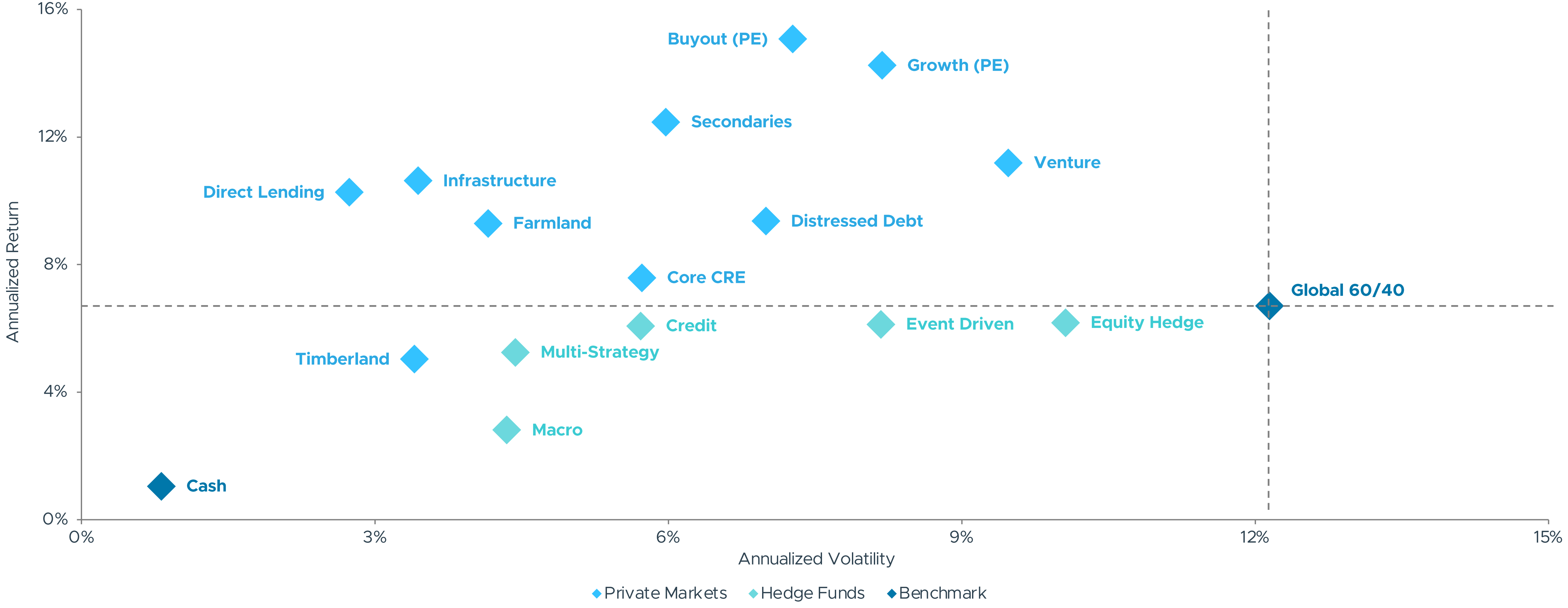
		Private Equity			Private Credit		Real Assets			Hedge Funds				Public Markets			
		Buyout	Growth	Venture	Direct Lending	Distressed	Real Estate	Infra-structure	Natural Resources	Macro	Multi-Strategy	Event Driven	Equity Hedge	Global Equity	Global Bonds	Global 60/40	Cash
Private Equity	Buyout	1.00															
	Growth	0.87	1.00														
	Venture	0.73	0.80	1.00													
Private Credit	Direct Lending	0.10	0.02	0.13	1.00												
	Distressed	0.72	0.63	0.44	0.12	1.00											
Real Assets	Real Estate	-0.03	-0.08	0.16	0.15	-0.18	1.00										
	Infrastructure	0.34	0.24	0.24	0.18	0.32	0.20	1.00									
	Natural Resources	0.43	0.40	0.18	0.16	0.59	0.19	0.46	1.00								
Hedge Funds	Macro	0.21	0.33	0.26	0.01	0.30	0.06	0.07	0.40	1.00							
	Multi-Strategy	0.70	0.76	0.47	0.07	0.84	-0.30	0.10	0.49	0.41	1.00						
	Event Driven	0.83	0.79	0.56	0.00	0.83	-0.30	0.23	0.50	0.31	0.91	1.00					
	Equity Hedge	0.82	0.80	0.60	-0.07	0.74	-0.30	0.17	0.39	0.33	0.85	0.95	1.00				
Public Markets	Global Equity	0.77	0.72	0.48	-0.10	0.72	-0.33	0.11	0.35	0.27	0.81	0.89	0.95	1.00			
	Global Bonds	0.30	0.21	0.15	-0.05	0.19	-0.31	-0.14	-0.23	-0.13	0.27	0.28	0.34	0.46	1.00		
	Global 60/40	0.74	0.67	0.45	-0.10	0.67	-0.36	0.06	0.25	0.20	0.77	0.84	0.91	0.98	0.64	1.00	
	Cash	-0.24	-0.20	-0.32	-0.05	-0.18	-0.62	-0.16	-0.15	-0.02	-0.09	-0.04	0.02	0.06	0.04	0.06	1.00

Source: Bloomberg Index Services Limited, Cliffwater Direct Lending Index, FTSE Russell, Hedge Fund Research (HFR), MSCI, NCREIF, Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. Buyout proxied by Preqin Private Equity Buyout Index. Growth proxied by Preqin Growth Equity Index. Venture proxied by Preqin Venture Capital Index. Direct Lending proxied by Cliffwater Direct Lending Index. Distressed proxied by Preqin Distressed Private Debt Index. Real Estate proxied by NCREIF NFI-ODCE Index. Infrastructure proxied by Preqin Infrastructure Index. Natural Resources proxied by Preqin Natural Resources Index. Macro HFs proxied by HFRI Macro Total Index. Multi Strat HFs proxied by HFRI RV: Multi-Strategy Index. Event Driven HFs proxied by HFRI Event-Driven Total Index. Equity Hedge HFs proxied by HFRI Equity Hedge Total Index. Global Equity proxied by MSCI ACWI Net Total Return USD Index. Global Bonds proxied by Bloomberg Global Aggregate Index. Global 60/40 proxied by 60% MSCI ACWI Net Total Return USD Index and 40% Bloomberg Global Aggregate Index. Cash proxied by the FTSE 3 Month US T Bill Index, which is intended to track the daily performance of 3-month US Treasury bill, a measure we consider a proxy for cash returns. Correlations listed above are based on indices that are meant to estimate the asset class performance, hypothetically creating an index/return if one had access to all active funds. Not all the above indices are practically investable and are subject to change as datasets are continually updated. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Alternatives offer higher returns and lower volatility vs. a traditional 60/40 portfolio

Alternatives risk/return profile vs. traditional assets

Annualized volatility and returns based on trailing 15 years of quarterly data (%, as of June 2024)

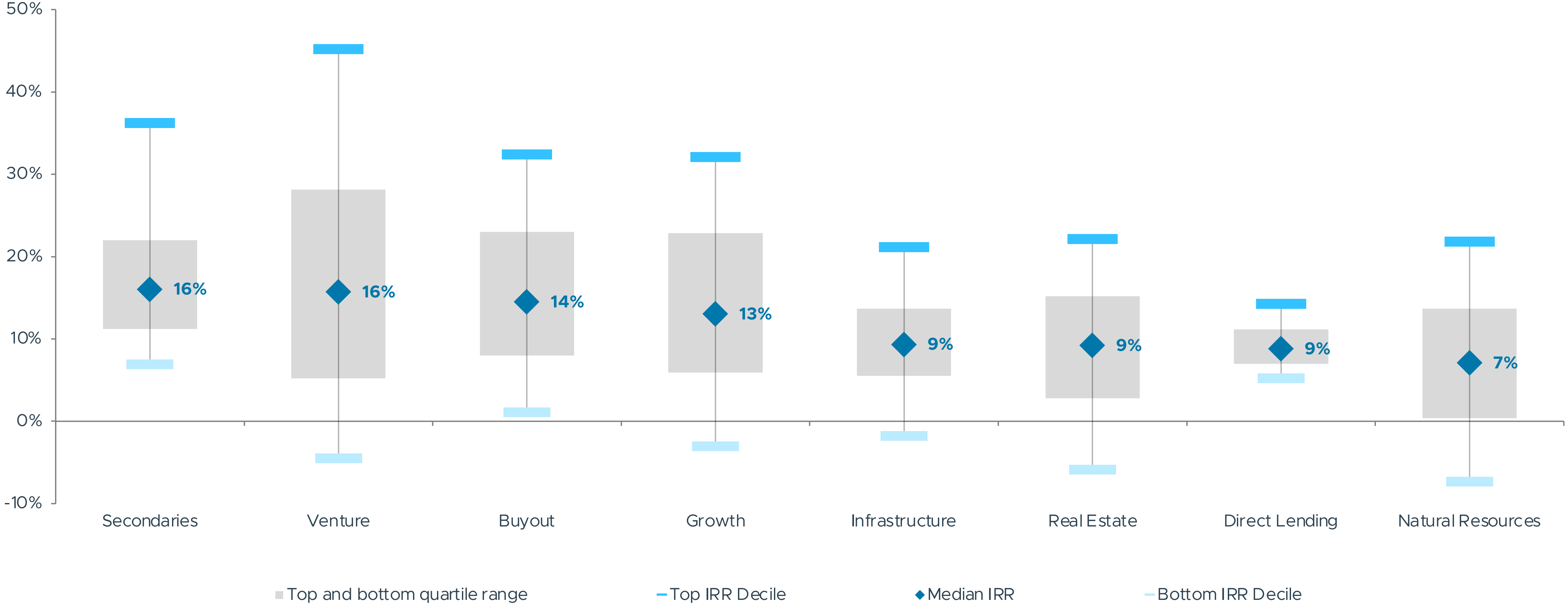


Source: Bloomberg Index Services Limited, Cliffwater Direct Lending Index, FTSE Russell, Hedge Fund Research (HFR), MSCI, NCREIF, Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. Return and volatility is annualized and is based on quarterly data. Buyout proxied by Preqin Private Equity Buyout Index. Growth proxied by Preqin Growth Equity Index. Venture proxied by Preqin Venture Capital Index. Secondaries proxied by Preqin Secondaries Index. Direct Lending proxied by Cliffwater Direct Lending Index. Distressed proxied by Preqin Distressed Private Debt Index. Real Estate proxied by NCREIF NFI-ODCE Index. Infrastructure proxied by Preqin Infrastructure Index. Private Timber proxied by NCREIF Timberland Property Index. Private Farmland proxied by NCREIF Farmland Property Index. Macro HFs proxied by HFRI Macro Total Index. Multi Strat HFs proxied by HFRI RV: Multi-Strategy Index. Event Driven HFs proxied by HFRI Event-Driven Total Index. Equity Hedge HFs proxied by HFRI Equity Hedge Total Index. Global 60/40 proxied by 60% MSCI ACWI Net Total Return USD Index and 40% Bloomberg Global Aggregate Index. Cash proxied by the FTSE 3 Month US T Bill Index. Annualized risk and returns above are based on indices that are meant to estimate the asset class performance, hypothetically creating a return if one had access to all active funds. Not all the above indices are practically investable. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Manager selection has been an important driver of return outcomes in alternatives

Manager performance dispersion across alternatives strategies

Net IRR dispersion by asset class based on 2006-2021 vintages, global (%, as of June 2024)

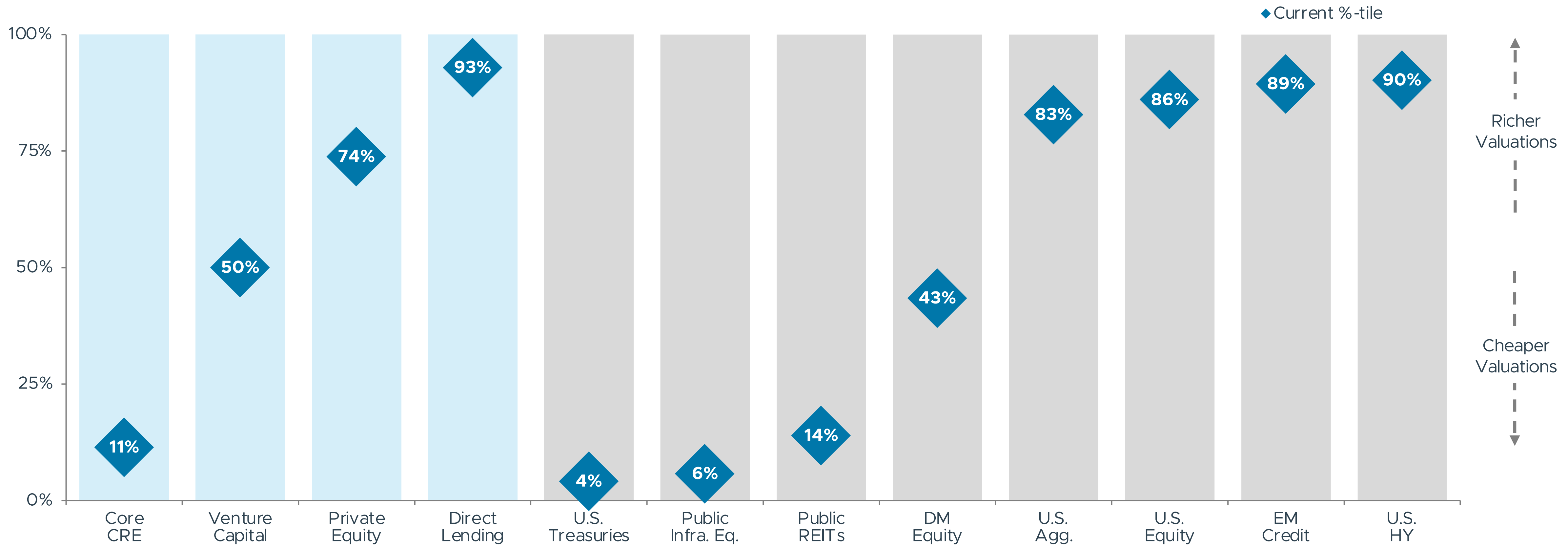


Source: PitchBook | LCD, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. Analysis shows the net IRR of all global funds with vintages between 2006 and 2021 and is broken out by strategy as defined by PitchBook. Private markets typically have a longer time horizon, and returns are realized over several years. Therefore, the 2022-2023 vintages are excluded since the investments may still be in their early stages, and the full impact on returns might not have been realized yet. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Several private market strategies are inexpensive relative to public markets and history

Relative valuations across traditional and alternative asset classes

Rolling 10-year percentile rank of current valuation metrics across asset classes (%, as of June 2024)



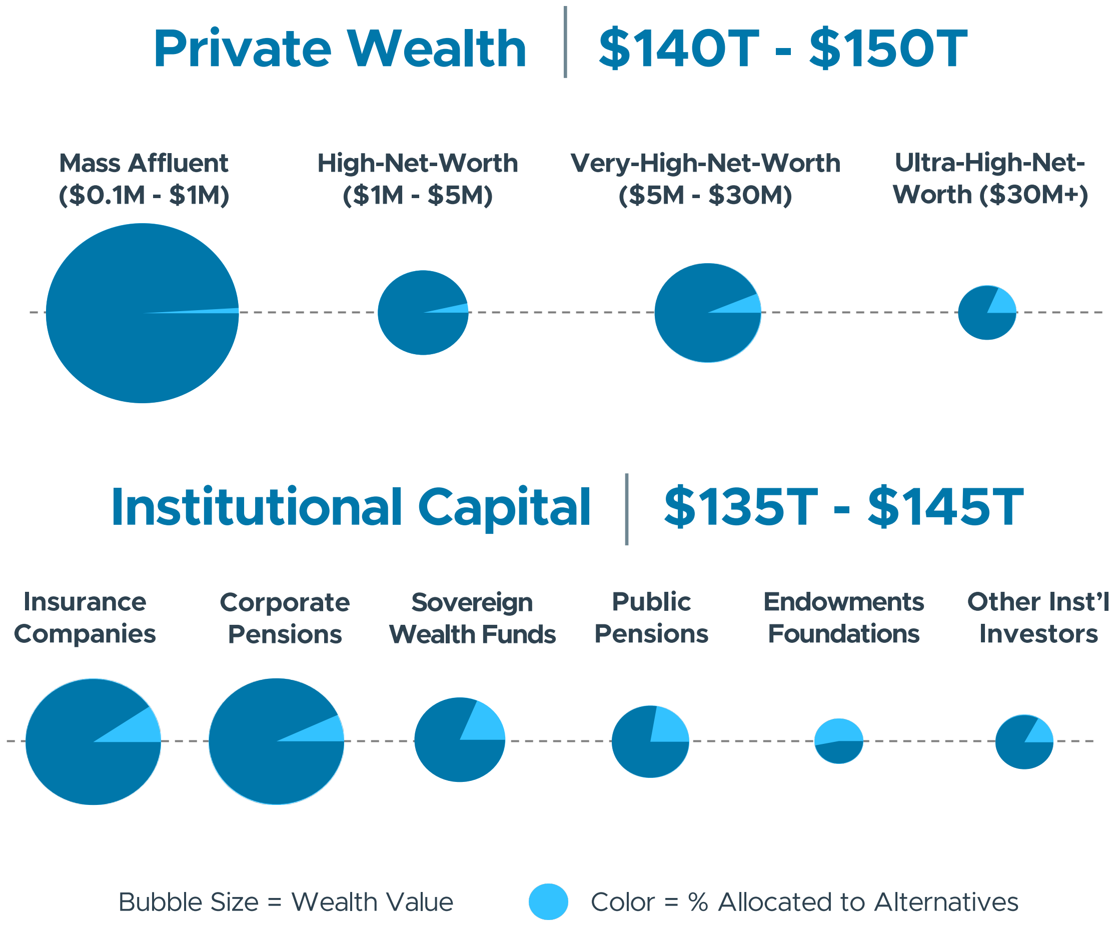
Metric:	Cap Rate Spread	VC IPO Index P/S	EV to EBITDA	Yield Spread	Yield-to-Worst	NTM EV/EBITDA	NTM P/FFO	NTM P/E	OAS Spread	NTM P/E	OAS Spread	OAS Spread

Source: Bloomberg Index Services Limited, Cliffwater Direct Lending Index, Federal Reserve, FTSE Russell, MSCI, Morningstar, NCREIF, PitchBook | LCD, S&P Dow Jones, U.S. Department of the Treasury, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. Data used to compute percentiles is based on a quarterly or monthly data. Private Equity measured using a rolling four-quarter median North America and Europe Buyout EV/EBITDA multiple. Venture Capital measured using the trailing price-to-sales ratio on the PitchBook VC-Backed IPO Index (excluding Pharma and Biotech). Direct Lending measured using the spread between quarterly income return on the Cliffwater Direct Lending Index and 3-month SOFR. Private Real Estate measured using the spread between transaction-based cap rates and UST 10yr yield. U.S. Equity measured using the blended forward price-to-earnings ratio on the S&P 500 Index. Non-U.S. Developed Market Equity measured using the blended forward price-to-earnings ratio on the MSCI EAFE Index. U.S. Treasuries measured using the yield-to-worst on the Bloomberg U.S. Treasury Index. U.S. Aggregate measured using the option-adjusted spread (OAS) on the Bloomberg U.S. Aggregate Index. U.S. High Yield measured using the OAS spread on the Bloomberg U.S. Corp. High Yield Index. EM Credit measured using the OAS spread on the Bloomberg EM USD Aggregate Index. Public REITs measured using the blended forward price-to-FFO (Funds From Operations) ratio on the FTSE NAREIT Equity REITs Index. Public Infrastructure measured using the blended forward EV/EBITDA ratio on the Dow Jones Brookfield Global Infrastructure Composite Index. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private clients to increase alternatives allocation from $4 trillion to $13 trillion by 2032

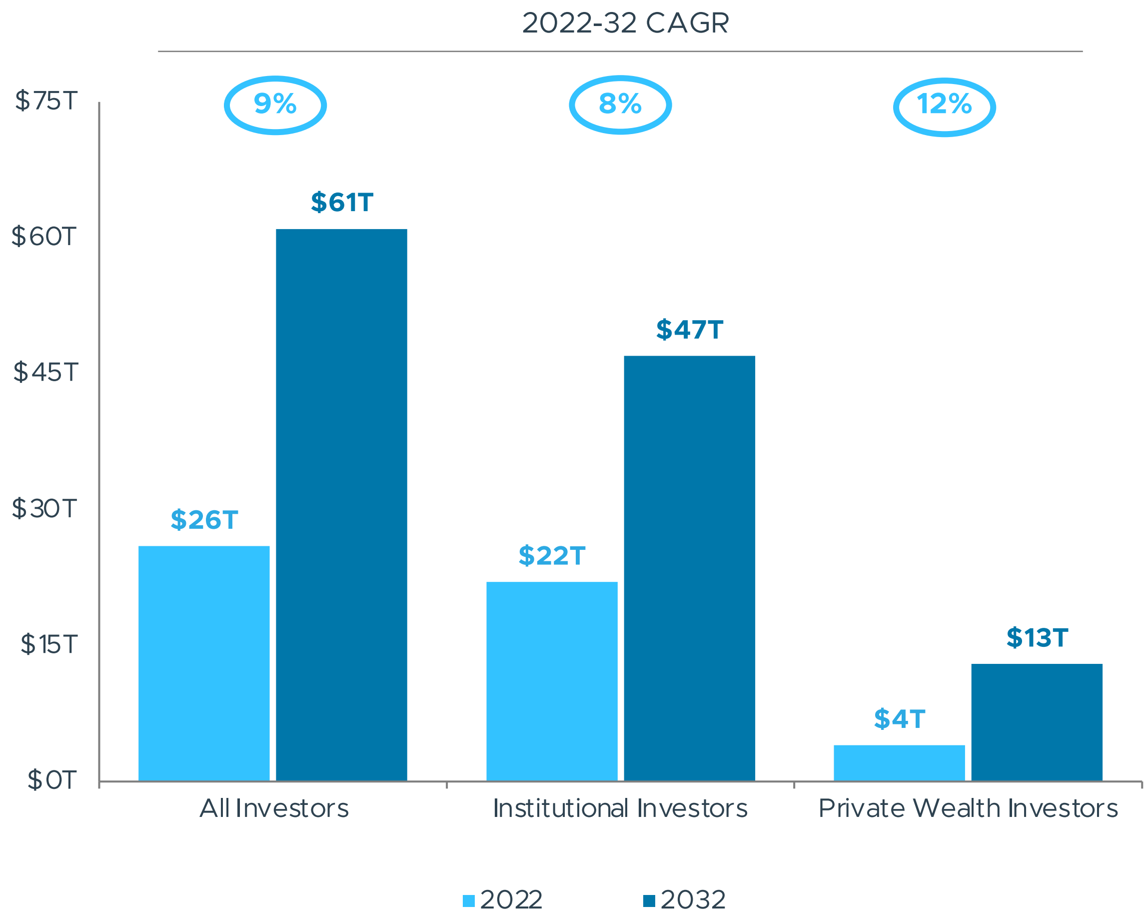
Private clients globally control approx. same wealth as institutions

Global wealth and allocation by investor type ($ trillion)



Private clients are expected to sizably increase their allocation to alts

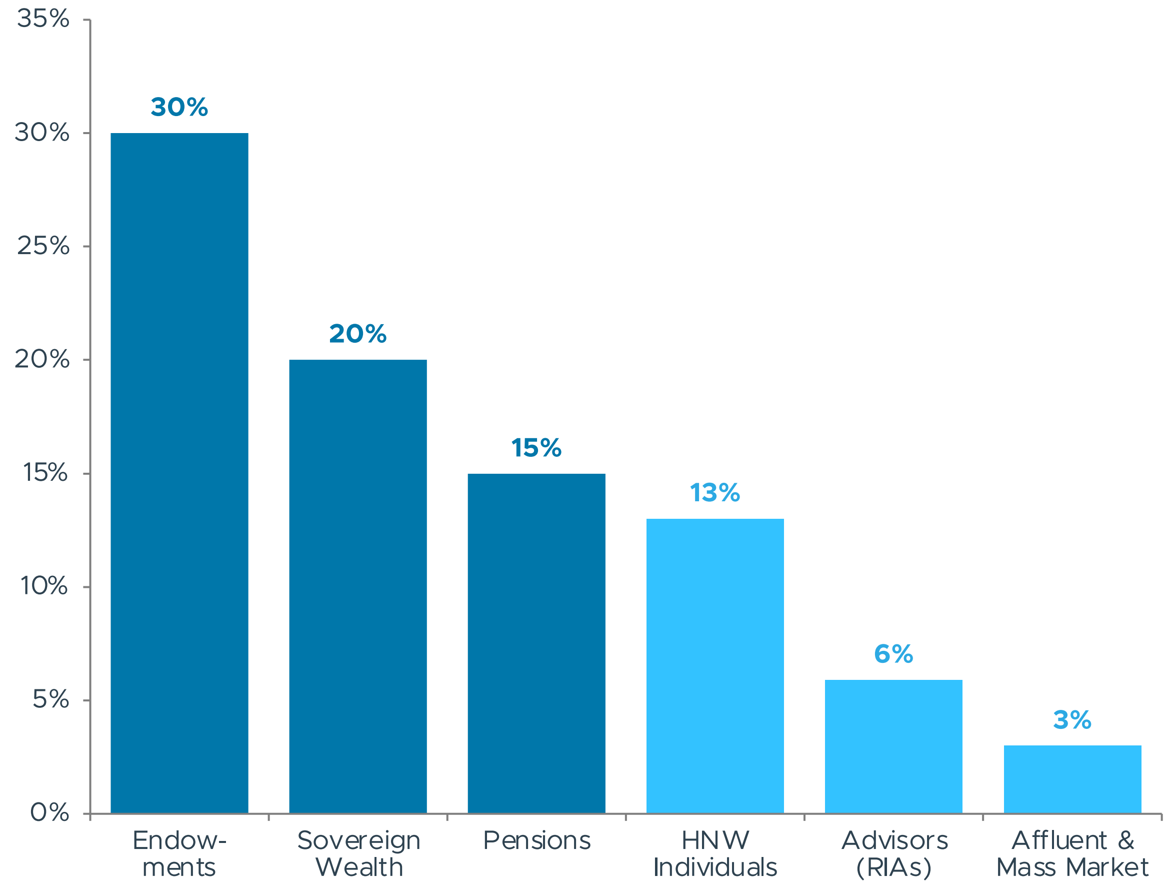
Estimated global alternatives AUM by investor type ($ trillion)



Opportunity to increase allocation is sizable given low portfolio allocation & advisor use

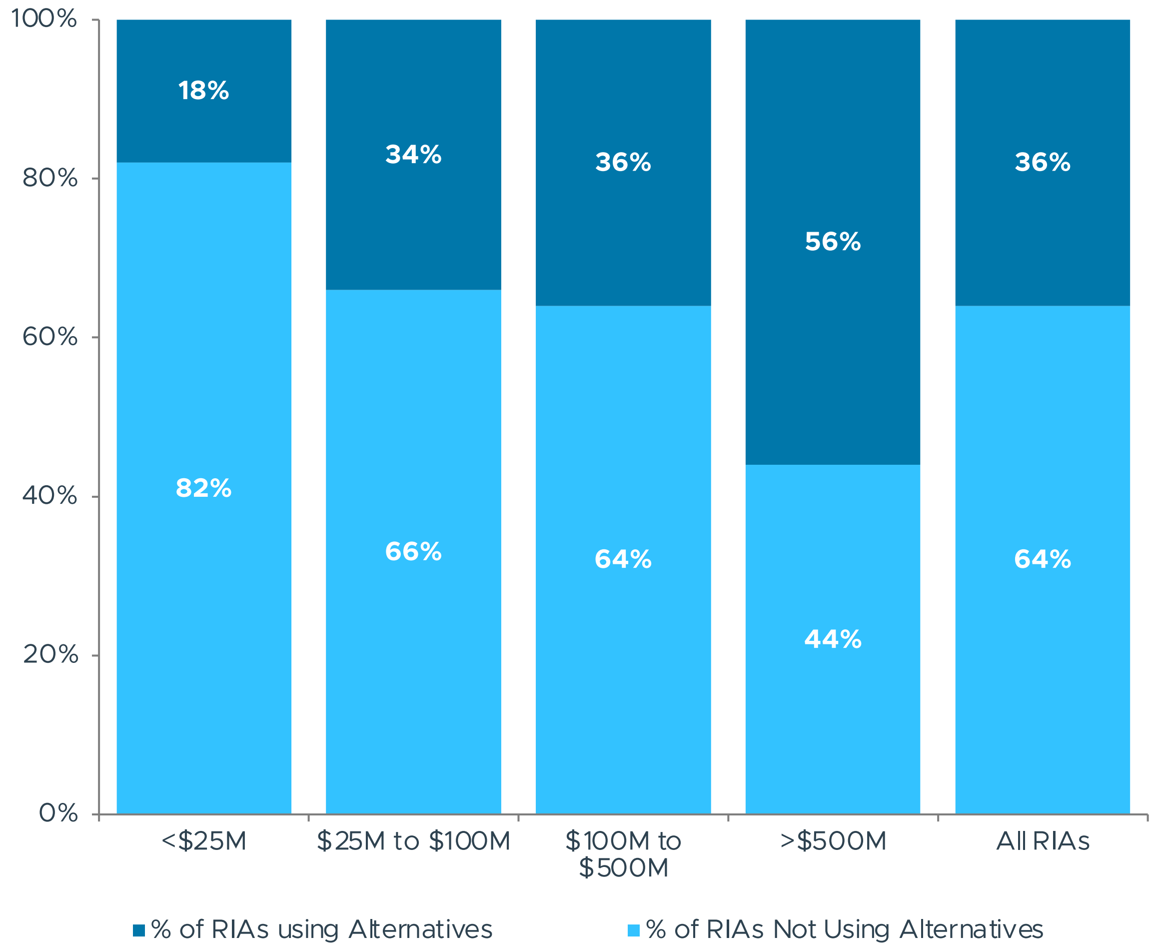
Allocation to Alternatives in Private Wealth lags institutional use

Percentage allocation to alternatives by investor type (%)



Out of 263k advisors in the U.S., only 36% allocate to Alternatives

% of advisors who allocate client assets to Alts broken down by advisor AUM



Source: (left) Cerulli Associates, PwC, iCapital Investment Strategy with data based on availability as of Oct. 31, 2024. Note: For endowments, sovereign wealth funds, and pensions, data is sourced from PwC Asset Management Study 2022. For high-net-worth individuals and affluent & mass market, data is sourced from Cerulli Associates 2023 U.S. High-Net-Worth and Ultra-High-Net-Worth Markets report. For advisors (RIAs), data is sourced from Cerulli Associates 2023 U.S. RIA Marketplace report. (right) Cerulli Associates, iCapital Investment Strategy with data based on availability as of Oct. 31, 2024. Note: Data is from Cerulli's 2023 U.S. RIA Marketplace report and is subject to change based on potential updates to source(s) database. Analysis looks at the percentage of advisors who allocate client assets to Alternatives, categorized by advisor AUM size. Allocation figures are based on the average product mix reported by surveyed advisors. For illustrative purposes only. Past performance does not guarantee future results.

Alternatives Decoded

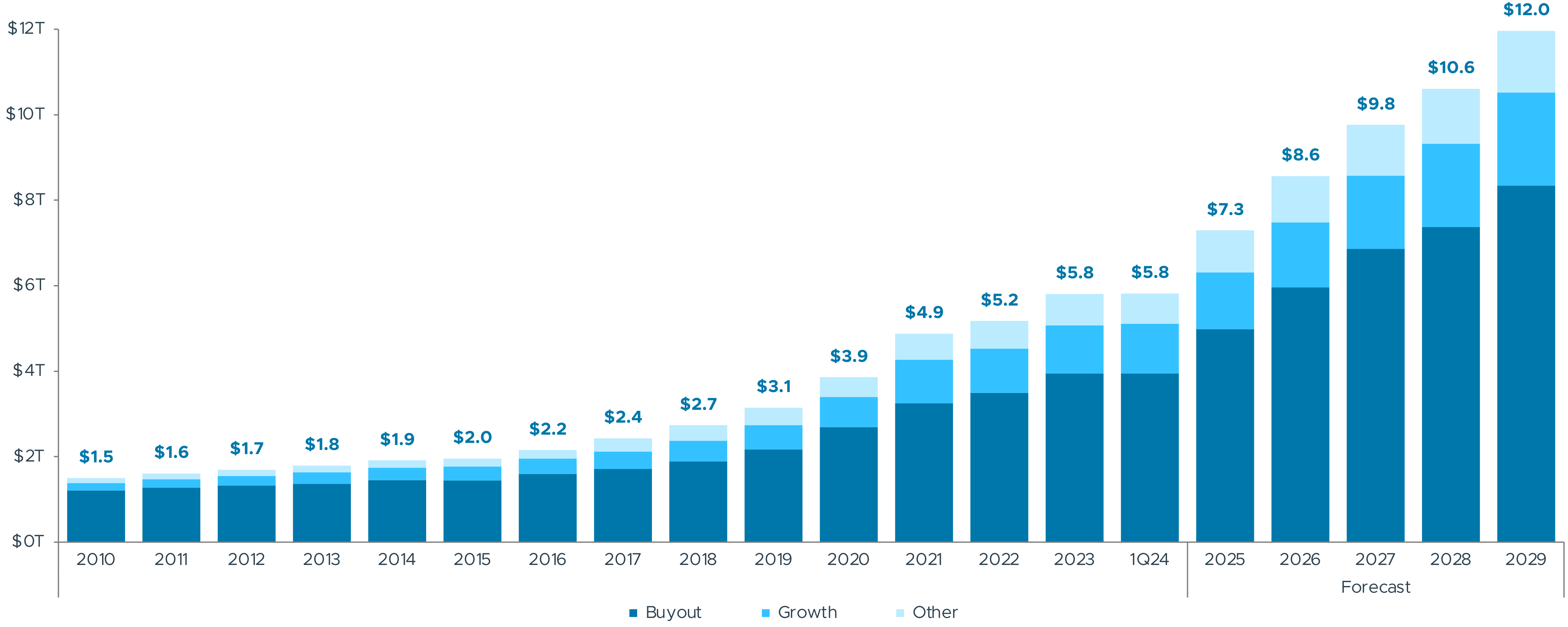
Private Equity

iCapital®

Private equity is the largest asset class within alternatives and has grown significantly

Private equity assets have nearly quadrupled in size since 2010 and are forecasted to grow further

Total assets under management in global private equity funds ($ trillion, as of March 2024)

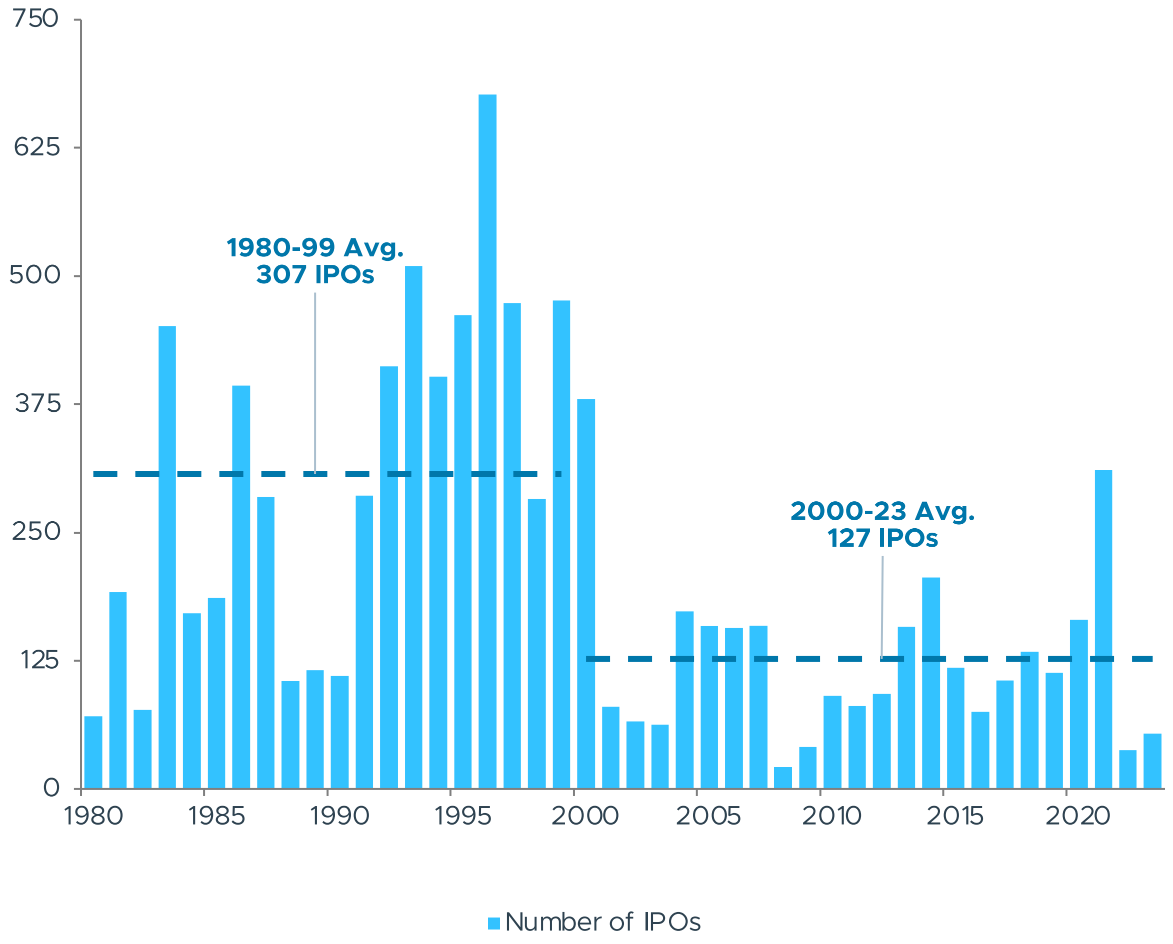


Source: Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Historical AUM is through March 2024 and forecasted AUM is through December 2029. Data is subject to change based on updates to the source(s) database. AUM is broken down by private equity sub-asset classes as defined by Preqin. "Other" includes Balanced, Co-investment, Co-investment Multi-Manager, Direct Secondaries, and Turnaround strategies. Both historical and forecasted AUM exclude RMB-denominated funds for data accuracy, as well as fund of funds and secondaries to prevent double counting of available capital and unrealized value. Forecasted AUM is sourced from Preqin and is based on their Future of Alternatives report, which models projected AUM using various variables. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Since 2000, fewer companies went public as they have stayed private for longer

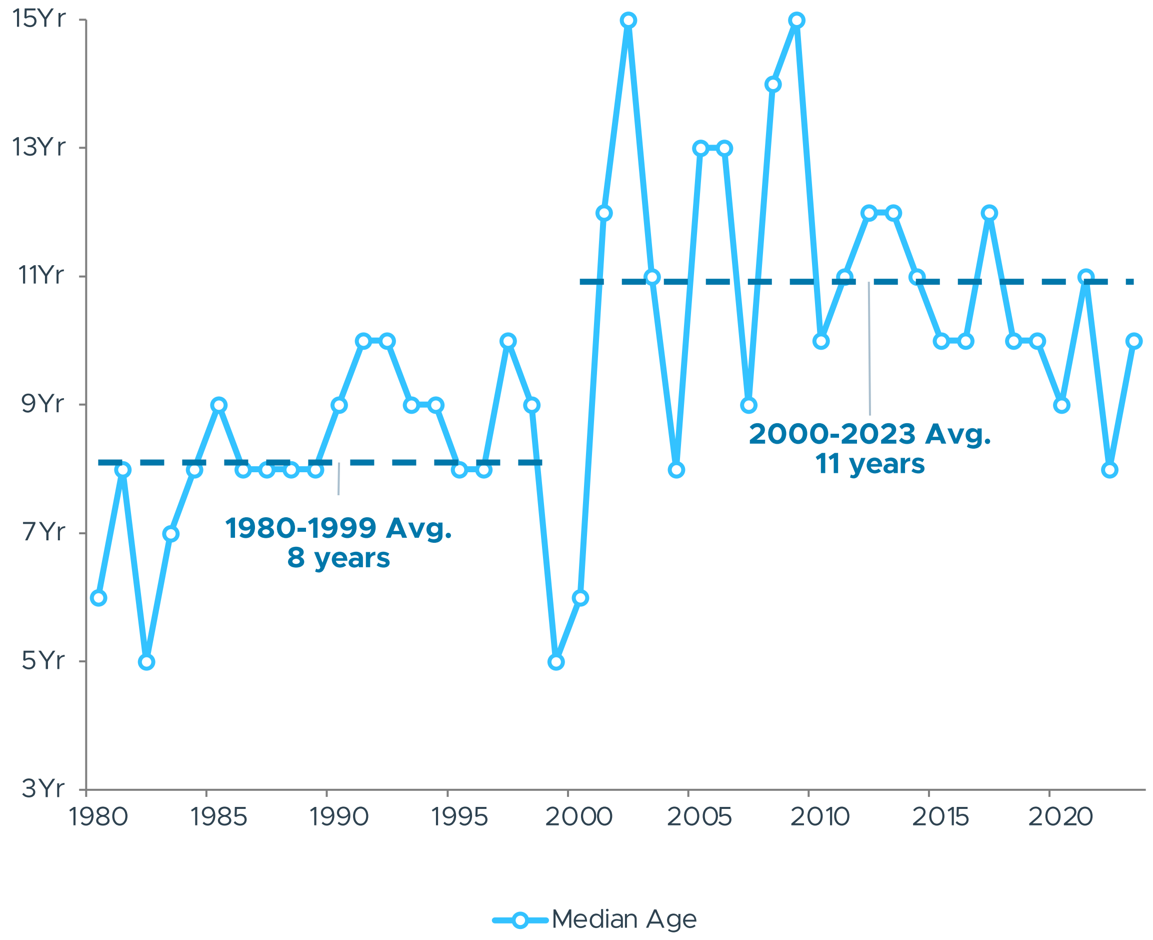
There have been fewer IPOs over the last 20+ years relative to the 1990s

Annual number of IPOs (exclusions apply)



As companies stayed private longer, the median age at IPO has risen

Median age of companies at IPO (in years)

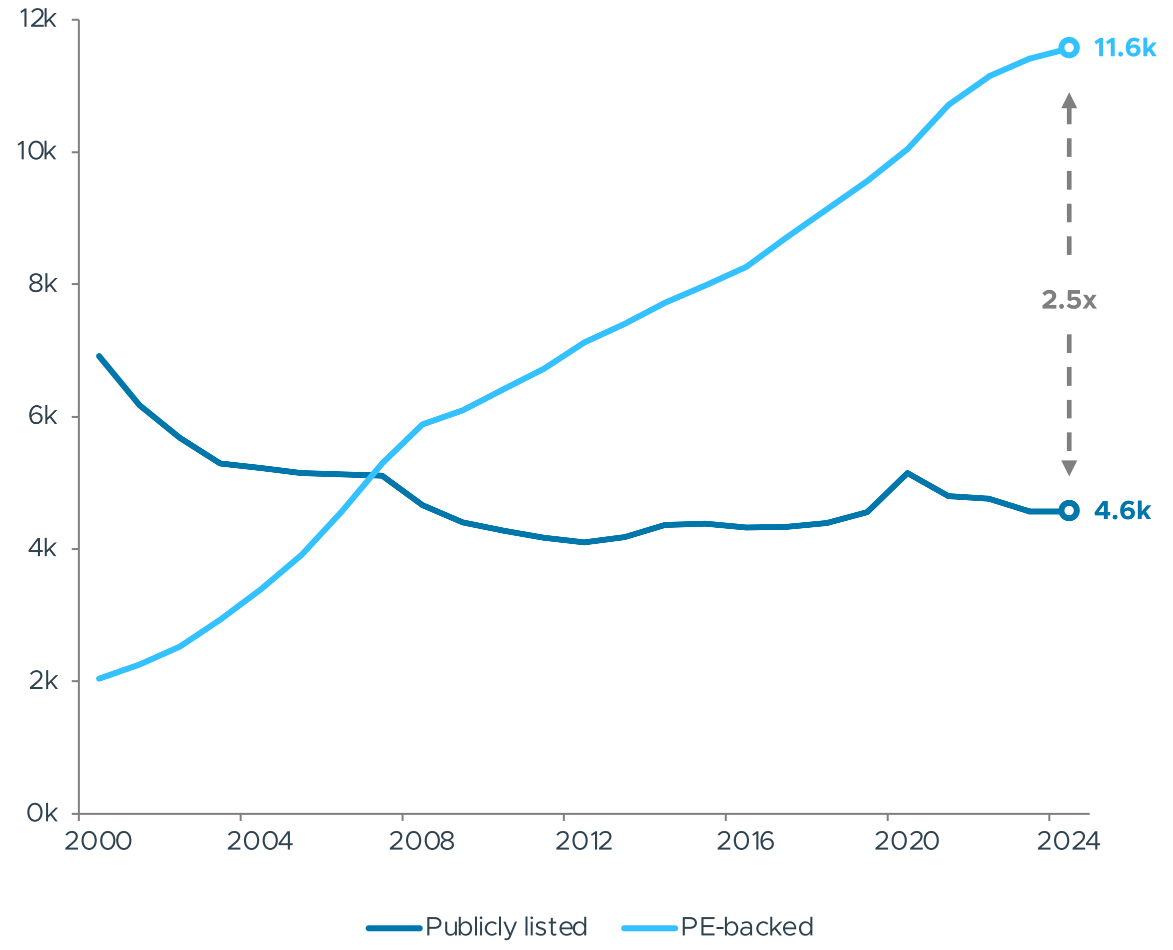


Source: (left and right) Jay R. Ritter Cordell Eminent Scholar, Eugene F. Brigham Department of Finance, Insurance, and Real Estate Warrington College of Business, University of Florida, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of April 8, 2024, and is through year-end 2023. Analysis looks at all IPOs and excludes those with an offer price below $5.00 per share (penny stocks), unit offers, ADRs, closed-end funds, oil & gas limited partnerships, SPACs, REITs, bank and S&L IPOs, and stocks not listed on Nasdaq or the NYSE (including NYSE MKT LLC, the former American Stock Exchange). Given that certain stocks and companies have been excluded, IPO figures may be smaller than what is reported by other sources. Data is subject to change based on potential updates to source(s) database. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private companies outnumber publicly traded ones, across most revenue segments

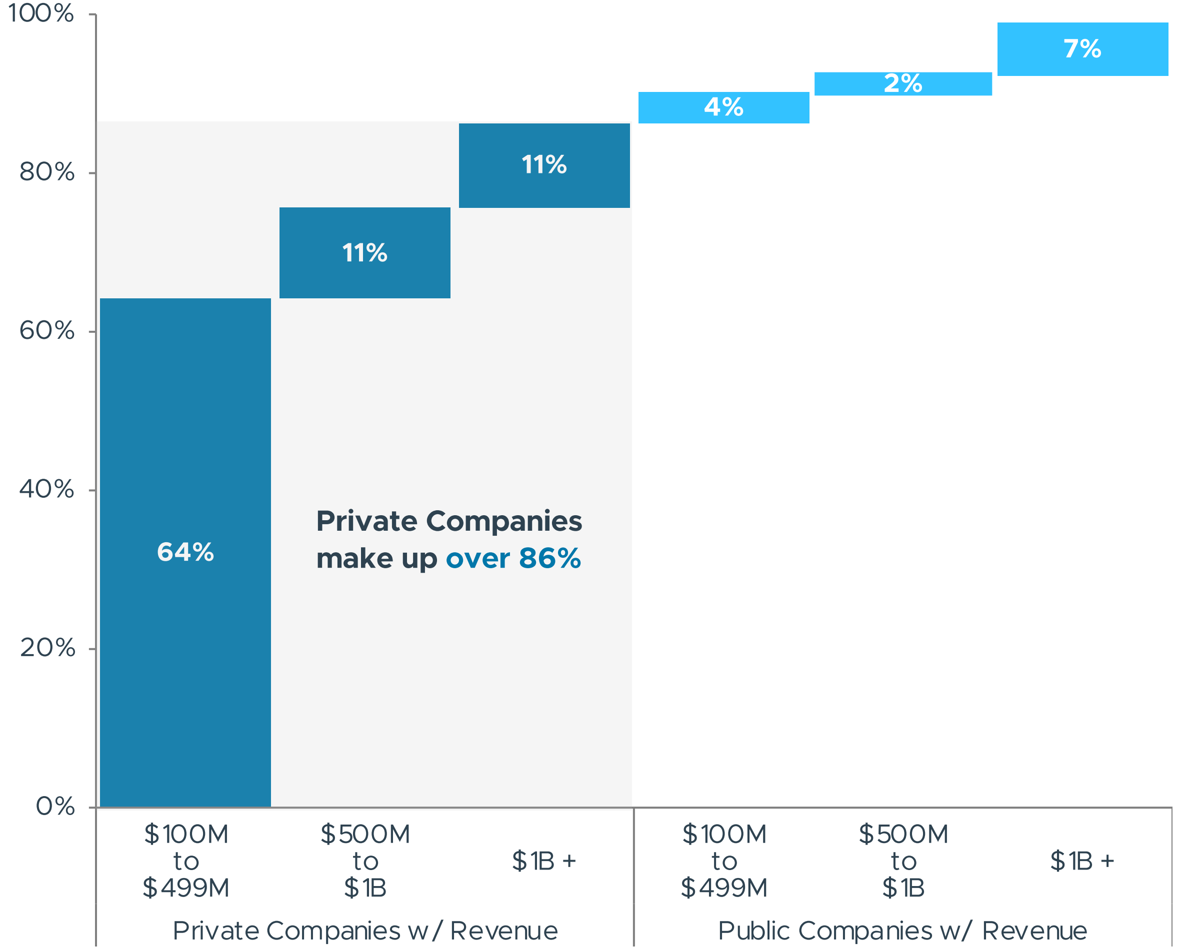
The number of private companies grew, but listed co's stayed steady

Number of U.S. PE-backed co's vs. U.S. publicly listed firms on NYSE & NASDAQ



86% of U.S. companies with >$100M in revenue are private

Breakdown of private and public companies in the U.S. by revenue

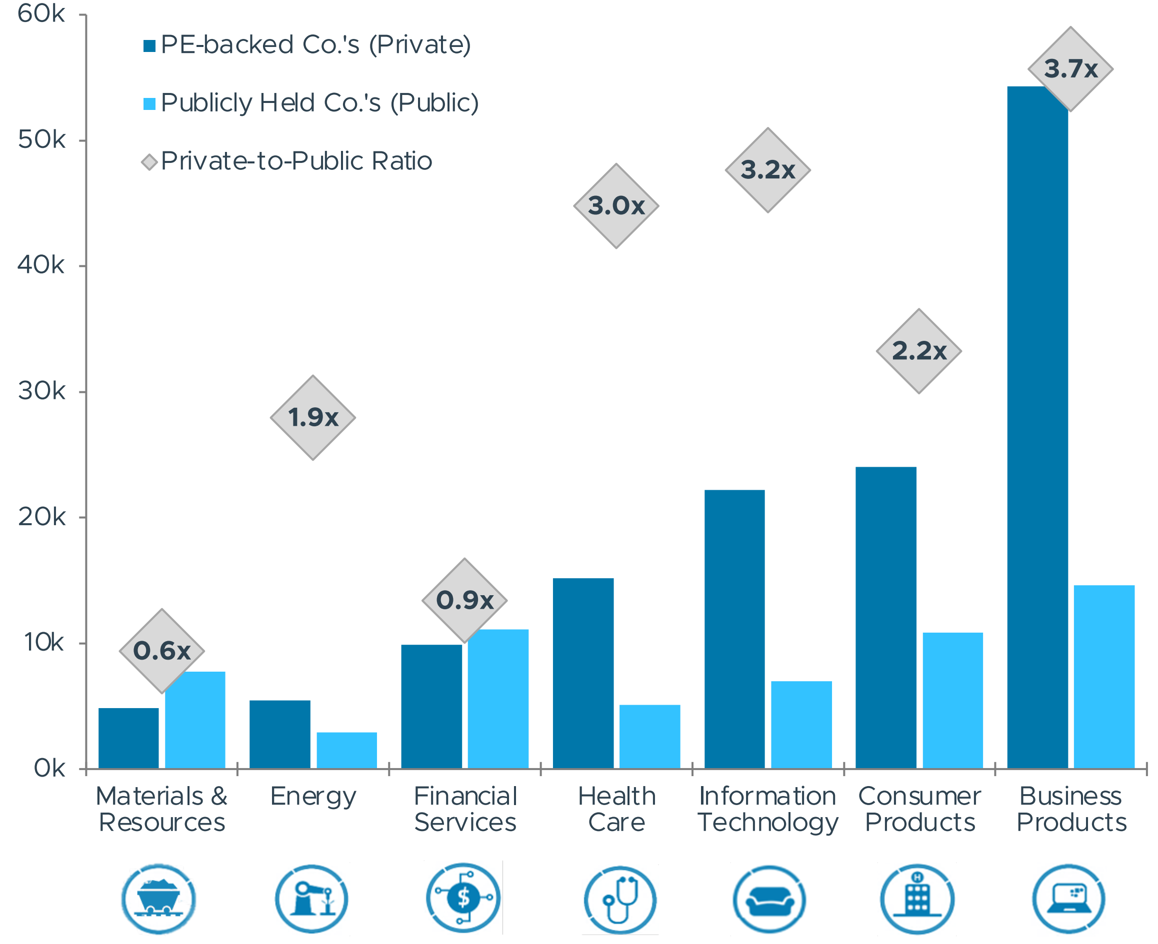


Source: (left) PitchBook | LCD, World Federation of Exchanges database, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 for PE-backed and as of December 2023 for publicly listed. Data is subject to change based on potential updates to source(s) database. U.S. PE-backed companies are all privately held companies with private equity backing. We exclude VC-backed companies. (right) S&P Capital IQ, iCapital Investment Strategy, with data based on availability as of February 2023. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private markets offer investors an opportunity to tap into a larger pool of innovation

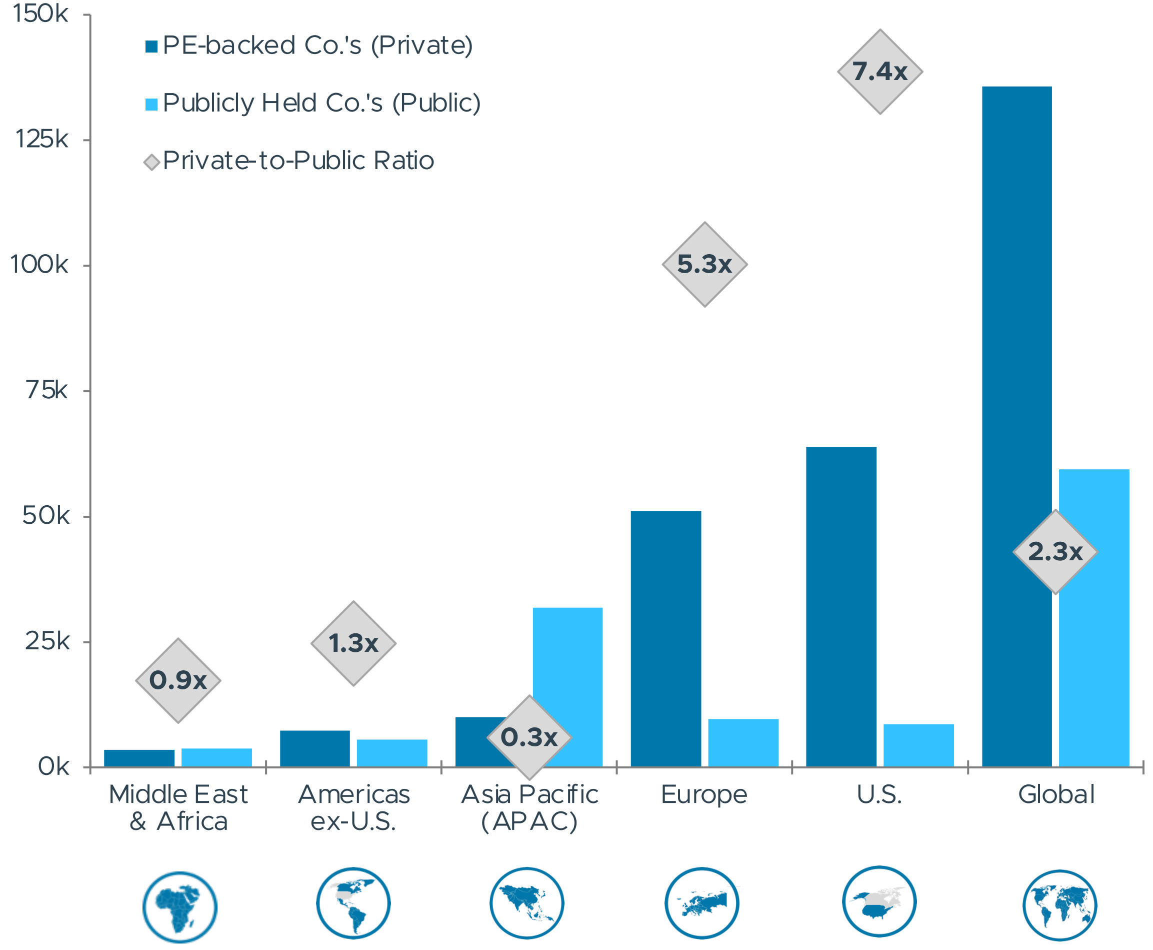
PE is a dominant investor in IT, healthcare, business/consumer sectors

Global number of PE-backed vs. public companies, globally, by industry (in thousands)



PE-backed companies outnumber public ones across geographies

Number of PE-backed vs. public companies by geography (in thousands)

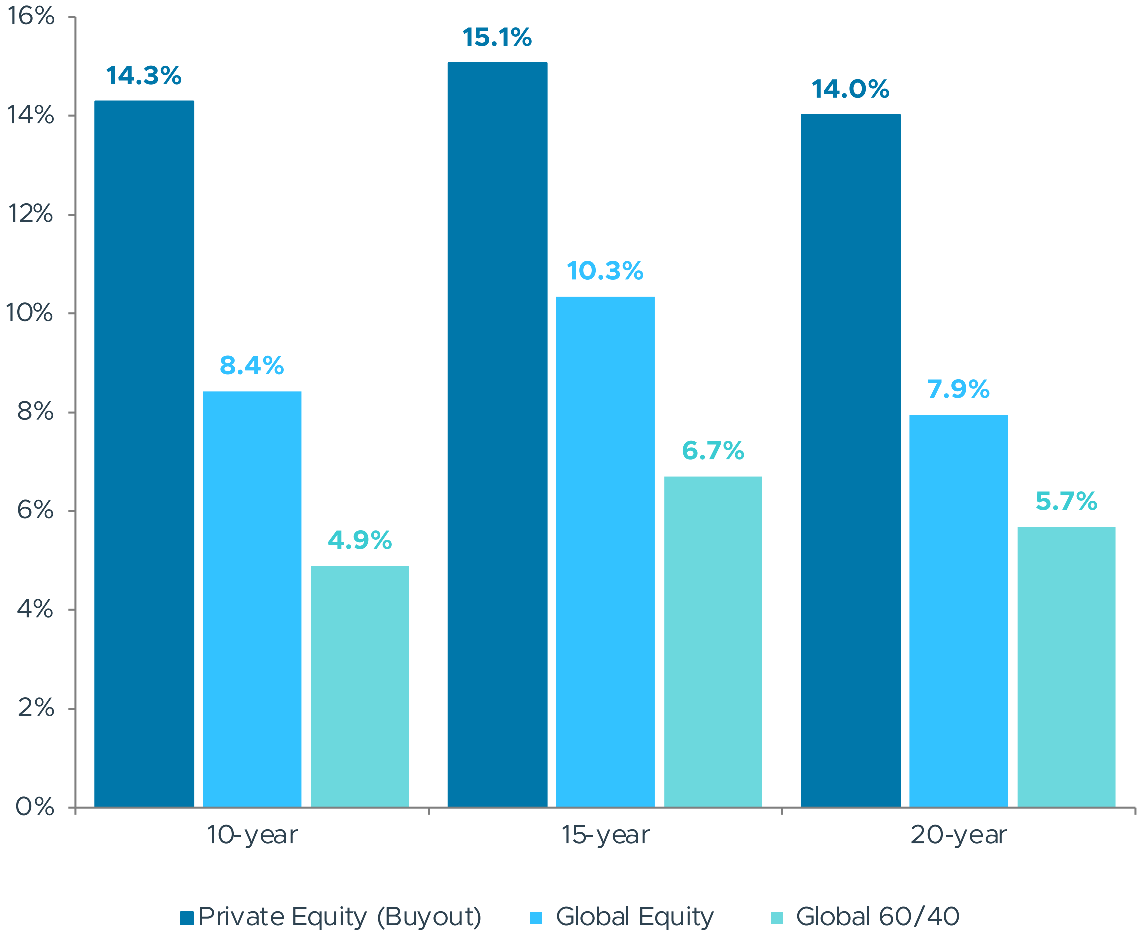


Source: (left) PitchBook | LCD, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of Oct. 18, 2024, and is subject to change based on potential updates to source(s) database. Industry breakdown is based on primary industry only. Private Equity backed companies include any company that is currently financed by private equity investors regardless of ownership status, as defined by PitchBook. (right) PitchBook | LCD, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of Oct. 18, 2024, and is subject to change based on potential updates to source(s) database. Geography breakdown is based on specifically on where each company is headquartered. Geographies are based on regional breakdown as defined by Pitchbook. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private equity outperformed public equities over various time horizons

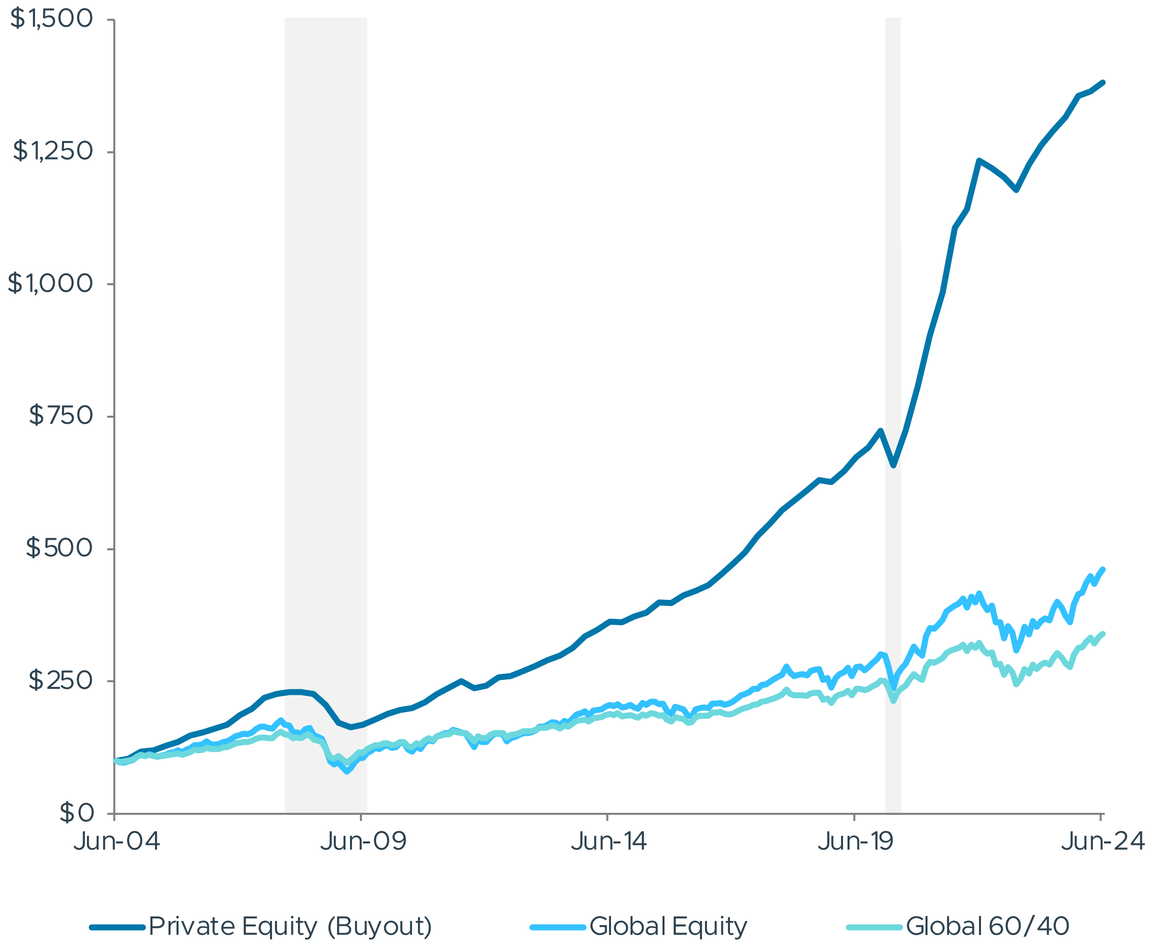
Private equity vs. public benchmark returns show outperformance

Annualized time-period returns (%, as of June 2024)



Assets invested in private equity grew faster vs. public benchmarks

Normalized change of $100 invested over the last 20 years ($, as of June 2024)

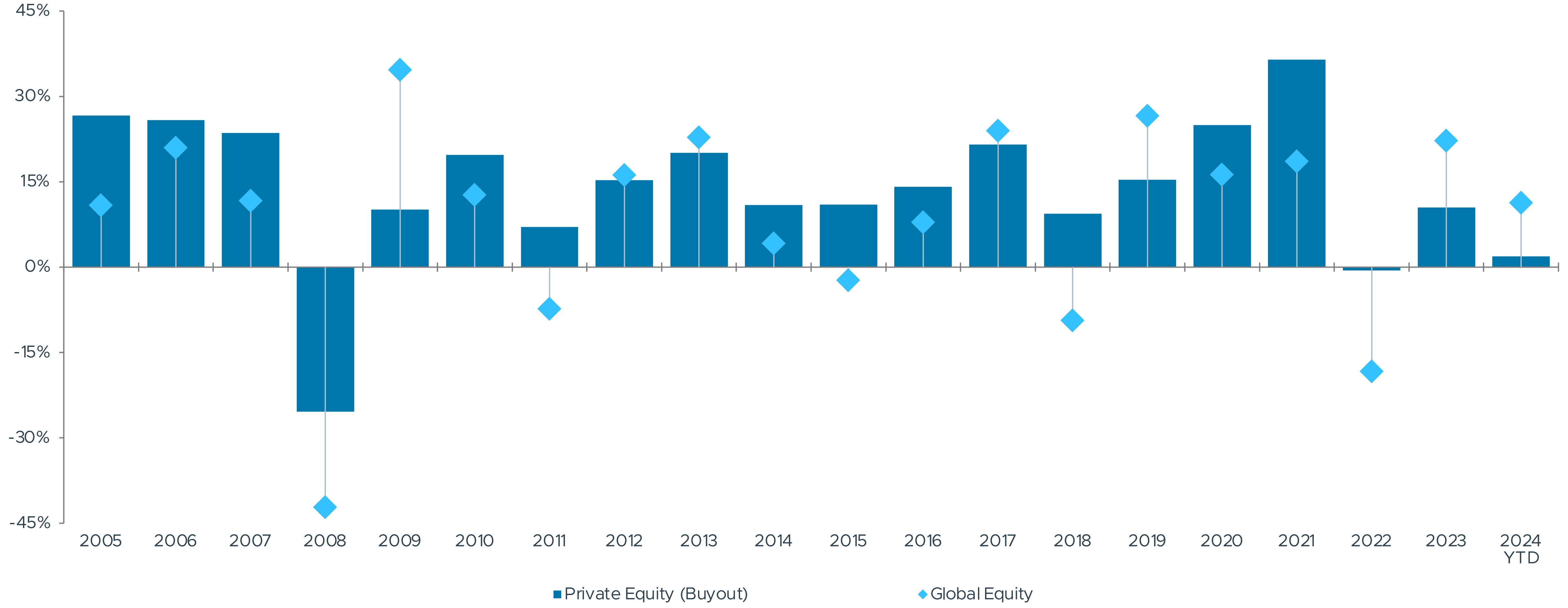


Source: (left and right) Bloomberg Index Services Limited, MSCI, Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as June 2024 and is subject to change based on potential updates to source(s) database. Global Equity proxied by MSCI ACWI Index. Global 60/40 proxied by 60% MSCI ACWI Index and 40% Bloomberg Global Aggregate Bond Index. Private Equity proxied by the Preqin Private Equity Buyout Index. It is important to note that the returns listed are based on indices, that are meant to estimate the asset class performance, hypothetically creating a return if one had access to all active funds. Not all the above indices are practically investable and are subject to change as datasets are continually updated. All returns are calculated in U.S. dollars. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private equity delivered more consistently positive returns with fewer negative years

Private equity vs. public benchmark returns show just one drawdown year over the 20-year time horizon

Annual total returns (%, as of June 2024)

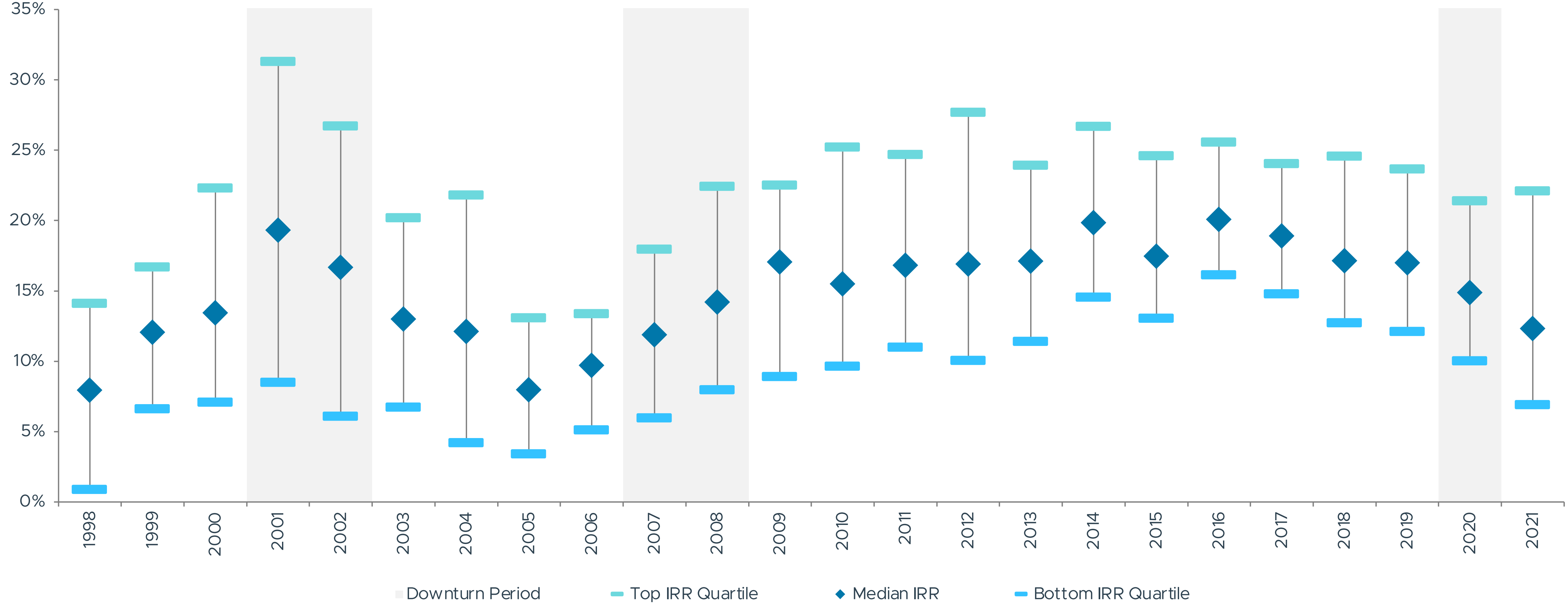


Source: MSCI, Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as June 2024 and is subject to change based on potential updates to source(s) database. Global Equity proxied by MSCI ACWI Index. Private Equity proxied by the Preqin Private Equity Buyout Index. It is important to note that the returns listed are based on indices that are meant to estimate the asset class performance, hypothetically creating a return if one had access to all active funds. Not all the above indices are practically investable and are subject to change as datasets are continually updated. All returns are calculated in U.S. dollars. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private equity performance improved when investing during downturn year vintages

Vintage returns varied by year, improving during economic downturns

Net IRR dispersion by vintage year for U.S. private equity buyout funds (%, as of June 2024)

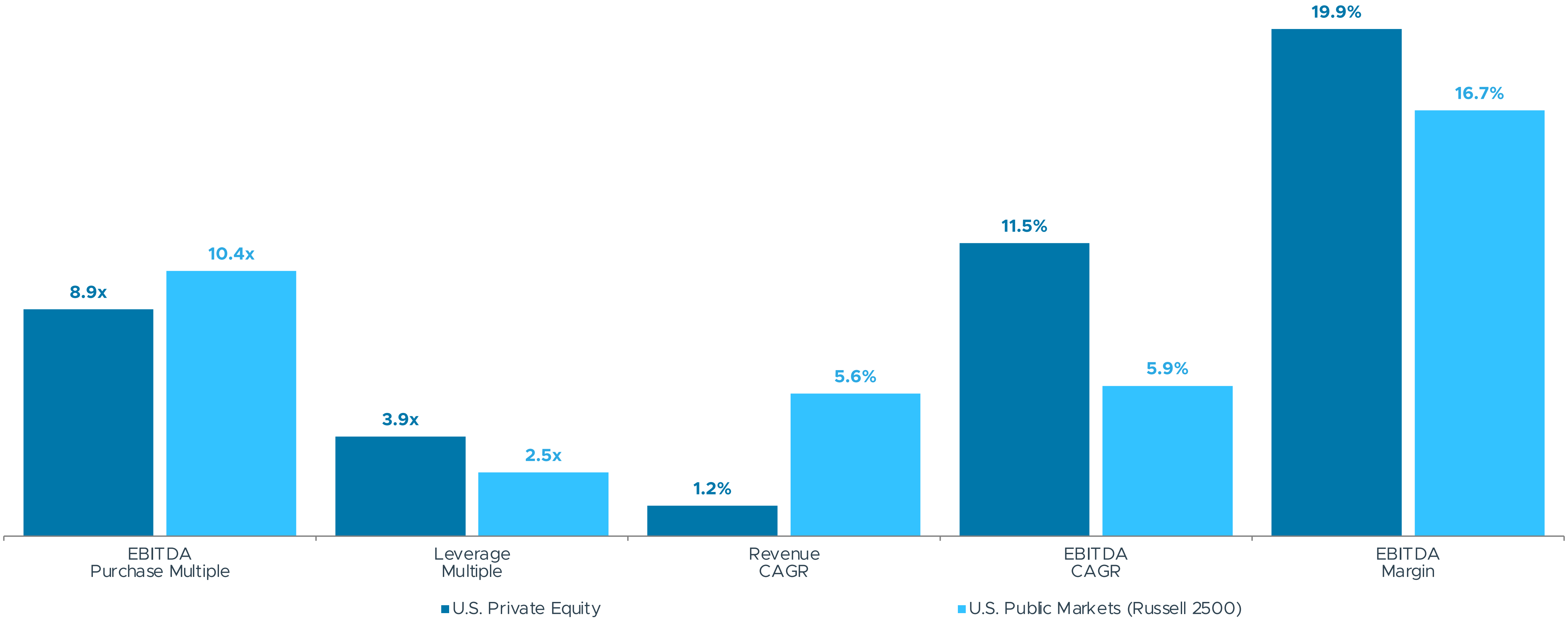


Source: PitchBook | LCD, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. Private equity investments typically have a longer time horizon, and returns are realized over several years. Therefore, the 2022-2024 vintages are excluded since the investments may still be in their early stages, and the full impact on returns might not have been realized yet. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private equity fund managers have multiple ways to create value vs. public markets

Private equity focused on lower multiples and faster EBITDA growth

Private equity (Cambridge Associates) and public equity (Russell 2500) median operating metrics

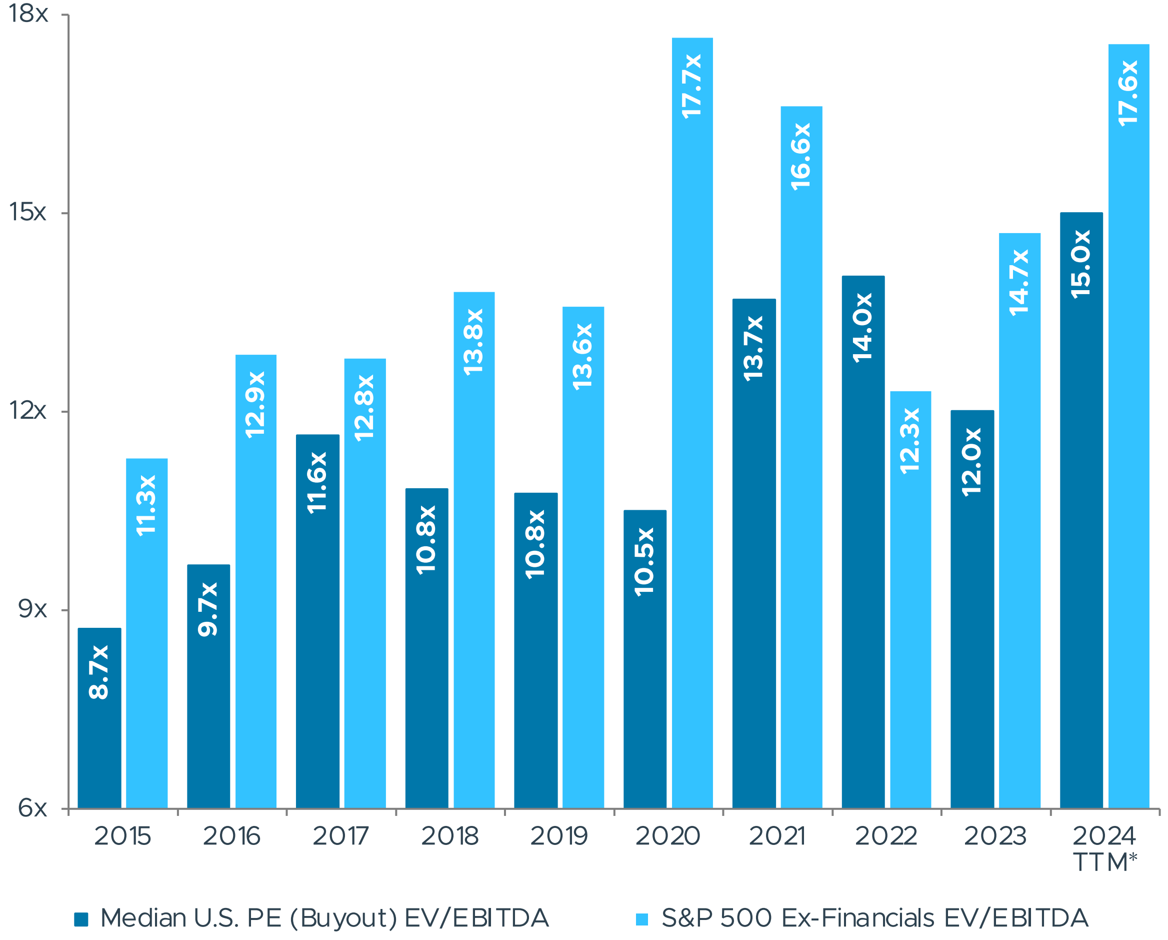


Source: Cambridge Associates, FactSet, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of March 2022 and is subject to change based on potential updates to source(s) database. Operating metrics data is as of Dec. 31, 2020, and returns data is as of March 31, 2022. U.S. private equity metrics and gross returns are based on fully realized US-based growth equity and buyout deals acquired in 2000-2020. EBITDA PPM (purchase paid multiple), leverage multiples, and EBITDA margins are medians. Revenue and EBITDA growth are median CAGRs. U.S. PE sample sizes range from 1,740 to 2,114 companies and depend on information available. Public company data for revenue, EBITDA growth, and EBITDA margins are averages with outliers removed based on calendar years 2008-2020. The return for the Russell 2500 is an average annual compound return from Jan. 1, 2000 to March 31, 2022. See glossary for further definitions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private equity valuations have stabilized and are lower than public markets in the U.S.

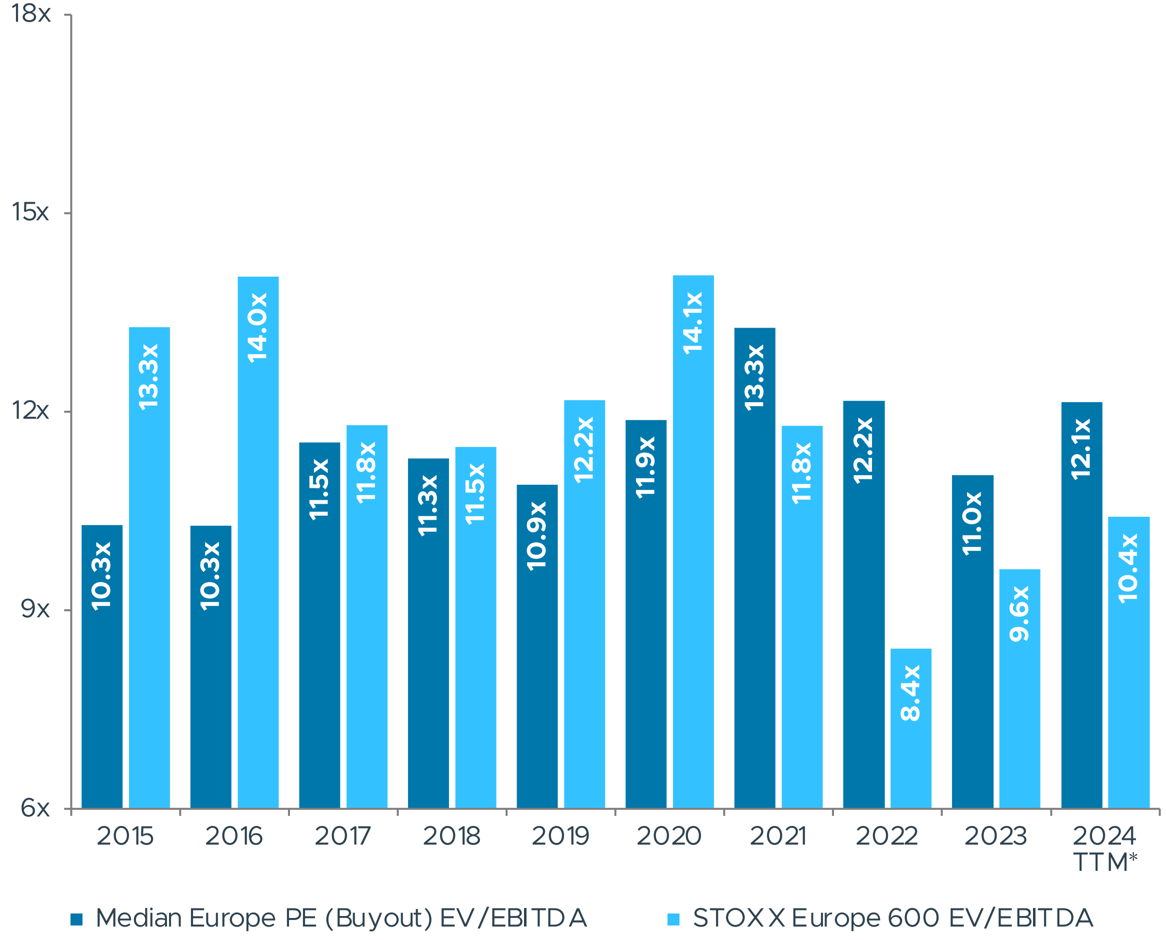
U.S. private equity multiples are lower than the S&P 500

Annual buyout EV/EBITDA multiples (x, as of September 2024)



In Europe, private equity multiples are above those for public markets

Annual buyout EV/EBITDA multiples (x, as of September 2024)

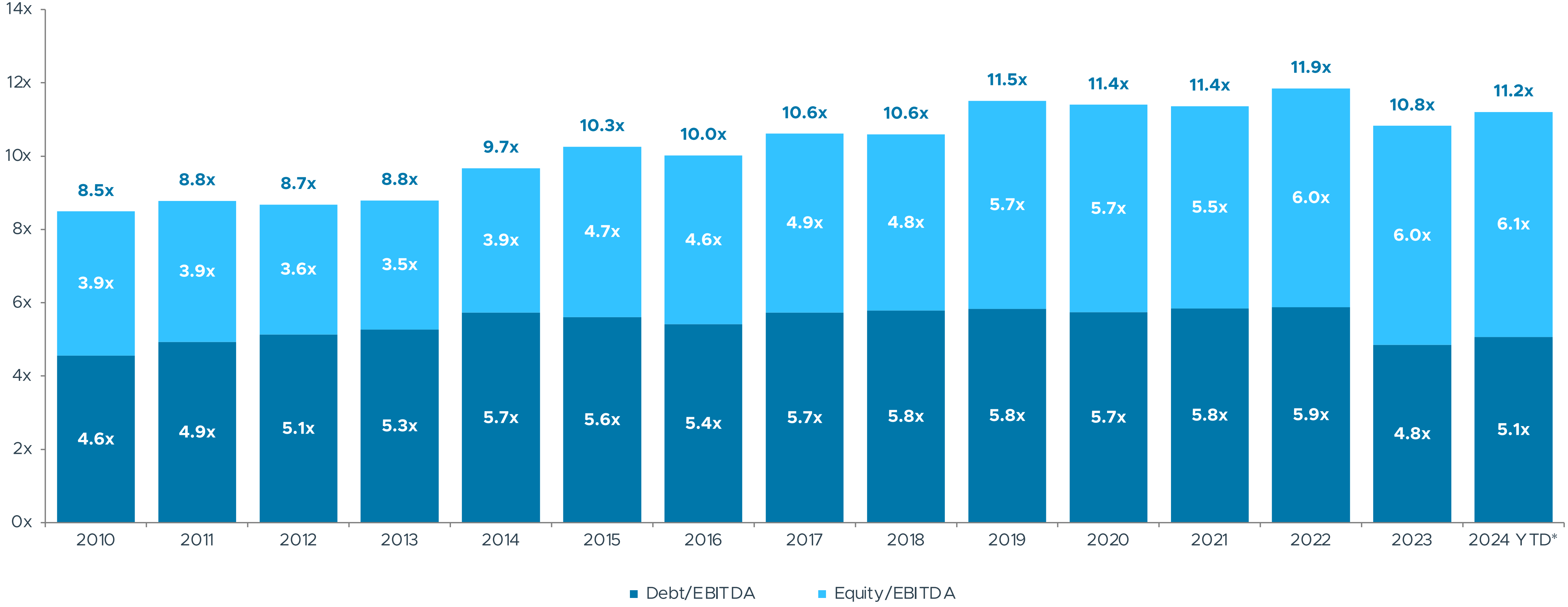


Source: (left) PitchBook | LCD, S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024. 2024 TTM is the trailing twelve months ending September 2024. S&P 500 Ex-Financials excludes companies within the S&P 500 that are in the Financial sector as defined by GICS sector-level classifications. See disclosure section for further index definitions, disclosures, and source attributions. Data is subject to change based on potential updates to source(s) database. (right) Pitchbook | LCD, Deutsche Boerse, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024. 2024 TTM is the trailing twelve months ending September 2024. STOXX Europe 600 index is derived from the STOXX Europe Total Market Index. The STOXX Europe 600 Index includes a fixed number of 600 companies and represents large, mid- and small-capitalization companies across 17 countries of the European region. See disclosure section for further index definitions, disclosures, and source attributions. Data is subject to change based on potential updates to source(s) database.
For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Fund managers have adjusted to higher cost of capital by reducing the use of leverage

The use of leverage in buyout transactions has declined from 2022 levels

Median EV/EBITDA multiple on U.S. BSL-funded leveraged buyout (LBO) transactions broken down by equity and debt financing (x, as of September 2024)



Source: PitchBook | LCD, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of September 2024. 2024 YTD is as year-to-date as of Septmeber 2024. U.S. BSL-funded LBOs are Leveraged Buyout (LBO) transactions within the U.S. that were funded by the broadly syndicated loan (BSL) market. Median EV/EBITDA multiple on U.S. BSL-funded LBOs will likely not equal Median U.S. PE Buyout EV/EBITDA multiples due to varying sample size and construction methodology. Data is subject to change based on potential updates to source(s) database. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Realization of further rate cuts may help improve levered company financials

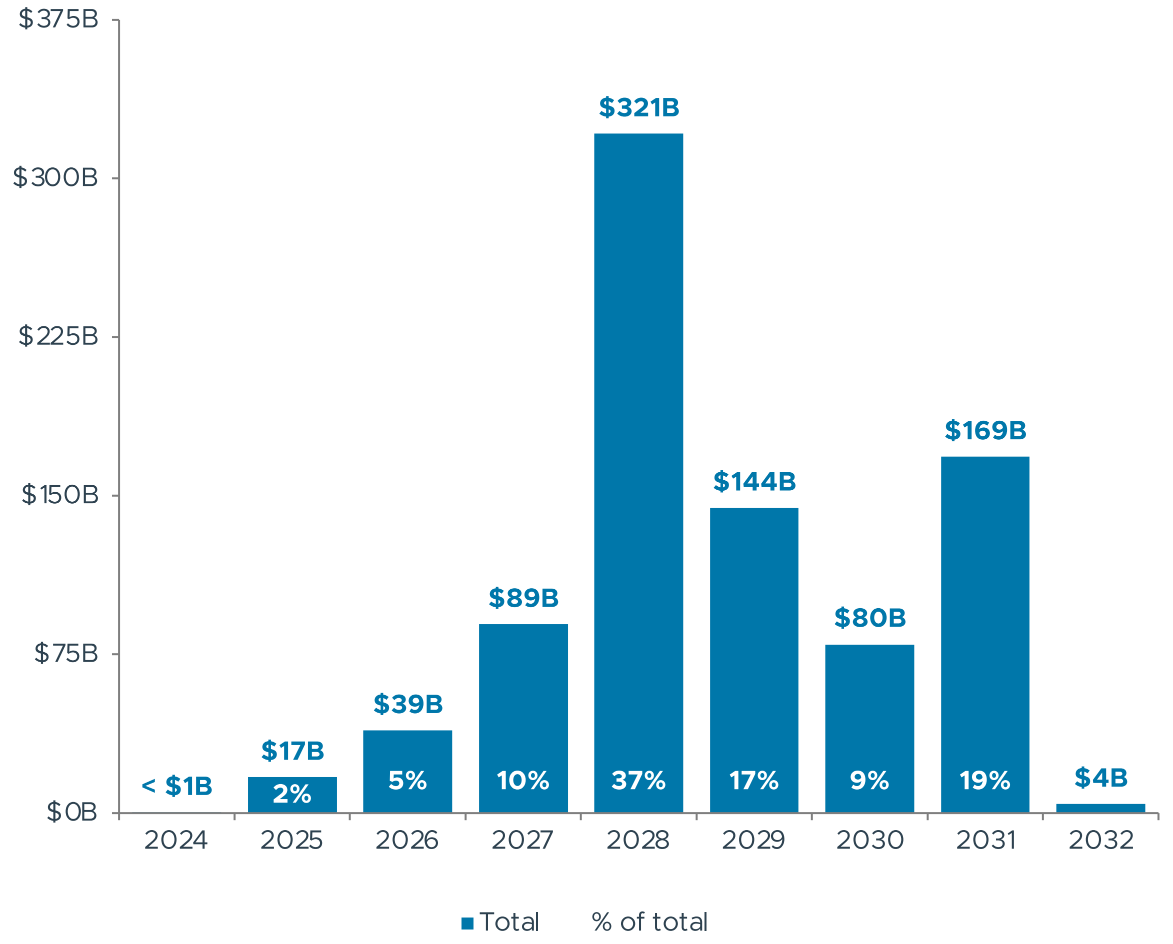
Change in rates rapidly impacts company financials

Impact of leverage and rates on PE portfolio companies interest coverage ratio (x)

Leverage Used (%)	Reference Rate (%) 3.0%	3.5%	4.0%	4.5%	5.0%	5.5%	6.0%	6.5%
35%	3.4x	3.2x	3.0x	2.8x	2.7x	2.5x	2.4x	2.3x
40%	3.0x	2.8x	2.6x	2.5x	2.3x	2.2x	2.1x	2.0x
45%	2.7x	2.5x	2.3x	2.2x	2.1x	2.0x	1.9x	1.8x
50%	2.4x	2.2x	2.1x	2.0x	1.9x	1.8x	1.7x	1.6x
55%	2.2x	2.0x	1.9x	$\boxed{1.8x}$	1.7x	1.6x	1.5x	1.5x
60%	2.0x	1.9x	1.8x	1.7x	1.6x	1.5x	1.4x	1.3x
65%	1.8x	1.7x	1.6x	1.5x	1.4x	1.4x	1.3x	1.2x
70%	1.7x	1.6x	1.5x	1.4x	1.3x	1.3x	1.2x	1.2x

Private equity debt maturity wall is rising but still well off in the future

Private equity sponsor-backed leveraged loan maturities ($ billion)

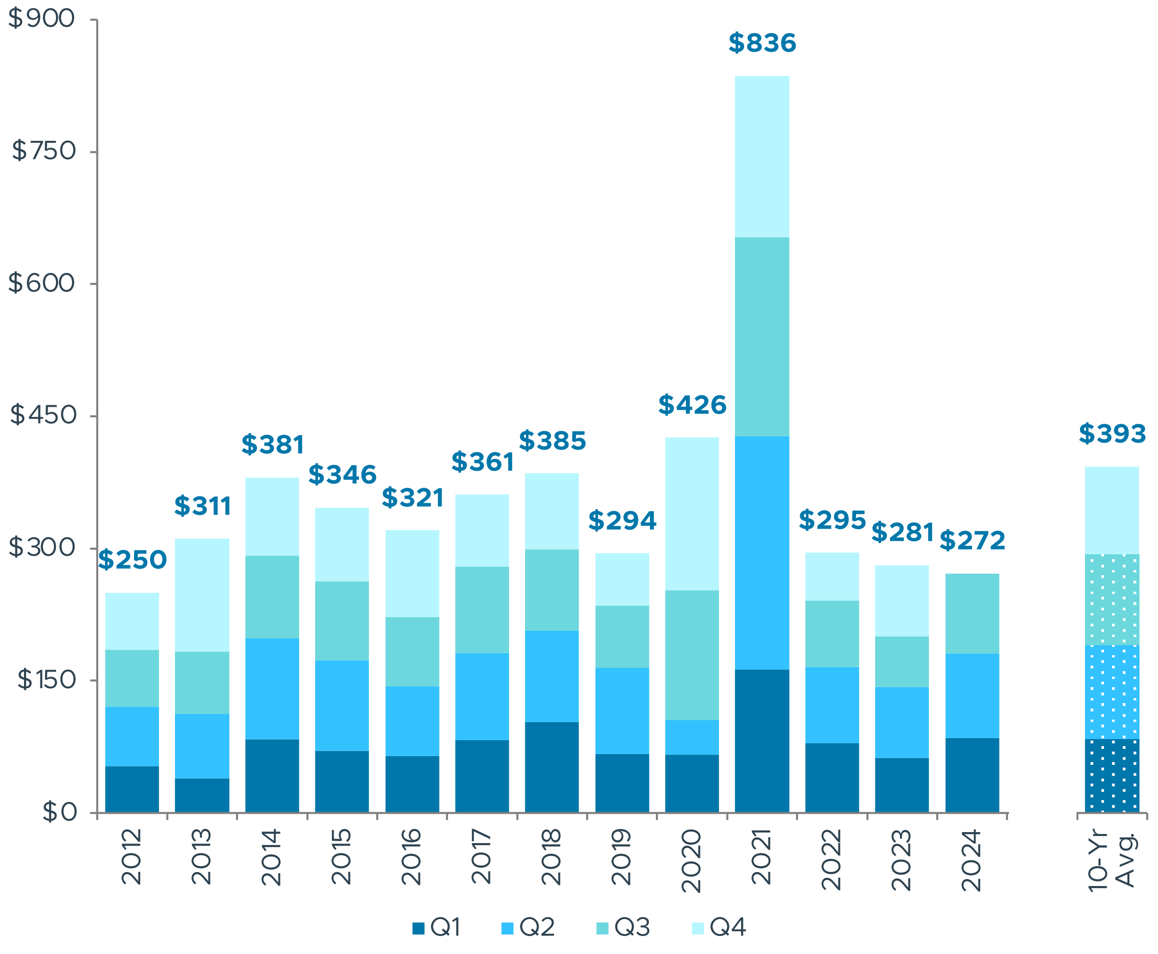


Source: (left) iCapital Investment Strategy Analysis, PitchBook | LCD, Federal Reserve, with data based on availability as of Oct. 31, 2024. Note: Data as of September 2024 and is subject to change based on potential updates to source(s) database. Analysis done on loans backing leveraged buyouts. We assumed an EBITDA multiple of 11.5x is based on a rolling 10-year (2014-23) average of the annual median North America PE buyout EV/EBITDA multiple per Pitchbook. Reference rate (i.e., SOFR/FFR) changes but spread above that rate on the loan remains constant. Spreads have ranged from 400-500bps over the last decade. We assume a spread of 425bps. (right) PitchBook | LCD, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of Oct. 14, 2024, and is subject to change based on potential updates to source(s) database. Data is based on sponsor-backed leveraged loans (which we use as a proxy for private equity debt) within the Morningstar LSTA U.S. Leveraged Loan Index. Data excludes defaulted facilities and is based on par amount outstanding. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private equity exit activity is recovering given higher valuations in public markets

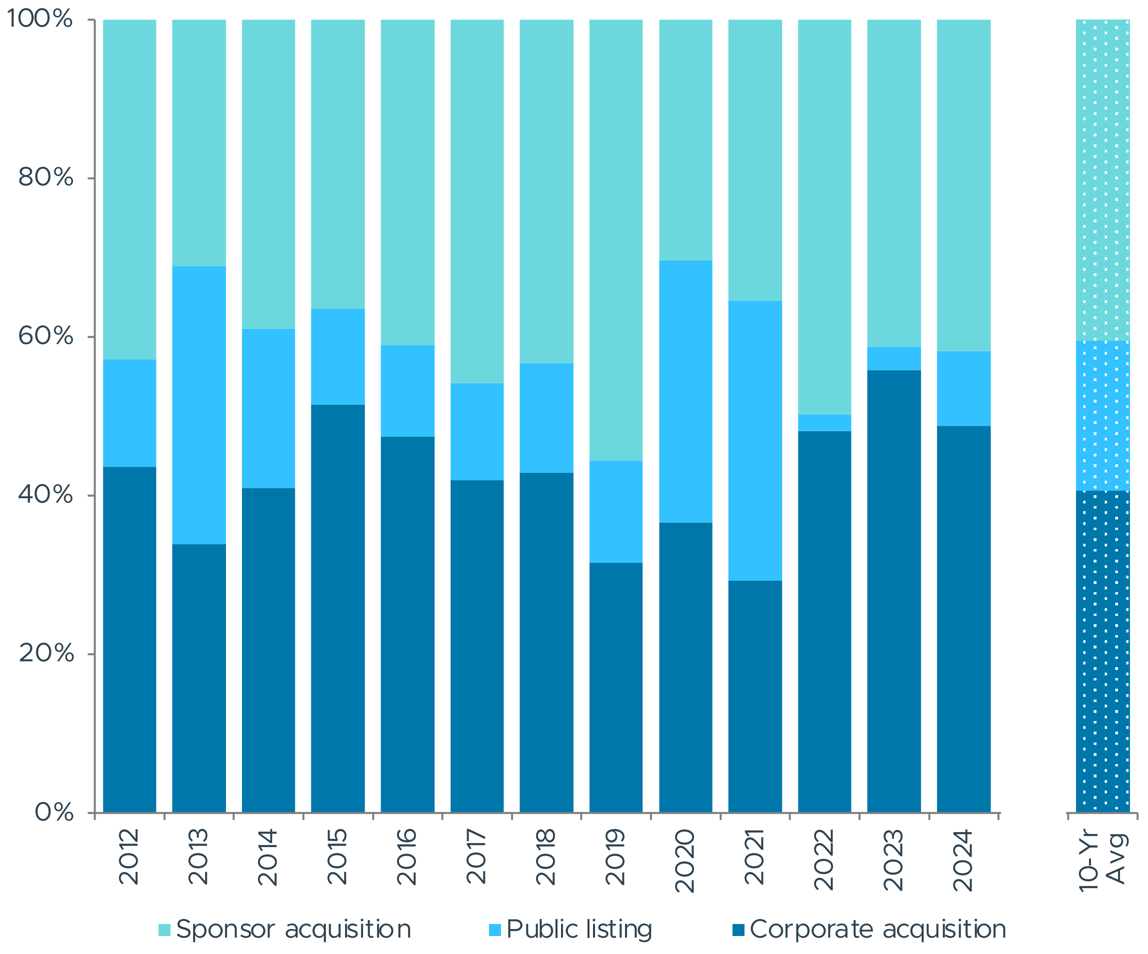
Exit activity has moved notably higher and is approaching the 10-year average

U.S. private equity exit activity by year ($ billions, as of September 2024)



Sponsor & corporate acquisitions account for the vast majority of exits

Breakdown of U.S. private equity exit value by type (%, as of September 2024)

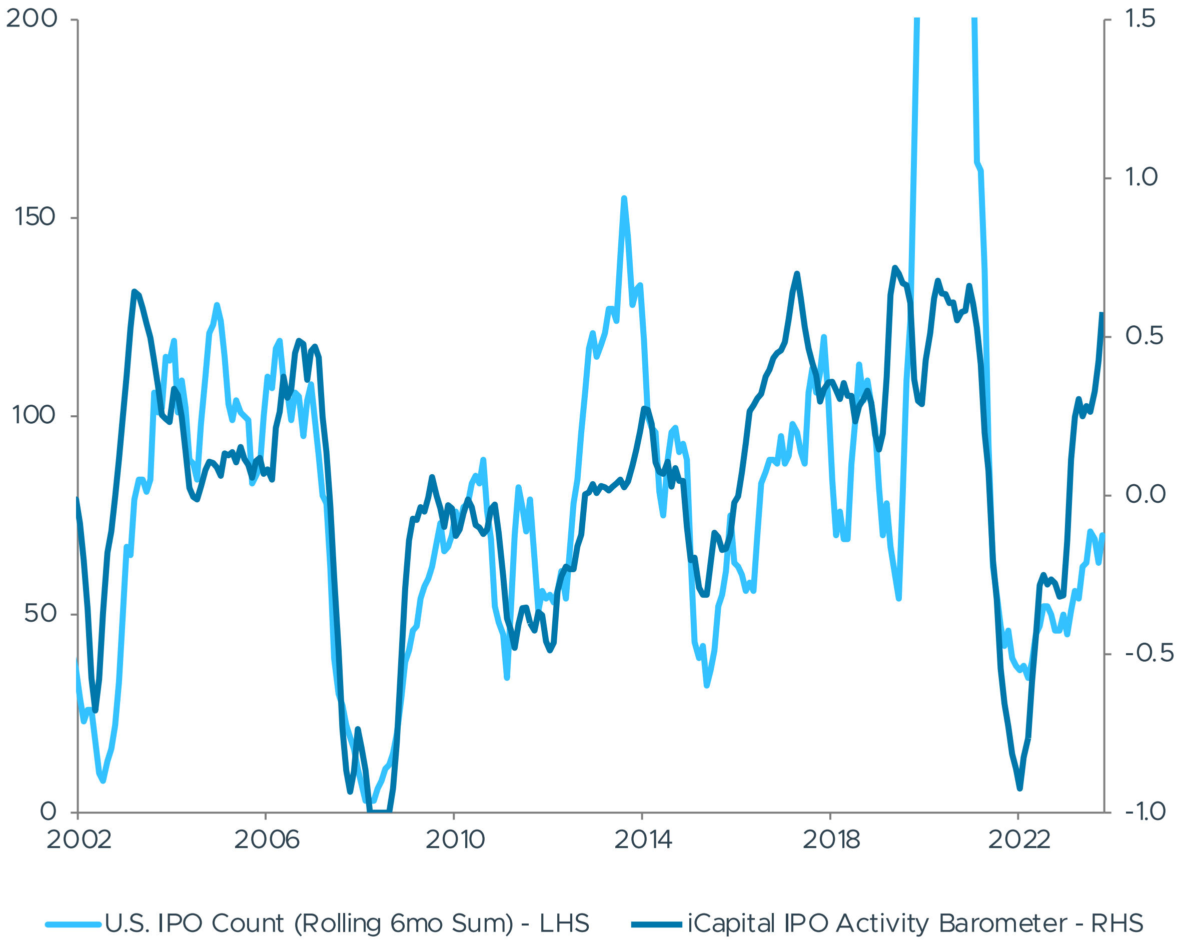


Source: (left and right) Pitchbook | LCD, iCapital Investment Strategy, with data based on availability as of Oct. 31 2024. Note: Data as of September 2024 and is subject to change based on potential updates to source(s) database. Exit data shown is for U.S. private equity strategies defined by Pitchbook. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Capital markets activity is gradually improving across both IPO and M&A markets

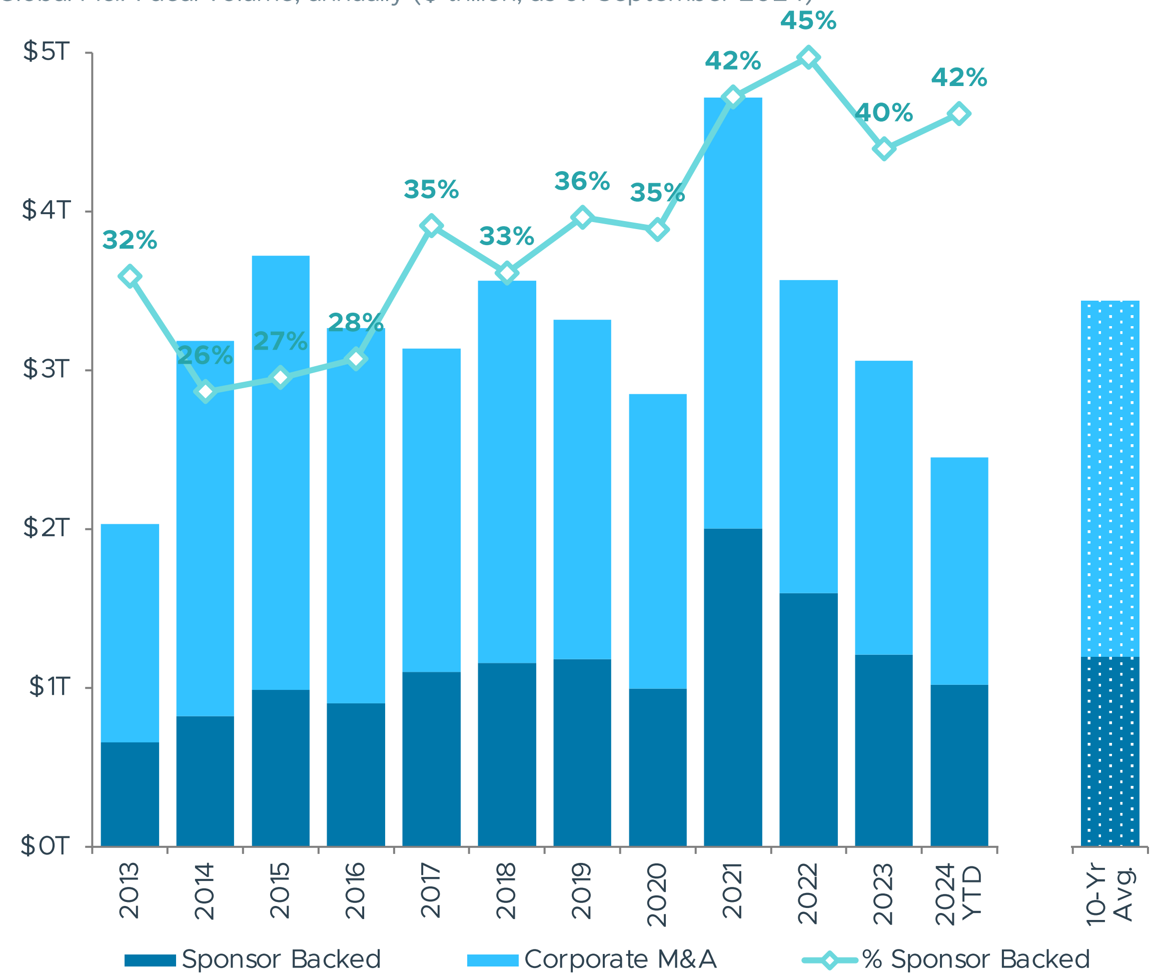
Improving capital market conditions should support an uptick in IPOs

Rolling 6-month U.S. IPO deal count vs. iCapital IPO Activity Barometer (as of September 2024)



M&A has seen an upshift with expectations for a stronger H2 2024

Global M&A deal volume, annually ($ trillion, as of September 2024)

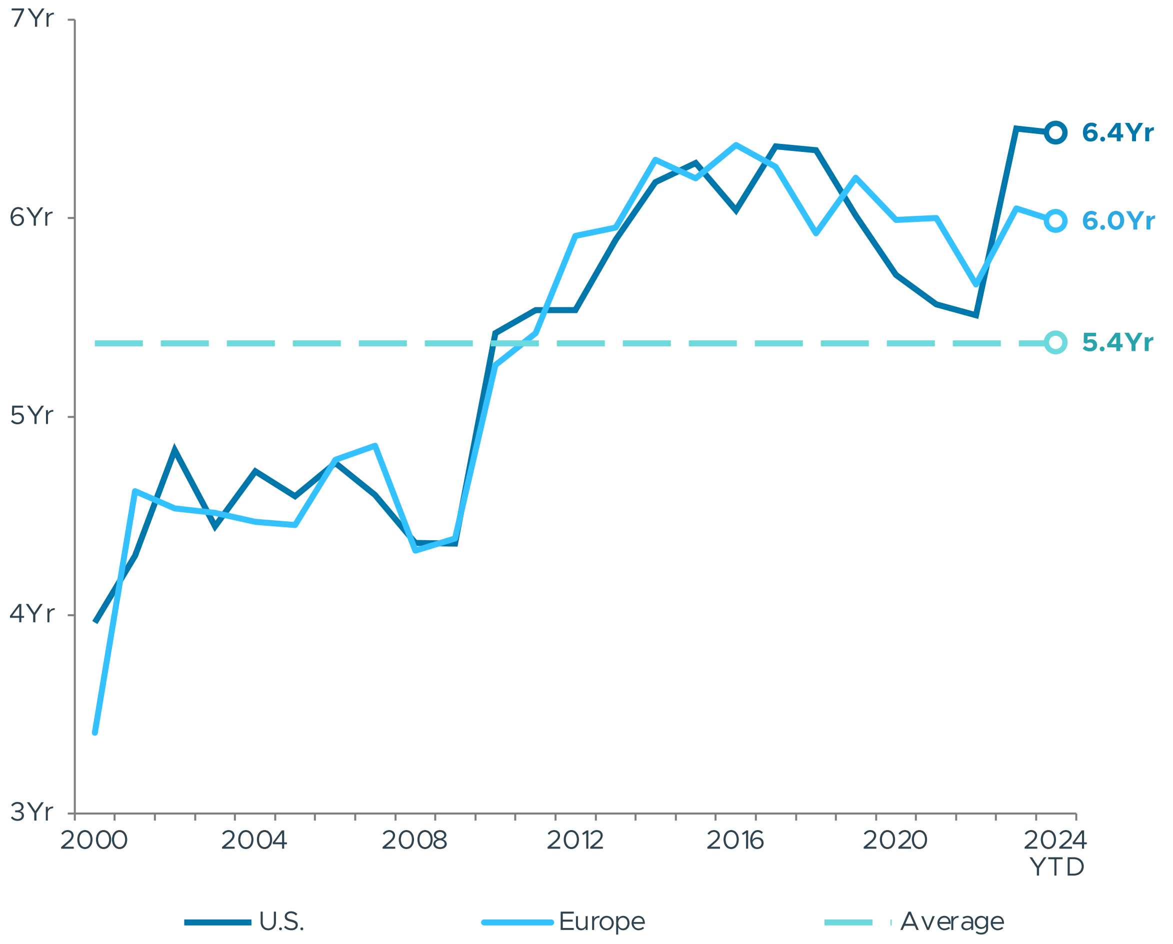


Source: (left) S&P Capital IQ, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of September 2024 and is subject to change based on potential updates to source(s) database. Aggregated IPO data can differ across sources and based on inputted criteria. IPO data is based on U.S. exchange-listed IPOs that have begun trading and with market caps of at least $25 million. We exclude closed-end funds, unit offerings, and SPACs. The iCapital IPO Activity Barometer is a leading measure designed to offer forward-looking insights into underlying trends in U.S. IPO activity. It draws on seven key factors that have historically provided reliable signals of IPO activity going back to 2001: 1) Valuations, 2) Yields/Rates, 3) Volatility, 4) Drawdowns, 5) Business Conditions, 6) Investor Sentiment, and 7) CEO Sentiment. Given the indicator's structure, the focus should be on overall trends rather than short-term fluctuations or specific levels at any given time. (right) PitchBook | LCD, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024 and is subject to change based on potential updates to source(s) database. Aggregated M&A deal volume data can differ across sources and based on inputted criteria. M&A data is sourced from PitchBook data and is based on announced or completed control transactions as defined by PitchBook. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Extended holding periods increase the need for sources of liquidity

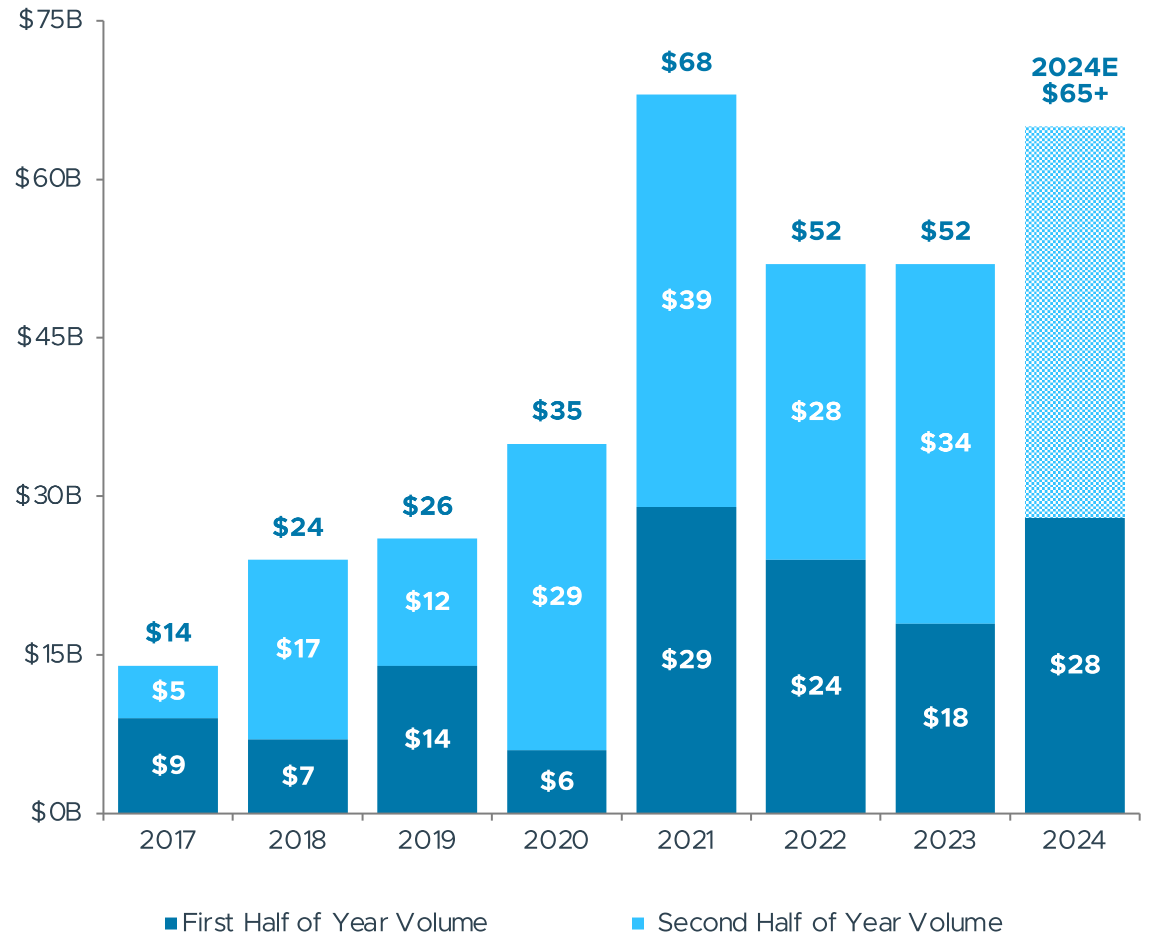
The time period between deal and exit is longer than the average

Average holding period of U.S. and Europe PE funds that exited between 2000-2024



GP-led secondaries offer a path to liquidity for well-seasoned funds

Total annual GP-led secondary transaction volume ($ billion, as of June 2024)

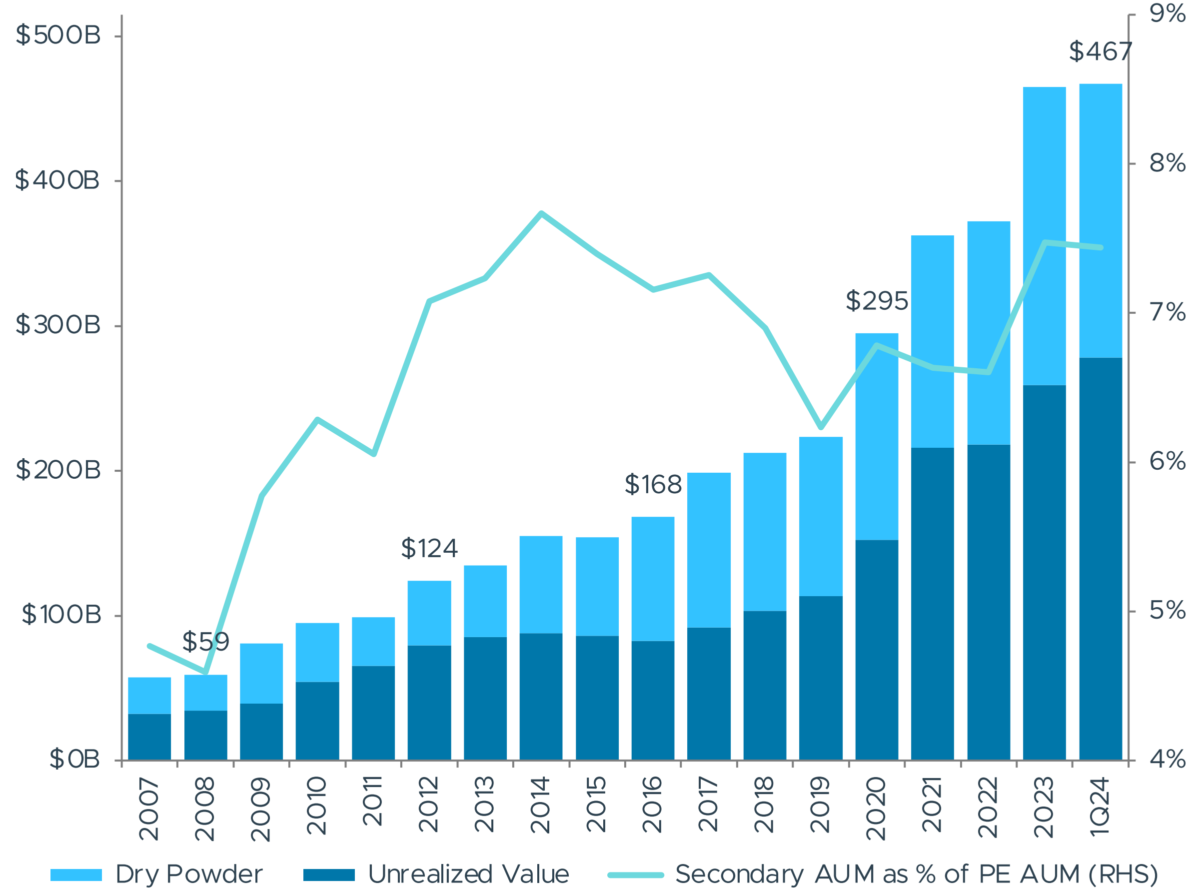


Source: (left) Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of July 2024 and is subject to change based on potential updates to source(s) database. Analysis shows the average holding period of private equity buyout funds that exited between 2000 and year-to-date 2024 by target country. Target country includes U.S. or Europe. Excludes exits from LP Direct & Private Debt transactions. (right) Jefferies Global Secondary Market Review, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. Estimate of GP-led secondary transaction volume for the full year 20224 is based on Jefferies estimates. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Growth in private equity secondaries is driven by strong supply/demand dynamics

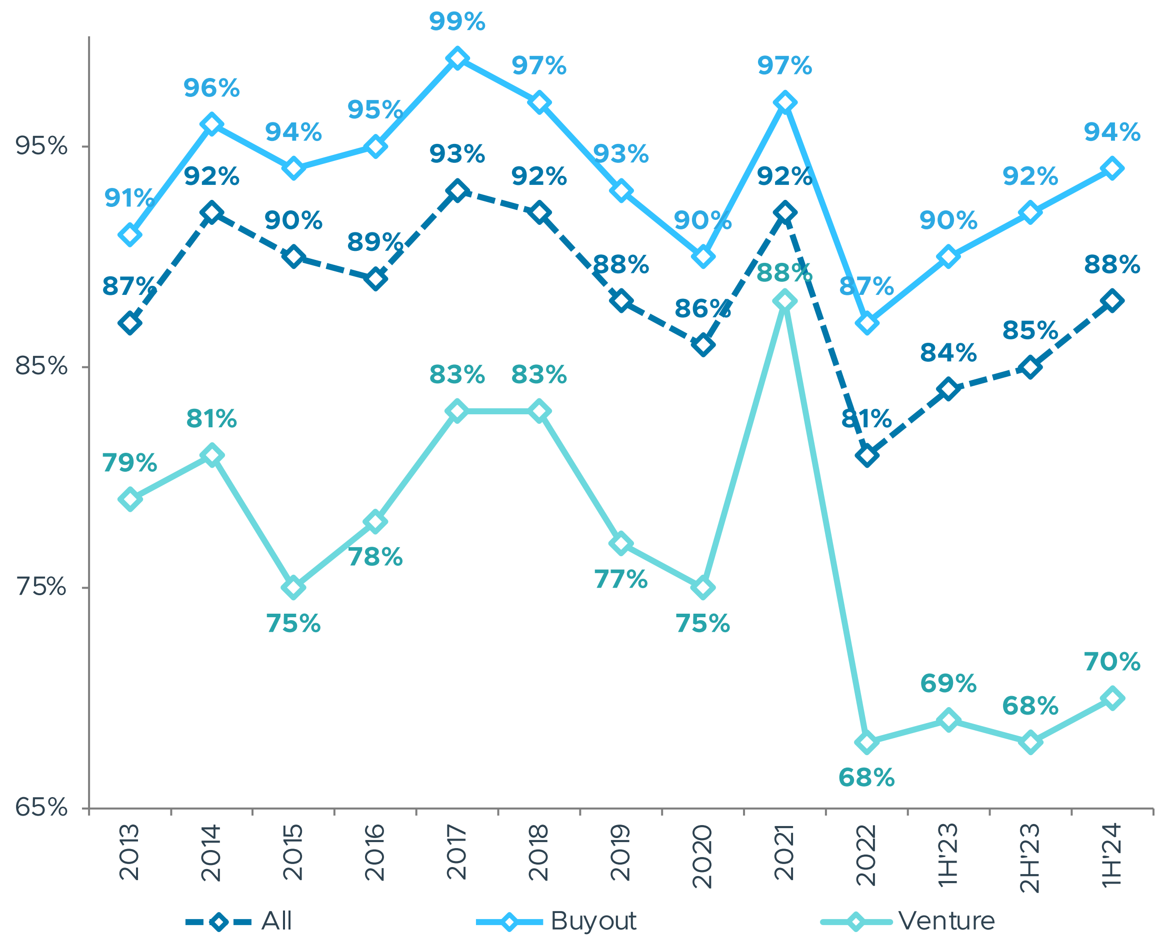
Secondaries funds have seen rapid growth as liquidity needs grow

Total AUM in global private equity secondary funds ($ billion, as of March 2024)



Secondaries discounts have narrowed but remain larger than pre-2021

LP-led secondary market pricing (% of net asset value, as of June 2024)



Source: (left) Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Historical AUM data is through March 2024 and data is subject to change based on potential updates to source(s) database. Secondary AUM shown is broken down by unrealized value and dry powder. Secondary assets under management as a percentage of overall private equity assets under management is based on Secondary AUM divided by AUM within Balanced, Buyout, Growth, Co-investment, Co-investment multi-manager, and Turnaround strategies. (right) Jefferies Global Secondary Market Review, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. "All" includes Buyout, Venture, Credit, and Real Estate aggregate LP portfolio. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Alternatives Decoded

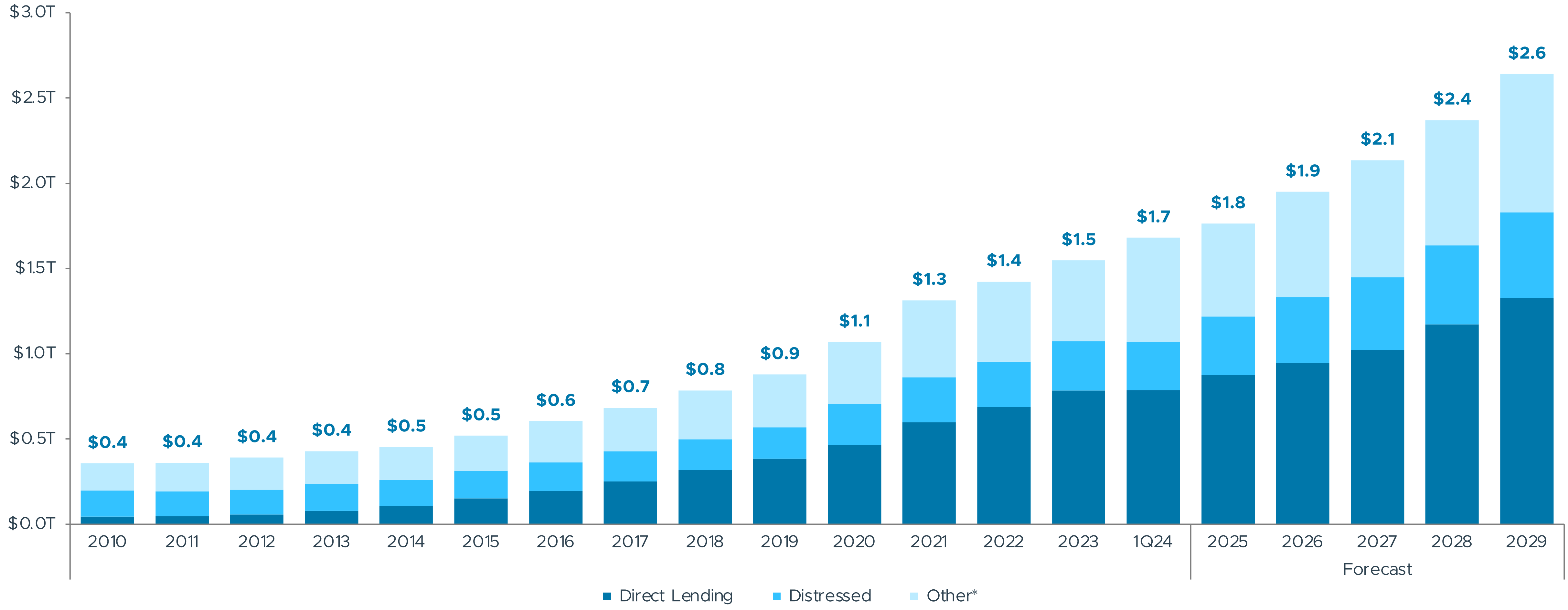
Private Credit

iCapital

Private credit assets under management have grown rapidly to record levels

Private credit assets under management (AUM) are at record levels and are forecast to increase by over 50% by 2029

Total assets under management (AUM) in global private equity funds ($ trillion, as of March 2024)

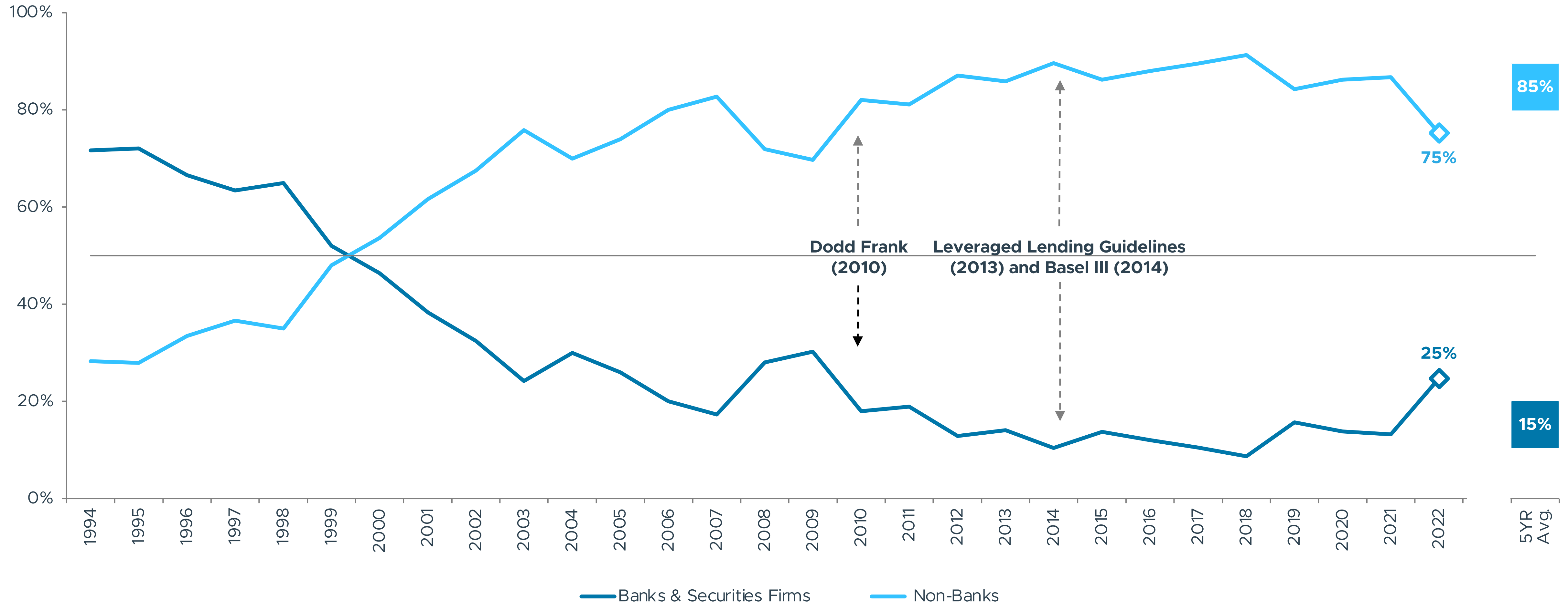


Source: Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Historical AUM is through March 2024 and forecasted AUM is through December 2029. Data is subject to change based on updates to the source(s) database. AUM is broken down by private credit sub-asset classes as defined by Preqin. "Other" includes Special Situation, Mezzanine, and Venture Debt strategies. Both historical and forecasted AUM exclude RMB-denominated funds for data accuracy, as well as fund of funds and secondaries to prevent double counting of available capital and unrealized value. Forecasted AUM is sourced from Preqin and is based on their Future of Alternatives report, which models projected AUM using various variables. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Secular decline in bank lending is being driven by regulation, capital requirements

Banks retrenched from middle market direct lending with its share of the leveraged loan market roughly 50pp lower since 1994

Bank vs. nonbank lenders share of the new-issue leveraged loan market (%)

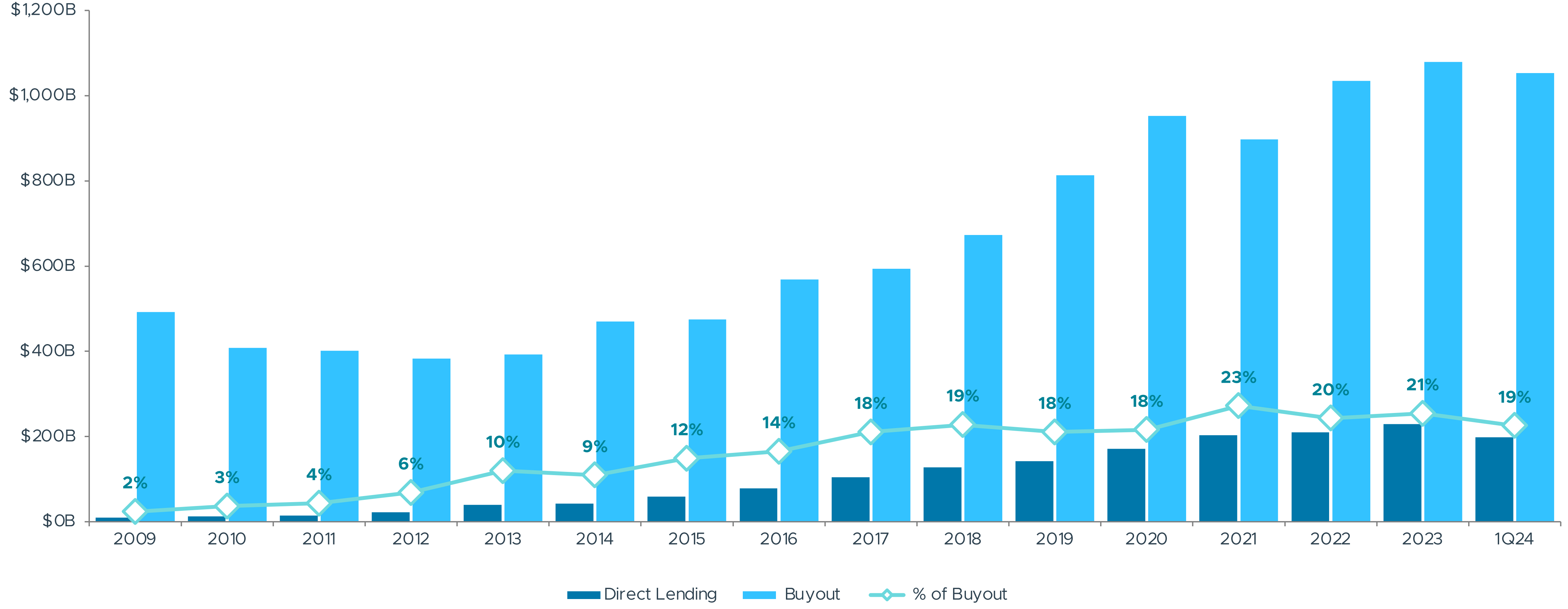


Source: PitchBook | LCD, iCapital Investment Strategy, with data based on availability as of Aug. 30, 2024. Note: Data as of December 2022 and is subject to change based on potential updates to source(s) database. Due to a significant decline in loan issuance in 2023, PitchBook | LCD did not track enough observations to compile meaningful averages for investor analysis of 2023. Nonbanks include institutional investors, insurance companies, and finance companies. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Growth in private equity buyout strategies drives further demand for private credit

As private equity dry powder continues to grow this drives the opportunity for direct lending

Global direct lending and private equity buyout dry powder ($ billion, as of March 2024)



Source: Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of March 2024 and is subject to change based on potential updates to source(s) database. Dry powder shown is for direct lending and buyout strategies, as defined by Preqin. Dry powder figures exclude RMB-denominated funds for greater data accuracy, as well as fund of funds and secondaries to prevent double counting of dry powder. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private credit strategies historically outperformed public fixed income sectors

Private credit and public fixed income returns

Annual and time-period returns ranked in order of performance (%, as of June 2024)

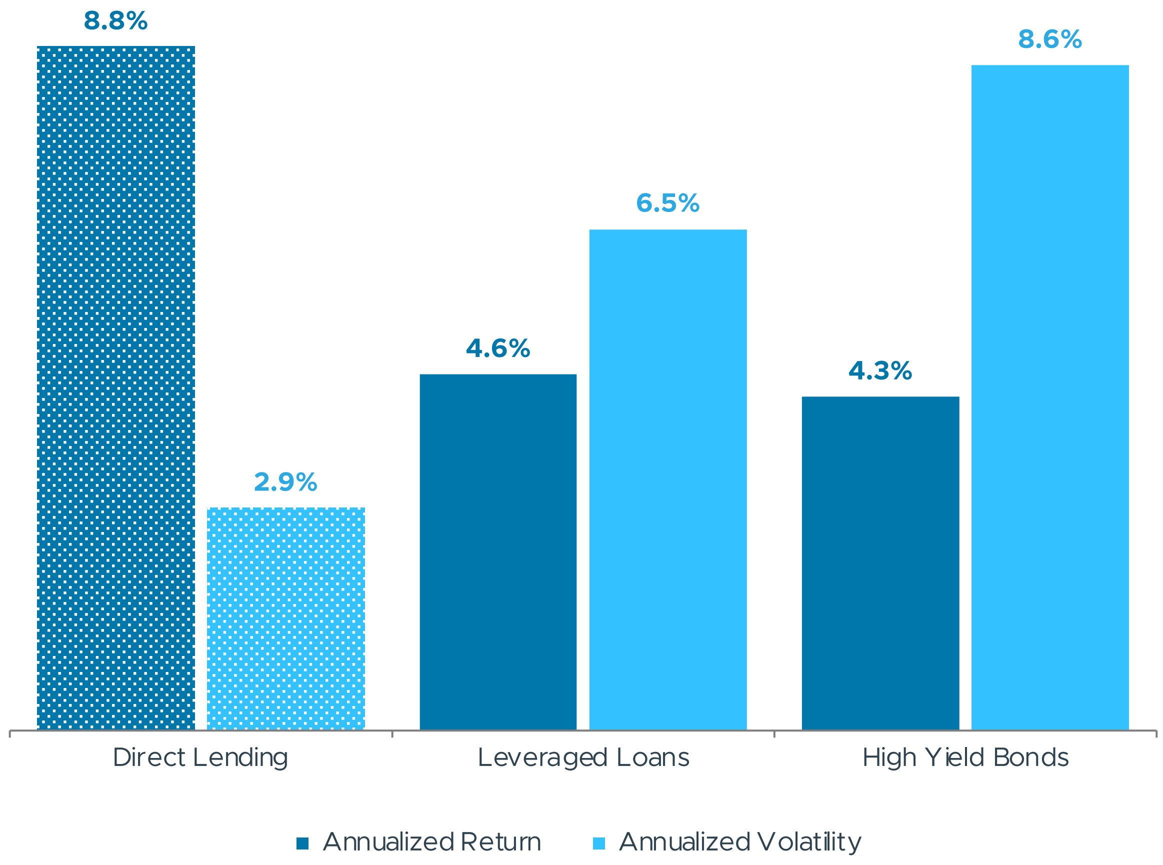
Annual Return (%)										Time-Period Return (%, per annum)			
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 YTD	3YR	5YR	10YR	15YR
5.5% Direct Lending	24.8% Public BDCs	9.2% Distressed Debt	8.1% Direct Lending	29.3% Public BDCs	7.5% US Aggregate	36.5% Public BDCs	6.3% Direct Lending	26.6% Public BDCs	9.3% Public BDCs	11.1% Public BDCs	10.8% Public BDCs	8.8% Direct Lending	12.3% Public BDCs
3.0% Distressed Debt	17.1% HY Bonds	8.6% Direct Lending	1.9% Cash	14.3% HY Bonds	7.1% HY Bonds	22.6% Distressed Debt	5.6% Distressed Debt	13.4% HY Bonds	5.7% Direct Lending	9.8% Direct Lending	9.2% Direct Lending	7.6% Public BDCs	10.3% Direct Lending
0.5% US Aggregate	11.2% Direct Lending	7.5% HY Bonds	1.4% Distressed Debt	9.0% Direct Lending	5.5% Direct Lending	12.8% Direct Lending	1.5% Cash	13.3% Leveraged Loans	4.6% Distressed Debt	9.5% Distressed Debt	8.7% Distressed Debt	6.4% Distressed Debt	9.4% Distressed Debt
0.0% Cash	10.2% Leveraged Loans	4.1% Leveraged Loans	0.5% Leveraged Loans	8.7% US Aggregate	3.3% Distressed Debt	5.3% HY Bonds	-0.8% Leveraged Loans	12.1% Direct Lending	4.5% Leveraged Loans	6.1% Leveraged Loans	5.5% Leveraged Loans	4.6% Leveraged Loans	7.4% HY Bonds
-0.7% Leveraged Loans	4.4% Distressed Debt	3.5% US Aggregate	0.0% US Aggregate	8.6% Leveraged Loans	3.1% Leveraged Loans	5.2% Leveraged Loans	-9.6% Public BDCs	8.3% Distressed Debt	2.8% Cash	3.2% Cash	3.9% HY Bonds	4.3% HY Bonds	6.0% Leveraged Loans
-3.1% Public BDCs	2.6% US Aggregate	0.9% Public BDCs	-2.1% HY Bonds	2.6% Distressed Debt	0.6% Cash	0.0% Cash	-11.2% HY Bonds	5.5% US Aggregate	2.6% HY Bonds	1.6% HY Bonds	2.2% Cash	1.5% Cash	2.5% US Aggregate
-4.5% HY Bonds	0.3% Cash	0.8% Cash	-4.6% Public BDCs	2.3% Cash	-9.7% Public BDCs	-1.5% US Aggregate	-13.0% US Aggregate	5.3% Cash	-0.7% US Aggregate	-3.0% US Aggregate	-0.2% US Aggregate	1.3% US Aggregate	1.0% Cash

Source: Bloomberg Index Services Limited, Cliffwater, Cliffwater Direct Lending Index, FTSE Russell, Morningstar, Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. U.S. Aggregate proxied by the Bloomberg U.S. Aggregate Bond Index. High Yield proxied by the Bloomberg High Yield Index. Leveraged Loans proxied by Morningstar LSTA U.S. Leveraged Loan Index. Direct Lending proxied by Cliffwater Direct Lending Index. Public BDCs is proxied by Cliffwater Public BDC Index. Cash is proxied by the FTSE 3-Month US T Bill Index which is intended to track the daily performance of 3-month US Treasury bill, a measure we consider a proxy for cash returns. Distressed Debt is proxied by Preqin Private Credit Distressed Debt Index. It is important to note that the returns listed are based on indices that are meant to estimate the asset class performance, hypothetically creating a return if one had access to all active funds. Not all the above indices are practically investable and are subject to change as datasets are continually updated. All returns are calculated in U.S. dollars. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Direct lending offered favorable risk-adjusted returns versus public fixed income

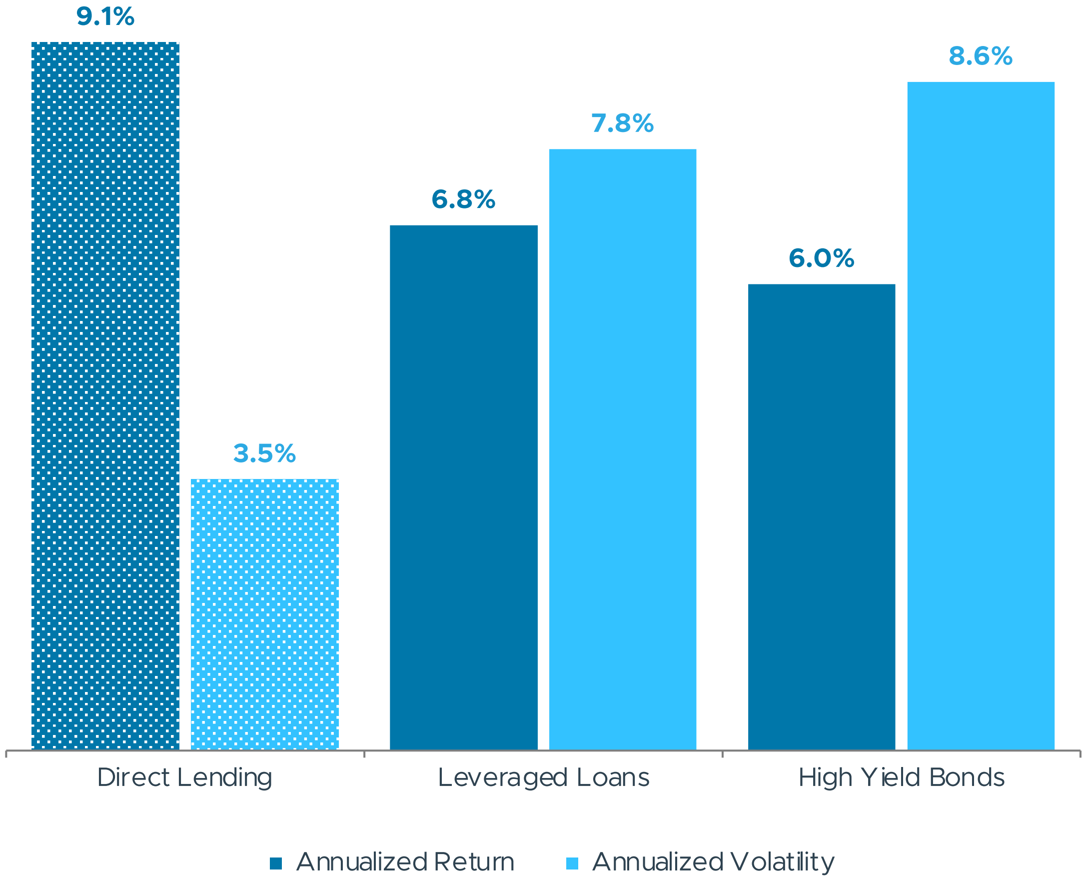
Private credit has historically produced superior risk-adjusted returns

Historical 10-year annual risk/return for public and private credit (%, as of June 2024)



Forecasts point to continued risk-adjusted outperformance of private credit

Forecasted 10-year annualized risk/return for public and private credit (%)



Source: (left) Bloomberg Index Services Limited, Cliffwater Direct Lending Index, Morningstar, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024. High Yield proxied by the Bloomberg High Yield Index. Leveraged Loans proxied by Morningstar LSTA U.S. Leveraged Loan Index. Direct Lending proxied by Cliffwater Direct Lending Index. Historical 10-year annualized return and volatility is based on quarterly data from June 2014 to June 2024. (right) BlackRock, Cliffwater, Envestnet, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Analysis is based on the average long-term capital market assumption for each strategy, using 2024 long-term capital market assumptions from BlackRock, Cliffwater, and Envestnet. For the selected sub-asset classes and strategies, returns are expressed as compound returns over a 10-year outlook period, net of applicable fees. Data is subject to change based on potential updates to source(s) database. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private credit drawdown risk is moderated by buy-and-hold nature, fewer dislocations

Private credit is less susceptible to drawdowns and dislocations due to daily market technicals

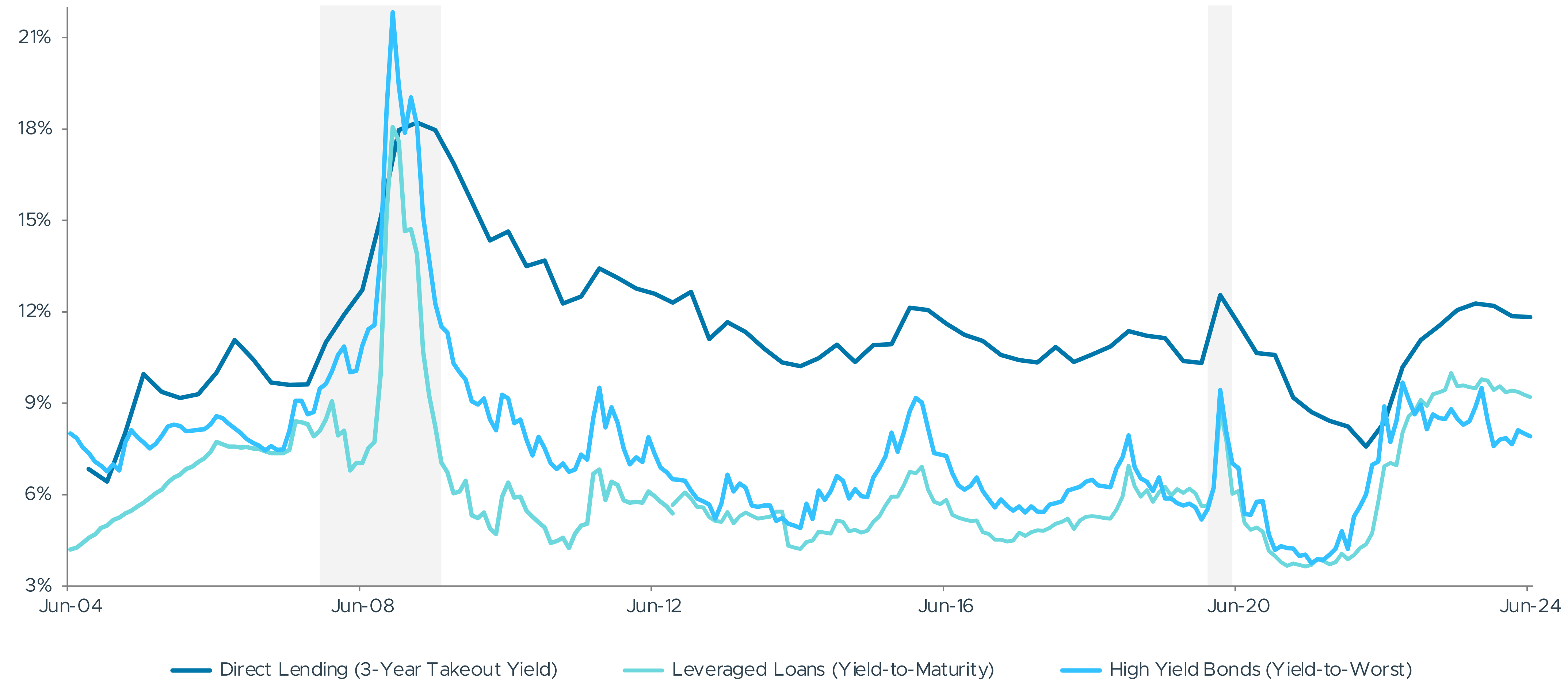
Ratio of fair (market) value to cost for direct lending with high yield bond and leveraged loan prices (cost = 100, as of June 2024)

Source: Bloomberg Index Services Limited, Cliffwater Direct Lending Index, Morningstar, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. High Yield proxied by the Bloomberg High Yield Index and shows month-end. Leveraged Loans proxied by Morningstar LSTA U.S. Leveraged Loan 100 Index and shows month-end price level. Direct Lending proxied by Cliffwater Direct Lending Index and shows the quarter-end "fair" value to cost (principal) value. Cliffwater Direct Lending "Fair Value" / Cost Value is calculated based on the SEC filings of the BDCs that comprise the Cliffwater Direct Lending Index. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Risk premium, complexity and market inefficiencies provides a backdrop for attractive yields

Private credit yields have compared favorably to public fixed income

Average yield (%, as of June 2024)



10-Year Average

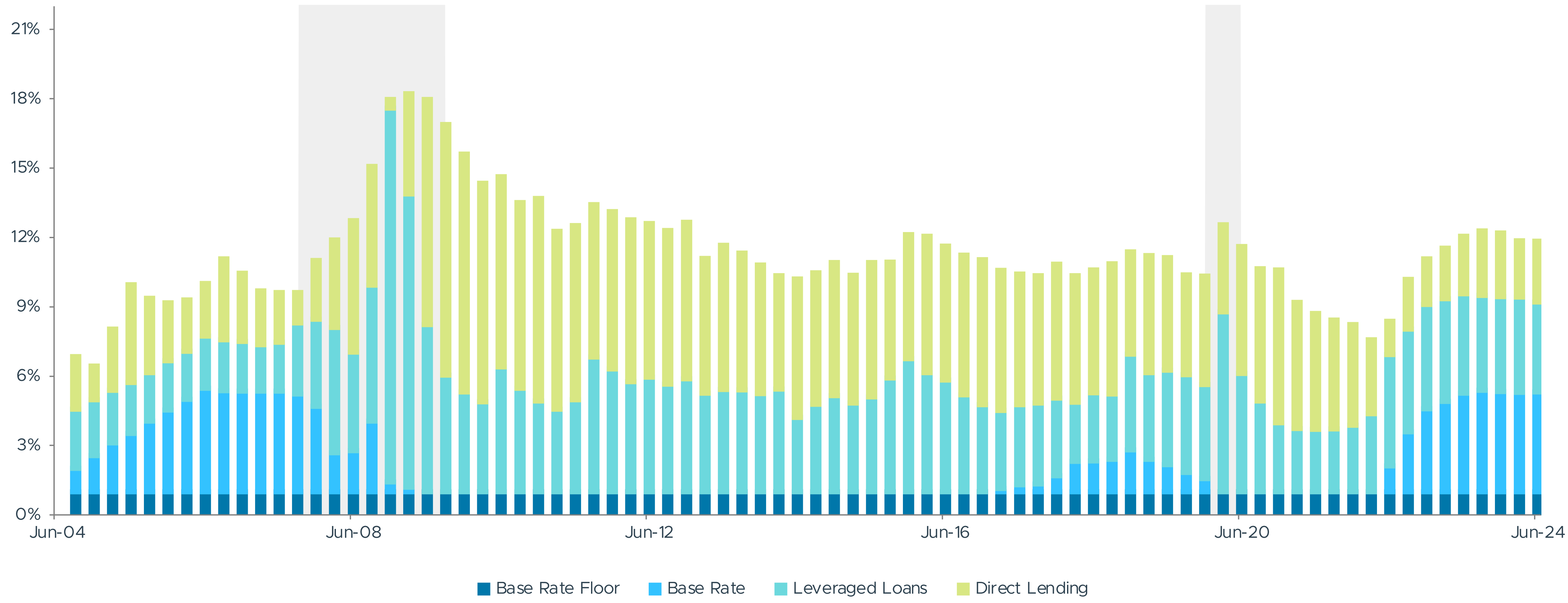
Direct Lending	10.7%
Leveraged Loans	5.9%
High Yield Bonds	6.5%

Source: Bloomberg Index Services Limited, Cliffwater Direct Lending Index, Morningstar, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. High Yield proxied by the Bloomberg High Yield Index and shows month-end yield-to-worst. Leveraged Loans proxied by Morningstar LSTA U.S. Leveraged Loan 100 Index and shows month-end yield-to-maturity. Direct Lending proxied by Cliffwater Direct Lending Index and shows the quarter-end 3-year takeout yield. The 3-year takeout yield is calculated by assuming loans will be repaid at par in three years, the average life of direct loans. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Direct lending spreads recently widened, moving closer to historical excess spread

Direct lending yields have historically offered excess yield of around 500 bps vs. leveraged loans

Decomposition of the excess yield provided by direct lending (%, as of June 2024)

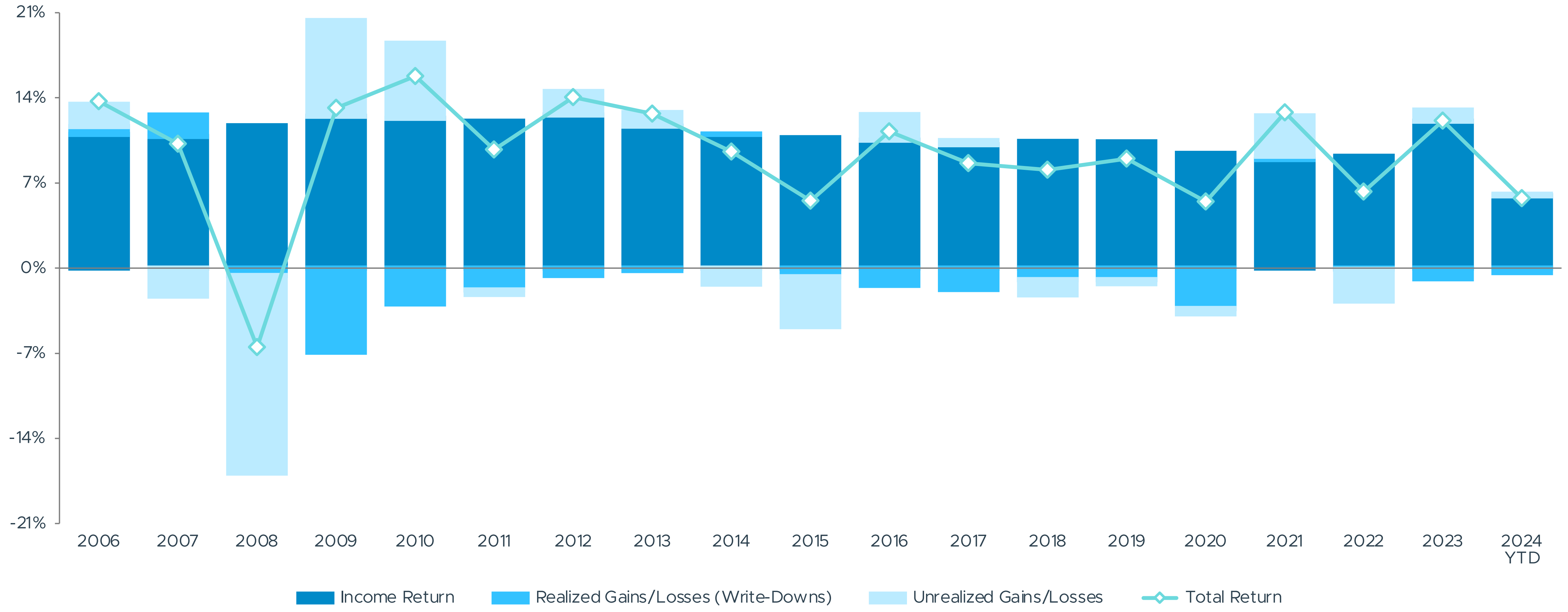


Source: Cliffwater Direct Lending Index, Intercontinental Exchange (ICE), Morningstar, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data reflects quarter-end figures as of June 2024 and is subject to change based on potential updates to source(s) database. The base rate is the benchmark interest rate, proxied by 3-Month Term SOFR (CME 3-Month Term Secured Overnight Financing Rate) since 2019 and 3-Month LIBOR (ICE 3-Month London Interbank Offered Rate) pre-2019. Leveraged Loans proxied by Morningstar LSTA U.S. Leveraged Loan 100 Index and shows month-end yield-to-maturity. Direct Lending proxied by Cliffwater Direct Lending Index and shows the quarter-end 3-year takeout yield. The 3-year takeout yield is calculated by assuming loans will be repaid at par in three years, the average life of direct loans. A base rate floor refers to the minimum interest rate applied to floating-rate loans tied to LIBOR or SOFR. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Income has been a steady component of private credit returns over time

Direct lending has only had one negative total return year (2008), given consistently high single-digit interest income returns

Decomposition of Cliffwater Direct Lending Index calendar year annual returns (%, as of June 2024)

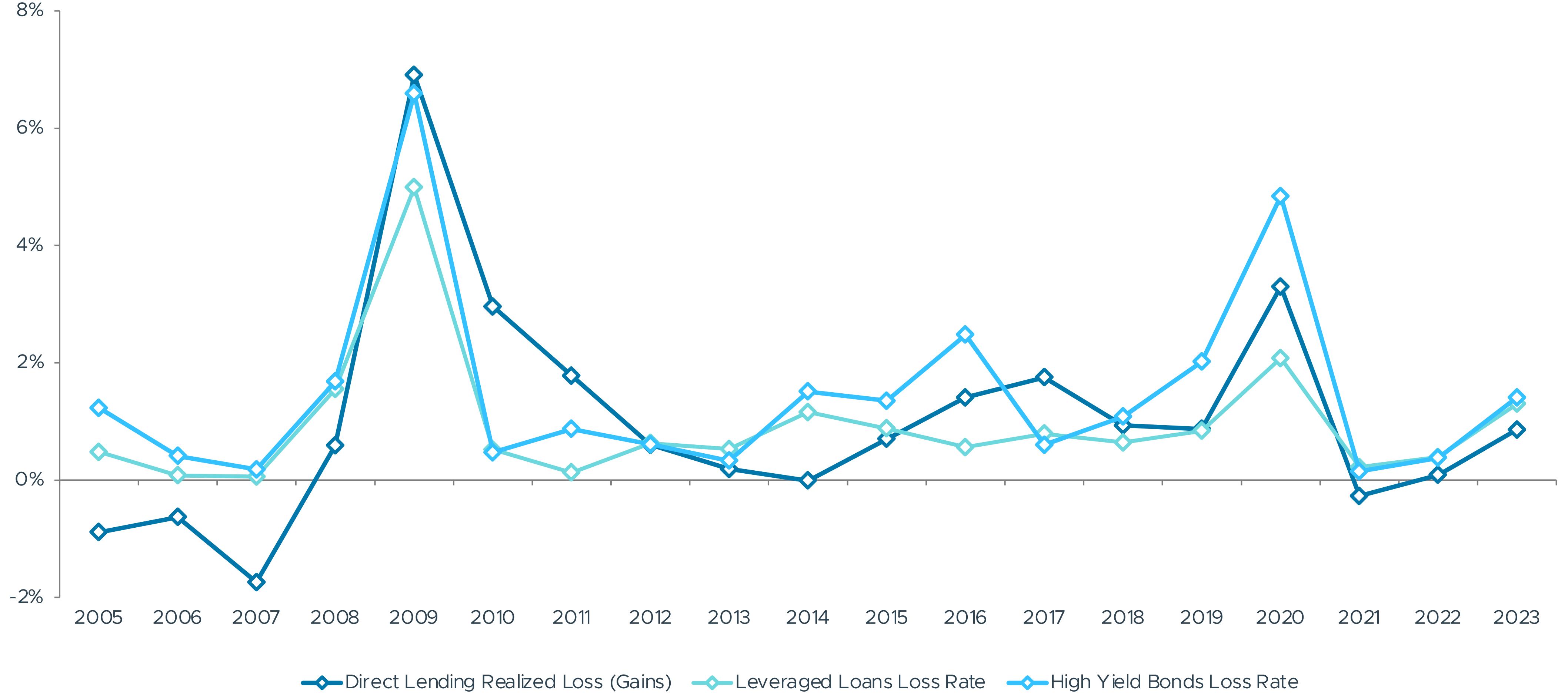


Source: Cliffwater Direct Lending Index, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. Direct Lending proxied by Cliffwater Direct Lending Index. Realized gains (losses) represent the component of valuation change for completed transactions. Unrealized gains (losses) represent the component of valuation change that is sourced by a change in market price or, in the case of a portfolio of loans, such as the Cliffwater Direct Lending Index, a change in "fair value" not attributable to a transaction. Return subcomponents may not add up exactly to the total return due to rounding and compound effects. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Credit losses for private credit have been in line with high yield and bank loan issuers

Direct lending annual loss rates have compared favorably to high yield and are in line with leveraged loans loss rates over the last 10 years

Historical annual loss rates across public and private credit (%, as of December 2023)



10-Year Average

Direct Lending
0.96%

Leveraged Loans
0.89%

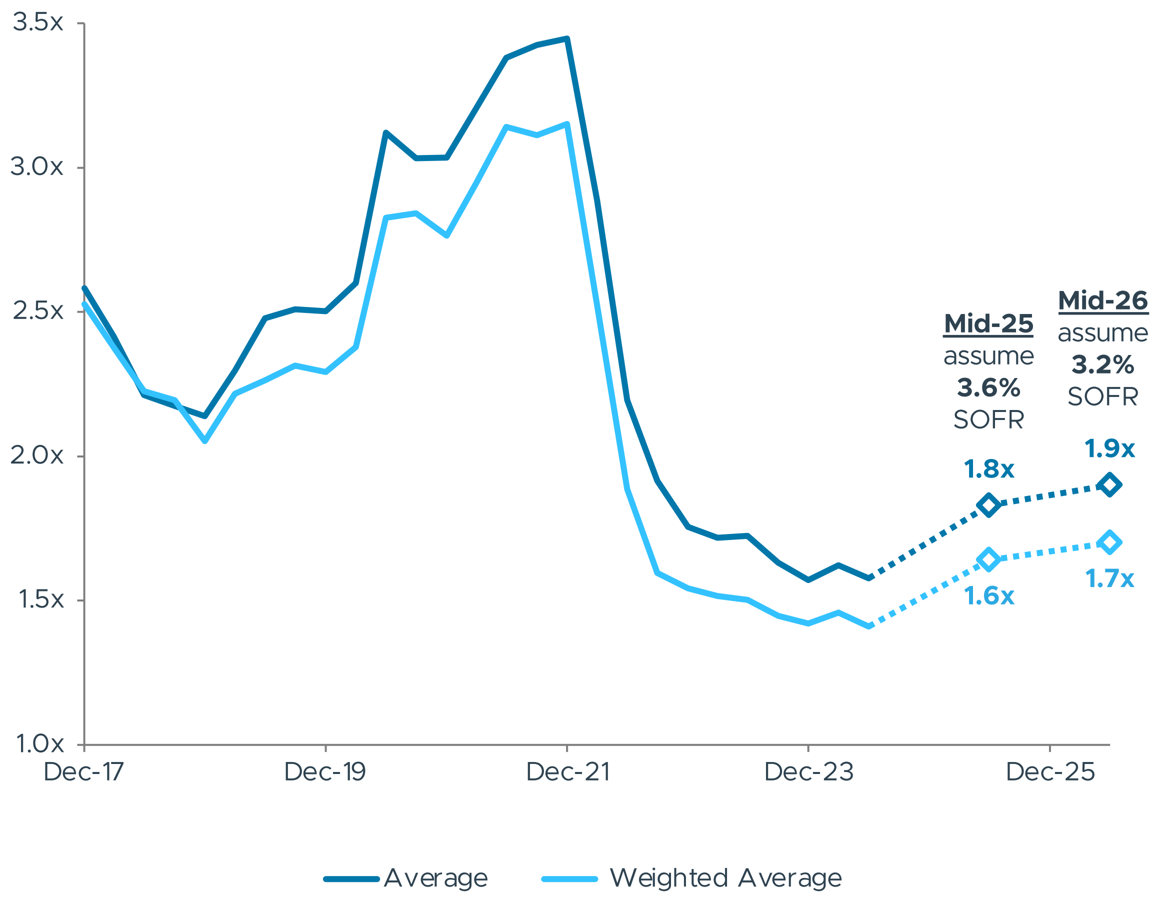
High Yield Bonds
1.58%

Source: Bloomberg Index Services Limited, Cliffwater Direct Lending Index, Morningstar, iCapital Investment Strategy, with data based on availability as of Aug. 30, 2024. Note: Data as of December 2023 and is subject to change based on potential updates to source(s) database. High Yield proxied by the Bloomberg High Yield Index. Leveraged Loans proxied by Morningstar LSTA U.S. Lev Loan Index. Direct Lending proxied by Cliffwater Direct Lending Index. The credit loss rate for High Yield and Leveraged Loans equals the default rate multiplied by one minus the recovery rate. The credit loss rate for Direct Lending is realized credit losses (gains). When comparing public vs. private credit, loss rates can be more informative than default rates, driven by the increased prevalence of covenants in private credit structures. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private credit coverage ratios are improving, which could help keep defaults in check

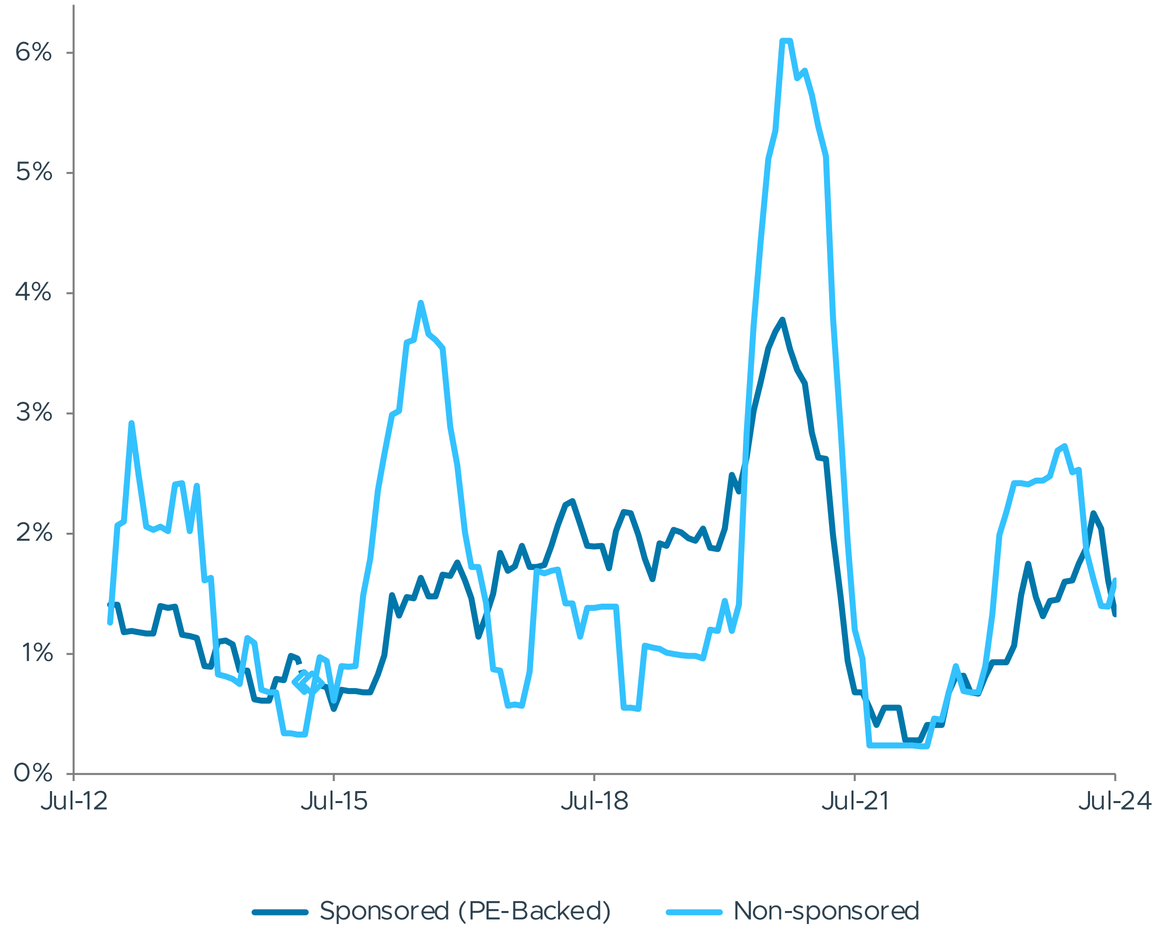
Coverage ratios are bottoming and are expected to improve thru 2026

Private credit market interest coverage ratios with forward looking forecasts (x)



PE-backed co.'s exhibit lower default rate than those without backing

Sponsored vs. non-sponsored loan default rates by issuer count (%, as of July 2024)

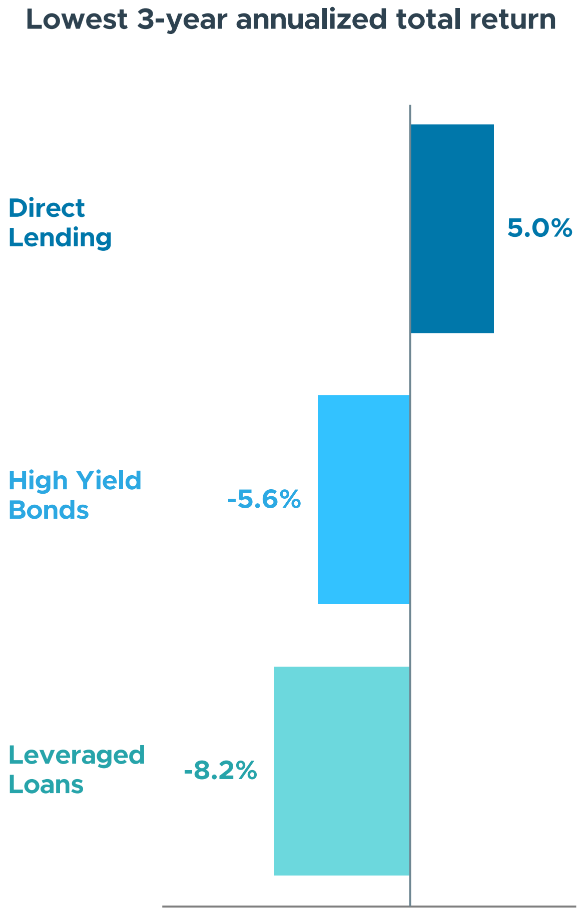


Source: (left) Houlihan Lokey Private Performing Credit Index, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of Jun. 2024 and is subject to change based on potential updates to source(s) database. Forecasts are based on Houlihan Lokey and assume a 3.6% SOFR base rate in mid-2025 and a 3.2% SOFR base rate in mid-2026. Private credit market interest coverage ratio is calculated as adjusted EBITDA divided by total interest expense. It is based on underlying data within Houlihan Lokey's proprietary database of performing private credit loans. The data is adjusted as appropriate to calculate each borrowers' interest coverage ratio. Adjustments may include pro forma adjustments to EBITDA, annualization of quarterly interest expense, and estimation of interest expense when there is limited information. (right) PitchBook | LCD, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of July 2024 and is subject to change based on potential updates to source(s) database. Default rates are based on issuer count and include issuers in the Morningstar LSTA US Leveraged Loan Index. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Lower volatility, high income led to more consistently positive results for private credit

Private credit has historically offered superior downside protection with a lowest 3-year annualized return of 5%

Rolling 3-year annualized total return across public and private credit (%, as of June 2024)



Source: Bloomberg Index Services Limited, Cliffwater Direct Lending Index, Morningstar, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. High Yield proxied by the Bloomberg High Yield Index. Leveraged Loans proxied by Morningstar LSTA U.S. Lev Loan Index. Direct Lending proxied by Cliffwater Direct Lending Index. Rolling 3-year annualized total return is based on quarterly. Lowest 3-year annualized total return shows the quarter where the strategy had the lowest rolling 3-year annualized return. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Alternatives Decoded

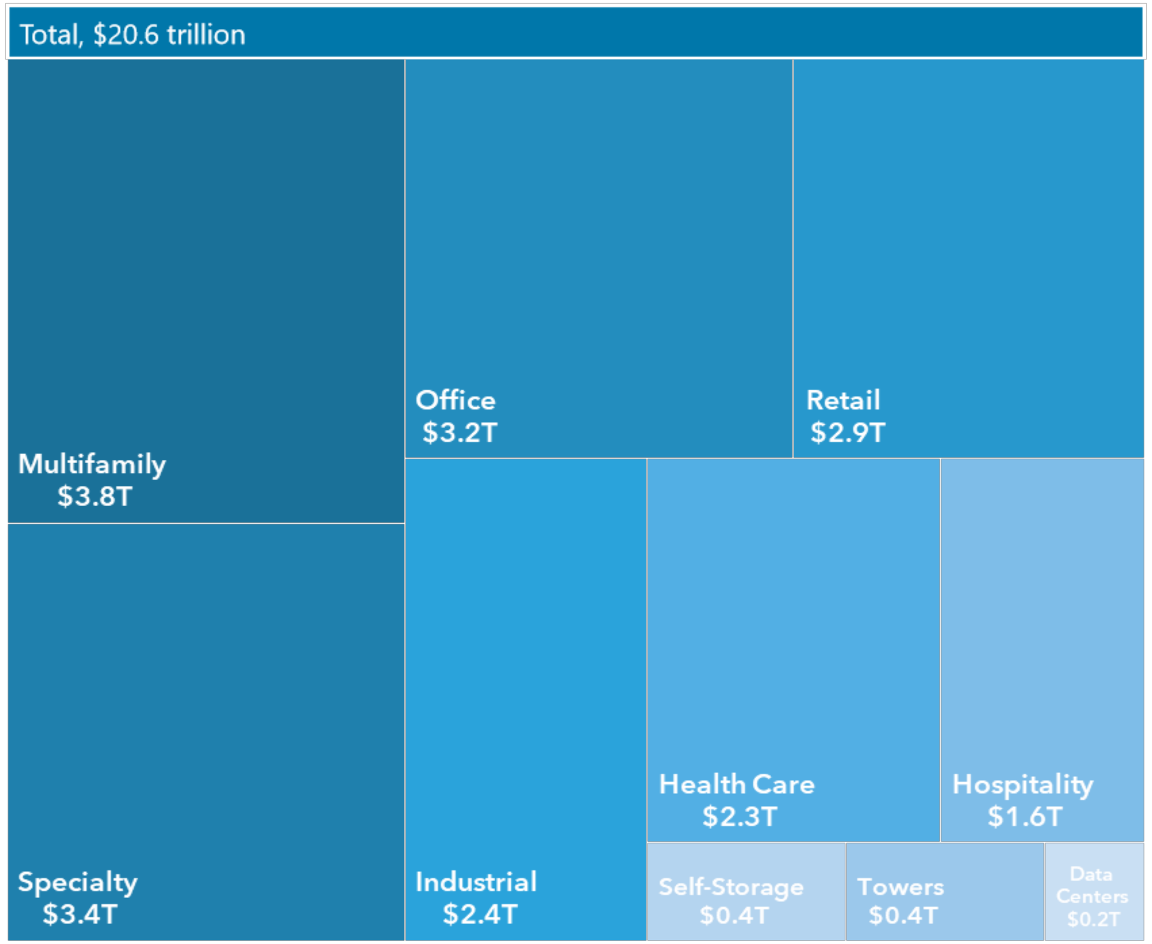
Commercial Real Estate

iCapital

CRE is a large, diversified asset class with growing interest from private capital investors

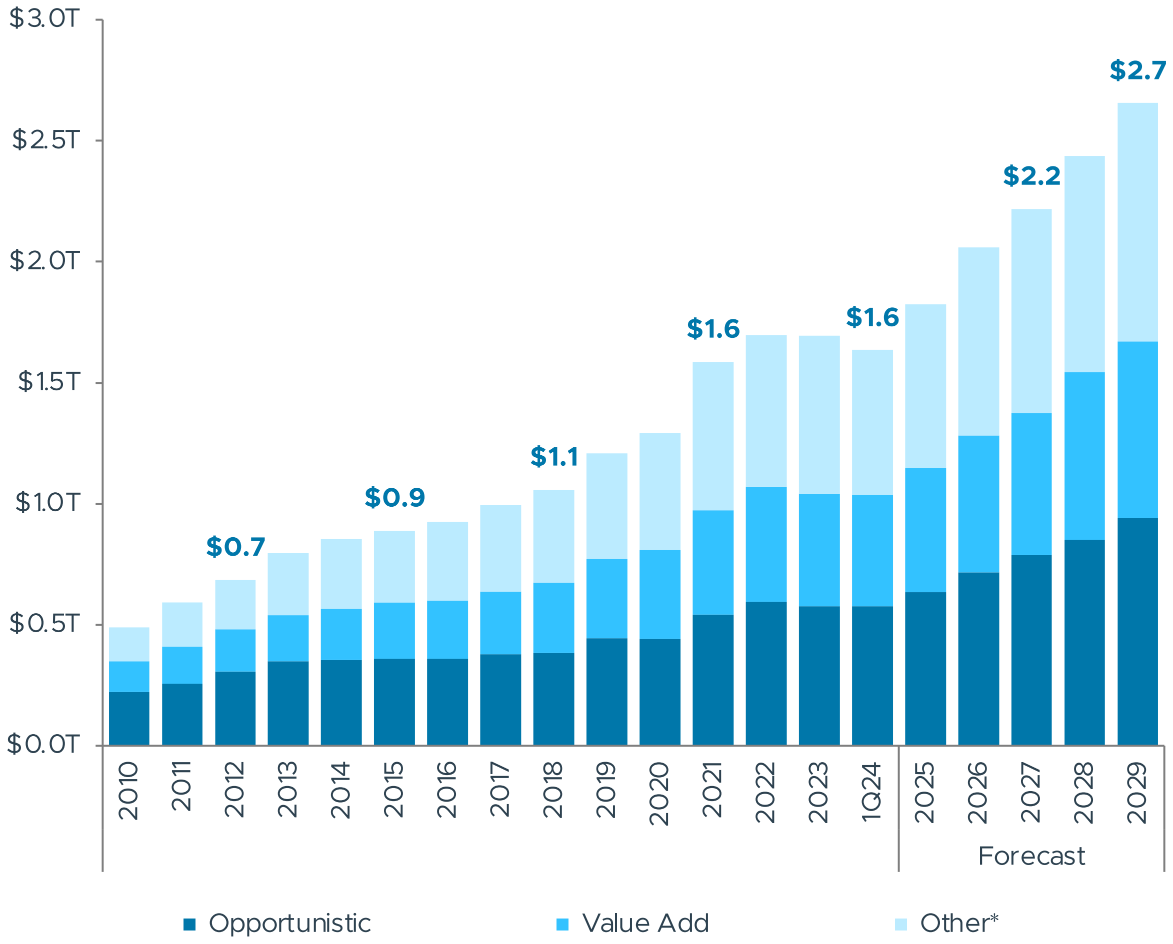
The U.S. commercial real estate market is estimated to be $20.6T

Estimated size of the U.S. commercial real estate market by sector ($ trillion)



Global real estate funds under management grew consistently

Total AUM in global private real estate funds ($ trillion, as of March 2024)



Source: (left) NAREIT, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2021 and is subject to change based on potential updates to source(s) database. Measurement issues with the underlying data suggest that the actual value of total CRE may differ from this point estimate. An examination of these sources of uncertainty suggests that the actual value is highly likely to fall within a range of $18-22 trillion. These estimates are based on a bottom-up approach using the best available data for each property sector. (right) Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Historical AUM is through March 2024 and forecasted AUM is through December 2029. Data is subject to change based on updates to the source(s) database. AUM is broken down by closed-end real estate sub-asset classes as defined by Preqin. "Other" includes Core, Core+, Debt, Distressed, and Co-Invest strategies. Both historical and forecasted AUM exclude RMB-denominated funds for data accuracy, as well as fund of funds and secondaries to prevent double counting of available capital and unrealized value. Forecasted AUM is sourced from Preqin and is based on their Future of Alternatives report, which models projected AUM using various variables. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

CRE has had low correlation to and better risk-adjusted returns than public markets

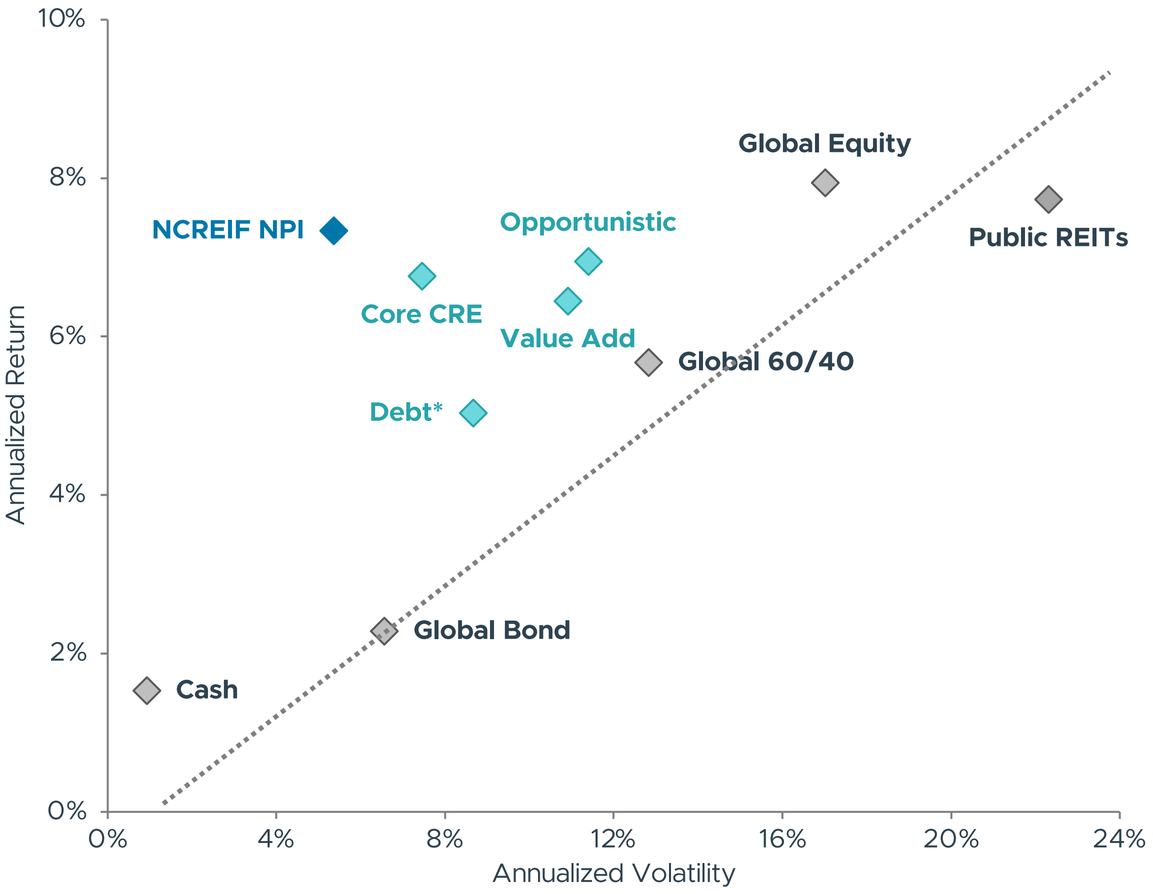
Private real estate provides lower correlation to 60/40 than public REITs

Correlation matrix based on trailing 15 years of quarterly data (as of June 2024)

		CPPI	Private Real Estate				Public Markets		
		NCREIF NPI	Core	Value Add	Opportunistic	Debt	Public REITs	Global 60/40	Cash
CPPI	NCREIF NPI	1.00							
Private Real Estate	Core	0.98	1.00						
	Value Add	0.75	0.76	1.00					
	Opportunistic	0.63	0.63	0.72	1.00				
	Debt	0.39	0.36	0.55	0.54	1.00			
Public Markets	Public REITs	-0.13	-0.23	-0.14	0.11	0.06	1.00		
	Global 60/40	-0.31	-0.36	-0.11	0.20	0.18	0.75	1.00	
	Cash	-0.66	-0.62	-0.35	-0.38	-0.09	-0.11	0.06	1.00

CRE has produced superior risk-adjusted returns over the long run

Annualized vol/return based on trailing 20 years of quarterly data (as of June 2024)

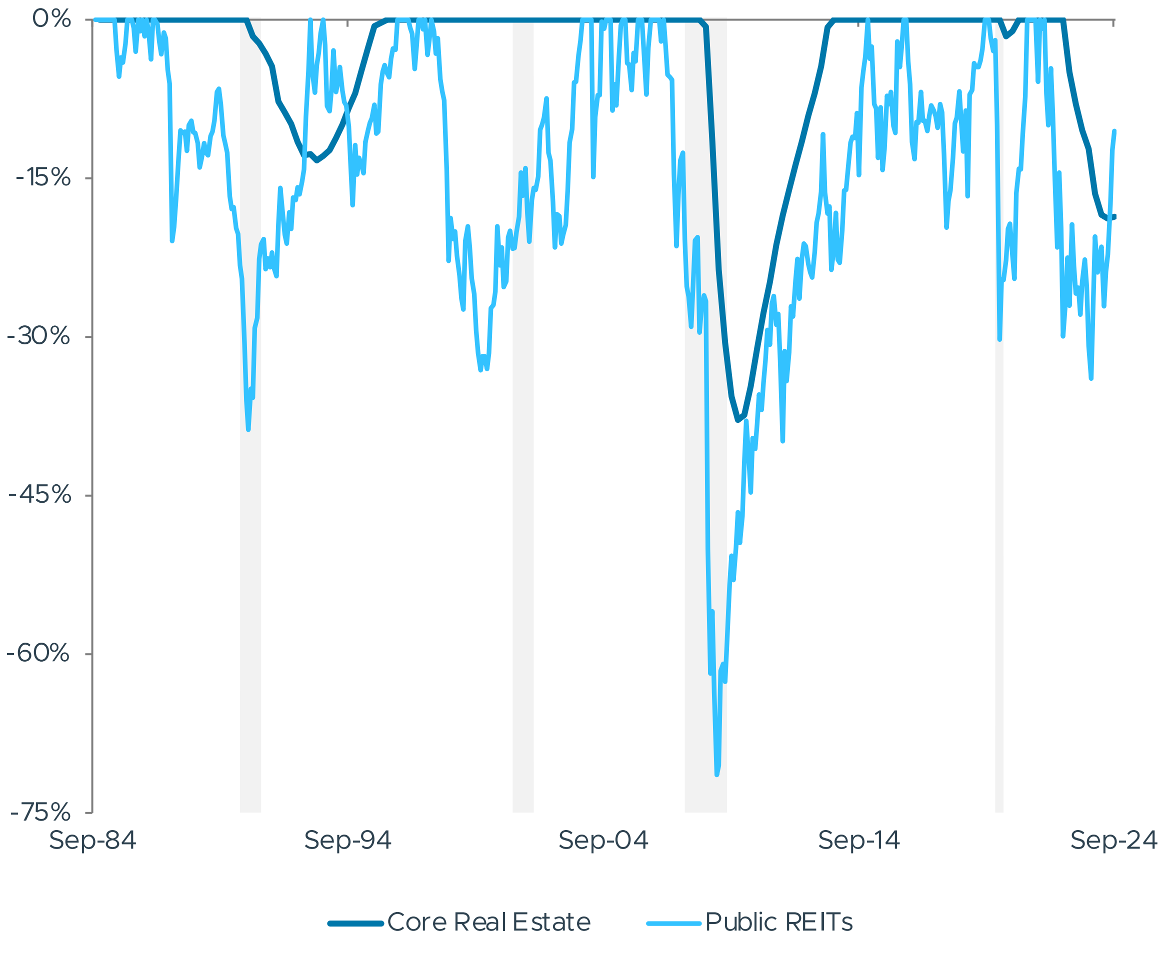


Source: (left and right) Bloomberg Index Services Limited, FTSE Russell, MSCI, NCREIF, Preqin, S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. Public REITs proxied by FTSE NAREIT Equity Index. Core CRE proxied by NCREIF ODCE Total Return Index. Opportunistic CRE proxied by Preqin Real Estate Opportunistic Index. Value Add CRE proxied by Preqin Real Estate Value Add Index. CRE Debt proxied by Preqin Real Estate Debt Index. Global 60/40 proxied by 60% MSCI ACWI Total Return Index and 40% Bloomberg Global Aggregate Index. Cash proxied by the FTSE 3 Month US T Bill Index which is intended to track the daily performance of 3-month US Treasury bill, a measure we consider a proxy for cash returns. NCREIF NPI is a quarterly, unleveraged composite total return for private commercial real estate properties. It is important to note that the returns listed are based on indices which are meant to estimate the asset class performance, hypothetically creating a return if one had access to all active funds. Not all the above indices are practically investable and are subject to change as datasets are continually updated. All returns are calculated in U.S. dollars. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private real estate had less frequent drawdowns, which helped deliver returns overtime

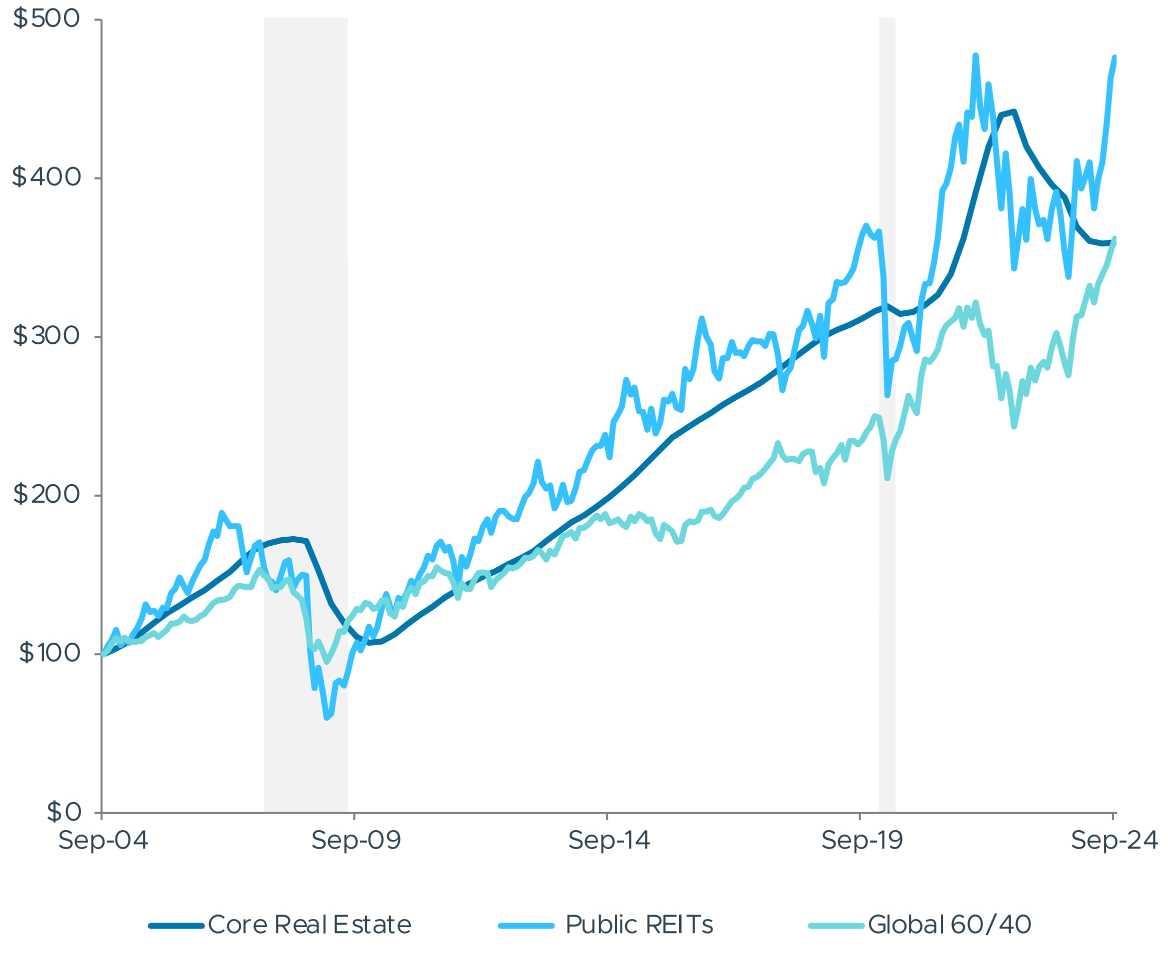
Private RE had more shallow and less frequent drawdowns than REITs

Private core real estate and public REITs max drawdowns (%, as of September 2024)



Private RE tends to outperform the traditional 60/40 portfolio

Normalized change of $100 invested over the last 20 years ($, as of September 2024)

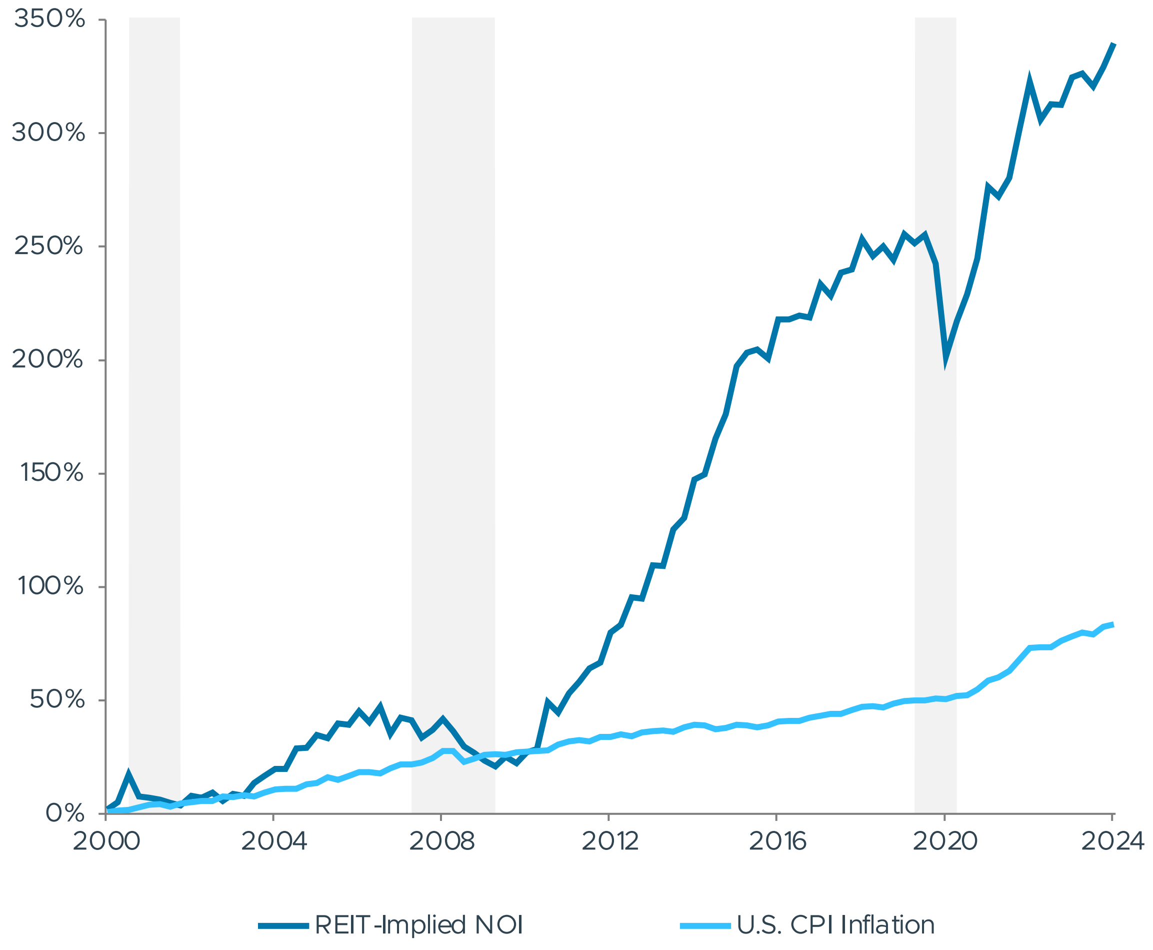


Source: (left) FTSE Russell, NCREIF, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of September 2024 and is subject to change based on potential updates to source(s) database. Maximum drawdown is the maximum loss from a peak to trough, before a new peak is attained. Public REITs proxied by FTSE NAREIT Equity Index. Core CRE proxied by NCREIF ODCE Total Return Index. (right) Bloomberg Index Services Limited, FTSE Russell, MSCI, NCREIF, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of September 2024 and is subject to change based on potential updates to source(s) database. Public REITs proxied by FTSE NAREIT Equity Index. Core CRE proxied by NCREIF ODCE Total Return Index. Global 60/40 proxied by 60% MSCI ACWI Total Return Index and 40% Bloomberg Global Aggregate Index. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Growth in net operating income (NOI) has outpaced inflation and served as a core return driver

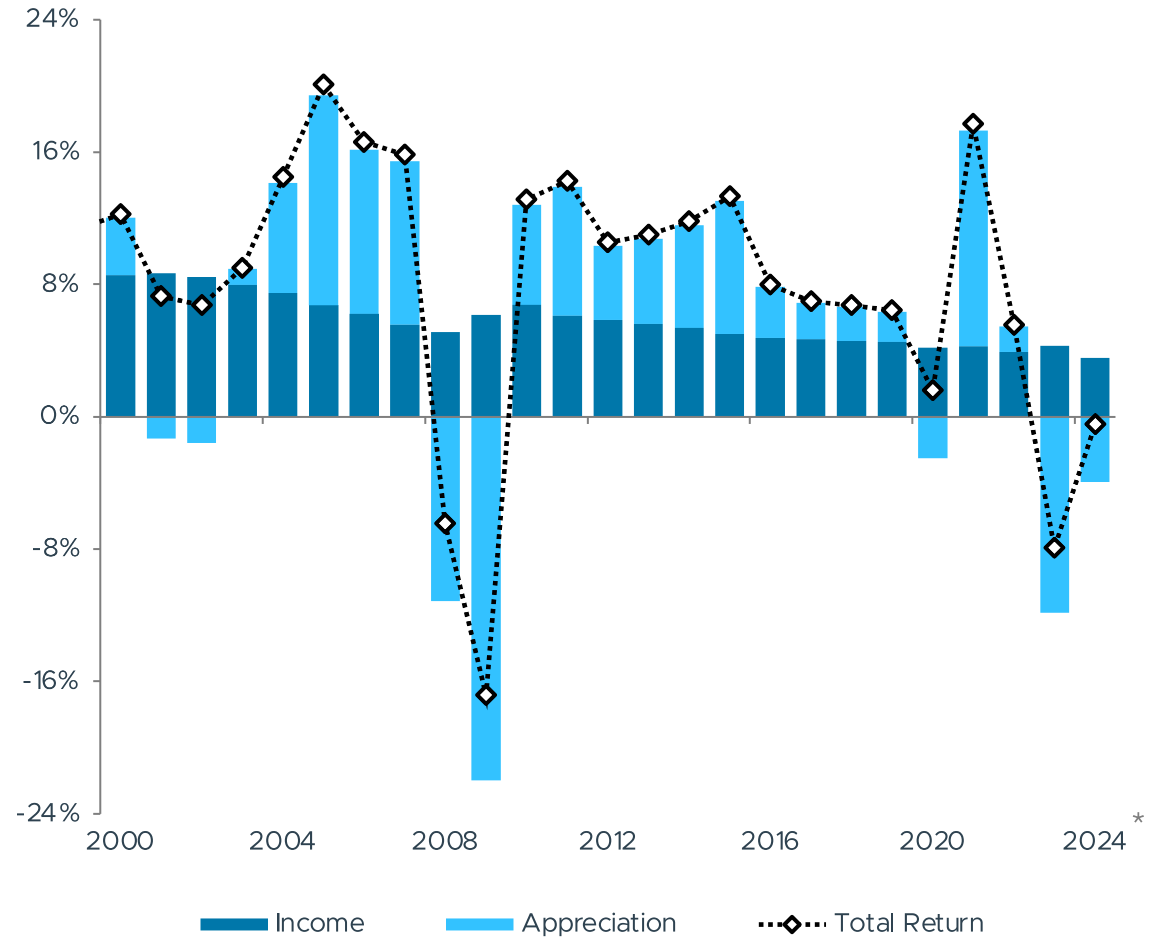
Net operating income (NOI) grew significantly faster than inflation

Normalized change of inflation and CRE net operating income (%, as of June 2024)



Income has been an important anchor of real estate returns

Decomposition of core real estate calendar year returns (%, as of September 2024)

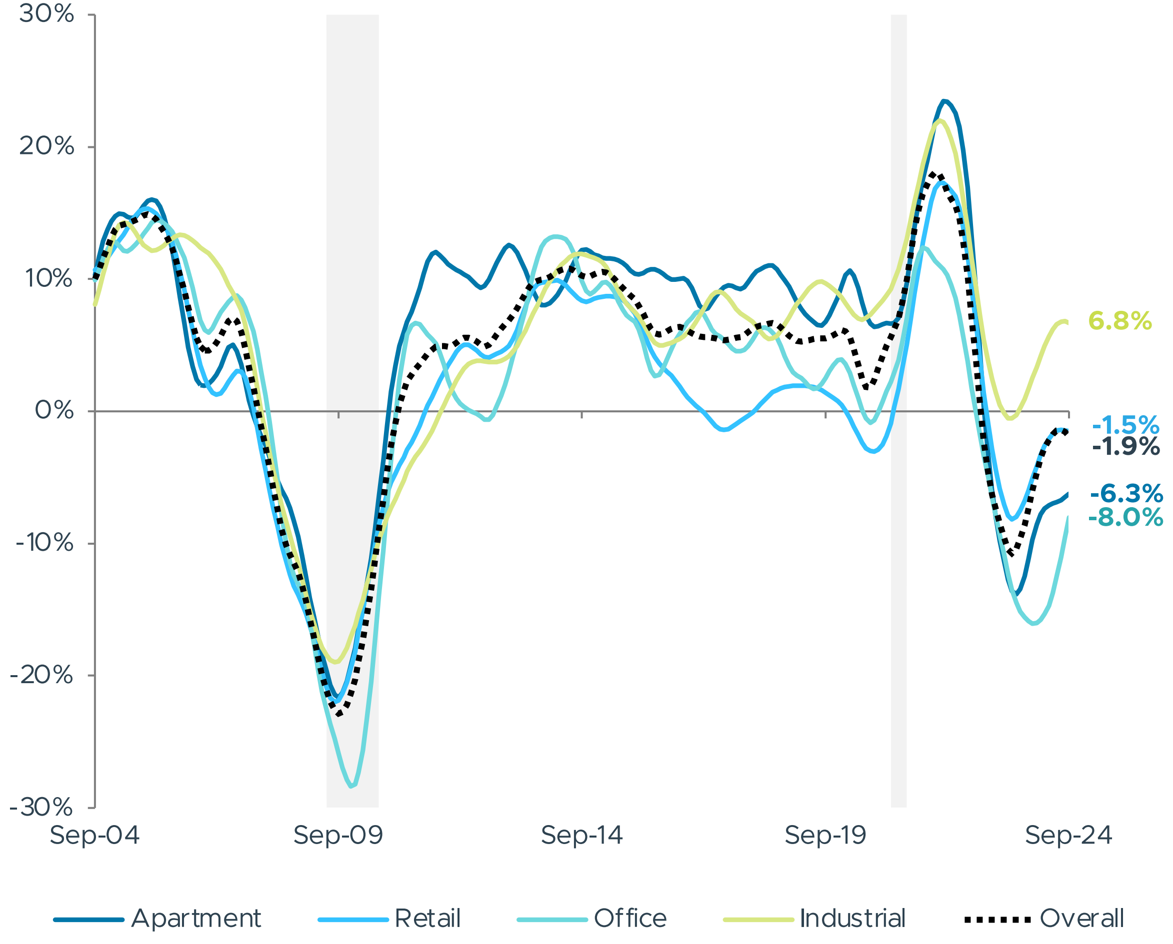


Source: (left) Bloomberg, NAREIT, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. REIT-implied same-store net operating income ("NOI") is used as a proxy for overall CRE NOI growth. Net operating income is the total revenues earned by a property less operating expenses but before capital items and debt service. It is typically used to analyze the profitability of income-generating real estate investments and is computed as a year-over-year change (right) NCREIF, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is thru September 2024 and is subject to change based on potential updates to source(s) database. Calendar year 2024 return shown is based on 2024 year-to-date return through September 2024. Decomposition of core real estate returns is based off NCREIF National Property Index (NCREIF NPI) which is a quarterly, appraisal-based index that track changes in core institutional property markets. See glossary for further definitions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Commercial real estate prices corrected sharply, but the recovery process is underway

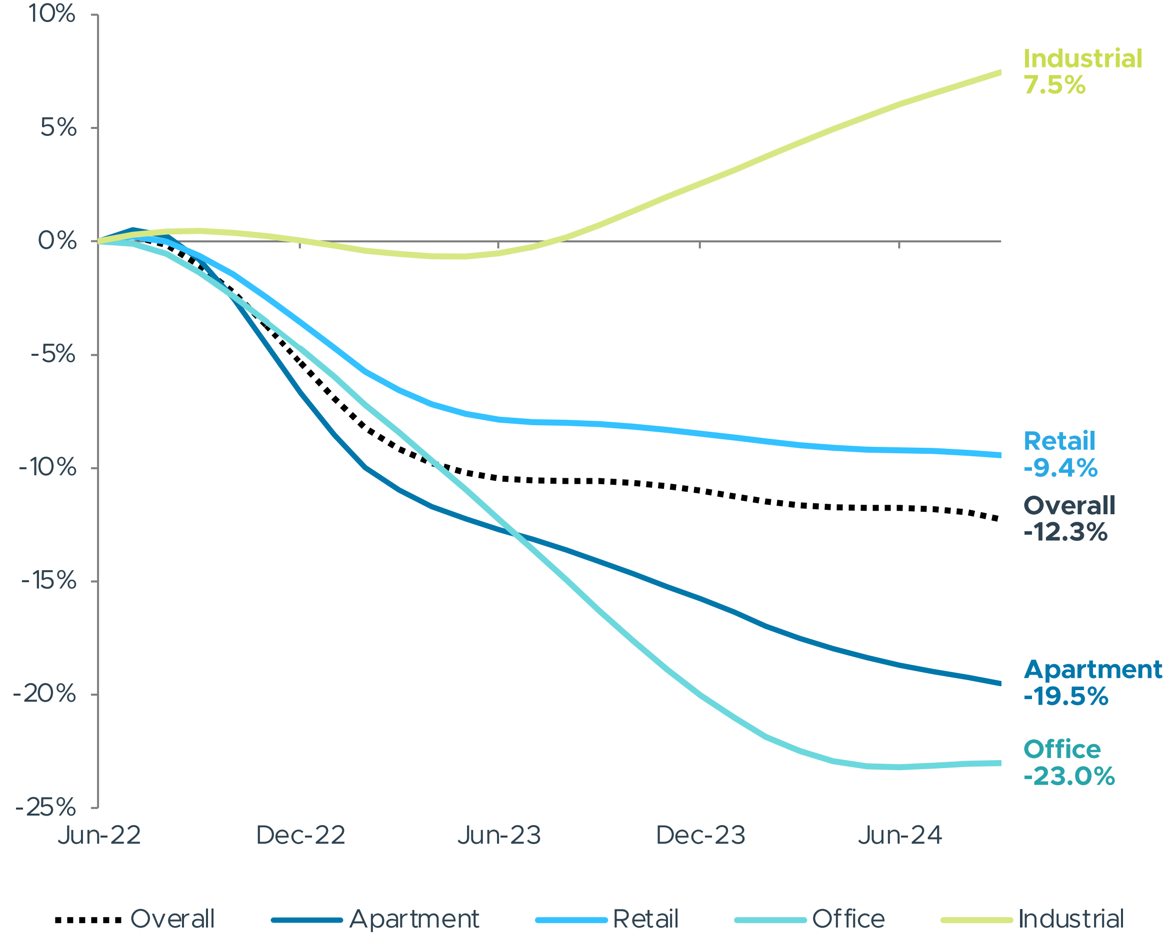
Commercial real estate prices are recovering after a sharp pullback

Year-over-year change in commercial property prices by type (%, as of September 2024)



Prices of most property types are still well below their Q2 2022 peak

Normalized change in property prices by type since June 2022 (%, as of September 2024)

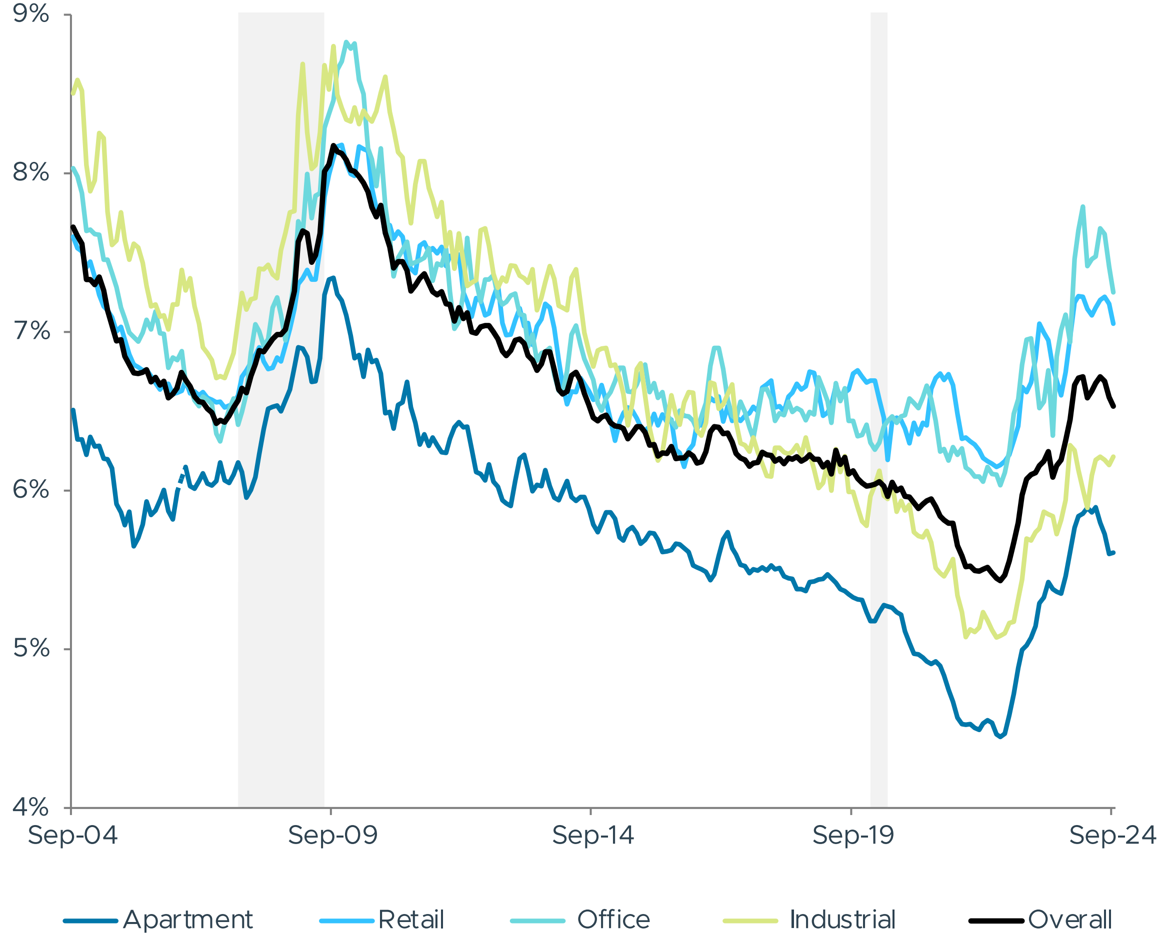


Source: (left and right) MSCI Real Capital Analytics, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of September 2024 and is subject to change based on potential updates to source(s) database. Change in commercial property types is based on RCA Commercial Property Price Indices (RCA CPPI) by MSCI. The RCA CPPI indices are monthly, transaction-based metrics that track the actual price movements of commercial properties valued over $2.5 million using a repeat-sales regression methodology, which requires that the included properties have been traded more than once. The "Overall" index is value-weighted, while the property level indices are equal-weighted. Given that the RCA CPPI indices are published monthly rather than quarterly and are based on actual transaction prices rather than appraisals (such as the NCREIF Property Index), these indices may produce a more accurate and timely measurement of movements in property values. However, during periods of low liquidity, the types of properties transacted may be atypical and can skew underlying trends. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Cap rates reset higher as the Fed raised interest rates, but remain low relative to bond yields

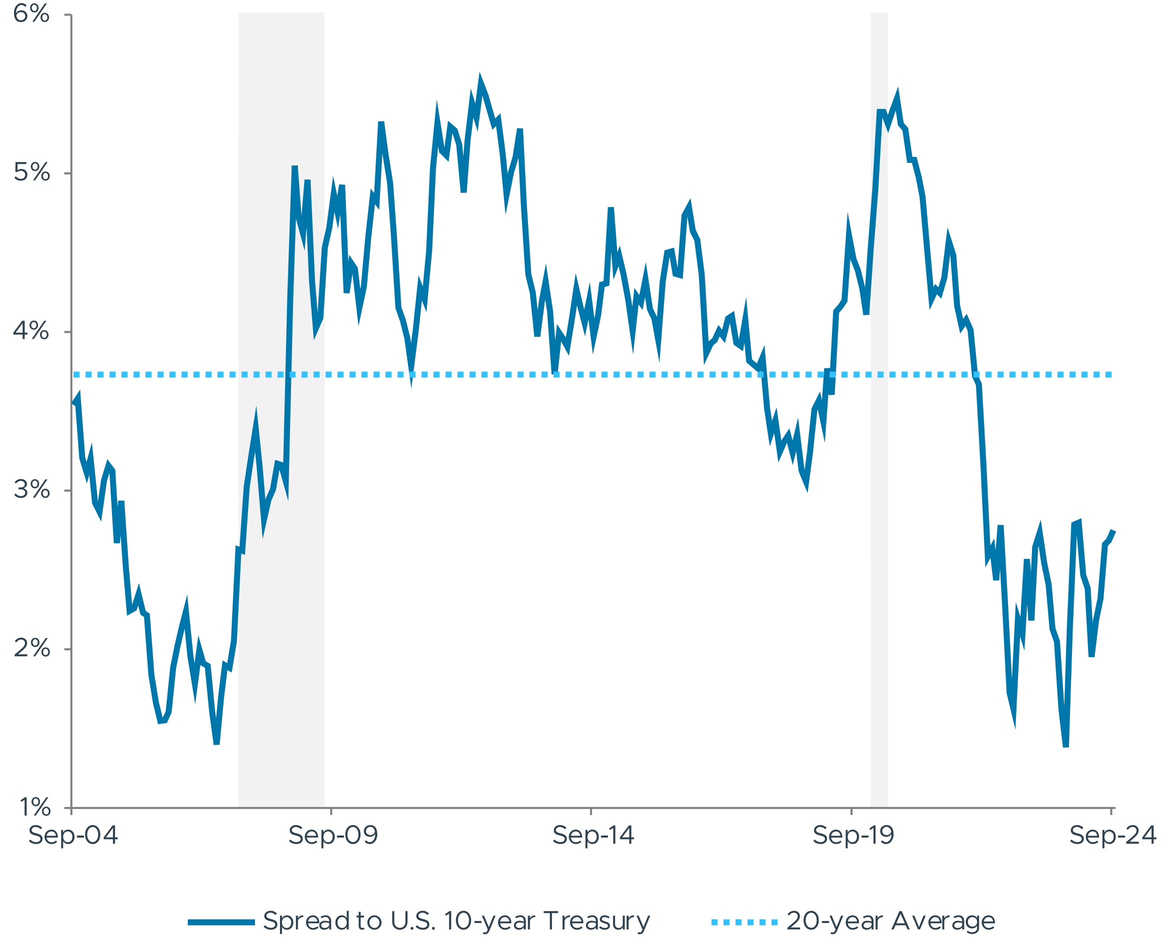
Capitalization (Cap) rates across property types reset significantly higher

U.S. CRE transaction-based cap rates by property type (%, as of September 2024)



The nominal spread of cap rates to Treasuries has remained compressed

Spread of CRE cap rates over nominal U.S. 10-year Treasury (%, as of September 2024)

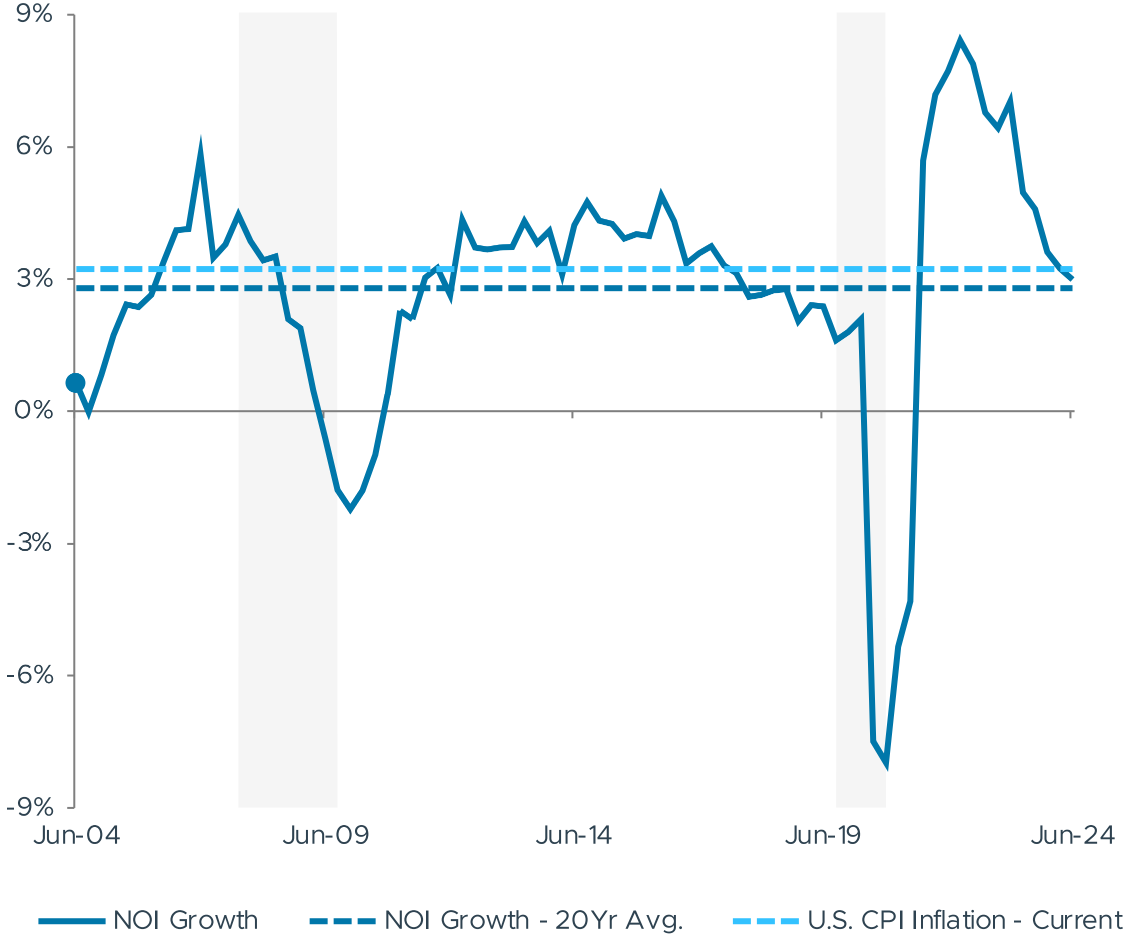


Source: (left) MSCI Real Capital Analytics, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of September 2024 and is subject to change based on potential updates to source(s) database. CRE cap rate is broadly defined as the ratio of NOI to current market value. The cap rates above are based on internal RCA data and are shown as a 3-month rolling average of all transactions of $5 million or more. (right) MSCI Real Capital Analytics, U.S. Department of the Treasury, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of September 2024 and is subject to change based on potential updates to source(s) database. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

NOI growth is slowing from high levels but is still roughly above long-term averages and inflation

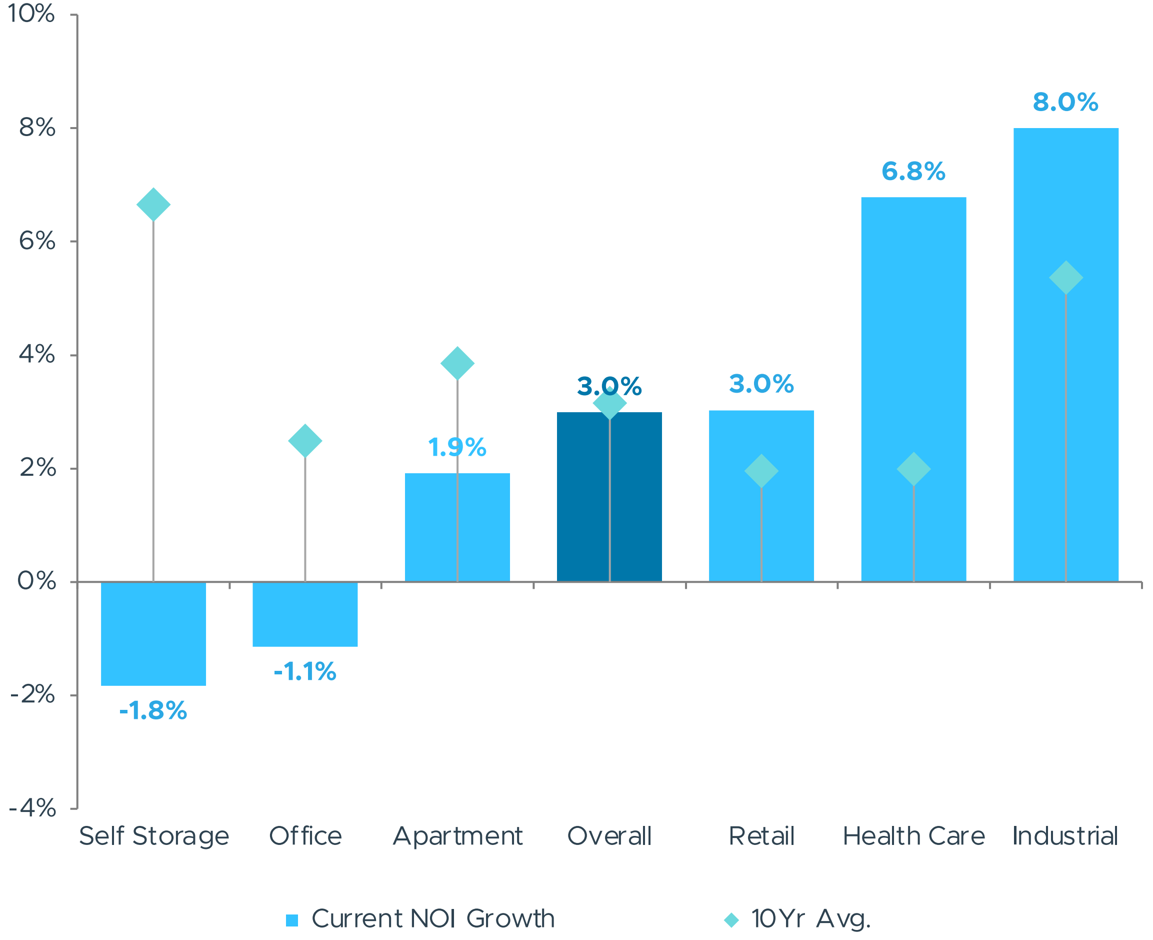
NOI growth is trending lower towards the 20-year average level

REIT-implied same-store NOI growth (%, as of June 2024)



Secular growth sectors are outperforming structurally challenged sectors

Breakdown of REIT-implied NOI growth by property type (%, as of June 2024)

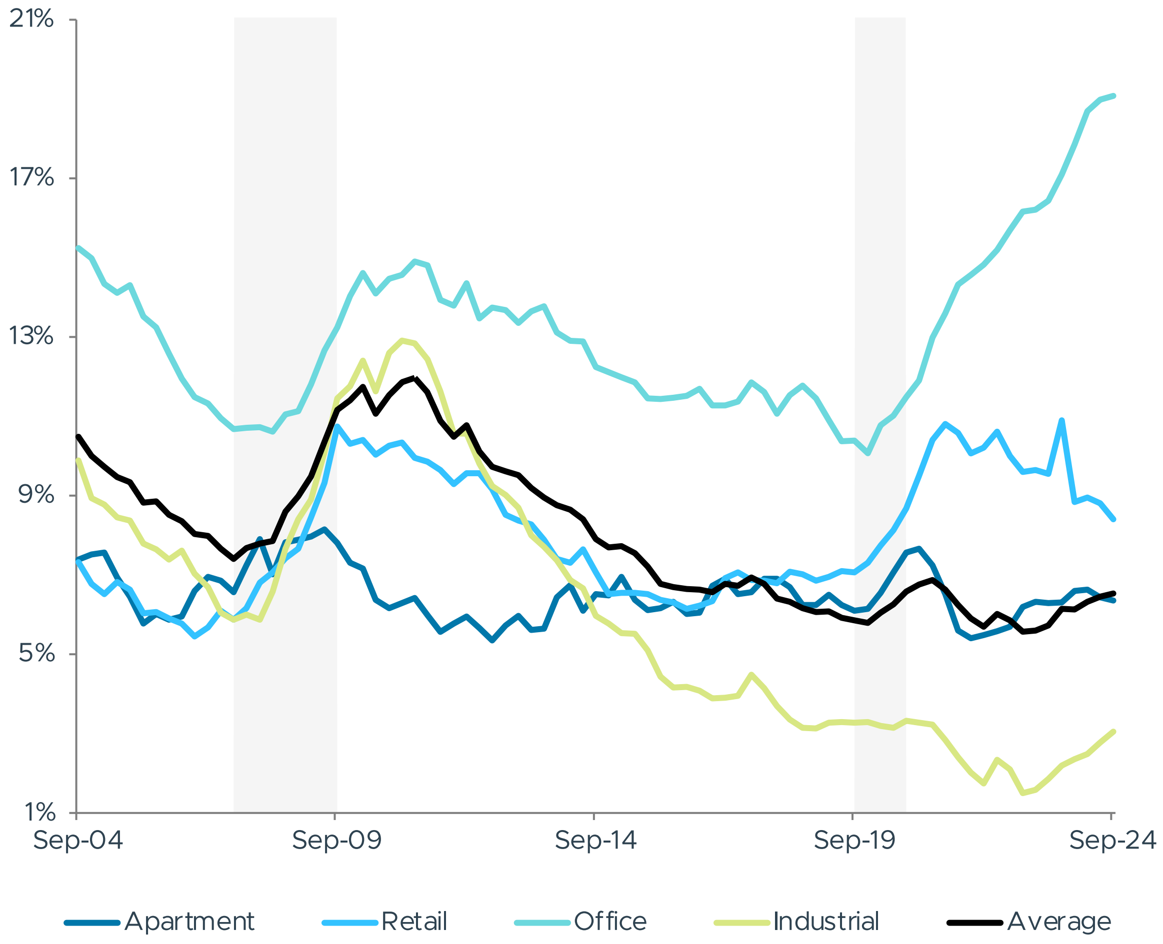


Source: (left and right) Bureau of Labor Statistics (BLS), FTSE Russell, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. REIT-implied same-store NOI is used as a proxy for overall CRE NOI growth. Net operating income is the total revenues earned by a property less operating expenses but before capital items and debt service. It is typically used to analyze the profitability of income-generating real estate investments and is computed as a year-over-year change. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Most CRE sectors have solid fundamentals, with the exception of weakness in office

Office vacancies are surging while all other sector vacancies are low

U.S. vacancy rate by property type, value-weighted (%, as of September 2024)



The surge in mortgage costs is making multifamily housing attractive

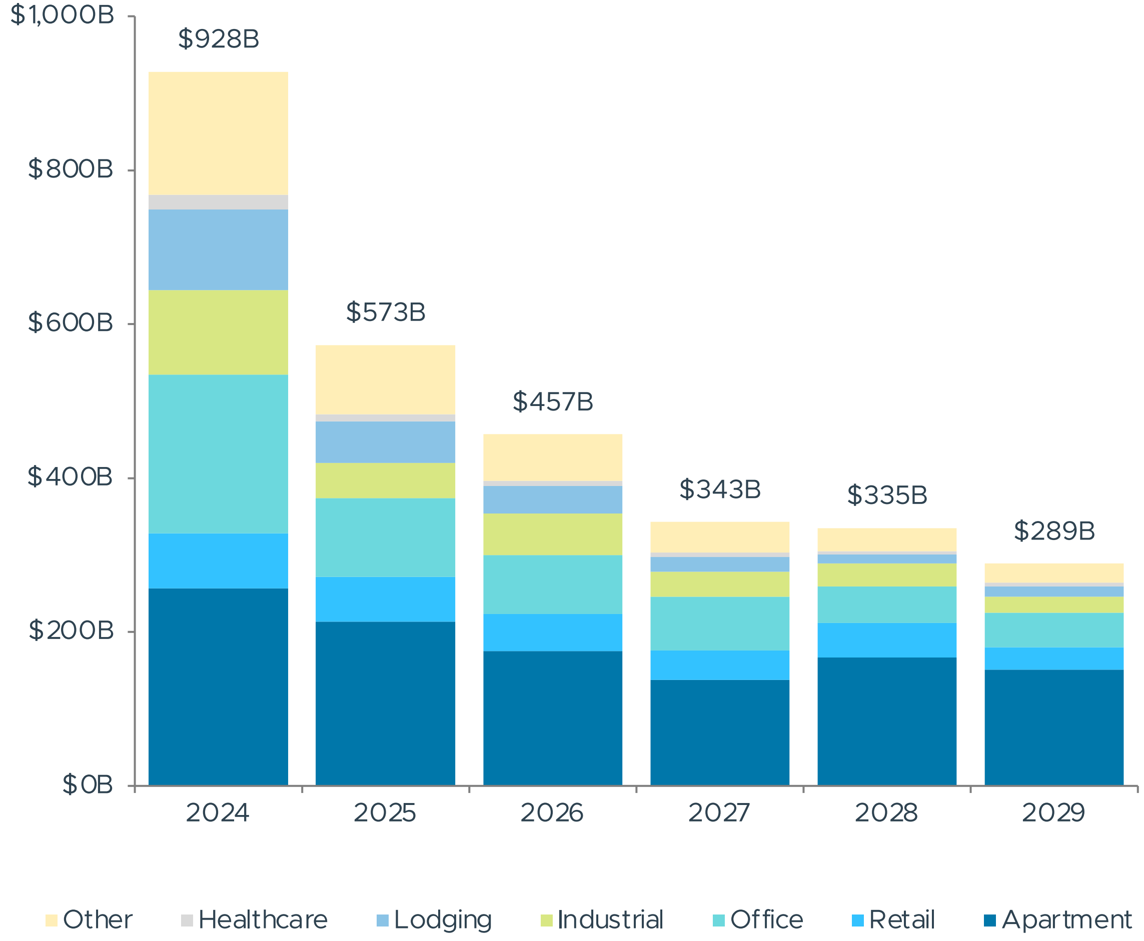
% of disposable income needed to cover cost of rent vs. mortgage (%, as of September 2024)

Source: (left) NCREIF, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is through September 2024 and is subject to change based on potential updates to source(s) database. Vacancy rate shown is the quarterly value-weighted vacancy rate by property type within the NCREIF Property Index (NPI). (right) S&P Capital IQ, iCapital Investment Strategy Analysis, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024 and is subject to change based on potential updates to source(s) database. Analysis looks at the percentage of disposable income necessary to cover the cost of rent vs. a mortgage. Rent-to-Income ratio is the share of median disposable income needed to make a monthly rent payment on the median effective rent for an apartment in the U.S. per Moody's Analytics REIS data. Mortgage Payment-to-Income ratio is the share of median income needed to make the monthly principal and interest payment on the purchase of the average-priced home using a 20% down 30-year fixed rate mortgage at the prevailing interest rate. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Concerns are high about the upcoming wall of maturities and rising delinquencies

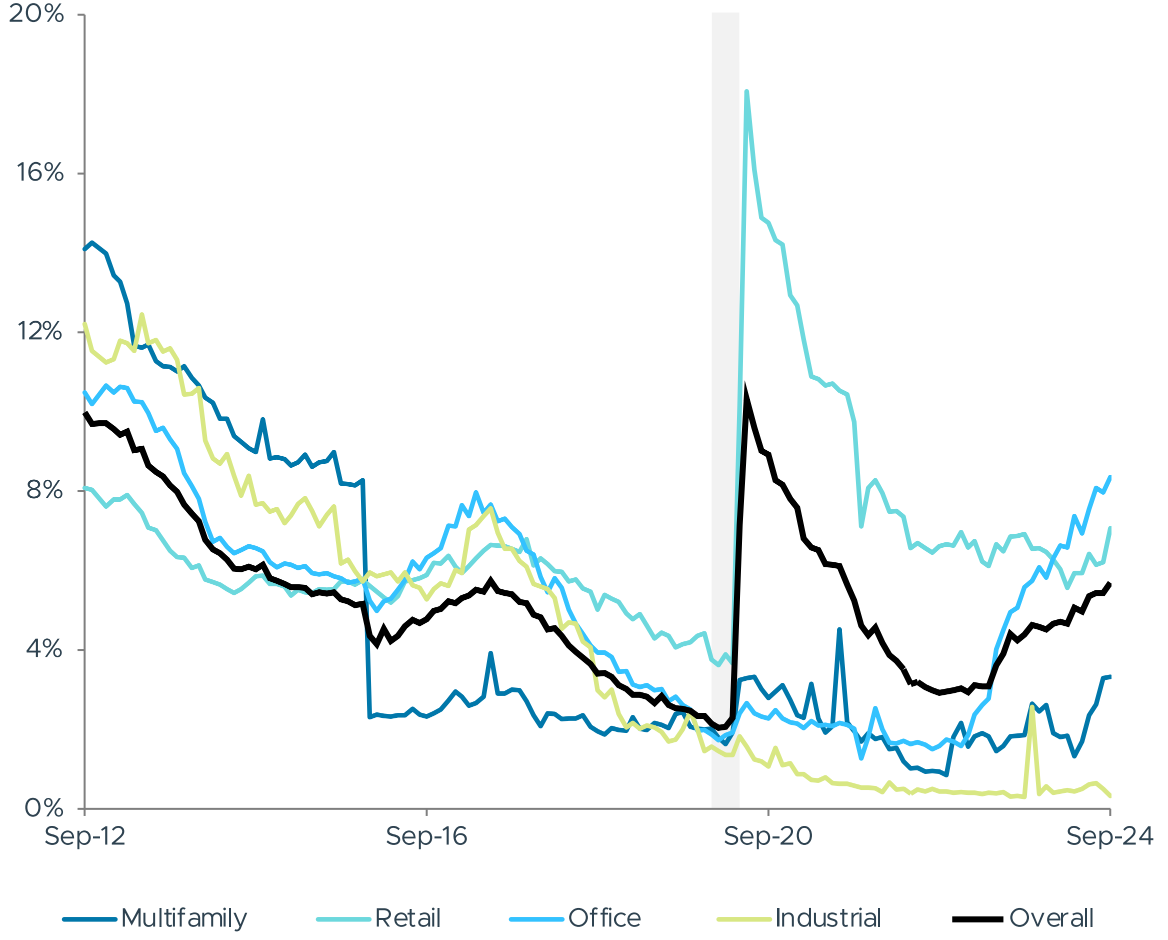
2024 and 2025 are years with large upcoming CRE maturities

U.S. CRE annual loan maturities by property type ($ billion, as of December 2023)



Office CMBS defaults are rising, other sector defaults are still relatively in check

U.S. CMBS loan 30+ day delinquency rate by property type (%, as of September 2024)

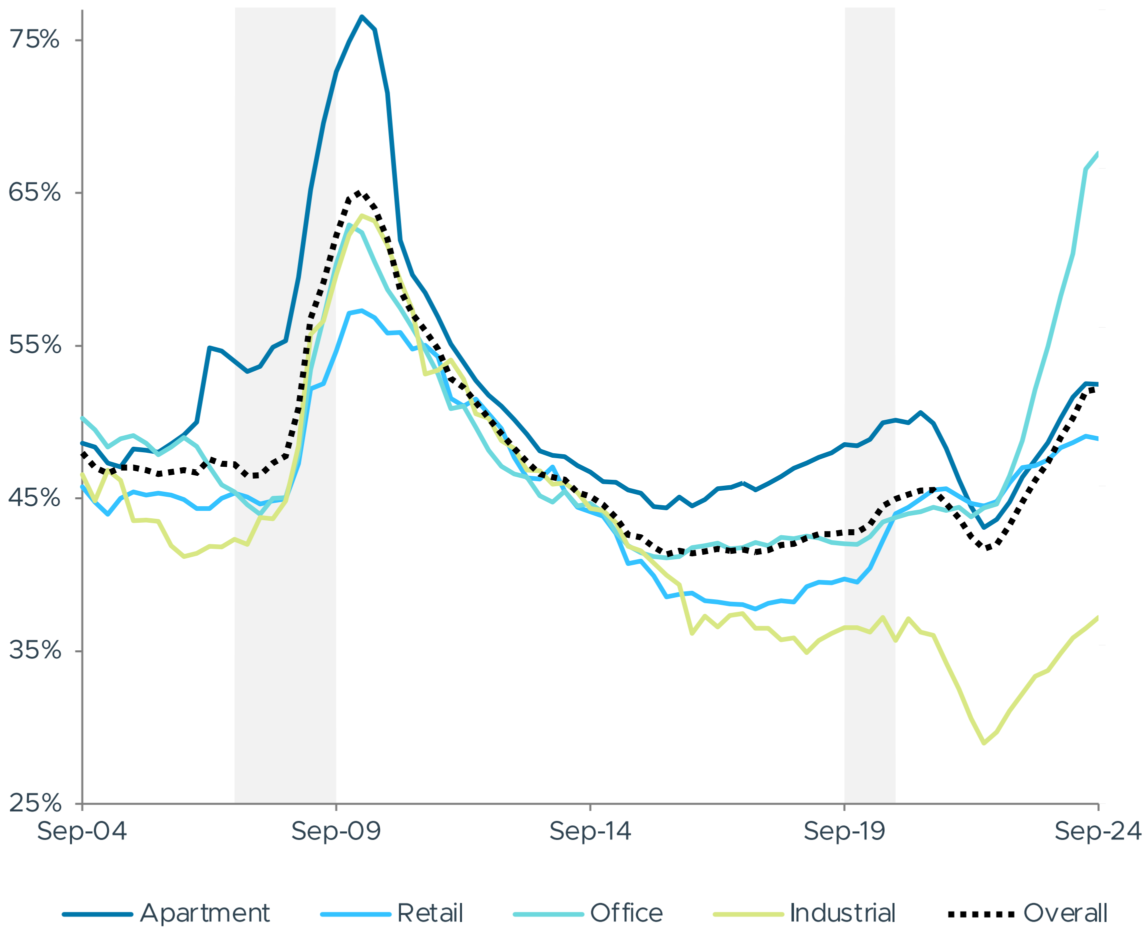


Source: (left) Mortgage Bankers Association, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of December 2023 and is subject to change based on potential updates to source(s) database. Other includes hospitals. Calculations are based on a year-end survey of commercial mortgage servicers and provides aggregate numbers on the current unpaid principal balance of mortgages maturing in each of the next ten years and thereafter. (right) Trepp, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is through September 2024 and is subject to change based on potential updates to source(s) database. The CMBS Delinquency Rate refers to the percentage of loans across all property types that are late on their payments by at least 30 days. The delinquency rate is calculated by dividing the delinquent balance by the total balance of loans outstanding. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Lower use of leverage and higher debt coverage ratios offset some of these concerns

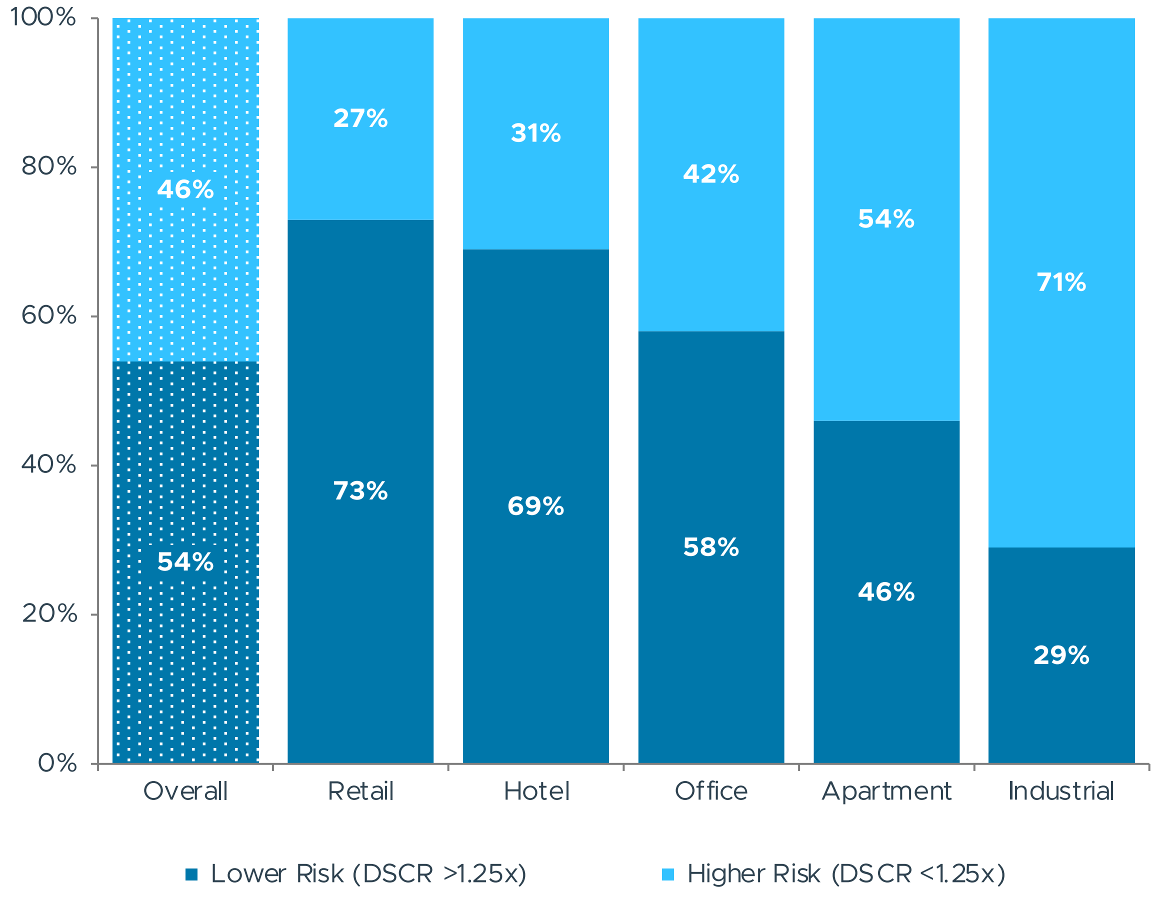
Leverage fell over the past decade and remains below GFC levels

Weighted average loan-to-value ratio for CRE properties using leverage (%)



Most real estate loans have sufficient coverage even at higher rates

Debt-service coverage ratio profiles of CRE loans maturing before 2026 by property type (%)

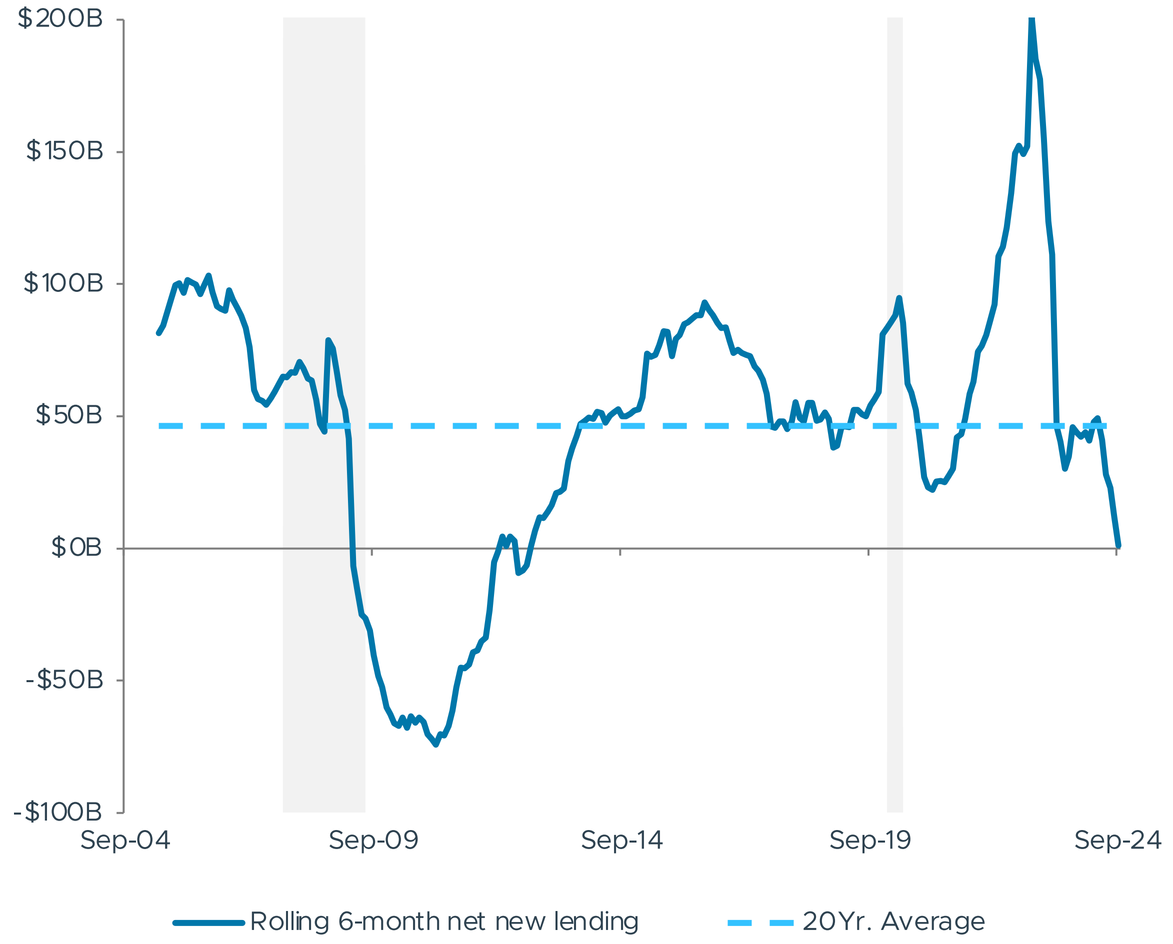


Source: (left) NCREIF, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is through September 2024 and is subject to change based on potential updates to source(s) database. The loan-to-value ratio (LTV) is a credit risk metric that compares principal amount on a mortgage to the appraised value of the collateral property. (right) Newmark Research, Trepp, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of July 23, 2024, and is subject to change based on potential updates to source(s) database. Analysis looks at the breakdown of maturing CRE loans by debt-service coverage ratio assuming current rates and is based on the latest property financials. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Banks have pulled back from CRE lending leaving a sizable debt funding gap

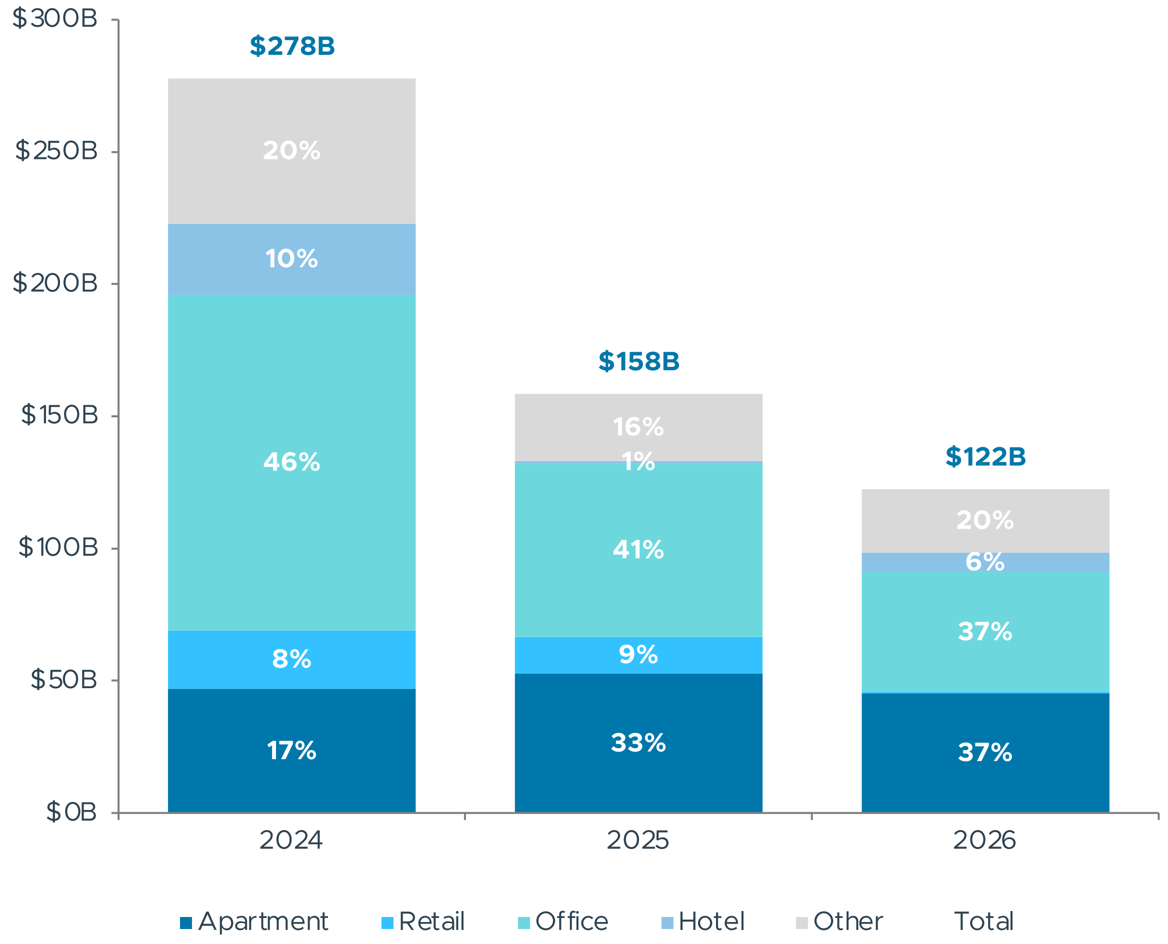
Banks' net lending to CRE has slowed notably from elevated levels

Rolling 6-month net new lending flow of CRE loans across all U.S. banks ($ billion)



Less bank lending leads to a funding gap as maturities come due

Expected U.S. CRE debt funding gap by year ($ billions)

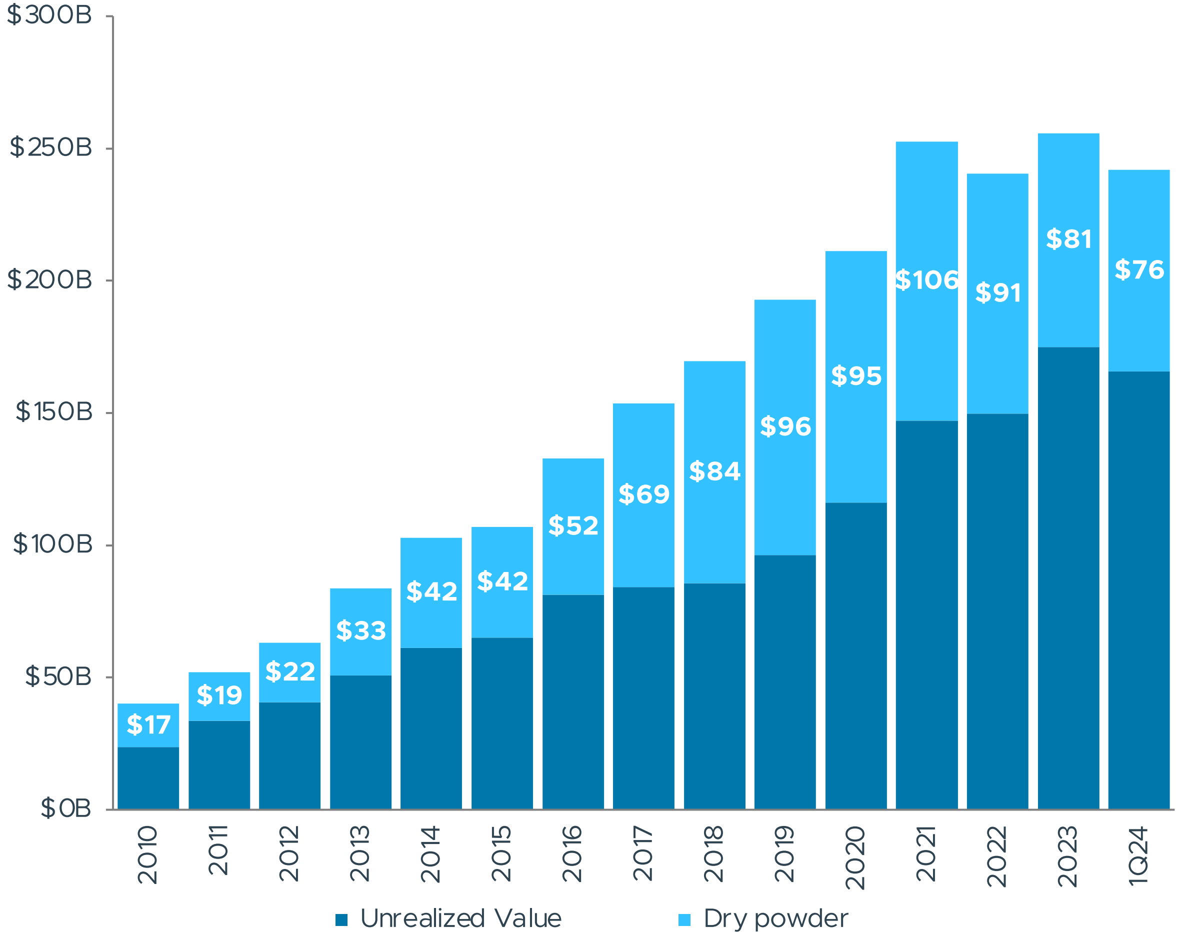


Source: (left) Federal Reserve, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is through September 2024 and is subject to change based on potential updates to source(s) database. Net new lending flow is a dollar value determined by taking the total outstanding loan amount at the start of the period and at the end of the measured period (6 months). (right) AEW Research & Strategy, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of December 2023 and is subject to change based on potential updates to source(s) database. Expected debt funding gap is found by looking at average loan-to-value (LTV) levels and the expected loan maturity data per Mortgage Bankers Association. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

CRE debt funds with ample dry powder should help partially fill the void

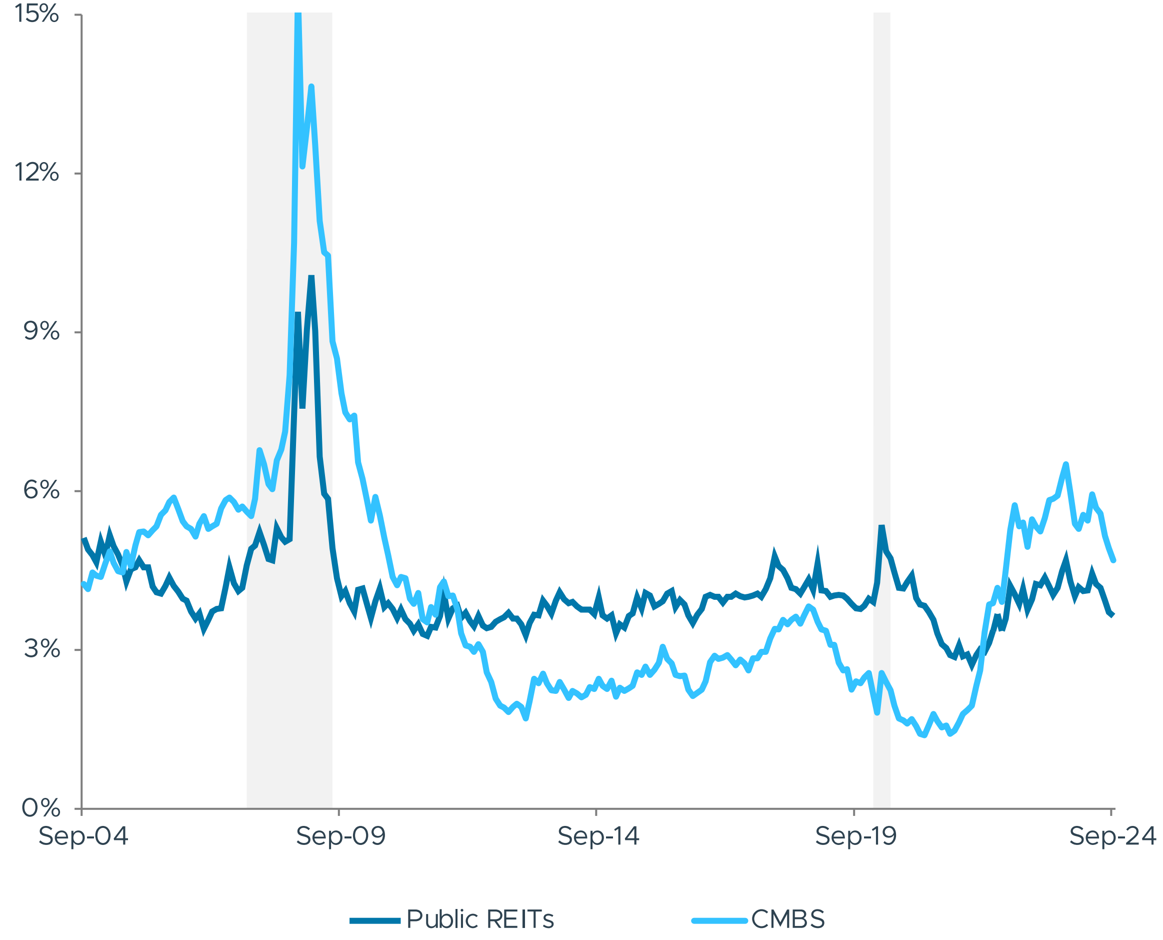
Real estate debt funds have amassed near-record AUM and dry powder

Total AUM in global private real estate debt funds ($ billion, as of December 2023)



Real estate debt yields offer a relative pickup vs. equity yields

Public REITs dividend yield and CMBS yield-to-worst (%, as of September 2024)



Source: (left) Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is through March 2024 and is subject to change based on potential updates to source(s) database. AUM data is for closed-end private real estate debt funds as defined by Preqin. To avoid double counting of available capital and unrealized value, fund of funds and secondaries are excluded where applicable. (right) Bloomberg Index Services Limited, FTSE Russell, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of September 2024 and is subject to change based on potential updates to source(s) database. CMBS is Commercial mortgage-backed securities. Yield data is monthly. Yield for Public Equity REITs is the trailing 12-month dividend yield proxied by US NAREIT REIT Dividend Yield. Yield for CMBS is yield-to-worst proxied by Bloomberg CMBS Investment Grade Yield To Worst. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Alternatives Decoded

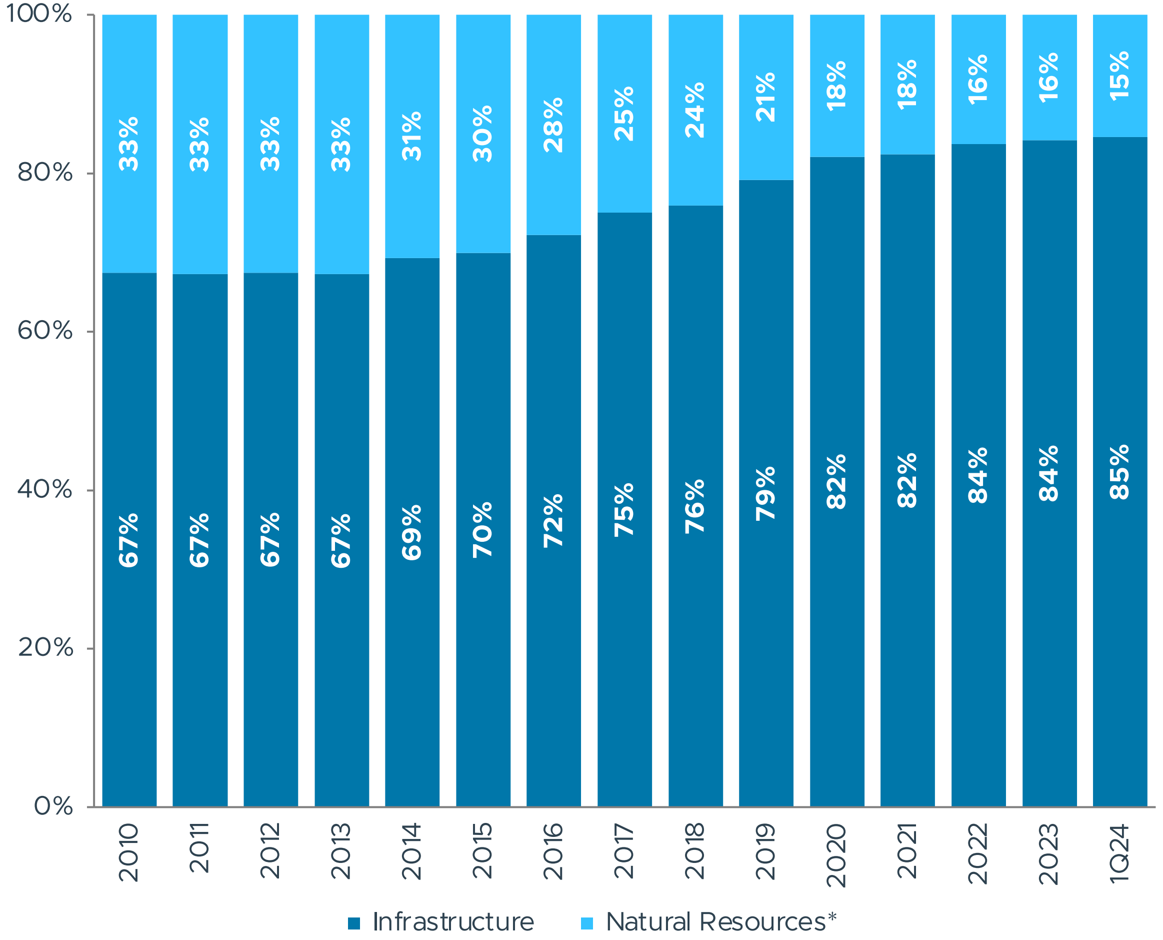
Infrastructure & Other Real Assets

iCapital

Infrastructure is a globally diverse asset class with significant fund assets in Europe

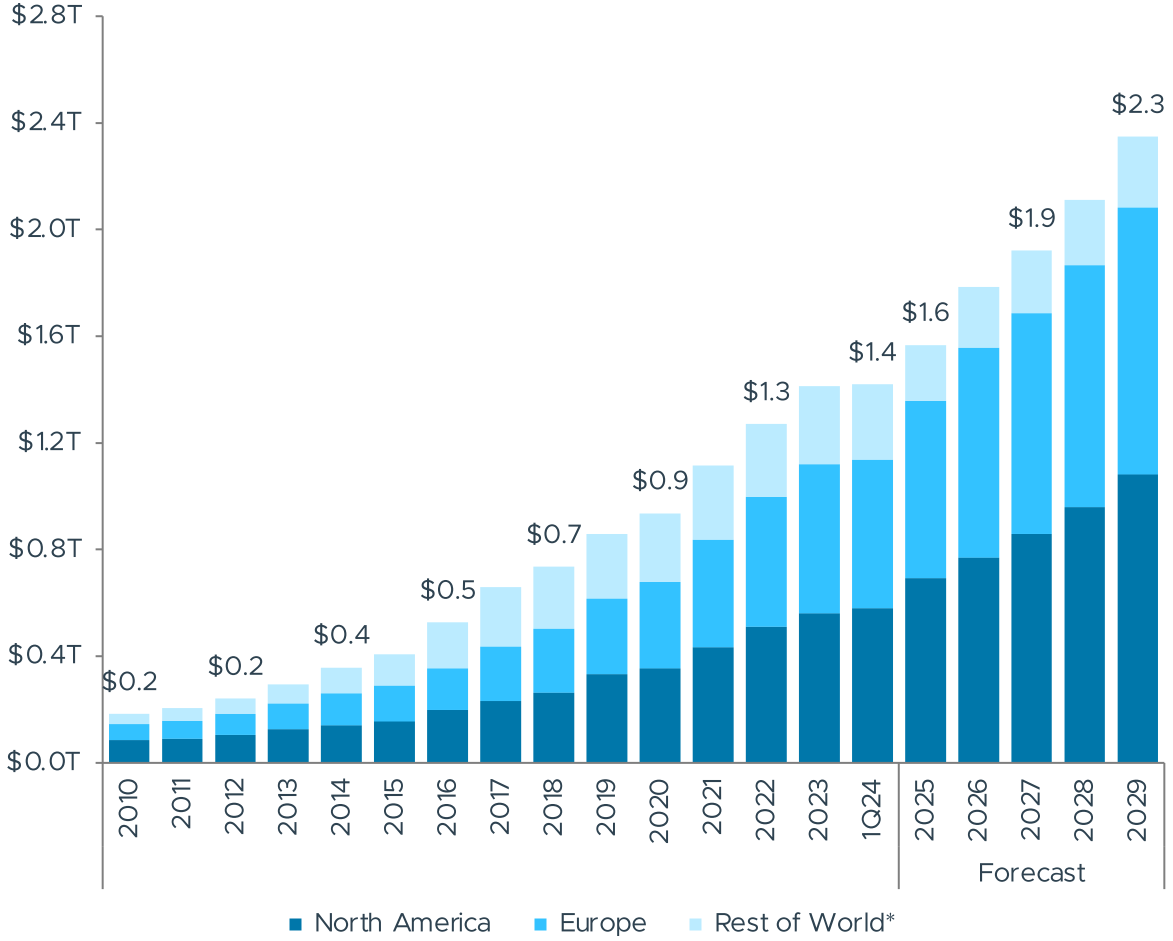
Infrastructure continues to make up a lion's share of real assets

Breakdown of AUM in real assets excl. CRE funds, globally ($ trillion, as of March 2024)



Infrastructure AUM have grown above $1 trillion

Total AUM in infrastructure funds, globally ($ trillion, as of March 2024)

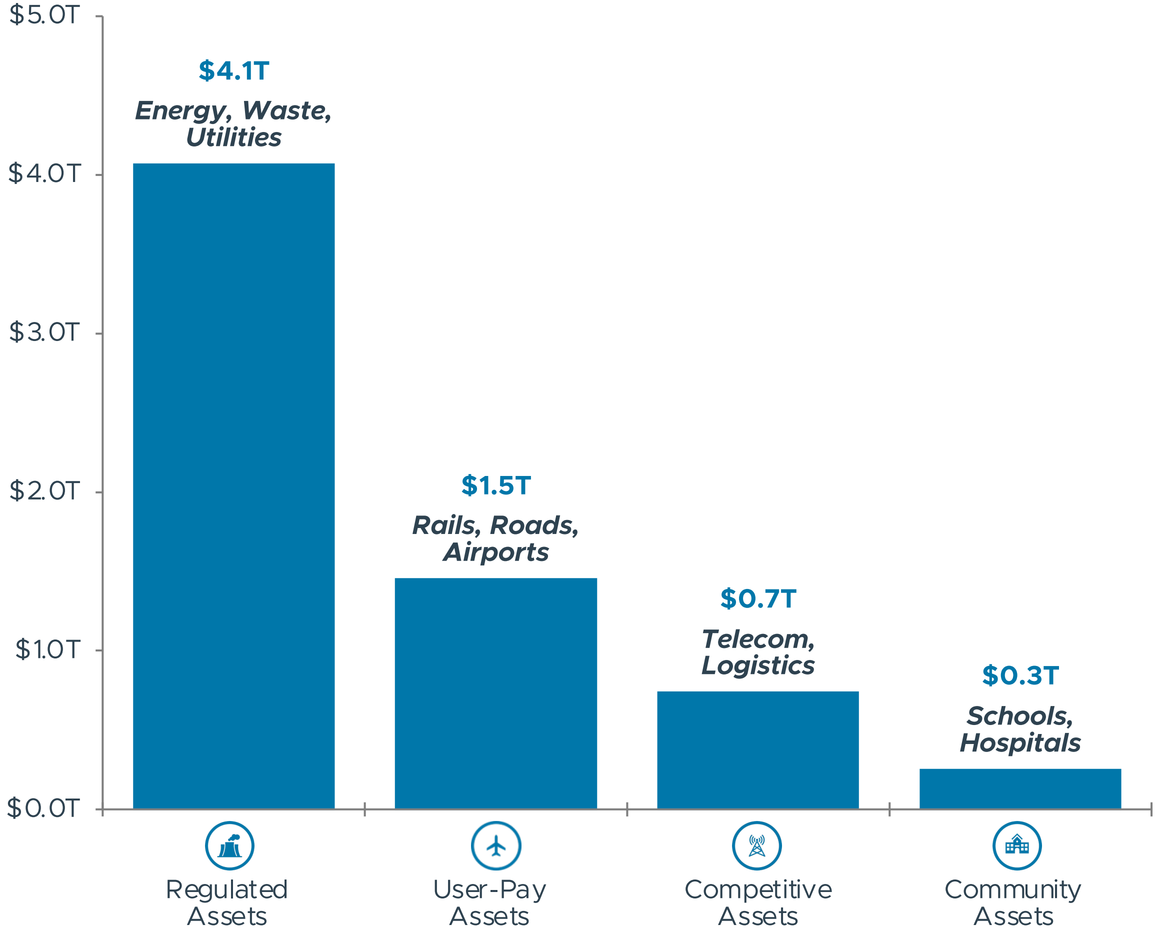


Source: (left) Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Historical AUM data as of March 2024 and is subject to change based on potential updates to source(s) database. AUM shown is broken down between infrastructure funds and natural resources funds as defined by Preqin. Natural Resources includes pure-play natural resources and timberland-type funds only to avoid double counting. Also, to avoid further double counting of available capital and unrealized value, fund of funds and secondaries are excluded where applicable. (right) Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Historical AUM data is included through March 2024. Forecasted AUM data is through December 2029, with forecasts based on Preqin's Future of Alternatives report, which models projected AUM using various variables. These forecasts exclude funds denominated in yuan renminbi, potentially leading to more conservative estimates. Data is subject to change based on updates to the source(s) database. AUM is broken down by fund's primary region of focus as defined by Preqin. Rest of World includes Africa, Americas, Asia, Australasia, and Middle East & Israel, as defined by Preqin. To avoid double counting of available capital and unrealized value, fund of funds and secondaries are excluded where applicable. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Investors can consider four broad categories of infrastructure with varying characteristics

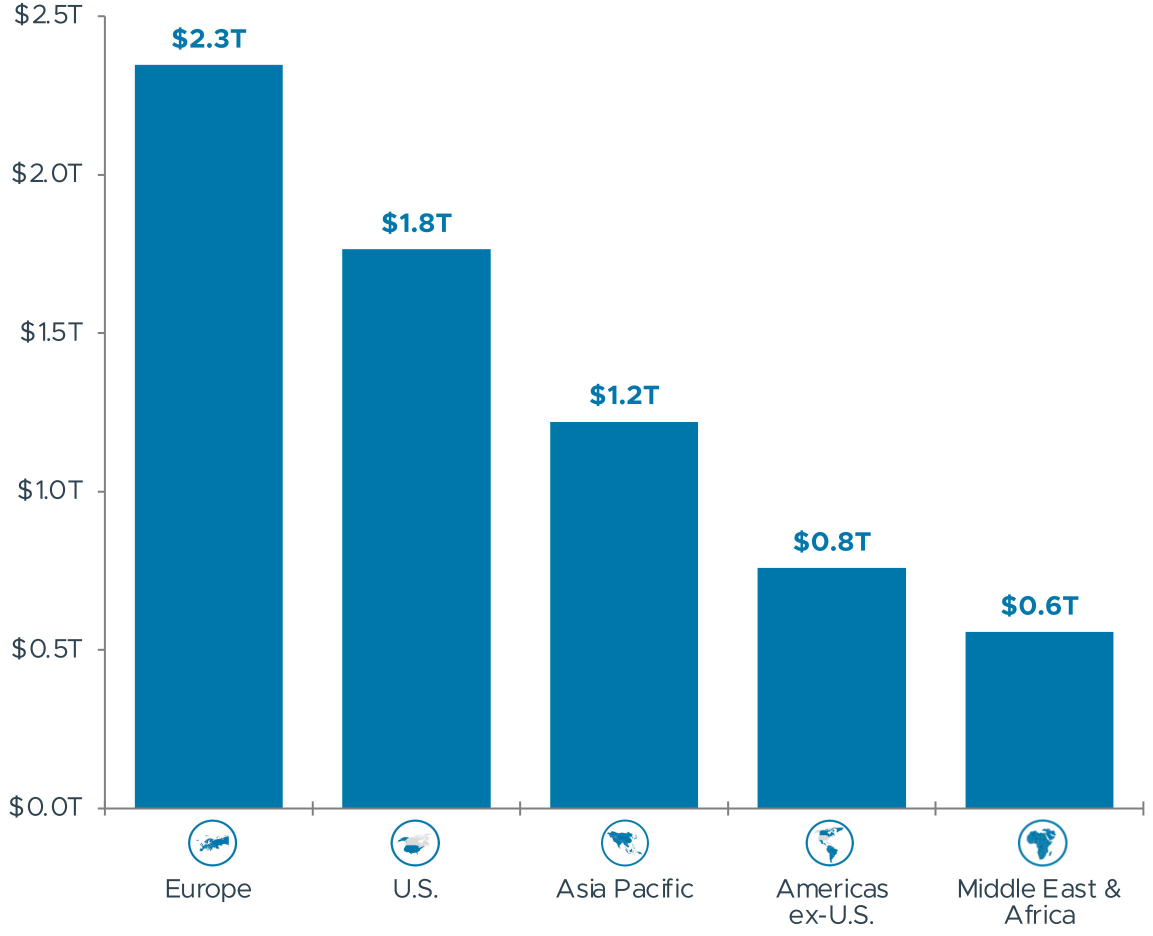
At least $6.5T in infrastructure deals have been done globally since 2000

Cumulative value of all known infrastructure deals since 2000 by asset type



Over 60% of these deals represent European and U.S. assets

Cumulative value of all known infrastructure deals since 2000 by region



Source: (left) Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Analysis looks at the cumulative value of all known infrastructure deals since 2000. Breakdown by asset type includes Regulated Assets, User-Pay Assets, Competitive Assets, and Community Assets. Regulated Assets are based on the Preqin-defined sub-asset classes including Energy, Utilities, and Waste Management. User-Pay Assets are based on the Preqin-defined sub-asset classes including Transport (Rail, Roads, Airports). Competitive Assets are based on the Preqin-defined sub-asset classes, including Telecom and Logistics. Community Assets are based on the Preqin-defined sub-asset classes including Defense, Education Facilities (Schools), HealthCare (Hospitals), and Government Buildings. (right) Preqin, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Analysis looks at the cumulative value of all known infrastructure deals since 2000. Breakdown by region includes U.S., Americas excluding U.S., Europe, Asia Pacific, and Middle East & Africa. Numbers may not add up due to rounding. Data is subject to change based on potential updates to source(s) database. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Private real assets have produced superior risk-adjusted returns with low correlation

Infrastructure correlation to the public 60/40 portfolio is low or negative

Based on trailing 15 years of quarterly data (as of June 2024)

		Private Real Assets			Public Real Assets			Benchmarks		
		Private Infra.	Private Timberland	Private Agriculture	Public Infra.	Public Timberland	Public Agriculture	Global 60/40	Cash	Annual Volatility
Private Real Assets	Private Infra.	1.00								3.4%
	Private Timberland	0.02	1.00							3.4%
	Private Agriculture	0.14	0.48	1.00						4.2%
Public Real Assets	Public Infra.	0.32	-0.04	0.17	1.00					14.2%
	Public Timberland	0.11	0.03	0.21	0.68	1.00				21.6%
	Public Agriculture	0.33	-0.07	0.16	0.63	0.65	1.00			15.6%
Benchmarks	Global 60/40	0.06	-0.01	0.09	0.81	0.83	0.59	1.00		11.0%
	Cash	-0.16	0.17	-0.31	-0.10	-0.09	-0.19	0.06	1.00	0.8%

Private real assets have produced superior risk-adjusted returns

Annualized volatility/returns based on trailing 15 years of quarterly data (as of June 2024)

Source: (left and right) Bloomberg Index Services Limited, FTSE Russell, MSCI, NCREIF, Preqin, S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. Public infrastructure proxied by Dow Jones Brookfield Global Infrastructure Composite Index. Public agriculture proxied by S&P Global Agribusiness Composite Index. Public timberland proxied by S&P Global Timber and Forestry Index. Global 60/40 proxied by 60% MSCI ACWI Index and 40% Bloomberg Global Aggregate Bond Index. Private agriculture proxied by NCREIF Farmland Property Index. Private timberland proxied by NCREIF Timberland Property Index. Private Infrastructure proxied by Preqin Infrastructure Index. Cash proxied by the FTSE 3-Month US T Bill Index, which is intended to track the daily performance of 3-month US Treasury bill, a measure we consider a proxy for cash returns. It is important to note that the returns listed are based on indices that are meant to estimate the asset class performance, hypothetically creating a return if one had access to all active funds. Not all the above indices are practically investable and are subject to change as datasets are continually updated. All returns are calculated in U.S. dollars. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Real assets have delivered returns outpacing developed market inflation

Public and private real asset returns

Annual and time-period returns ranked in order of performance (%, as of June 2024)

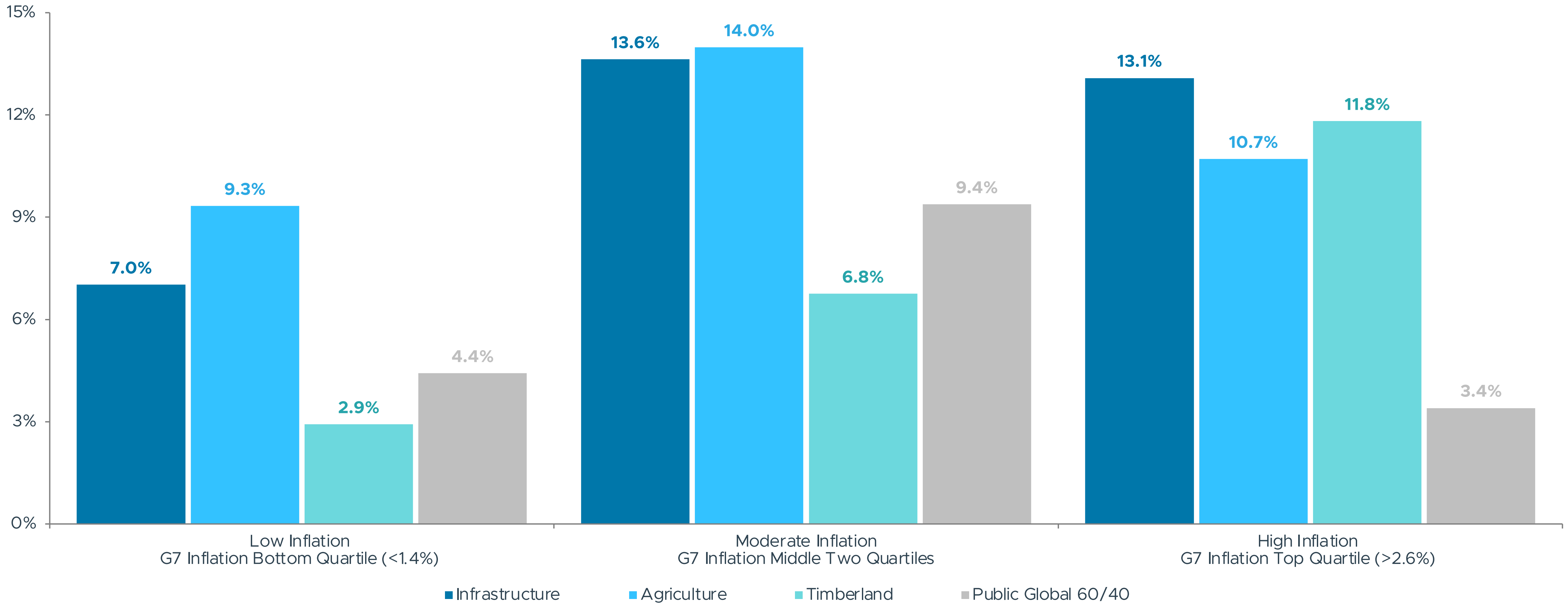
Annual Return (%)										Time-Period Return (%, per annum)			
2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 YTD	3YR	5YR	10YR	15YR
10.5% Private Infrastructure	13.0% Public Timberland	34.4% Public Timberland	10.0% Private Infrastructure	26.5% Public Infrastructure	20.4% Public Timberland	21.9% Public Agriculture	15.9% Private Infrastructure	15.6% Global 60/40	5.5% Global 60/40	12.6% Private Infrastructure	11.5% Private Infrastructure	10.5% Private Infrastructure	10.6% Private Infrastructure
10.3% Private Agriculture	11.7% Public Infrastructure	17.3% Global 60/40	6.7% Private Agriculture	19.2% Public Timberland	13.4% Global 60/40	20.2% Public Infrastructure	12.9% Private Timberland	13.8% Public Timberland	3.9% Private Timberland	11.0% Private Timberland	7.2% Private Timberland	6.9% Private Agriculture	9.3% Private Agriculture
5.0% Private Timberland	8.6% Private Infrastructure	12.7% Public Infrastructure	3.2% Private Timberland	18.7% Global 60/40	6.3% Public Agriculture	19.8% Private Infrastructure	9.6% Private Agriculture	9.5% Private Timberland	3.7% Private Infrastructure	6.8% Private Agriculture	7.1% Public Timberland	5.9% Private Timberland	8.9% Public Infrastructure
0.3% Inflation*	7.1% Private Agriculture	10.1% Private Infrastructure	2.1% Inflation*	10.6% Private Infrastructure	4.7% Private Infrastructure	16.7% Public Timberland	7.1% Inflation*	7.8% Private Infrastructure	2.9% Inflation*	5.1% Inflation*	5.8% Private Agriculture	5.7% Public Timberland	8.8% Public Timberland
-2.7% Global 60/40	5.6% Global 60/40	6.2% Private Agriculture	-6.1% Global 60/40	8.9% Public Agriculture	3.1% Private Agriculture	9.2% Global 60/40	4.9% Public Agriculture	6.2% Public Infrastructure	1.2% Public Agriculture	2.1% Public Infrastructure	5.6% Global 60/40	4.9% Global 60/40	6.7% Global 60/40
-7.5% Public Timberland	3.1% Public Agriculture	5.5% Public Agriculture	-8.5% Public Infrastructure	4.8% Private Agriculture	0.8% Inflation*	9.2% Private Timberland	-4.9% Public Infrastructure	5.0% Private Agriculture	0.5% Private Agriculture	1.1% Global 60/40	3.6% Inflation*	3.2% Public Infrastructure	5.0% Private Timberland
-14.3% Public Agriculture	2.6% Private Timberland	3.6% Private Timberland	-10.3% Public Agriculture	1.5% Inflation*	0.8% Private Timberland	7.8% Private Agriculture	-17.5% Global 60/40	4.5% Inflation*	0.3% Public Infrastructure	-1.7% Public Timberland	3.5% Public Agriculture	2.5% Inflation*	2.7% Public Agriculture
-14.5% Public Infrastructure	0.9% Inflation*	1.8% Inflation*	-17.7% Public Timberland	1.3% Private Timberland	-9.5% Public Infrastructure	3.5% Inflation*	-19.4% Public Timberland	-15.4% Public Agriculture	-2.3% Public Timberland	-1.7% Public Agriculture	3.0% Public Infrastructure	0.1% Public Agriculture	2.2% Inflation*

Source: Bloomberg Index Services Limited, FTSE Russell, MSCI, NCREIF, Preqin, S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. Public infrastructure proxied by Dow Jones Brookfield Global Infrastructure Composite Index. Public agriculture proxied by S&P Global Agribusiness Composite Index. Public timberland proxied by S&P Global Timber and Forestry Index. Global 60/40 proxied by 60% MSCI ACWI Index and 40% Bloomberg Global Aggregate Bond Index. Private agriculture proxied by NCREIF Farmland Property Index. Private timberland proxied by NCREIF Timberland Property Index. Private Infrastructure proxied by Preqin Infrastructure Index. Inflation proxied by OECD G7 Countries Composite CPI inflation and the rate shown is based on the average monthly year-over-year reads for each calendar year and time period. It is important to note that the returns listed are based on indices that are meant to estimate the asset class performance, hypothetically creating a return if one had access to all funds. Not all the above indices are practically investable and are subject to change as datasets are continually updated. All returns are calculated in U.S. dollars. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Real assets provided higher returns during periods of moderate to high inflation

Private infrastructure and other real assets have outperformed when inflation is moderate to high given ability to link earnings to the level of inflation

Average annual return of private real assets across different inflationary environments (%, December 2001 - June 2024)

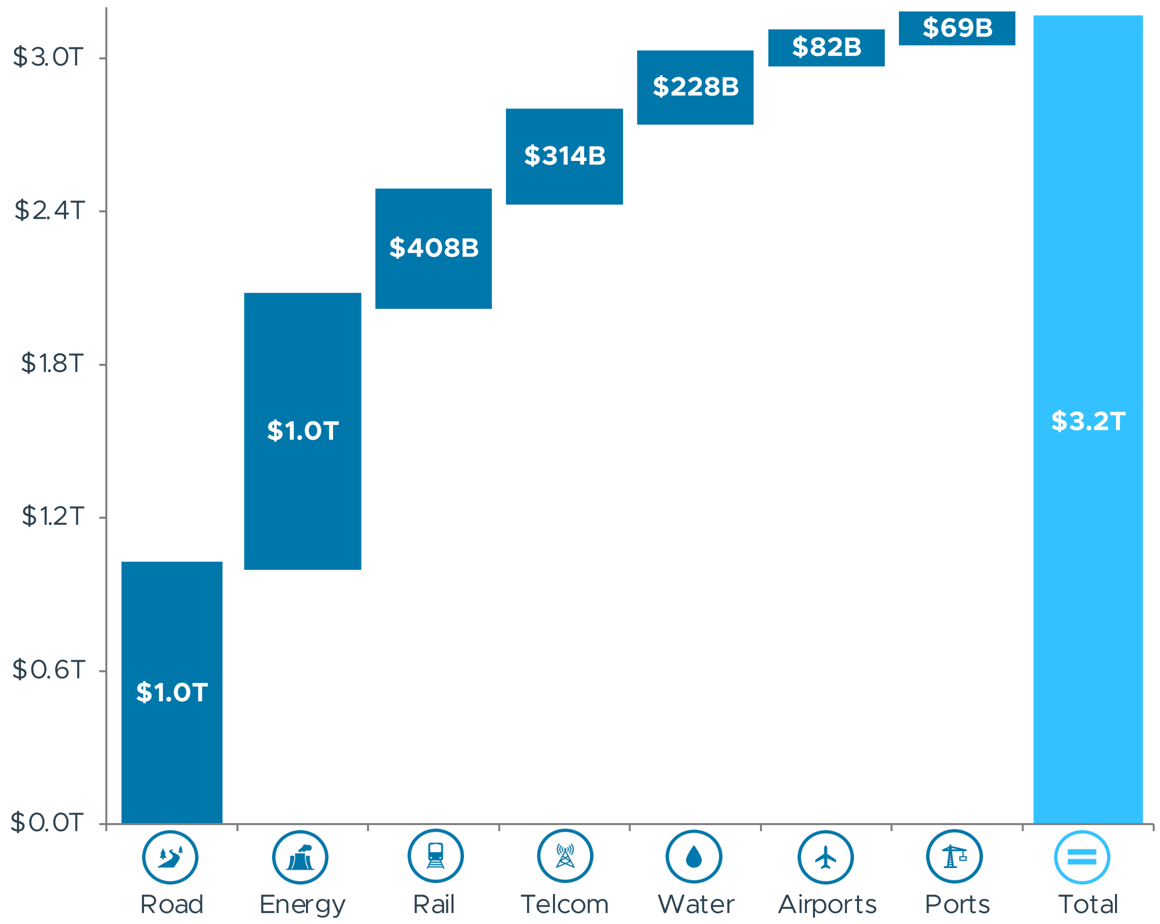


Source: Bloomberg Index Services Limited, FTSE Russell, MSCI, NCREIF, OECD, Preqin, S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. Analysis looks at the average annual return (rolling 4-quarter return) of private real assets across different inflationary environments. Inflation rate used is OECD G7 CPI inflation and is bucketed into "Low Inflation", "Moderate Inflation", and "High Inflation" based on historical quartiles. Global 60/40 proxied by 60% MSCI ACWI Index and 40% Bloomberg Global Aggregate Bond Index. Private agriculture proxied by NCREIF Farmland Property Index. Private timberland proxied by NCREIF Timberland Property Index. Private Infrastructure proxied by Preqin Infrastructure Index. Not all the above indices are practically investable and are subject to change as datasets are continually updated. All returns are calculated in U.S. dollars. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Global economies are set to spend $3.2 trillion per year on infrastructure through 2040

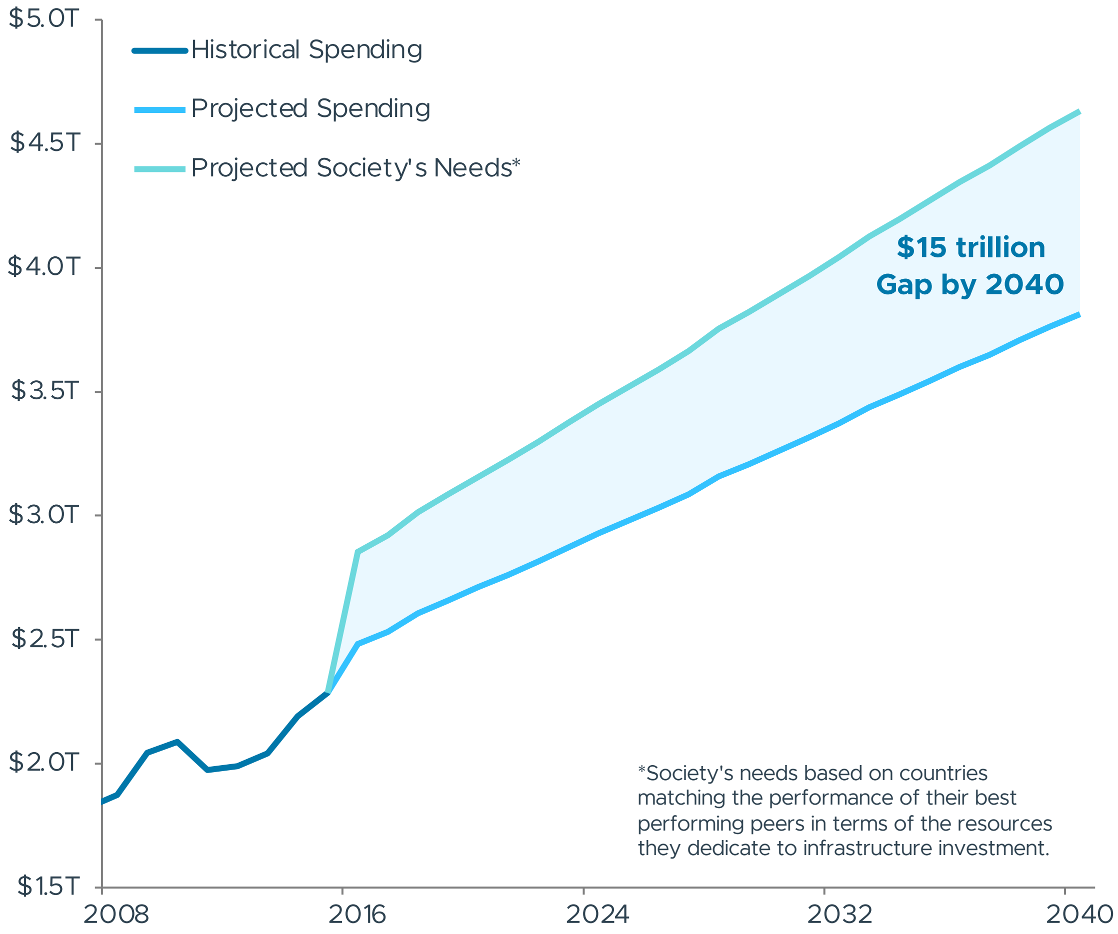
Annual infrastructure spending is projected to average $3.2 trillion

Annual global projected spending per year through 2040 to match 2.6% GDP growth



Gap between projected spending and society's needs will reach $15T

Annual global projected infrastructure spending and society's needs* through 2040

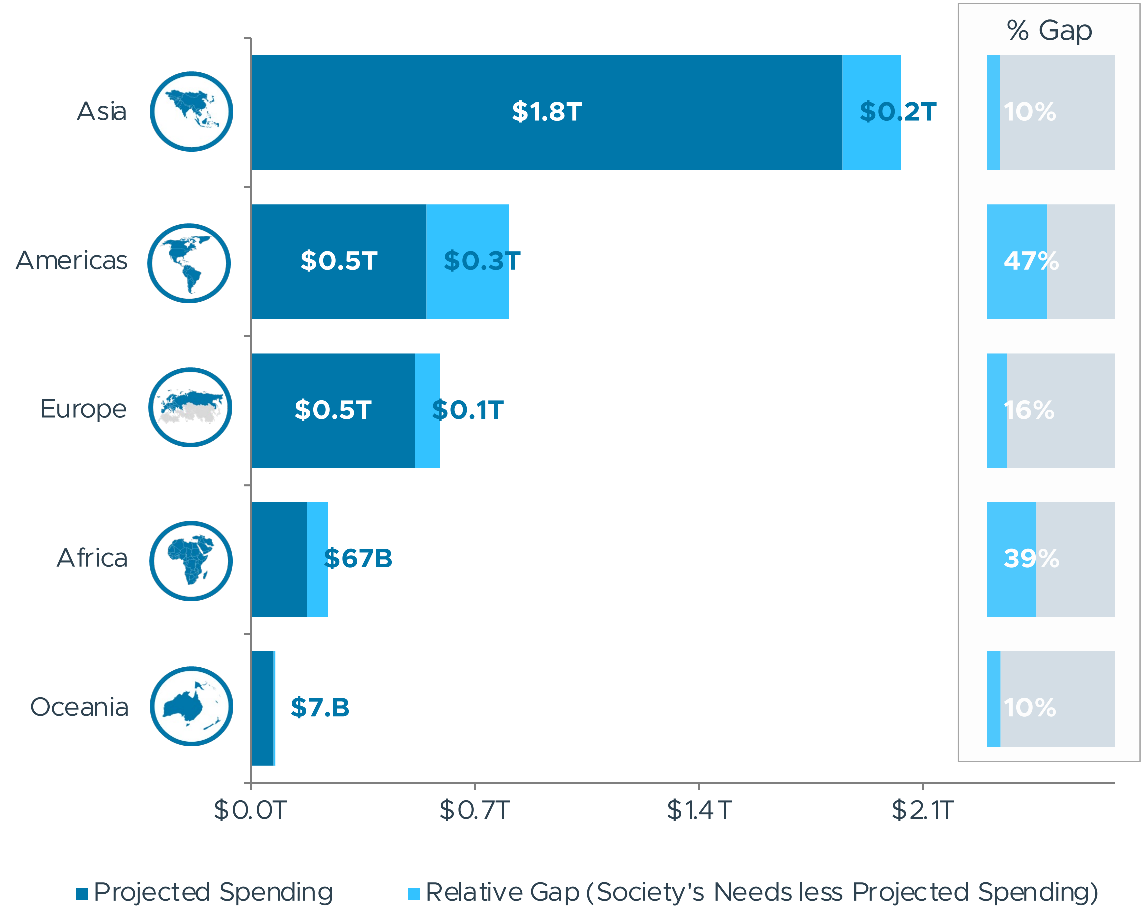


Source: (left and right) Global Infrastructure Hub (World Bank), iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Historical and projected infrastructure investment/spending is based on a World Bank analysis as of 2016. Data is subject to change based on potential updates to source(s) database. Infrastructure investment is defined as new investment, replacement investment and spending on maintenance where the investment will substantially extend the lifetime of an asset, but excluding land purchases. The annual global infrastructure investment need through 2040 is a forecast based on the assumption that countries will continue to spend/invest in line with current trends and will match Oxford Economics baseline 2016-40 annual global GDP growth projection of +2.6%. The projected annual global infrastructure investment needed based on society's needs is based on countries matching the performance of their best performing peers in terms of the resources they dedicate to infrastructure investment. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

There is a widening gap between projected infrastructure spending and society’s needs

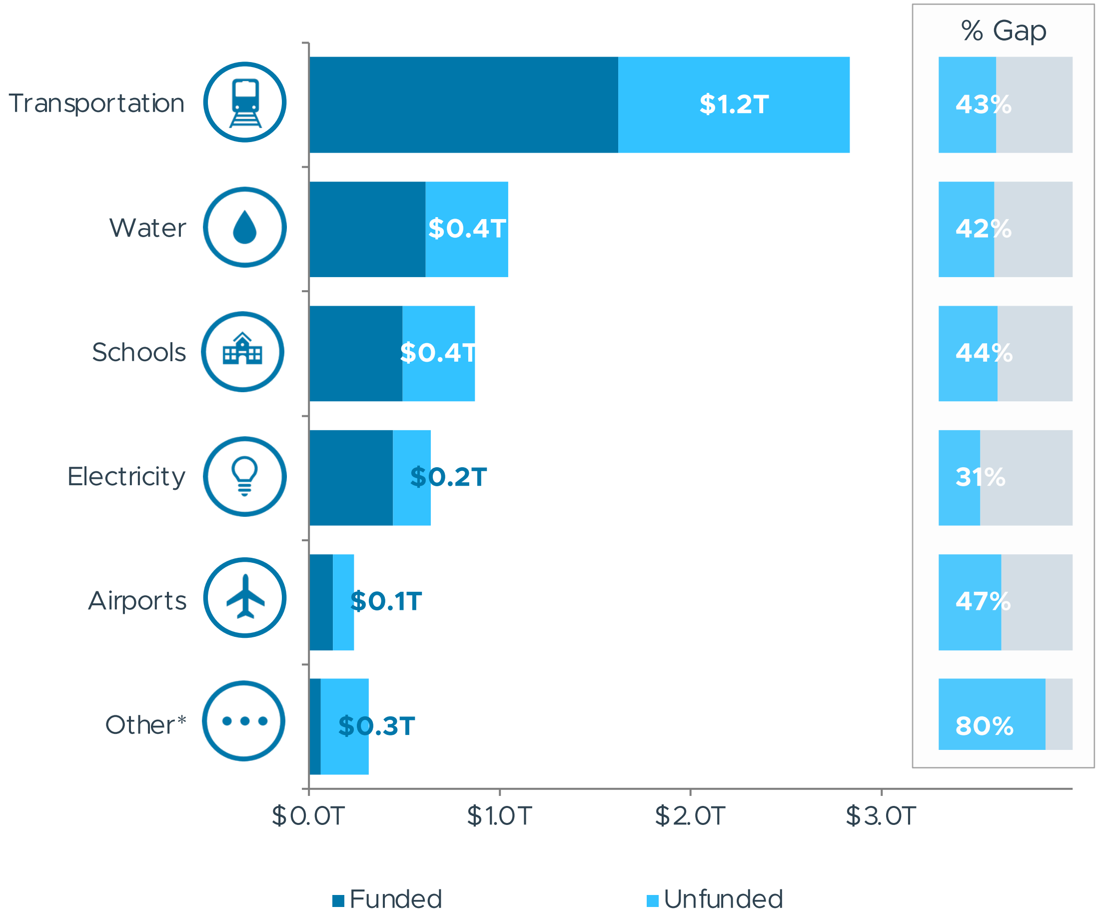
The largest relative gap is projected in the Americas

Annual infrastructure gap between projected spending and society's needs through 2040



U.S. infrastructure has been neglected, requires $2.9T of investments

Cumulative infrastucture investment needs in the U.S. from 2020 to 2029 ($ trillion)

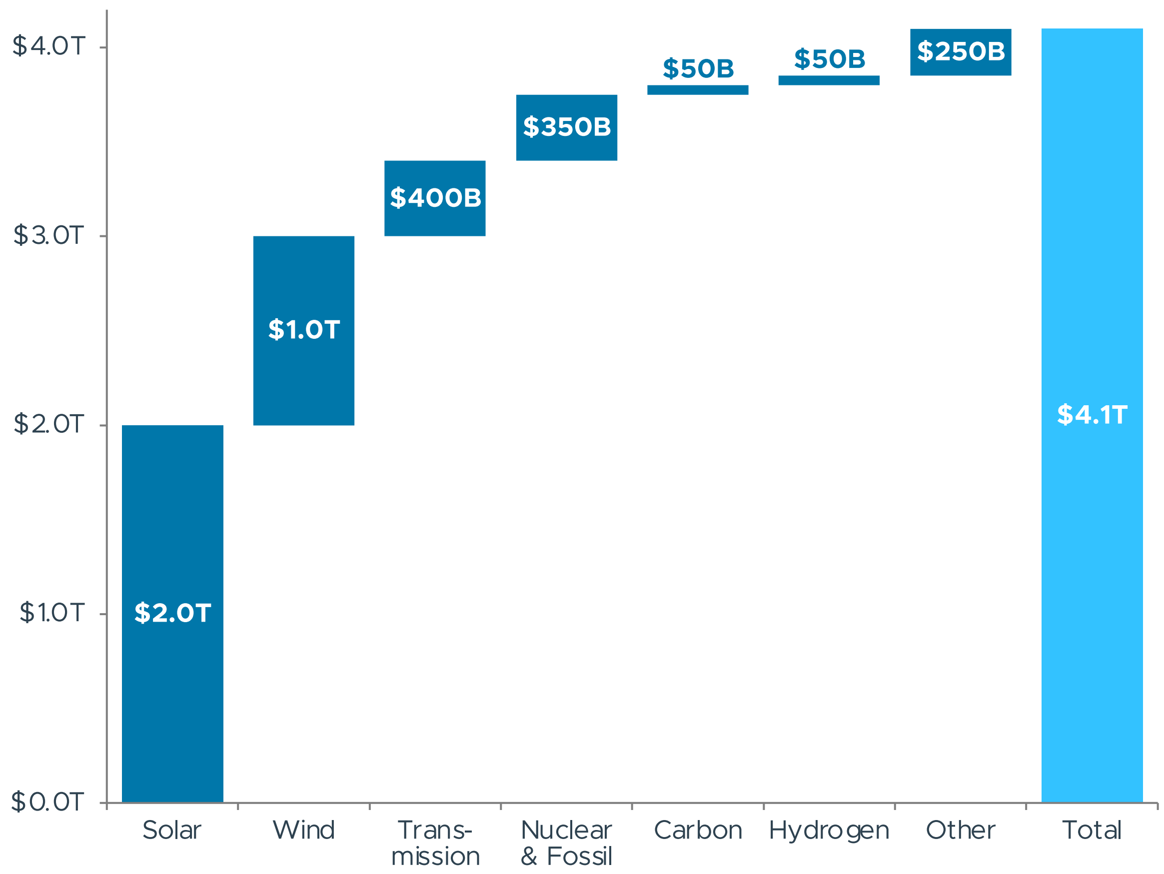


Source: (left) Global Infrastructure Hub (World Bank), iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Projected infrastructure spending and projected society's needs are based on a World Bank analysis as of 2016. Data is subject to change based on potential updates to source(s) database. Infrastructure investment is defined as new investment, replacement investment and spending on maintenance where the investment will substantially extend the lifetime of an asset, but excluding land purchases. The annual projected spending through 2040 is a forecast based on the assumption that countries will continue to spend/invest in line with current trends and will match Oxford Economics baseline 2016-40 annual global GDP growth projection of +2.6%. The projected annual global infrastructure investment needed based on society’s needs is based on countries matching the performance of their best-performing peers in terms of the resources they dedicate to infrastructure investment. (right) American Society of Civil Engineers (ASCE), iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of March 3, 2021, and is subject to change based on potential updates to source(s) database. Analysis looks at the projected infrastructure gap by category based on current funding levels in relation to investment needs. The infrastructure investment needed in each category is based on ASCE’s estimates of what is needed to maintain a state of good repair. This includes looking at the costs of building new infrastructure where necessary, such as transmission lines or water treatment plants, and for maintaining or rebuilding existing infrastructure that needs repair or replacement. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

U.S. and Europe have significantly stepped up their infrastructure-related investments

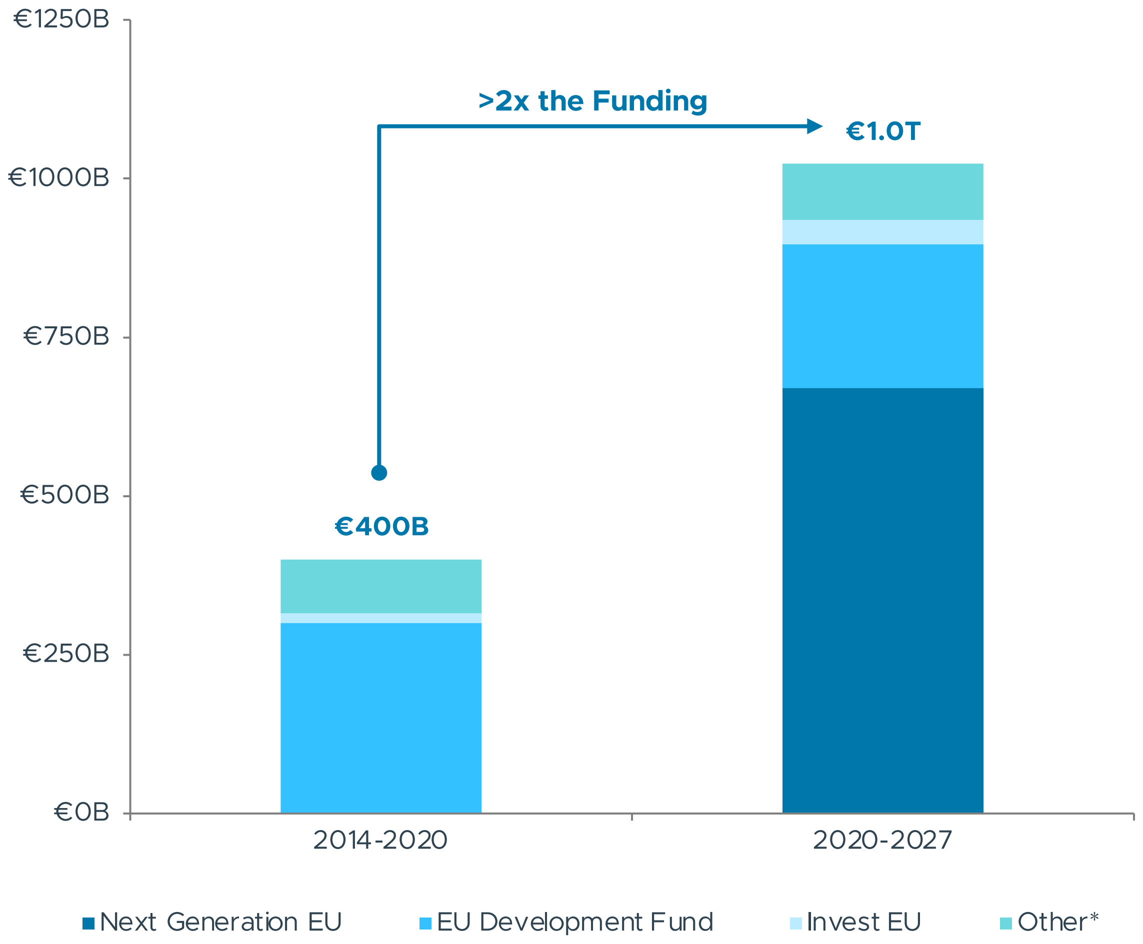
Inflation Reduction Act to drive $4.1T of infrastructure investment

Annual global projected spending per year through 2040 to match 2.6% GDP growth



Over €1T has been allocated across an array of EU funding initiatives

Total European Union (EU) funding allocations for infastructure-related spending

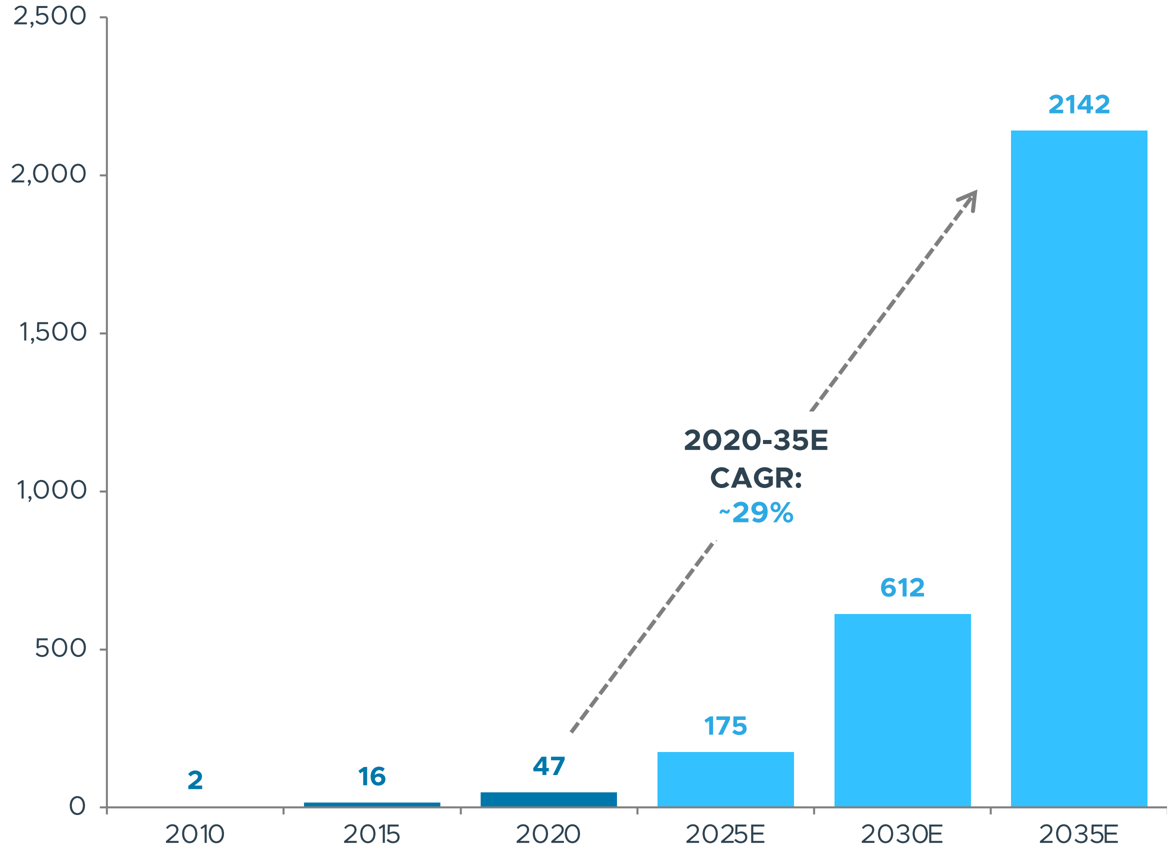


Source: (left) Princeton University ZERO Lab and REPEAT Project, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of Aug. 12, 2021, and is subject to change based on potential updates to source(s) database. Analysis looks at the cumulative capital investment in new American energy supply-related infrastructure between 2023 and 2032 as a result of the passage of the Inflation Reduction Act (IRA). (right) European Commission, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of Nov. 3, 2022, and is subject to change based on potential updates to source(s) database. Analysis looks at the 2014-20 and 2020-27 budgetary periods as they relate to EU's funding allocations for infrastructure projects based on the passage of various EU infrastructure policies. Other includes Cohesion Fund, Connecting Europe, and the Just Transition Fund. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Digitization and growth in data centers is one of the prominent themes in infrastructure

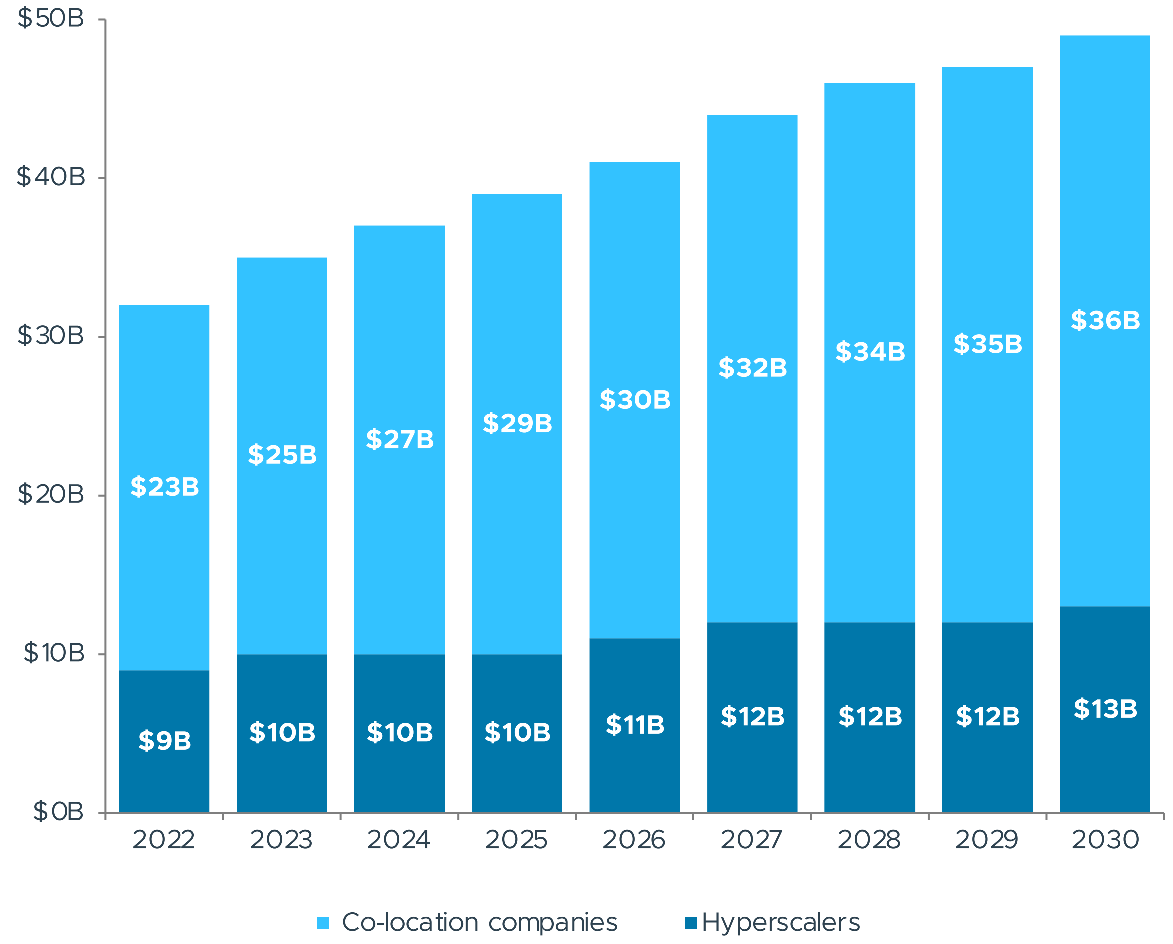
The data universe is set to to grow more than 10x from 2020 to 2030

Global cumulative data creation in zettabytes



Spending on construction of data centers to reach $49 billion by 2030

Forecasted annual data center construction spending, globally ($ billion)

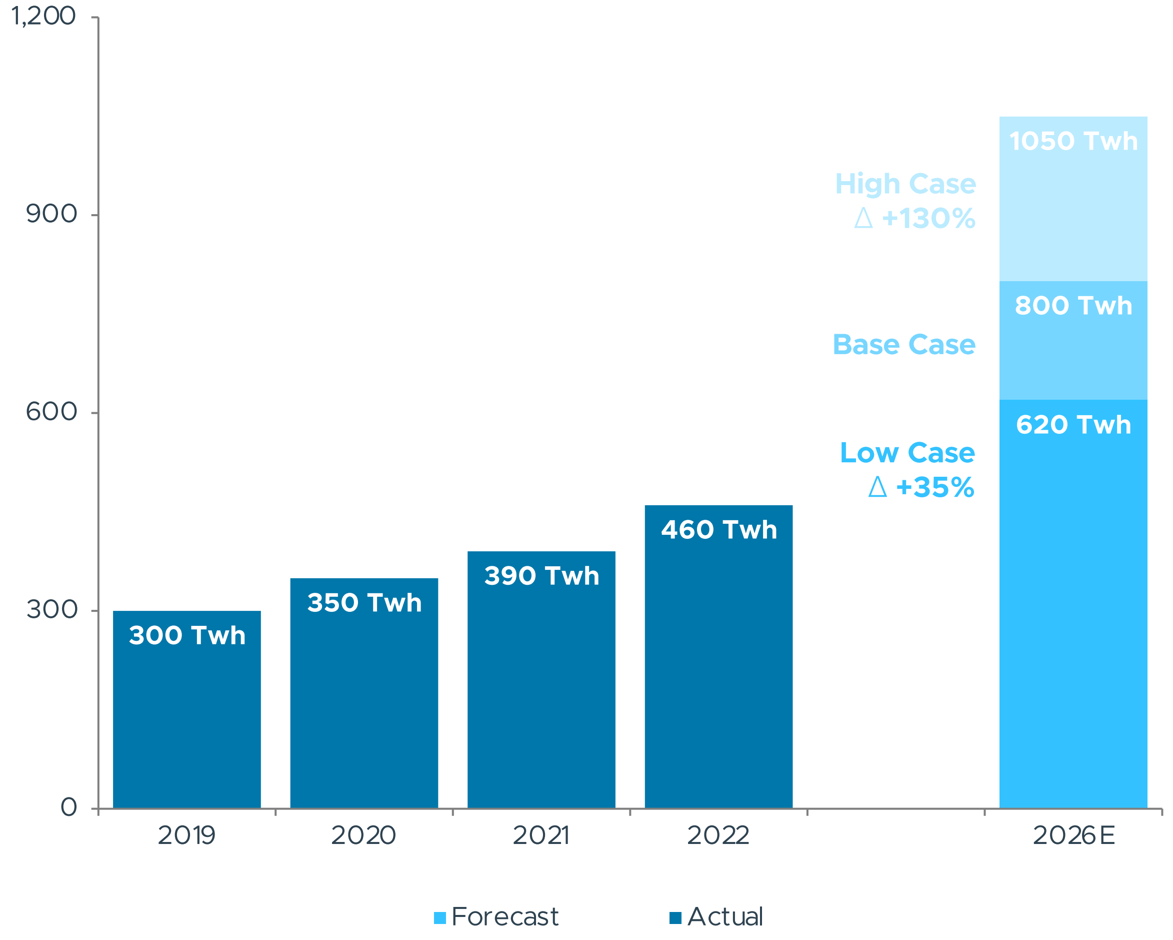


Source: (left) Statista, Ericson Mobility Report, Guardian, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of Jan. 13, 2023, and is subject to change based on potential updates to source(s) database. Analysis looks at historical and forecasted total global data creation by year. (right) McKinsey & Company, Synergy Research Group, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of Jan. 13, 2023, and is subject to change based on potential updates to source(s) database. Analysis looks at global data center construction spending between hyperscalers and co-location companies and is based on money allocated to build more capacity. Includes construction spending by providers. Excludes enterprise spending and any other capital expenditure outside of construction (such as equipment). See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

The investment need for additional decarbonized power generation is growing

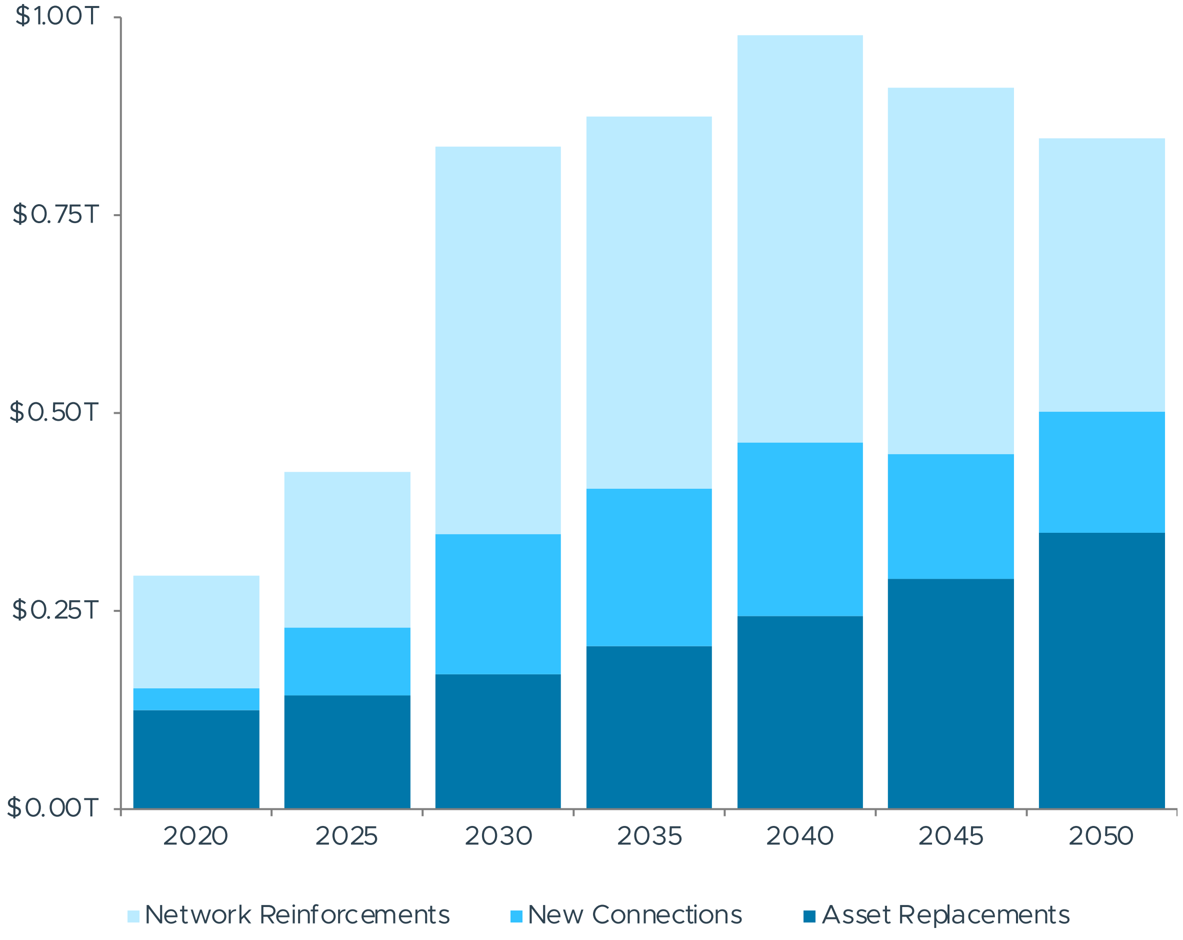
Global electricity demand from AI and data centers to double by 2026

Global electricity demand from data centers, AI, and cryptocurrencies (terawatt-hours)



Global electric grid needs $14T in investments over next 30 years

Global annual power grid investment needed to meet net zero scenario



Source: (left) International Energy Agency (IEA), iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of Jan. 24, 2024, and is subject to change based on potential updates to source(s) database. Analysis looks at global electricity demand from data centers, AI, and cryptocurrencies through 2026. Includes traditional data centers, dedicated AI data centers, and cryptocurrency consumption; excludes demand from data transmission networks. Low- and high-case scenarios reflect the uncertainties in the pace of deployment and efficiency gains amid future technological developments. (right) BloombergNEF, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of December 2023 and is subject to change based on potential updates to source(s) database. Forecast is for 2024 to 2050 and is based on BloombergNEF net zero scenario, which is based on the world meeting the goals of the Paris Agreement. Global power grid investment includes both transmission and distribution grids. Network Reinforcements refers to upgrades to the utility power system to accommodate higher transfers and maintain reliability. New Connections refers to extensions of the power grid to integrate new generators or consumers. Asset Replacements refers to the costs to replace end-of-life power grid assets. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Alternatives Decoded

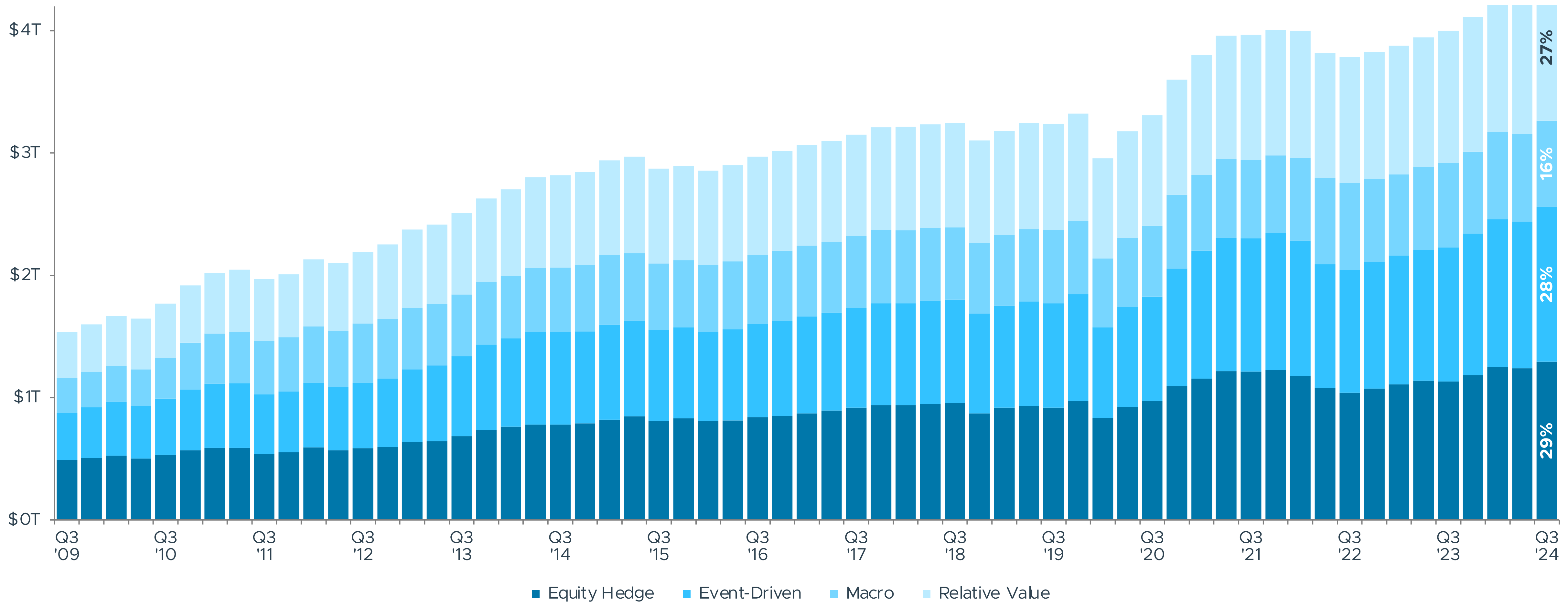
Hedge Funds

iCapital

Hedge fund AUM has rebounded and has hovered near record levels

Total industry assets are at record levels as consistent hedge fund performance has been a contributor to recent AUM growth

Total AUM across the hedge fund industry ($ trillion, quarterly as of September 2024)



Source: Hedge Fund Research (HFR), iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024 and is subject to change based on potential updates to source(s) database. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Different hedge fund strategies can help position for various market conditions

Hedge fund returns

Annual and time-period returns ranked in order of performance (%, as of September 2024)

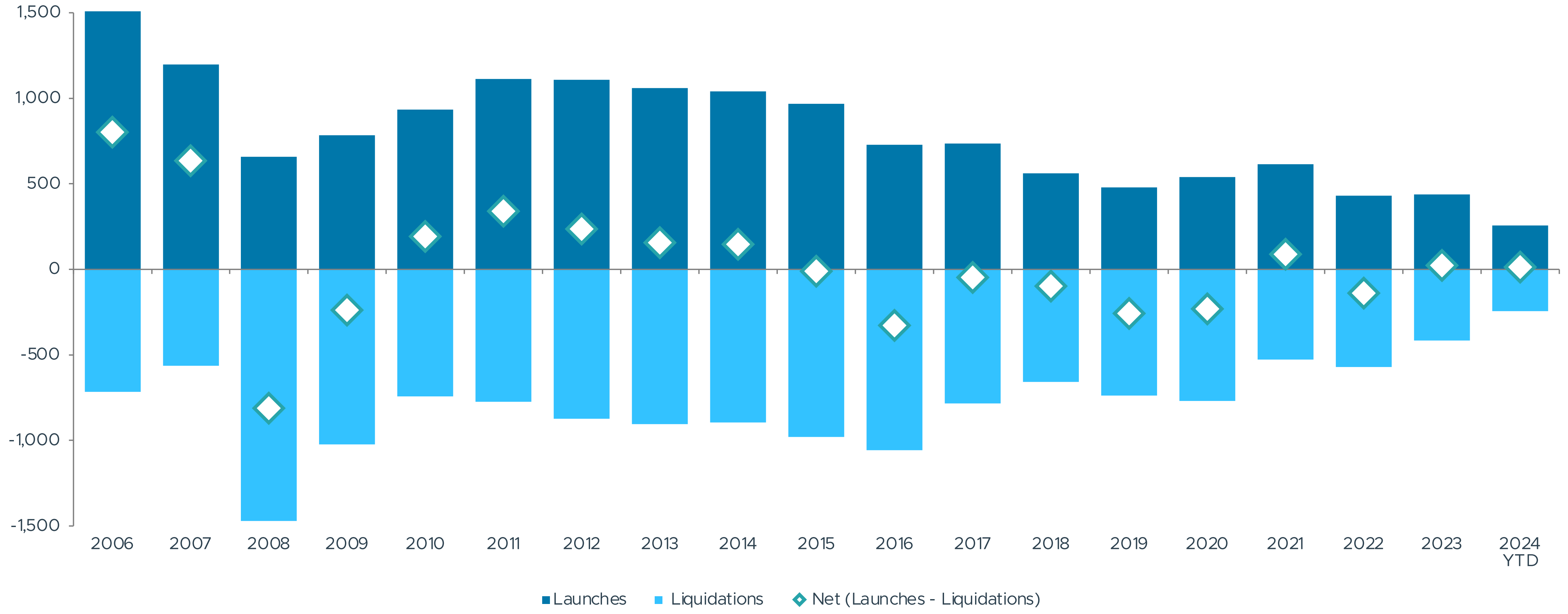
Annual Return (%)											Time-Period Return (%, per annum)			
2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 YTD	3YR	5YR	10YR	15YR
5.6% Macro	0.7% Multi-Strategy	10.6% Event Driven	17.3% Global 60/40	1.9% Cash	18.7% Global 60/40	17.9% Equity Hedge	12.4% Event Driven	9.0% Macro	15.6% Global 60/40	12.6% Global 60/40	4.6% Event Driven	8.9% Equity Hedge	6.1% Equity Hedge	6.3% Global 60/40
3.4% Multi-Strategy	0.0% Cash	8.6% Credit	13.3% Equity Hedge	0.0% Credit	13.7% Equity Hedge	13.4% Global 60/40	11.7% Equity Hedge	1.5% Cash	11.4% Equity Hedge	10.3% Equity Hedge	4.2% Macro	7.4% Event Driven	5.9% Global 60/40	5.9% Equity Hedge
3.0% Credit	-1.0% Equity Hedge	6.4% Multi-Strategy	8.6% Hedge Fund Composite	-0.2% Multi-Strategy	10.4% Hedge Fund Composite	11.8% Hedge Fund Composite	10.2% Hedge Fund Composite	-0.7% Multi-Strategy	10.4% Event Driven	8.1% Hedge Fund Composite	4.1% Credit	7.4% Hedge Fund Composite	5.2% Event Driven	5.8% Event Driven
3.0% Hedge Fund Composite	-1.0% Credit	5.6% Global 60/40	7.6% Event Driven	-2.1% Event Driven	7.5% Event Driven	9.3% Event Driven	9.2% Global 60/40	-2.6% Credit	8.1% Hedge Fund Composite	7.8% Event Driven	4.0% Hedge Fund Composite	7.0% Global 60/40	5.1% Hedge Fund Composite	5.6% Credit
2.7% Global 60/40	-1.1% Hedge Fund Composite	5.5% Equity Hedge	6.0% Credit	-4.1% Macro	6.5% Macro	6.7% Multi-Strategy	7.9% Credit	-4.1% Hedge Fund Composite	7.8% Credit	7.4% Credit	3.6% Cash	5.6% Credit	4.5% Credit	5.1% Hedge Fund Composite
1.8% Equity Hedge	-1.3% Macro	5.4% Hedge Fund Composite	4.1% Multi-Strategy	-4.7% Hedge Fund Composite	6.5% Credit	6.3% Credit	7.7% Macro	-4.8% Event Driven	6.3% Multi-Strategy	5.4% Multi-Strategy	3.6% Global 60/40	5.2% Multi-Strategy	4.0% Multi-Strategy	4.9% Multi-Strategy
1.1% Event Driven	-2.7% Global 60/40	1.0% Macro	2.2% Macro	-6.1% Global 60/40	5.3% Multi-Strategy	5.4% Macro	7.0% Multi-Strategy	-10.1% Equity Hedge	5.3% Cash	4.6% Macro	3.6% Equity Hedge	5.2% Macro	3.2% Macro	2.6% Macro
0.0% Cash	-3.6% Event Driven	0.3% Cash	0.8% Cash	-7.1% Equity Hedge	2.3% Cash	0.6% Cash	0.0% Cash	-17.5% Global 60/40	-0.3% Macro	4.2% Cash	3.4% Multi-Strategy	2.4% Cash	1.7% Cash	1.1% Cash

Source: Bloomberg Index Services Limited, FTSE Russell, Hedge Fund Research (HFR), MSCI, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024 and is subject to change based on potential updates to source(s) database. Hedge Fund Composite proxied by HFRI Fund Weighted Composite Index. Multi-Strategy proxied by HFRI Relative Value Multi-Strategy Index. Macro proxied by HFRI Macro Index. Equity Hedge proxied by HFRI Equity Hedge Index. Event Driven proxied by HFRI Event-Driven Index. Credit proxied by HFRI Credit Index. Cash proxied by FTSE 3 Month US T Bill Index. Global 60/40 proxied by 60% MSCI ACWI Index and 40% Bloomberg Global Aggregate Bond Index. It is important to note that the returns listed are based on indices that are meant to estimate the asset class performance, hypothetically creating a return if one had access to all active funds. Not all the above indices are practically investable, and are subject to change as datasets are continually updated. All returns are calculated in U.S. dollars. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Similar number of hedge fund launches and liquidations highlight selection importance

Since the GFC, there has been roughly an equal amount of hedge fund liquidations as there were launches

Estimated number of hedge fund launches and liquidations per year (as of June 2024)

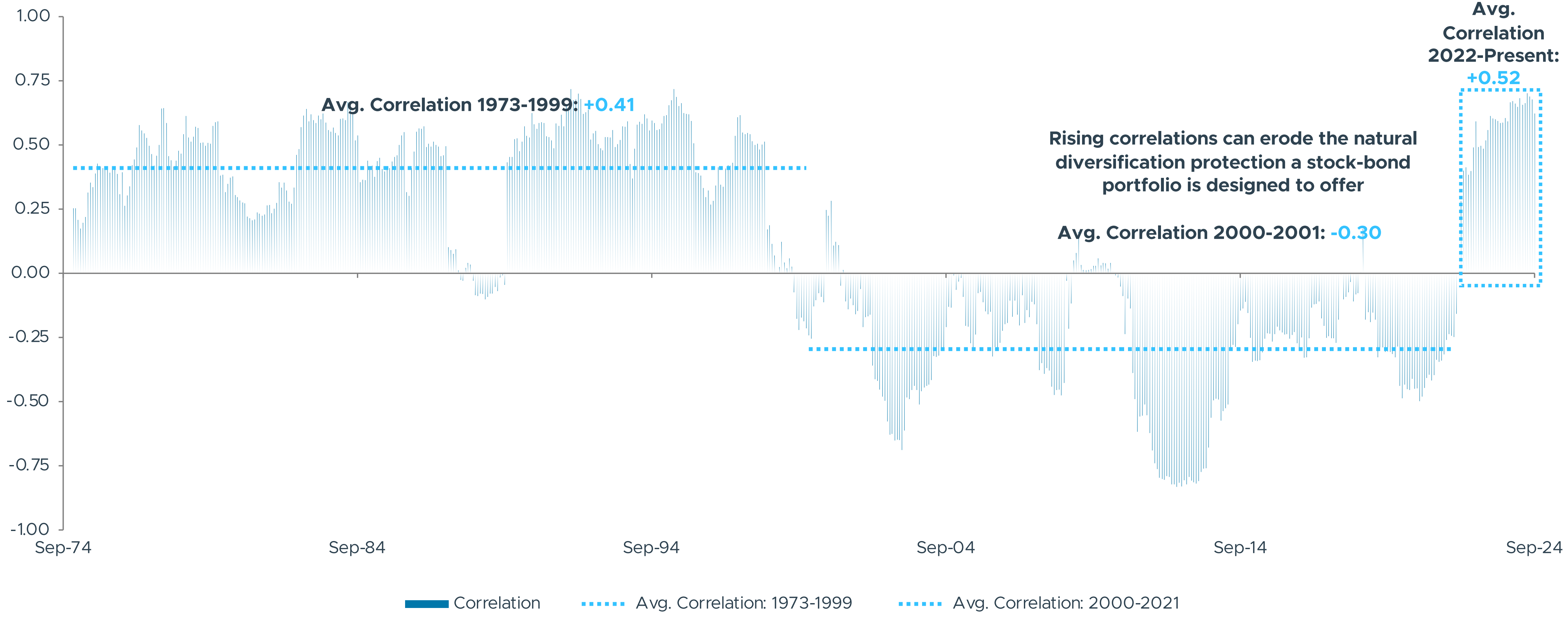


Source: Hedge Fund Research (HFR), iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through June 2024 and is subject to change based on potential updates to source(s) database. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

A traditional 60/40 portfolio is not offering the "natural" diversification it once did

Rising correlation between stocks and bonds suggests investors can increasingly rely on hedge funds for uncorrelated returns

Trailing 24-month correlation between the S&P 500 and the Bloomberg U.S. Long Treasury index (as of September 2024)



Source: Bloomberg Index Services Limited, S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024 and is subject to change based on potential updates to source(s) database. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

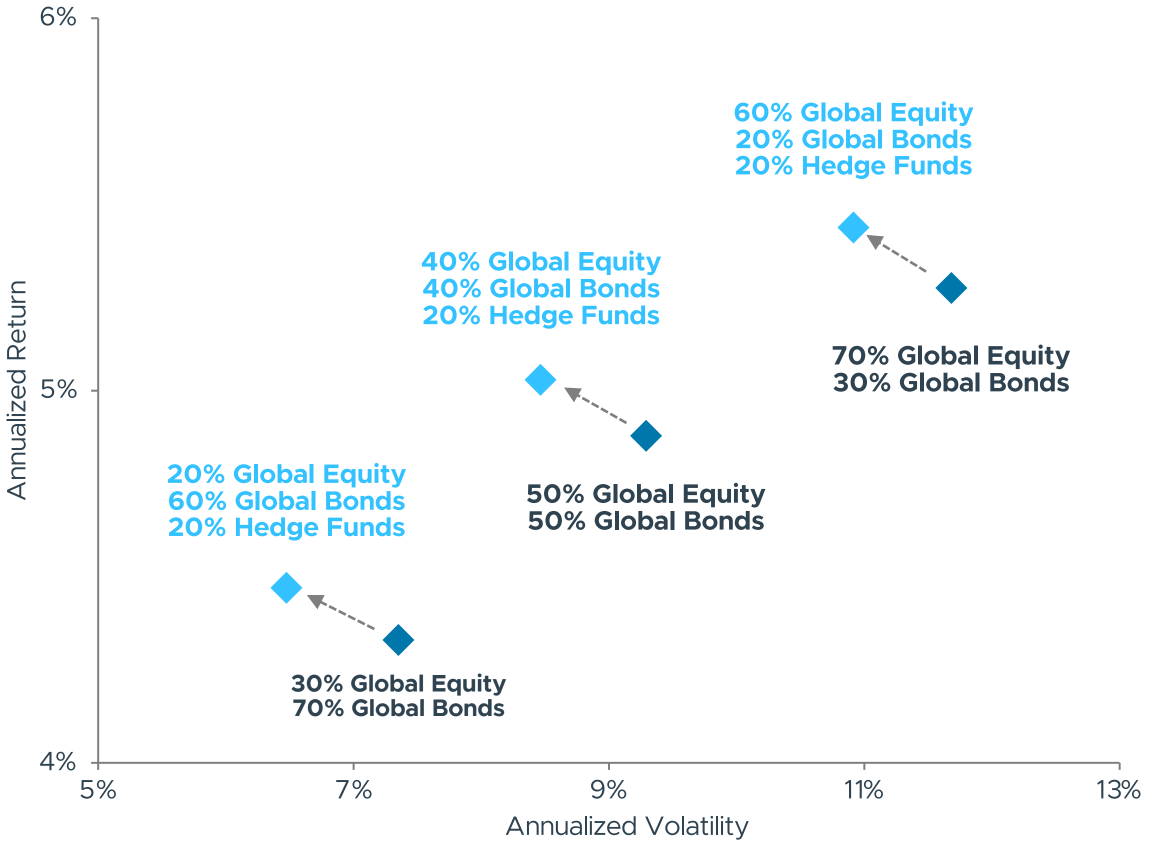
Historically, adding hedge funds to traditional portfolios has improved risk/return

Comparative risk/return favorable to Hedge Funds

Annualized volatility/returns since January 2000 (%, as of September 2024)

Portfolio risk/return is enhanced when adding Hedge Funds

Annualized volatility/returns since January 2000 (%, as of Jul. 2024)

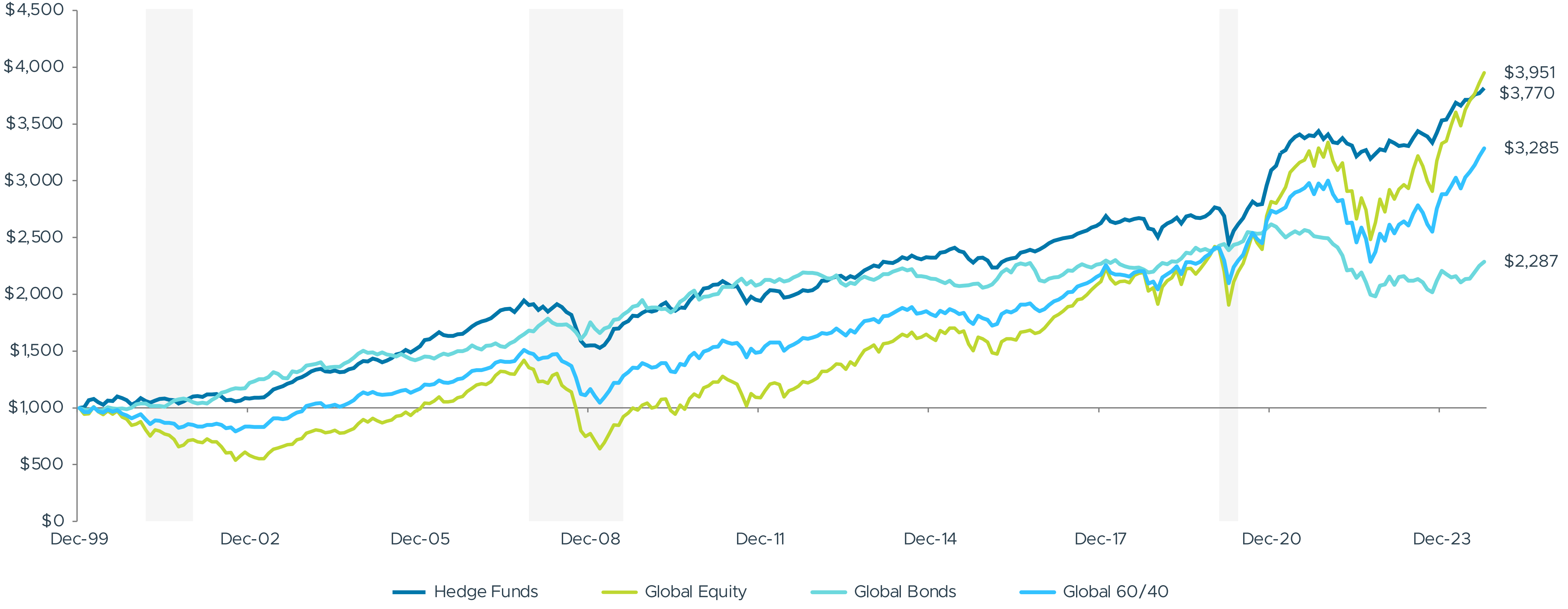


Source: (left) Bloomberg Index Services Limited, FTSE Russell, Hedge Fund Research (HFR), MSCI, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024 and is subject to change based on potential updates to source(s) database. Annualized volatility and returns are based on the trailing 20 years' worth of monthly data. Hedge Fund Composite proxied by HFRI Fund Weighted Composite Index. Multi-Strategy proxied by HFRI Relative Value Multi-Strategy Index. Macro proxied by HFRI Macro Index. Equity Hedge proxied by HFRI Equity Hedge Index. Event Driven proxied by HFRI Event-Driven Index. Cash proxied by FTSE 3 Month US T Bill Index. Global Bonds proxied by Bloomberg Global Aggregate Bond Index. Global Equity proxied by MSCI ACWI Index. Global 60/40 proxied by 60% MSCI ACWI Index and 40% Bloomberg Global Aggregate Bond Index. (right) Bloomberg Index Services Limited, Hedge Fund Research (HFR), MSCI, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through July 2024 and is subject to change based on potential updates to source(s) database. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Over time, hedge funds offer equity-like results with less downside risk

Hedge funds have far less downside risk relative to equities or a 60/40 portfolio in times of stress

Normalized change of $1,000 invested across various strategies since the start of 2000 ($, as of September 2024)

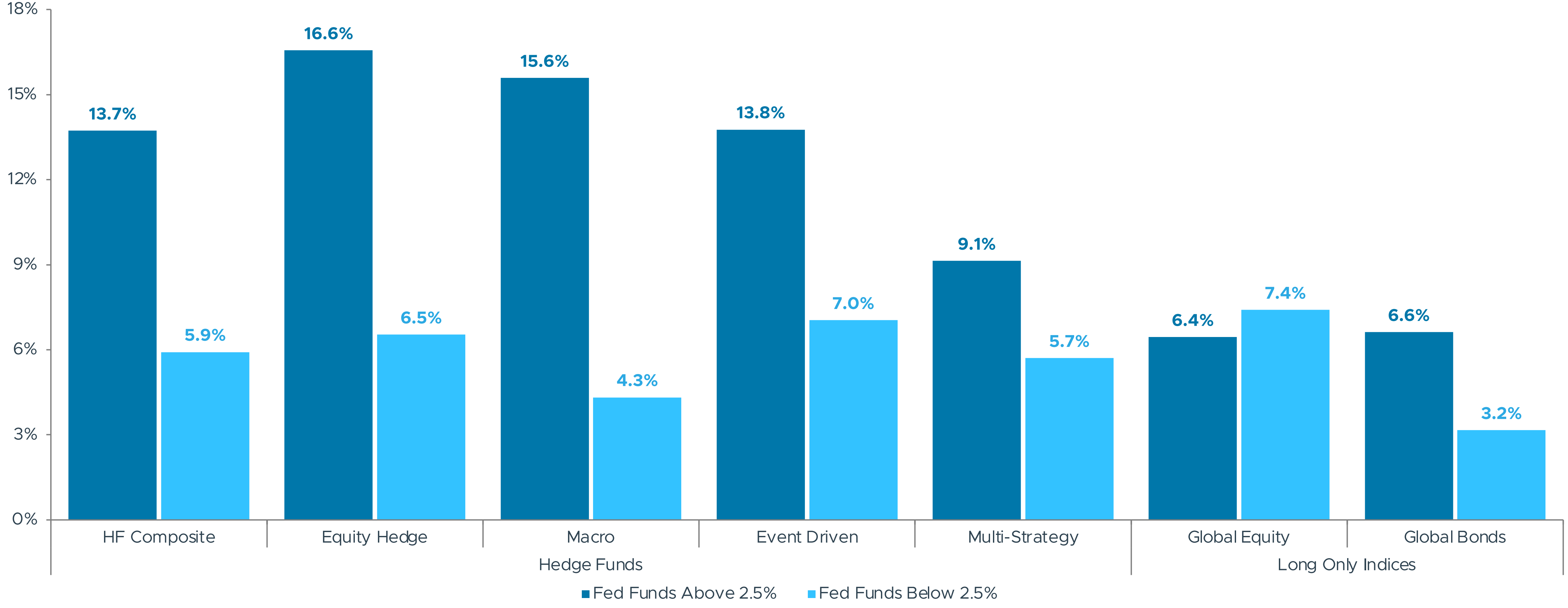


Source: Bloomberg Index Services Limited, Hedge Fund Research (HFR), MSCI, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024 and is subject to change based on potential updates to source(s) database. Hedge Funds proxied by HFRI Fund Weighted Composite Index. Global Bonds proxied by Bloomberg Global Aggregate Bond Index. Global Equity proxied by MSCI ACWI Index. Global 60/40 proxied by 60% MSCI ACWI Index and 40% Bloomberg Global Aggregate Bond Index. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Hedge funds have generally performed better during periods of elevated rates

In periods of higher interest rates there is often more economic stress and divergence in prices, which offers more opportunities for hedge funds

Average forward 12-month returns across equities, bonds, and hedge funds during different central bank policy rate regimes (%, January 1990 – September 2024)

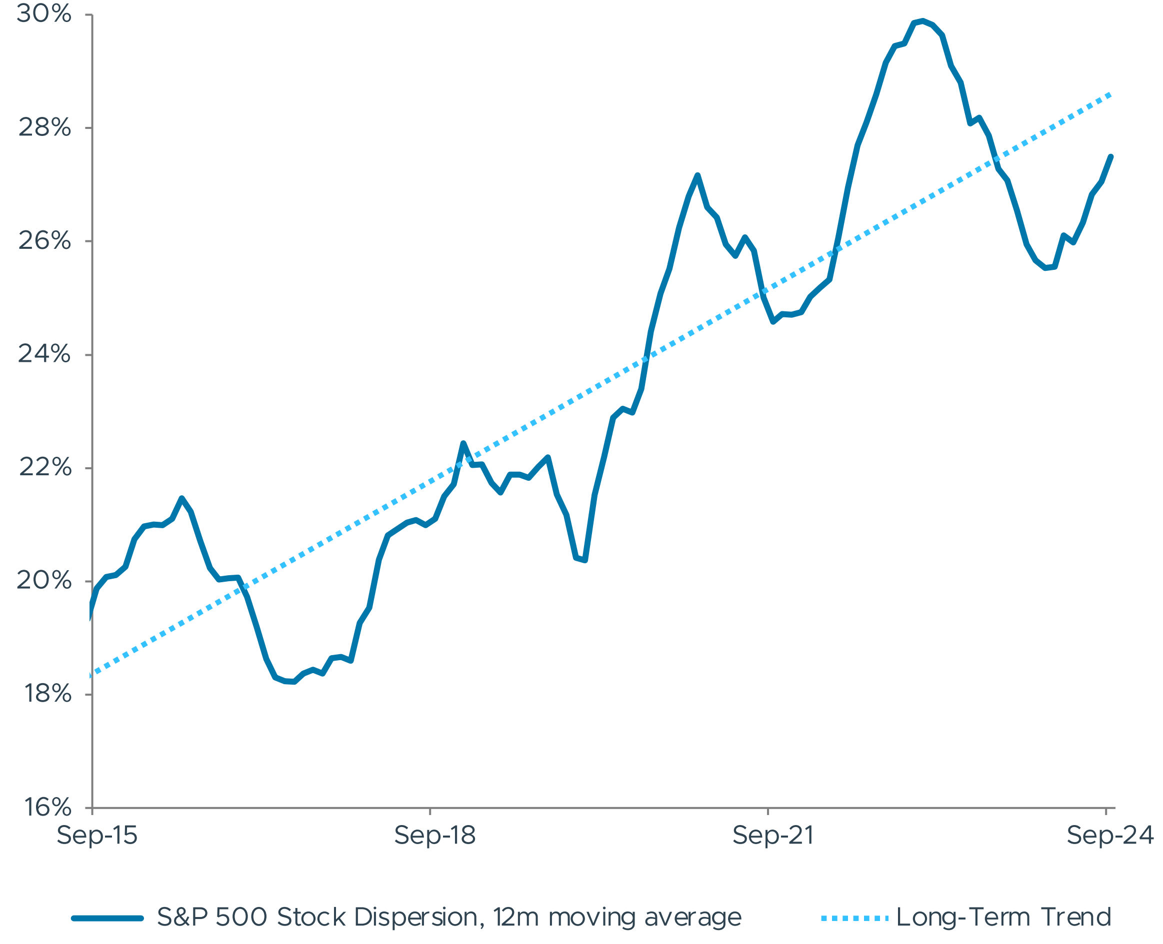


Source: Bloomberg Index Services Limited, Federal Reserve, Hedge Fund Research (HFR), MSCI, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024 and is subject to change based on potential updates to source(s) database. Analysis looks at the average forward 12-month return when the upper bound of the Federal Reserve target rate was at or above 2.5% or below 2.5% since January 1990. Hedge Fund Composite proxied by HFRI Fund Weighted Composite Index. Equity Hedge proxied by HFRI Equity Hedge Index. Macro proxied by HFRI Macro Index. Event Driven proxied by HFRI Event-Driven Index. Multi-Strategy proxied by HFRI Relative Value Multi-Strategy Index. Global Equity proxied by MSCI ACWI Index. Global Bonds proxied by Bloomberg Global Aggregate Bond Index. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Hedge fund opportunities increase in periods of higher equity dispersion, low correlation

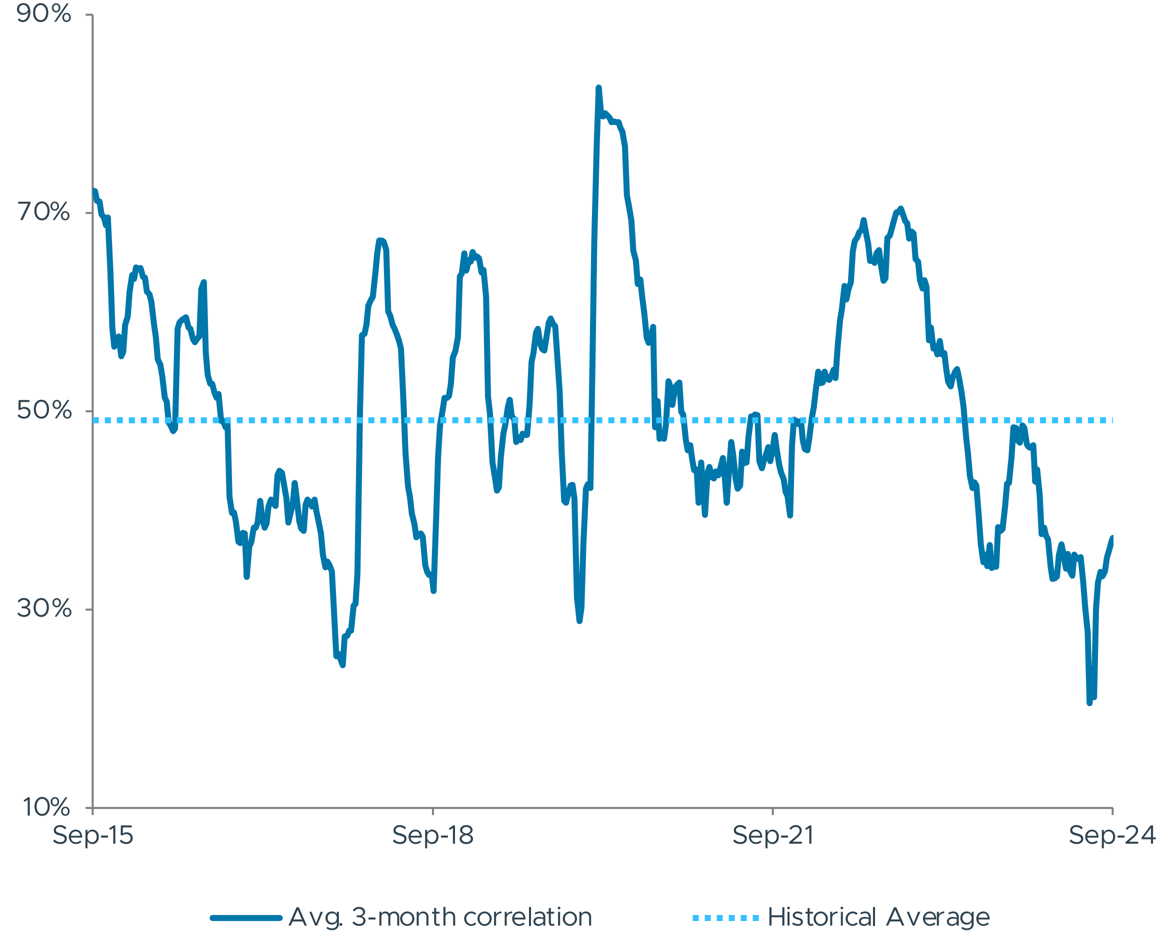
Dispersion has been exhibiting a general rising trend in recent years

S&P 500 dispersion per the CBOE S&P 500 Dispersion Index (%, as of September 2024)



Equity correlations remain low relative to historical averages

Bottom-up average 3-month stock correlation to the S&P 500 (%, as of September 2024)

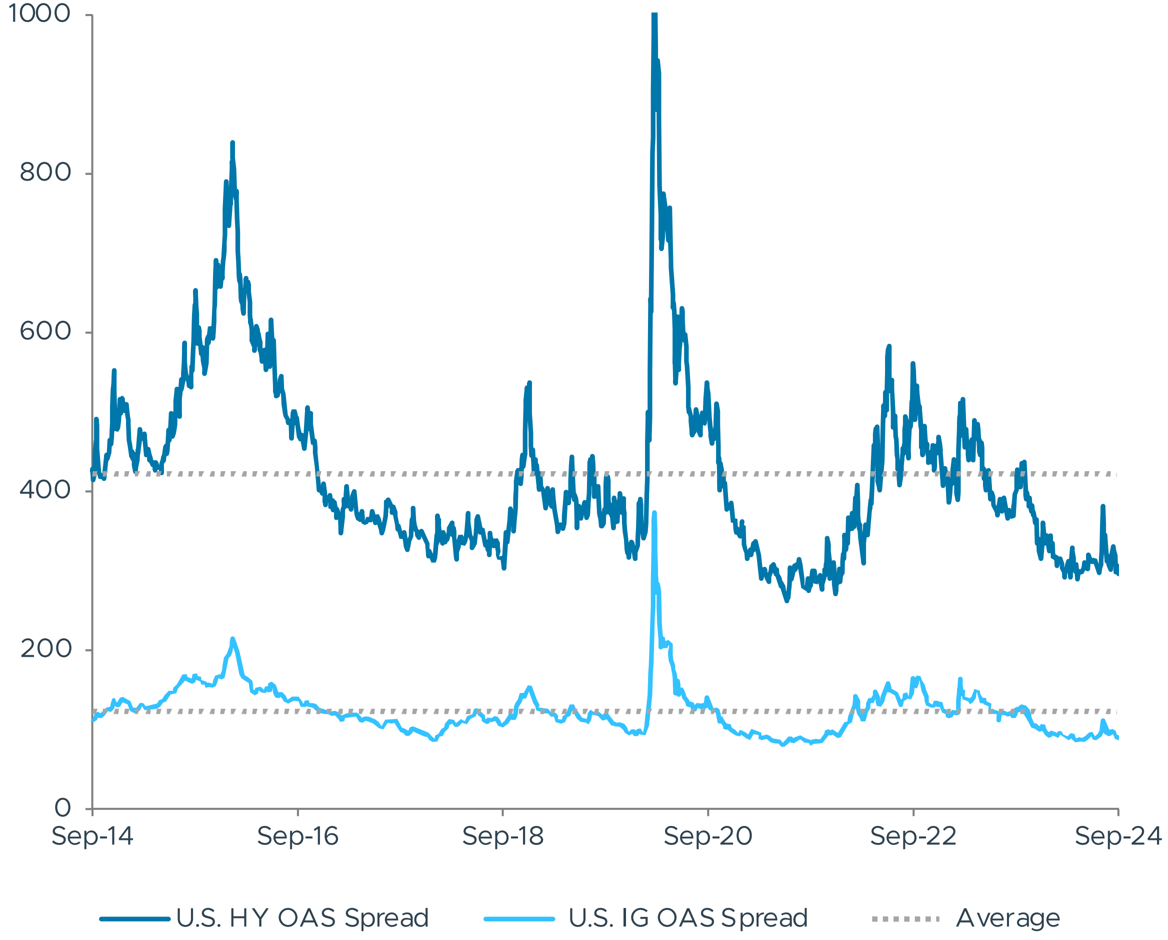


Source: (left) CBOE, S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024 and is subject to change based on potential updates to source(s) database. Cboe S&P 500 Dispersion index measures the expected dispersion in the S&P 500 over the next 30 calendar days. In contrast to "realized dispersion" — a measure of independent movement observed in the components of a diversified portfolio — the Dispersion Index provides a forward-looking indication of the market's perception of the near-term opportunity set for diversification. (right) S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024 and is subject to change based on potential updates to source(s) database. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Despite the recent compression in index spreads, distressed credit opportunities exist

Credit spreads remain relatively tame and have tightened as of late

U.S. High Yield & Investment Grade Spreads (bps, as of September 2024)



A high percentage of higher risk bonds are trading at stressed levels

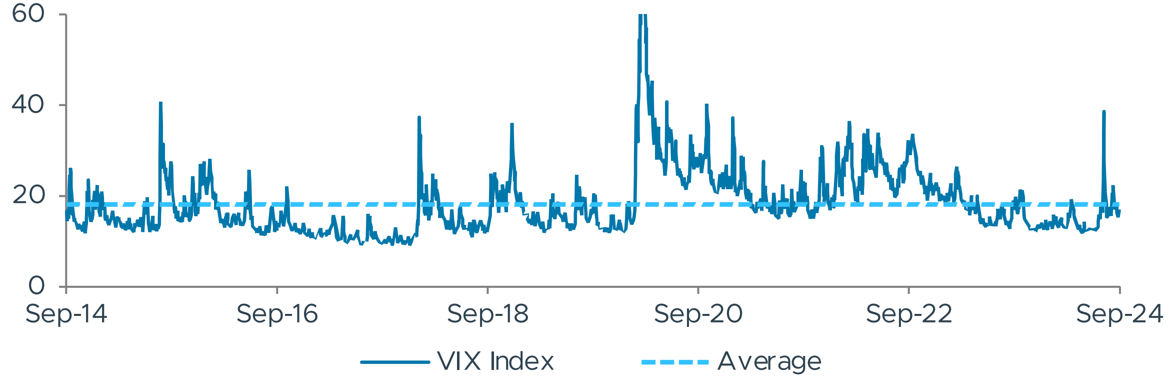
Percentage of bonds trading at stressed levels at month end (below $85)

Source: (left) Bloomberg Index Services Limited, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024 and is subject to change based on potential updates to source(s) database. Analysis looks at the option adjusted spread (OAS) for U.S. High Yield bonds as proxied by Bloomberg U.S. Corporate High Yield Index and U.S. Investment Grade bonds as proxied by Bloomberg U.S. Aggregate Corporate Investment Grade Index. (right) Bloomberg Index Services Limited, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through September 2024 and is subject to change based on potential updates to source(s) database. Analysis looks at percentage of BB-rated bonds as proxied by Bloomberg BB U.S. High Yield index, and CCC-rated bonds as proxied by Bloomberg CCC U.S. High Yield index, trading at or below $85 at each month-end. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Volatility can be a driver of returns for hedge funds; rate volatility remains elevated

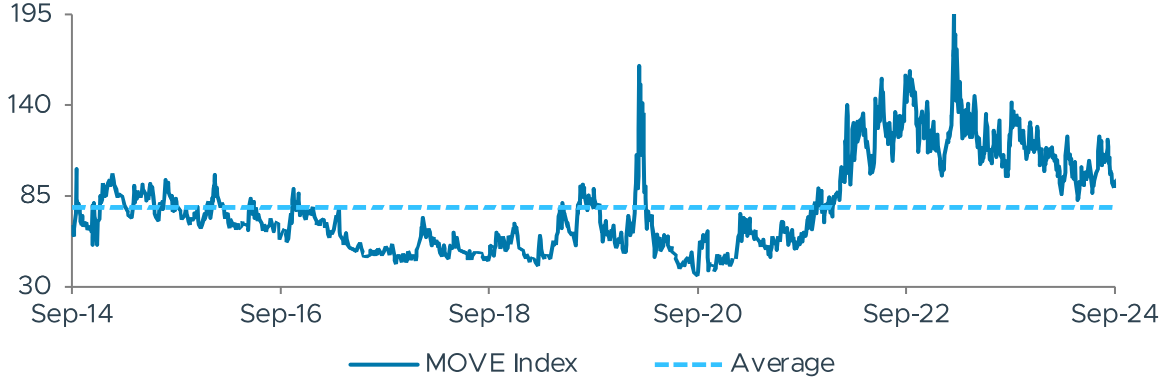
Equity Volatility

CBOE VIX Index (Level)



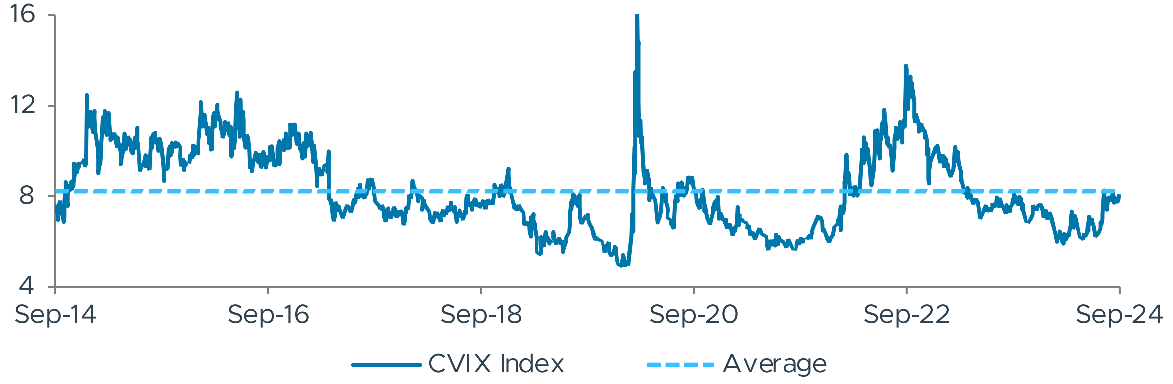
Rate Volatility

ICE BofA MOVE Index (Level)



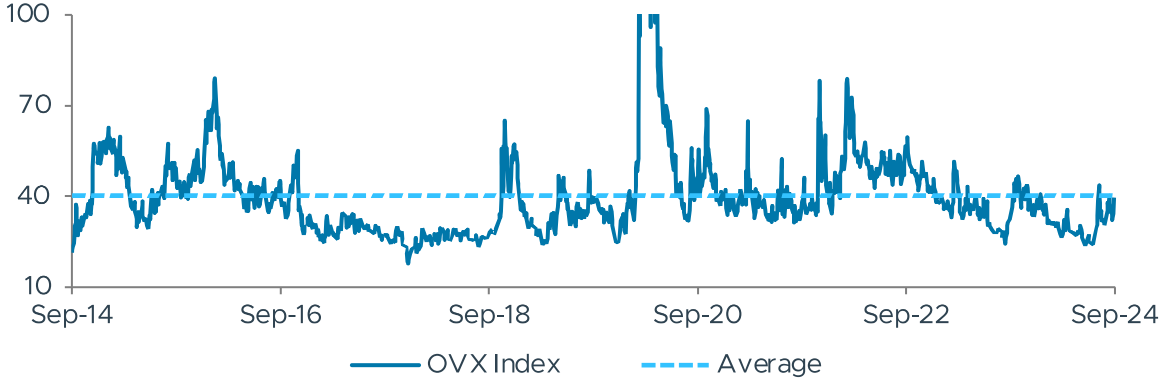
Currency (FX) Volatility

Deutsche Bank FX Volatility Index (Level)



Commodity Volatility

Commodity Volatility proxied by CBOE Crude Oil ETF Volatility Index (Level)



Source: (left, top) CBOE, S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through Sep. 30, 2024, and is subject to change based on potential updates to source(s) database. (left, bottom) Deutsche Bank, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through Sep. 30, 2024, and is subject to change based on potential updates to source(s) database. (right, top) Intercontinental Exchange (ICE), iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through Sep. 30, 2024, and is subject to change based on potential updates to source(s) database. (right, bottom) CBOE, S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data through Sep. 30, 2024, and is subject to change based on potential updates to source(s) database. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

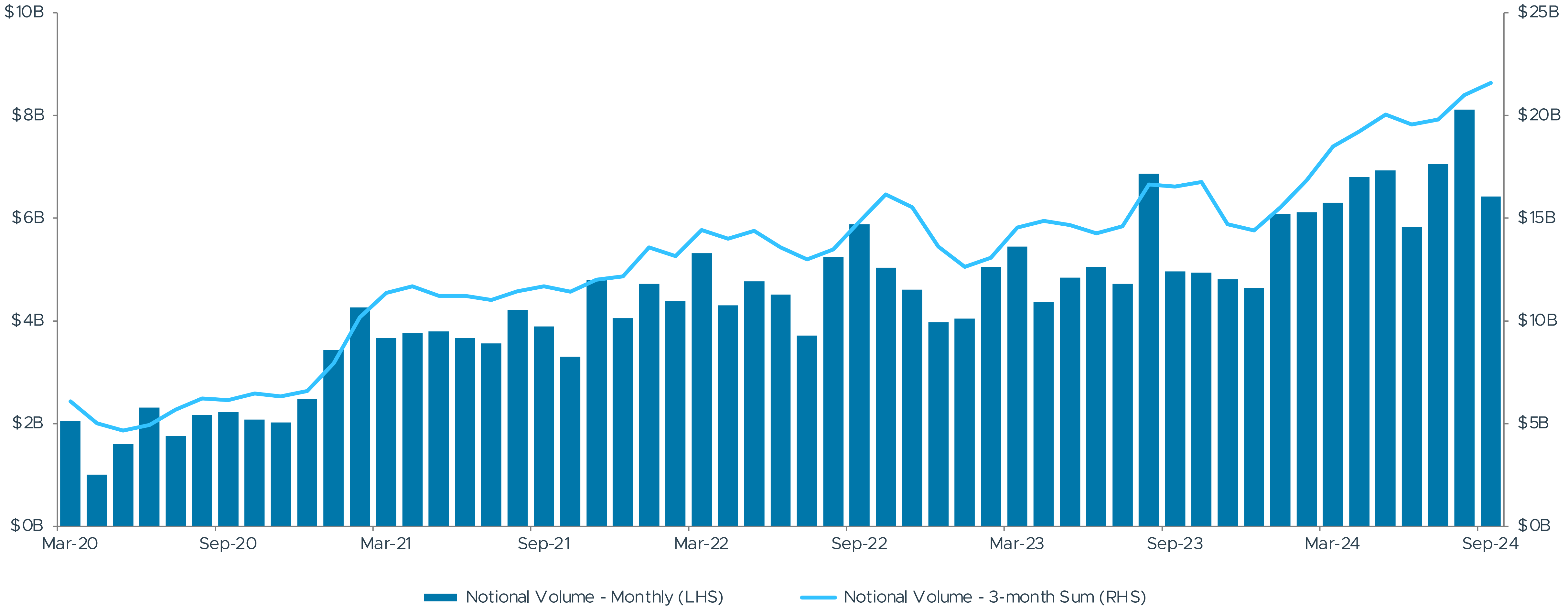
Alternatives Decoded

Structured Investments

Structured investment volumes in the private wealth channel have grown over time

Growth of structured investment volumes on the iCapital platform

Structured investment notional sales volume, monthly ($ billion, as September 2024)

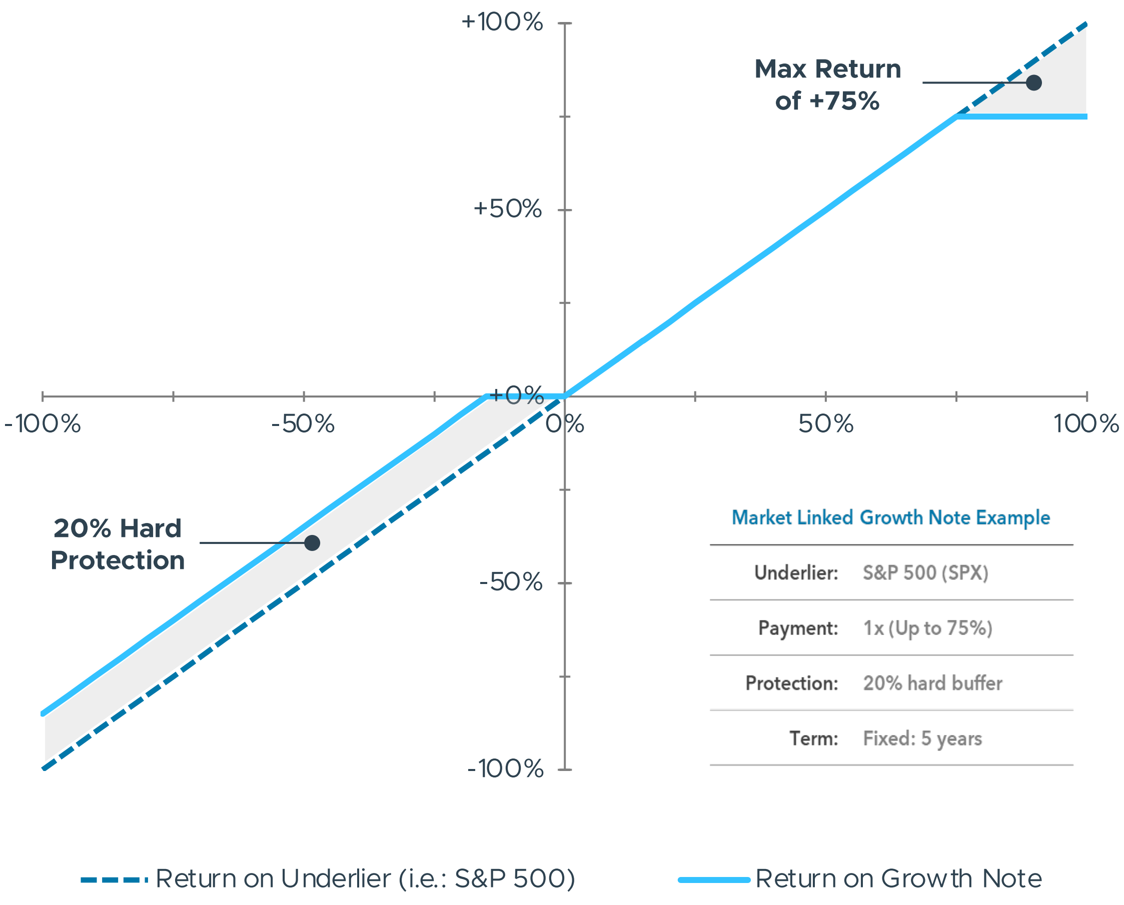


Source: iCapital Structured Investments and Annuities Platform, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is through September 2024 and is subject to change based on potential updates to source(s) database. The structured investment data above is based upon the notional volume of transactions in structured investment CUSIPs that flowed through the iCapital structured investments platform, which does not necessarily reflect the entire universe of structured investments that were available in the market during the above time frame. The data above includes data on a range of product features and terms and do not necessarily reflect any particular CUSIP or structured investment. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Payoff structures for market-linked growth and income notes

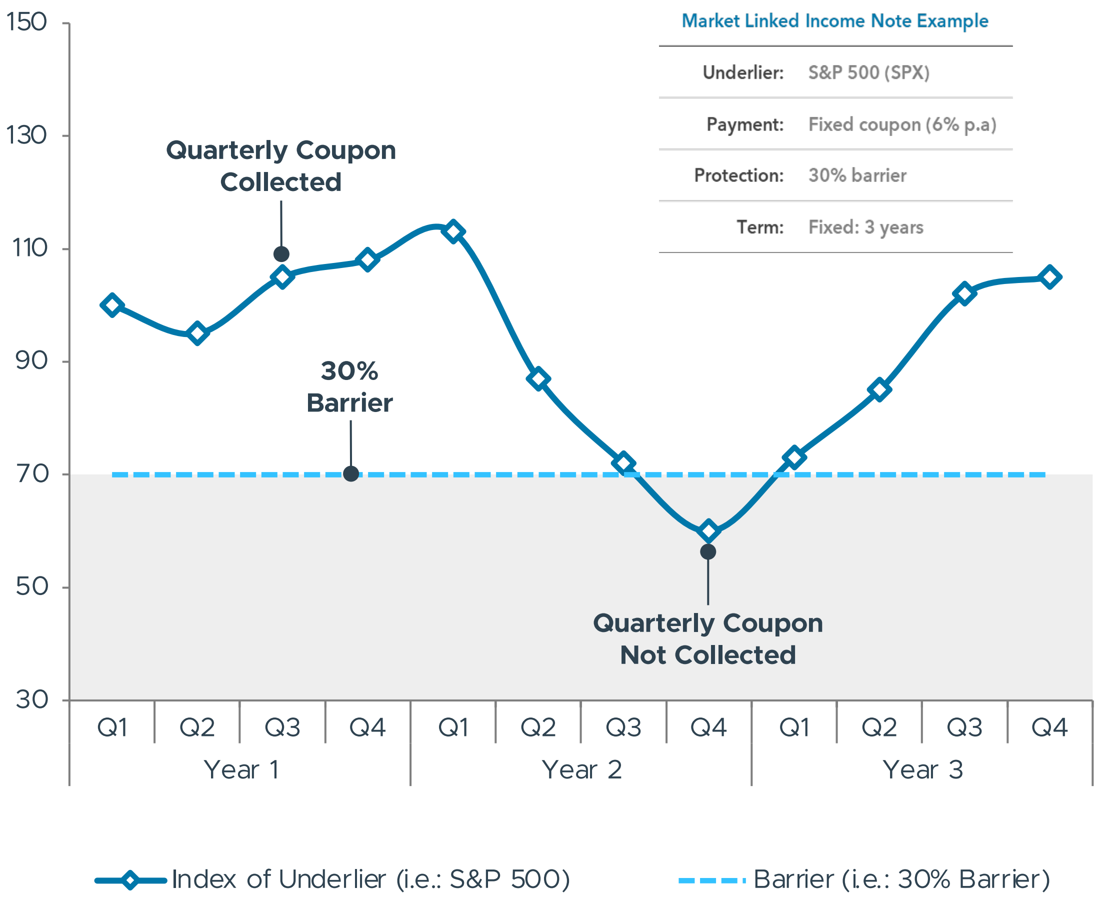
Growth notes offer upside participation, with leverage or up to a cap

Hypothetical payoff structure of a market linked growth note*



Income notes offer a quarterly coupon if certain conditions are met

Hypothetical payoff structure of a market linked income note

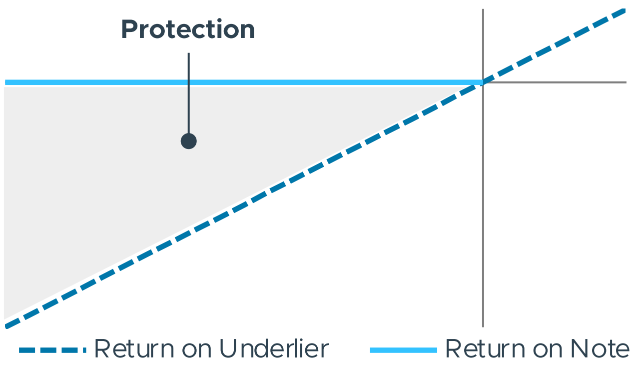


Source: iCapital Structured Investments and Annuities Platform, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: The visuals above are hypothetical examples. They do not necessarily reflect any particular CUSIP or structured investment and are solely intended to help illustrate how different protection methods work. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Types of protection available in structured investments

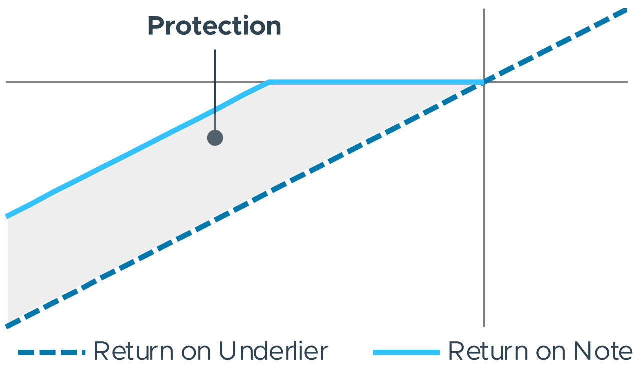
Full Principal Protection

Full principal protection is a type of protection where an investor's **principal investment will be returned** at maturity.



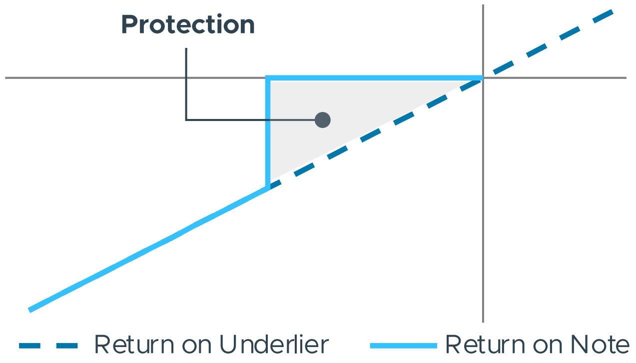
Partial Protection (Buffer)

Hard buffer is a type of protection that **absorbs a fixed percentage of the underlier's loss.** Beyond the hard buffer, the investor faces losses that are one-to-one with the underlier.



Contingent Protection (Barrier)

Barrier is a type of protection that absorbs a fixed percentage of the underlier's decline; however, if the underlier declines beyond a specified level, this protection disappears, and losses are one-for-one from the underlier's initial level on the trade date.



Comparing Downside Protection

How notes with different types of protection play out in negative market scenarios

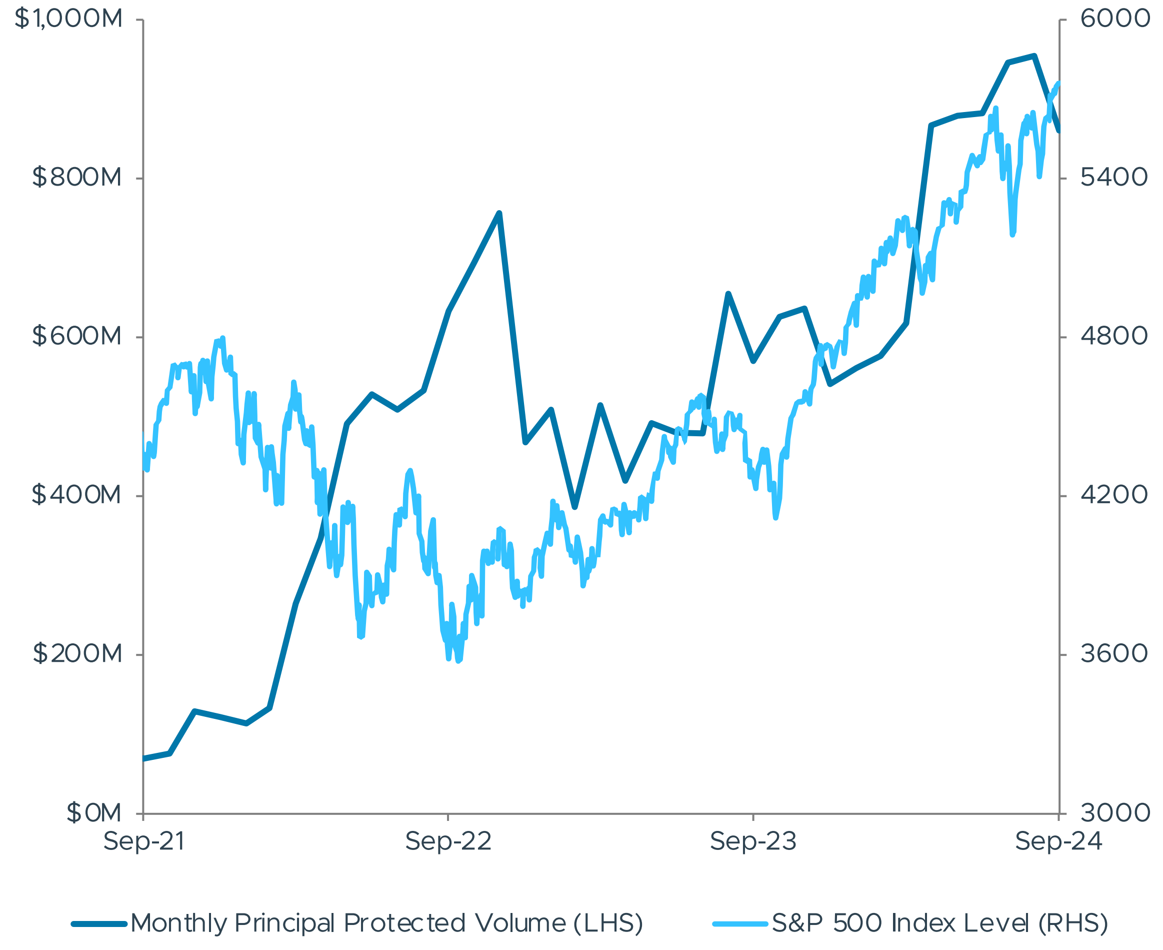
Underlier Performance (at Maturity)	-10%	-15%	-30%	
Return of Principal (at Maturity)				**Max Possible Loss**
Full Principal Protection:	100%	100%	100%	0%
20% Hard Buffer:	100%	100%	90%	80%
20% Barrier:	100%	100%	70%	100%

Source: iCapital Structured Investments and Annuities Platform, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: The visuals above are hypothetical examples. They do not necessarily reflect any particular CUSIP or structured investment and are solely intended to help illustrate how different protection methods work. For full principal protection, a product's principal value may be protected from adverse market moves and returned at maturity, subject to the credit risk of the Issuer. Investors must be comfortable with the creditworthiness of the Issuer and must hold the note until maturity in order to receive full principal back. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Full principal protection demand is a function of equity levels and bond yields

Demand for protection has increased as equities rallied to new highs

S&P 500 index level vs. monthly fully principal protected volumes ($ millions)



Volumes of principal protected notes grew with higher bond yields

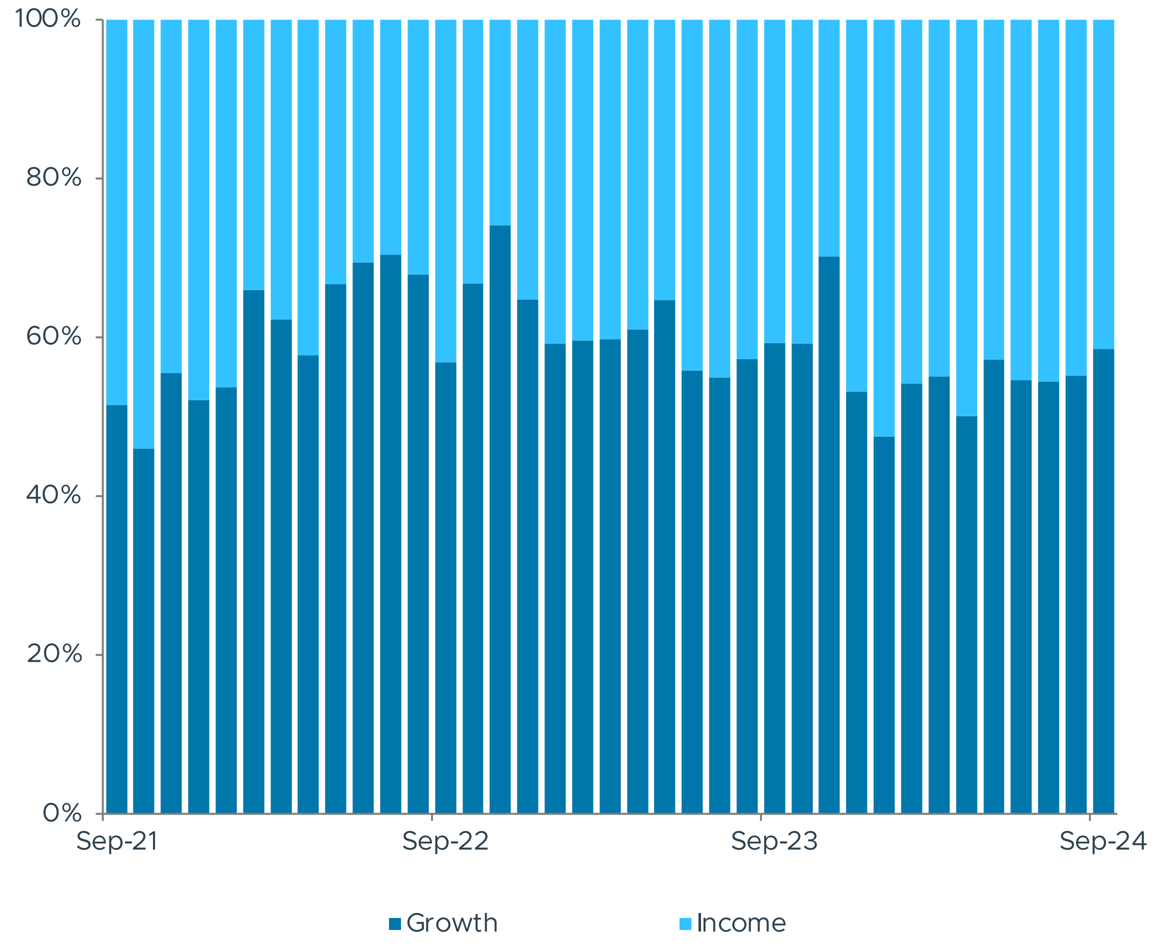
U.S. 5-year Treasury yield vs. monthly fully principal protected volumes ($ millions)

Source: (left and right) S&P Dow Jones, U.S. Department of the Treasury, iCapital Structured Investments and Annuities Platform, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is through Sep. 30, 2024 and is subject to change based on potential updates to source(s) database. The Structured Investment data above is based upon the notional volume of transactions in structured investment CUSIPs that flowed through the iCapital structured investments platform, which does not necessarily reflect the entire universe of structured investments that were available in the market during the above time frame. The data above includes data on a range of product features and terms and do not necessarily reflect any particular CUSIP or structured investment. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Preference for types and investment terms of structured investments varied over time

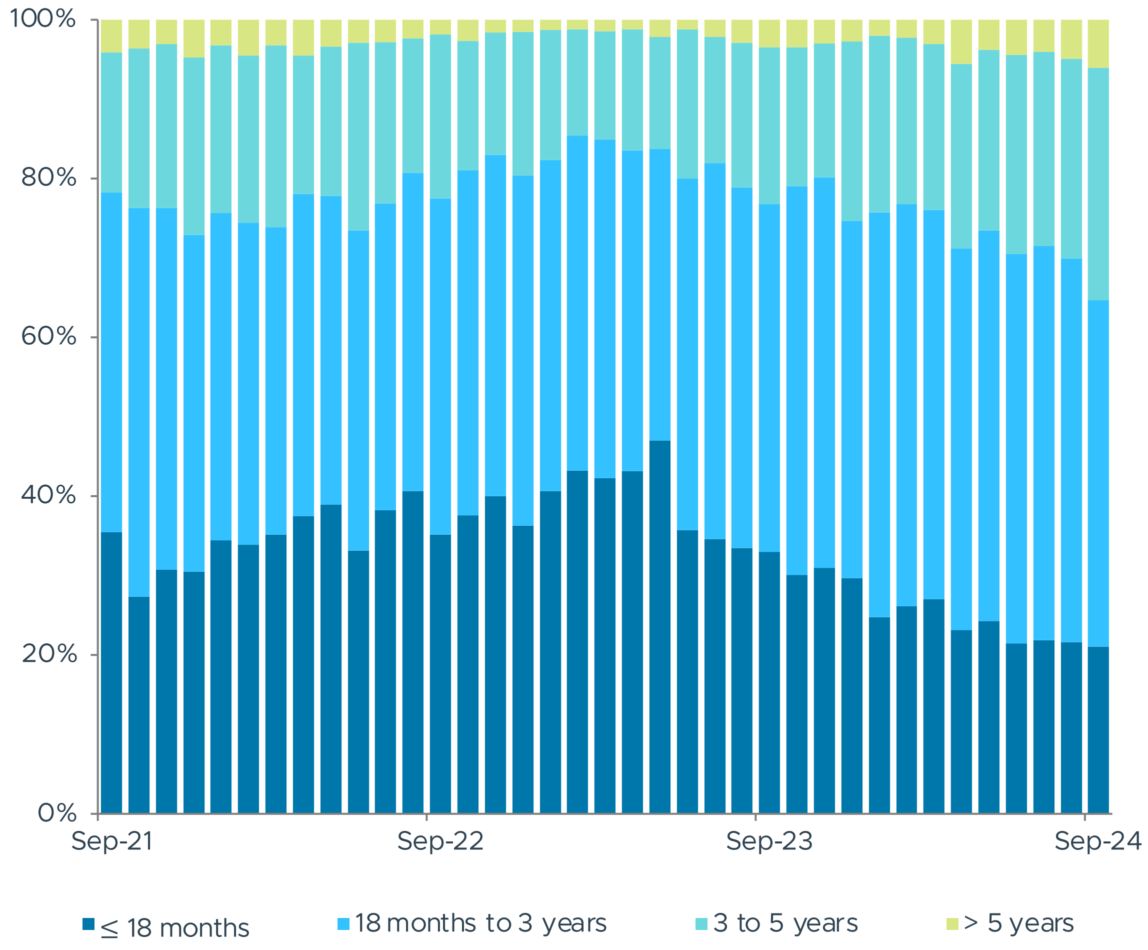
Income-focused structured inv'ts have been gaining share vs. growth

Breakdown of monthly structured investment volumes by note type (%)



The 18 months to 3 year investment term has been the most preferred

Breakdown of monthly structured investment volumes by investment term (%)

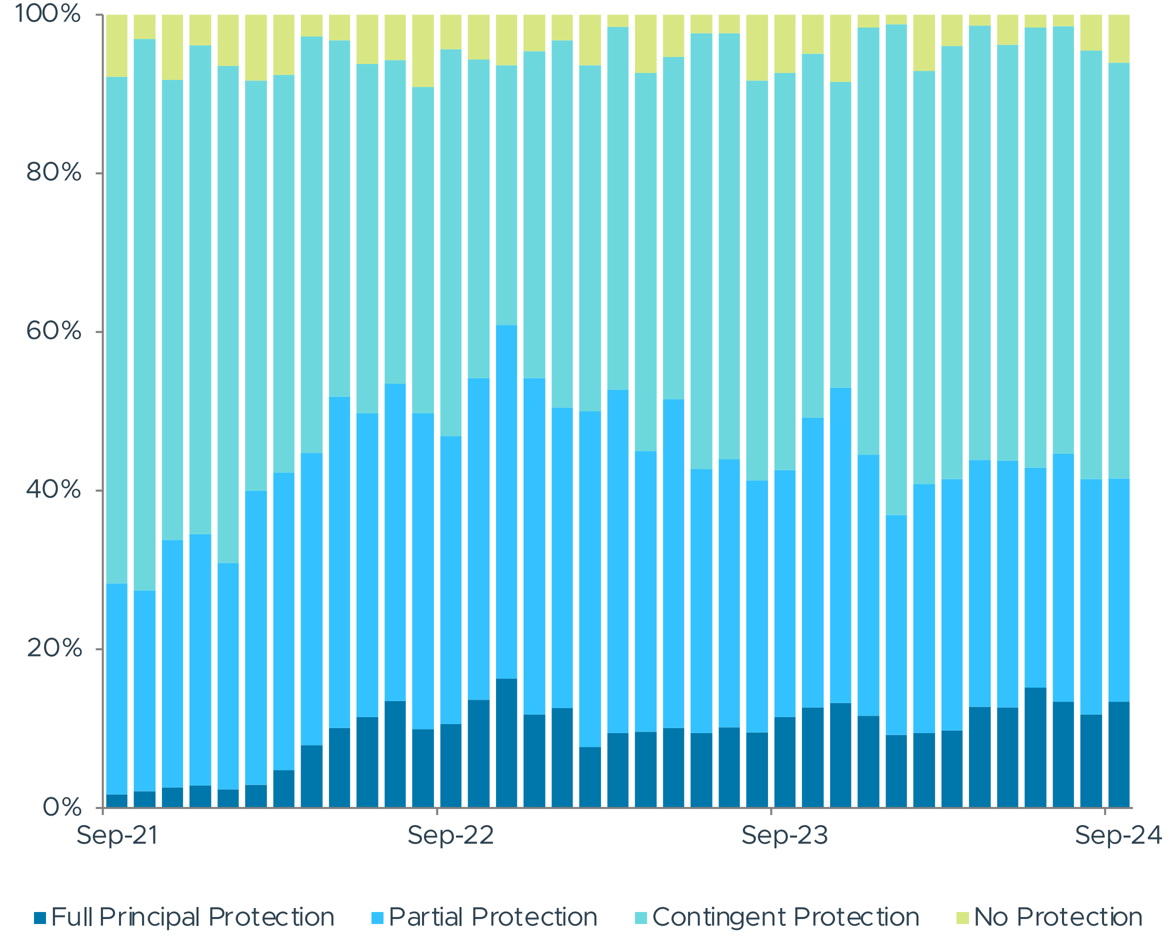


Source: (left and right) iCapital Structured Investments and Annuities Platform, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is through September 2024 and is subject to change based on potential updates to source(s) database. The structured investment data above is based upon the notional volume of transactions in structured investment CUSIPs that flowed through the iCapital structured investments platform, which does not necessarily reflect the entire universe of structured investments that were available in the market during the above time frame. The data above includes data on a range of product features and terms and do not necessarily reflect any particular CUSIP or structured investment. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Preference for type of protection and type of underlying asset evolved over time

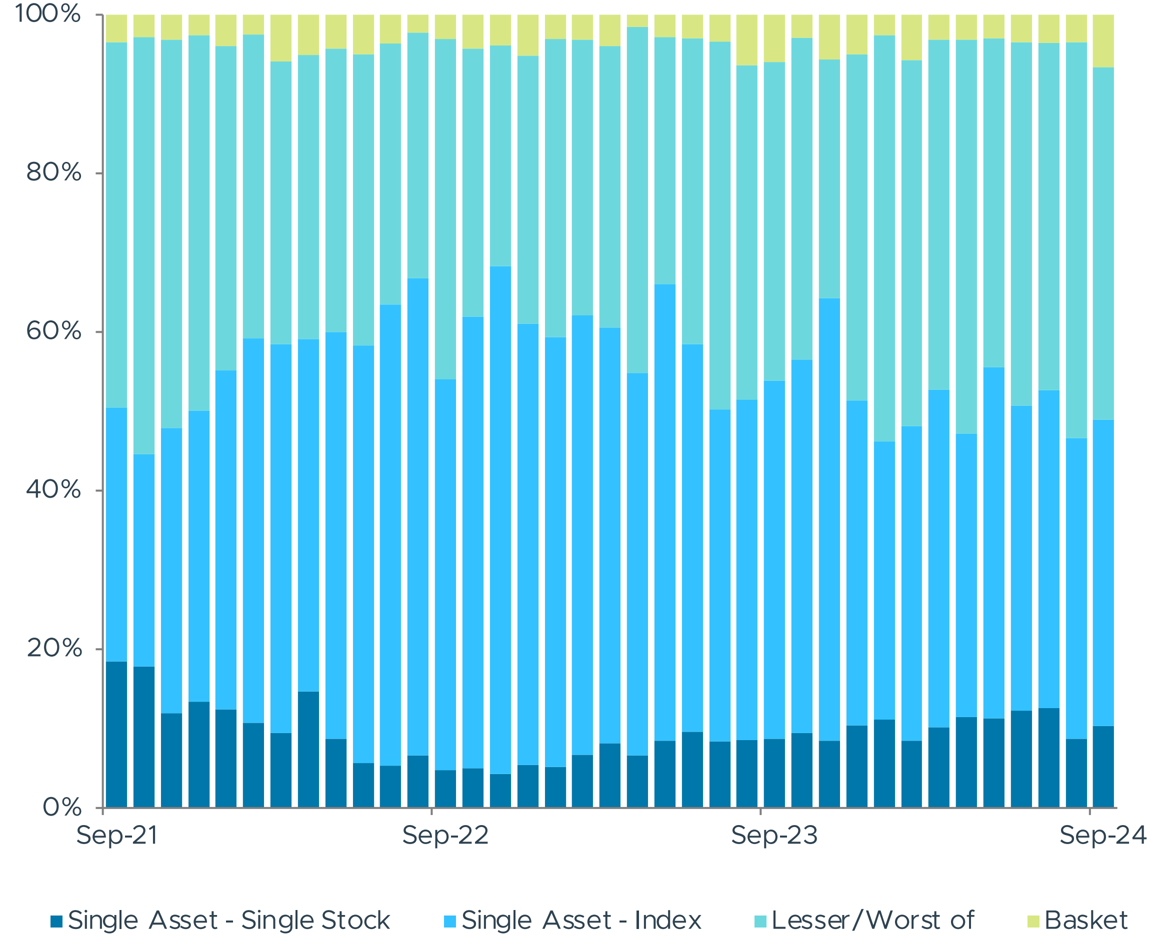
Investors increasingly favored structures with contingent protection

Breakdown of monthly structured investment volumes by protection type (%)



The "lesser of " type of notes have been increasingly preferred

Breakdown of monthly structured investment volumes by underlier structure (%)



Source: (left and right) iCapital Structured Investments and Annuities Platform, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is through September 2024 and is subject to change based on potential updates to source(s) database. The structured investment data above is based upon the notional volume of transactions in structured investment CUSIPs that flowed through the iCapital structured investments platform, which does not necessarily reflect the entire universe of structured investments that were available in the market during the above time frame. The data above includes data on a range of product features and terms and do not necessarily reflect any particular CUSIP or structured investment. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Structured investment returns and pricing are dynamic, fluctuate with market conditions

Structured investment returns and pricing are subject to the influence of various market variables

Market variables and their impact on structured investment pricing

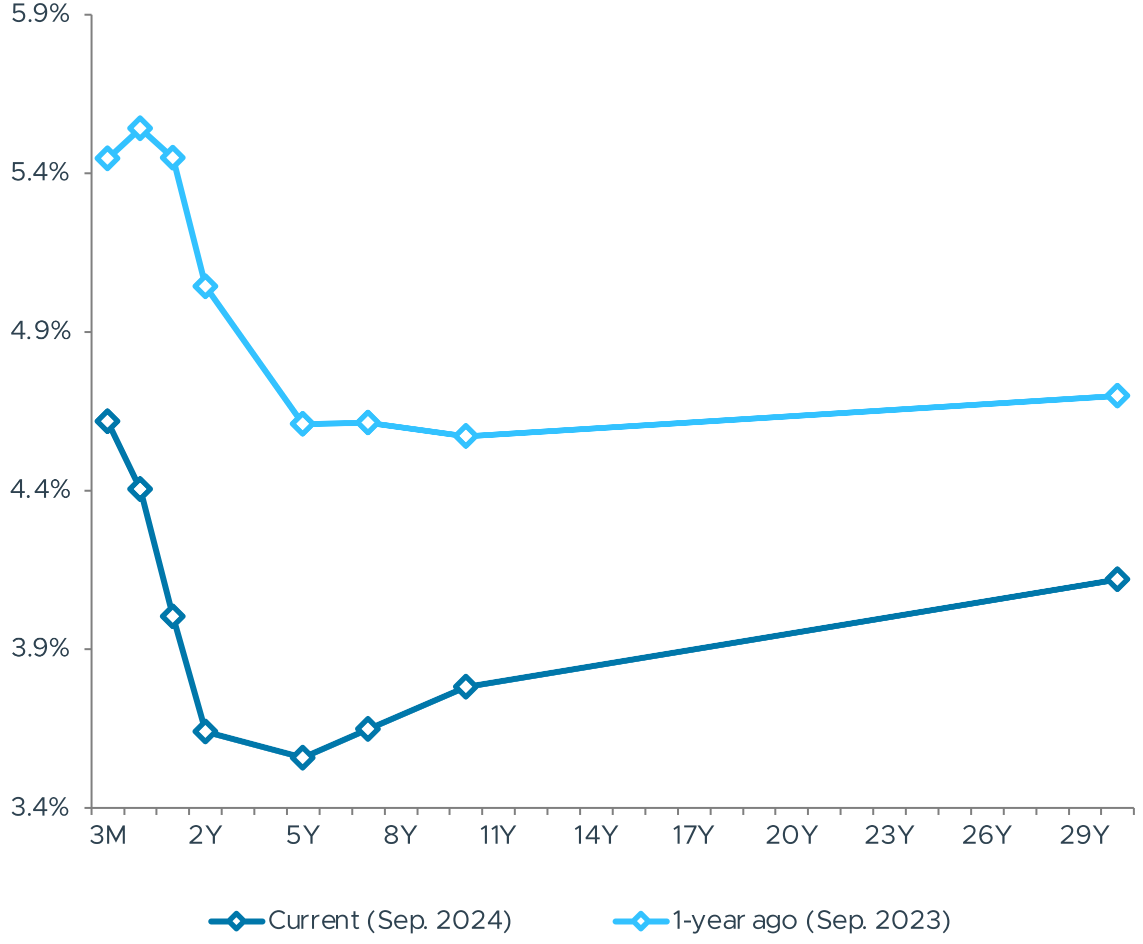
Main Market Variable		Impact on Structured Investments		Reasoning
Interest Rates	↑	**Impact on Pricing**	↑	As interest rates increase, an issuer's funding may reflect more favorable bond terms. This allows for a greater amount of principal to be used towards the options package, ultimately improving the terms of the Structured Investment, whether it be directly to the payoff or to downside protection
Volatility	↑	**Impact on Pricing**	↑↓	Higher volatility in the market typically means larger premiums on options, which could also lead to improved structured investment terms depending on the pay-off type.
Credit Quality	↑	**Impact on Pricing**	↓	Generally, as credit quality of a bank increases, their bonds are perceived to be 'safer,' and as a result, the bonds will have less favorable economics. That said, bank credits impact pricing through their bond component but also represent a material risk to the end investor.
Correlations	↑	**Impact on Pricing**	↓	Correlation is the measure of how assets move in relation to each other. As correlations on underlying assets rise, pricing becomes less attractive since it will lead to a tighter range of expected outcomes for the worst performing, thus reducing the implied volatility and ultimately reducing the premium used to generate payoff.

Source: iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: The above table is not necessarily inclusive of all market variables that impact structured investments. They also do not necessarily reflect any particular CUSIP or structured investment, and are solely intended to help illustrate how, in theory, market variables impact structured investment pricing. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Interest rates have moved lower, credit spreads are tighter than a year ago

The front end of the yield curve noticeably declined vs. a year ago

Current and 1-year ago U.S. Treasury Yield Curve (%, as of September 2024)



Financial institutions' credit spreads tightened since Q2-Q3 2023

Credit default swap spread for Investment Grade Financials (bps, as of September 2024)

Source: (left) U.S. Department of the Treasury, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is through Sep. 30, 2024 and is subject to change based on potential updates to source(s) database. Analysis looks at the U.S. Treasury yield curve across all available maturities based on current and 1-year ago levels. (right) Bloomberg, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data is through Sep. 30, 2024 and is subject to change based on potential updates to source(s) database. Analysis looks at the spread on the Credit Default Swap for investment grade U.S. and Europe Financials. North America Financials Senior 5-year Investment Grade CDS Spread is a broad market measure of the credit risk associated with senior unsecured debt of U.S. investment-grade financial institutions over a five-year period. Europe Financials Senior 5-year Investment Grade CDS Spread is a broad market measure of the credit risk associated with senior unsecured debt of European investment-grade financial institutions over a five-year period. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

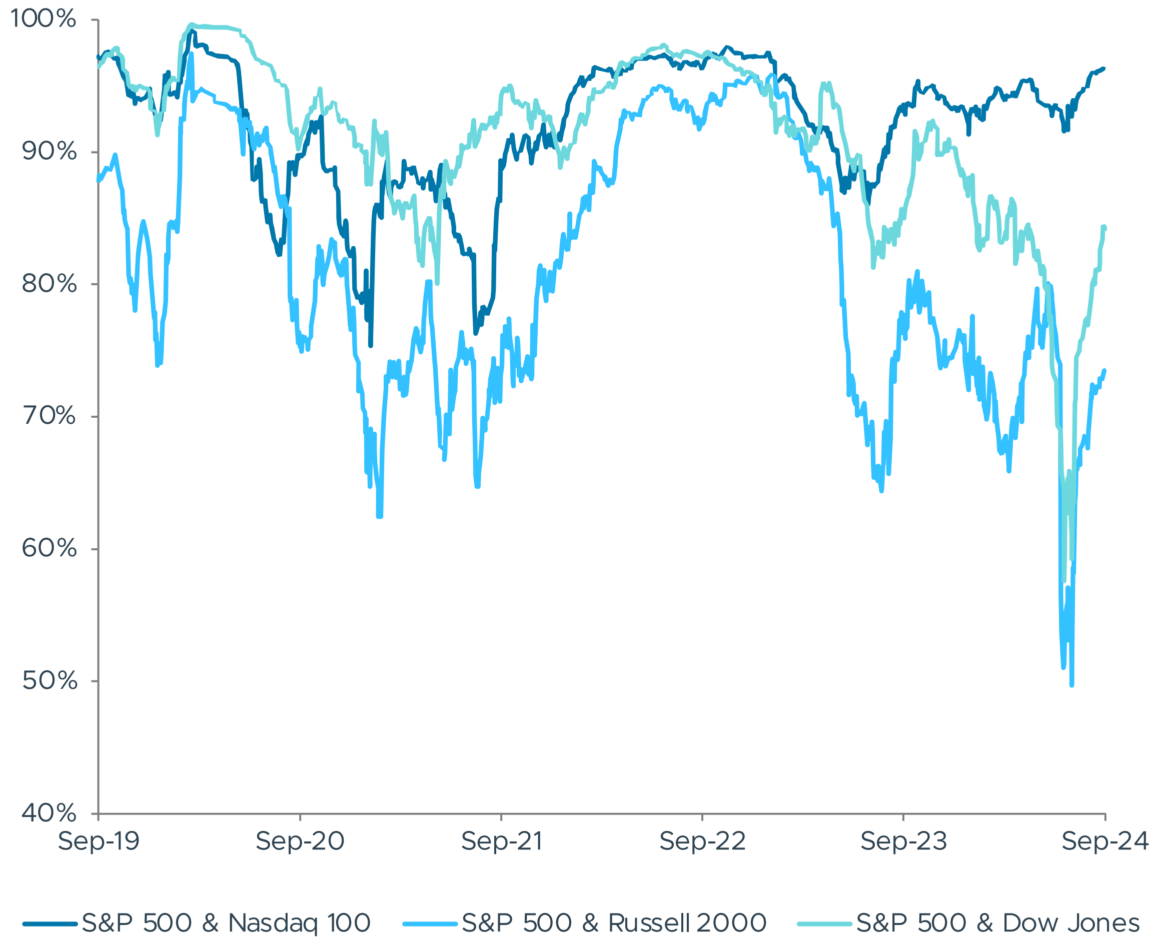
After drifting lower over the past year, volatility has recently spiked, correlations declined

Q3 2024 brought a significant spike in equity volatility

12-month implied volatility across various equity indices (%, as of September 2024)

Equity indices correlations moved lower due to recent market rotation

Rolling 3-month correlation between various equity indices (%, as of September 2024)



Source: (left) FTSE Russell, NASDAQ, S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of Sep. 30, 2024 and is subject to change based on potential updates to source(s) database. Analysis looks at the forward 12-month at-the-money (100% moneyness) implied volatility on the S&P 500, Nasdaq 100, and Russell 2000. (right) FTSE Russell, NASDAQ, S&P Dow Jones, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of Sep. 30, 2024 and is subject to change based on potential updates to source(s) database. Analysis looks at how the returns of different equity indices move in relation to each other over a rolling period. The closer the rolling 3-month correlation between two indices gets to 100% (correlation of 1), it suggests that the indices have been moving more closely together over the past three months. See disclosure section for further index definitions, disclosures, and source attributions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Alternatives Decoded

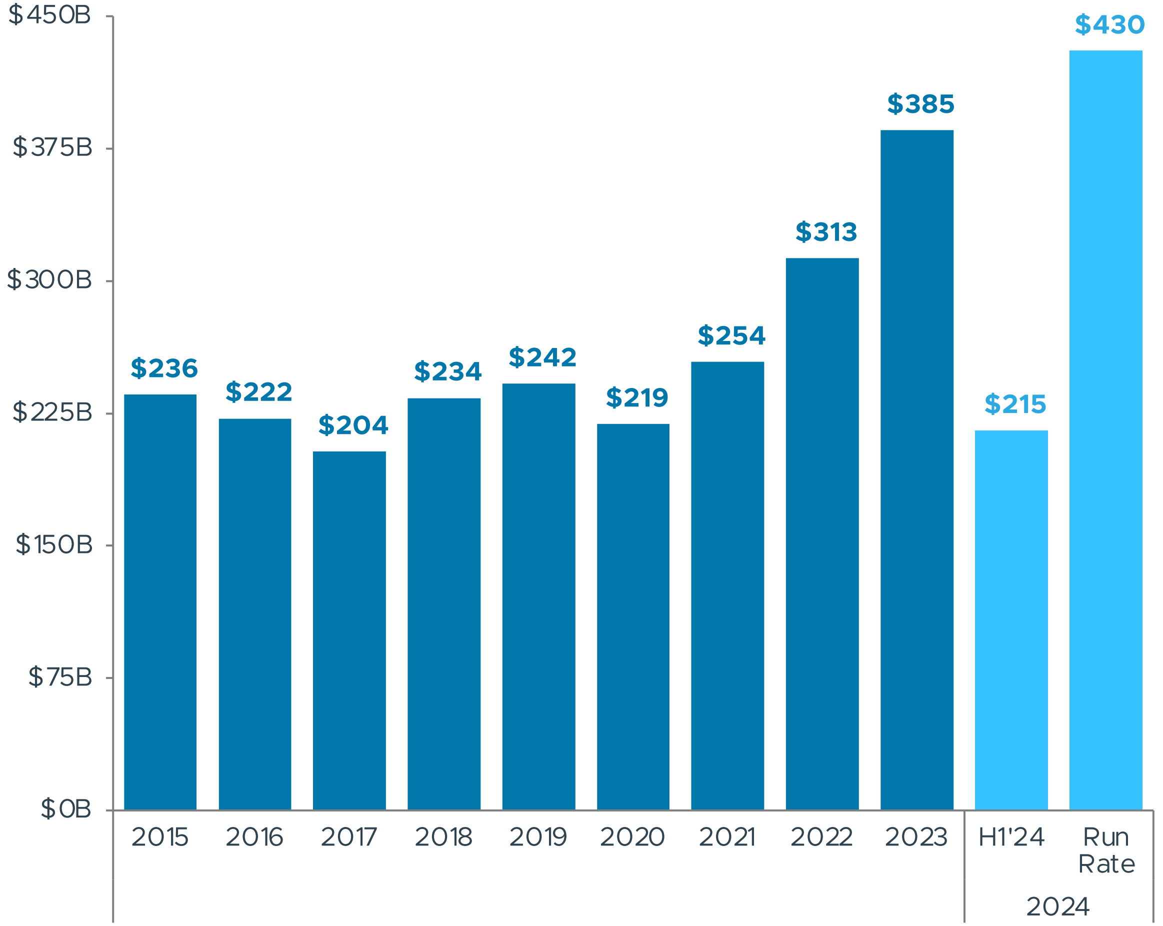
Annuities

iCapital

The annuity industry experienced strong growth as rates rose in recent years

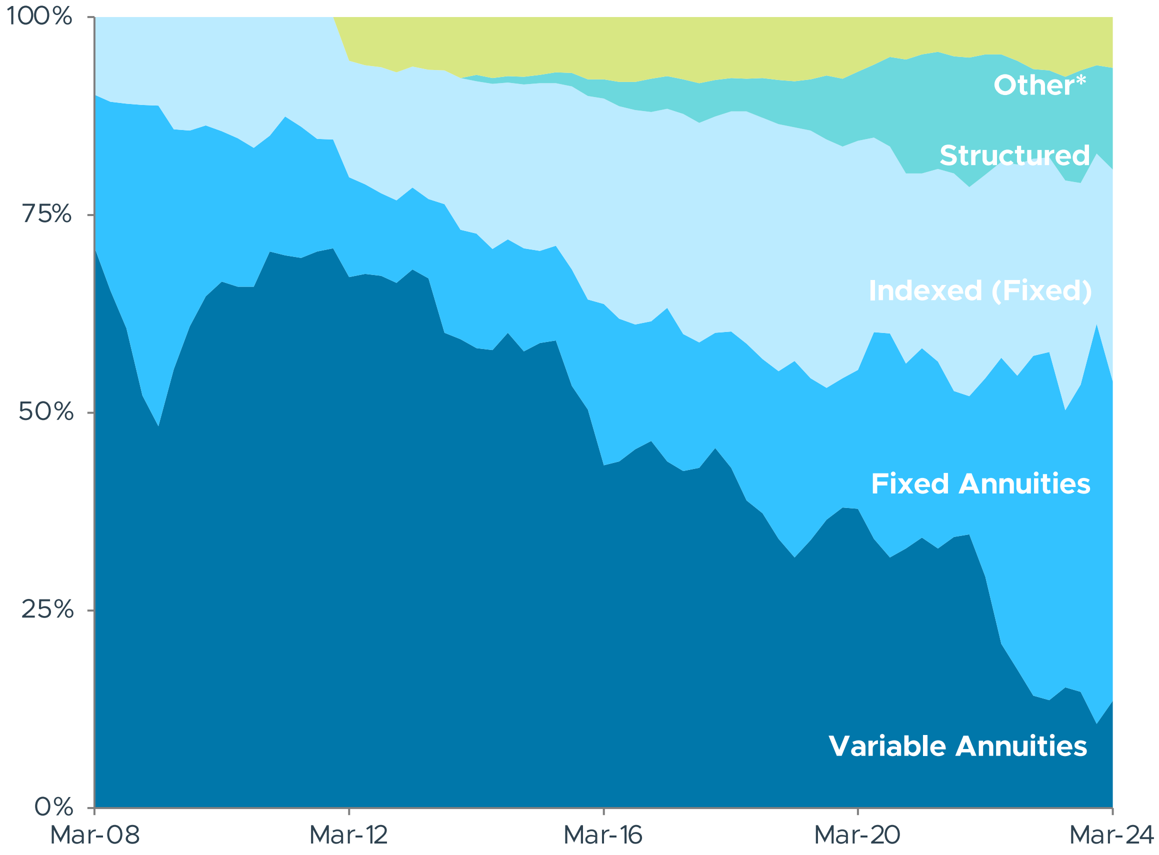
Annuity sales are on pace for a record 2024, following a record 2023

Total annual U.S. annuity sales ($ billion, as of Jun. 2024)



Elevated rates led to fixed rate annuities taking greater market share

Breakdown of quarterly U.S. annuity sales by type (%, as of March 2024)

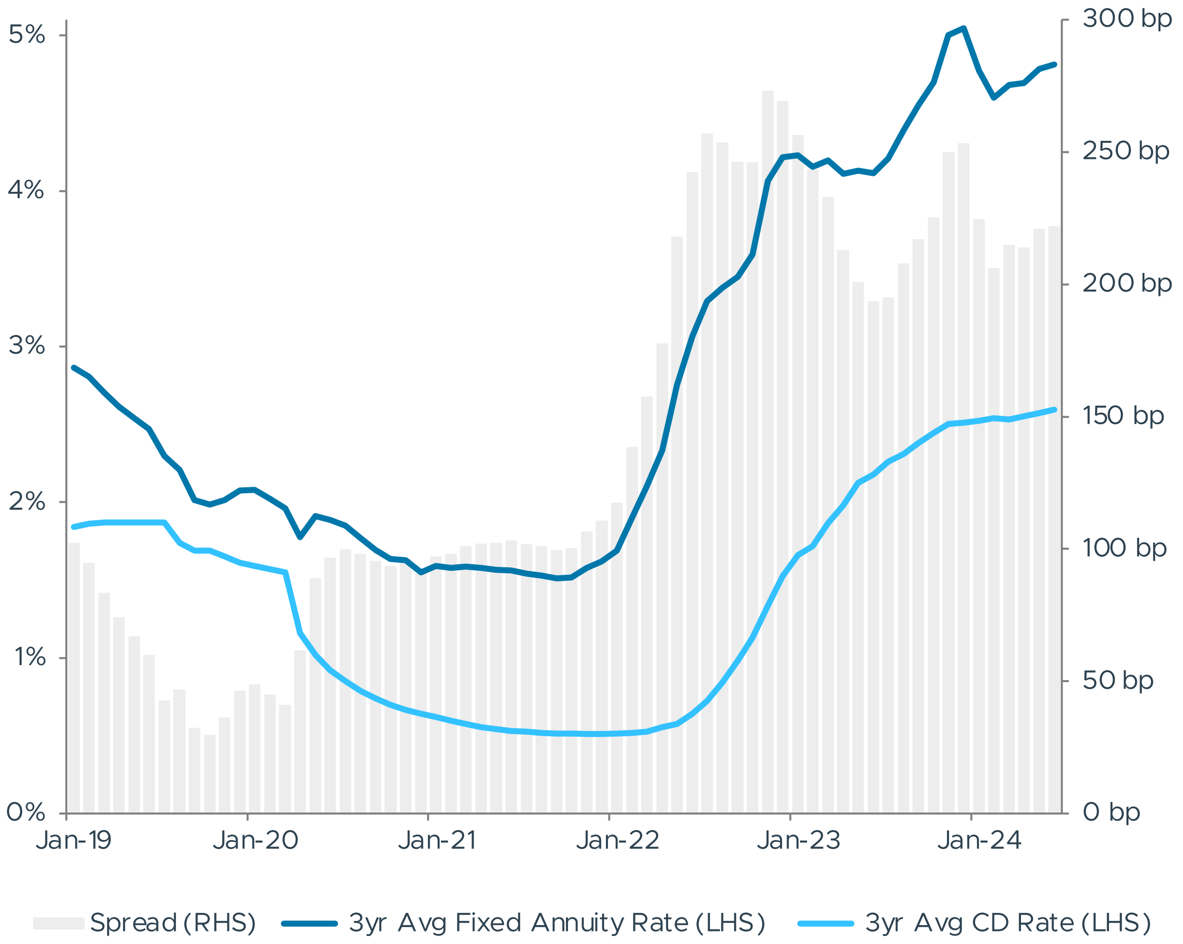


Source: (Left) Bloomberg, LIMRA, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Historical annuity sales data is included through December 2023 and is subject to change based on potential updates to source(s) database. Forecasted annuity sales data is based on forecasts from LIMRA. (Right) Bloomberg, LIMRA, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of March 2024 and is subject to change based on potential updates to source(s) database. Variable annuities include traditional variable annuities such as separate accounts and fixed accounts, as defined by LIMRA. Fixed annuities include fixed-rate deferred annuities, as defined by LIMRA. Indexed (Fixed) annuities include Fixed Indexed Annuities, as defined by LIMRA. Structured annuities include Registered Index-Linked annuities (RILA), as defined by LIMRA. Other includes income annuities such as single premium immediate annuities (SPIA) and deferred income annuity (DIA), and Structured Settlements, as defined by LIMRA. See glossary for further definitions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Secular demand for annuities is also driven by rising population of age 65 and over

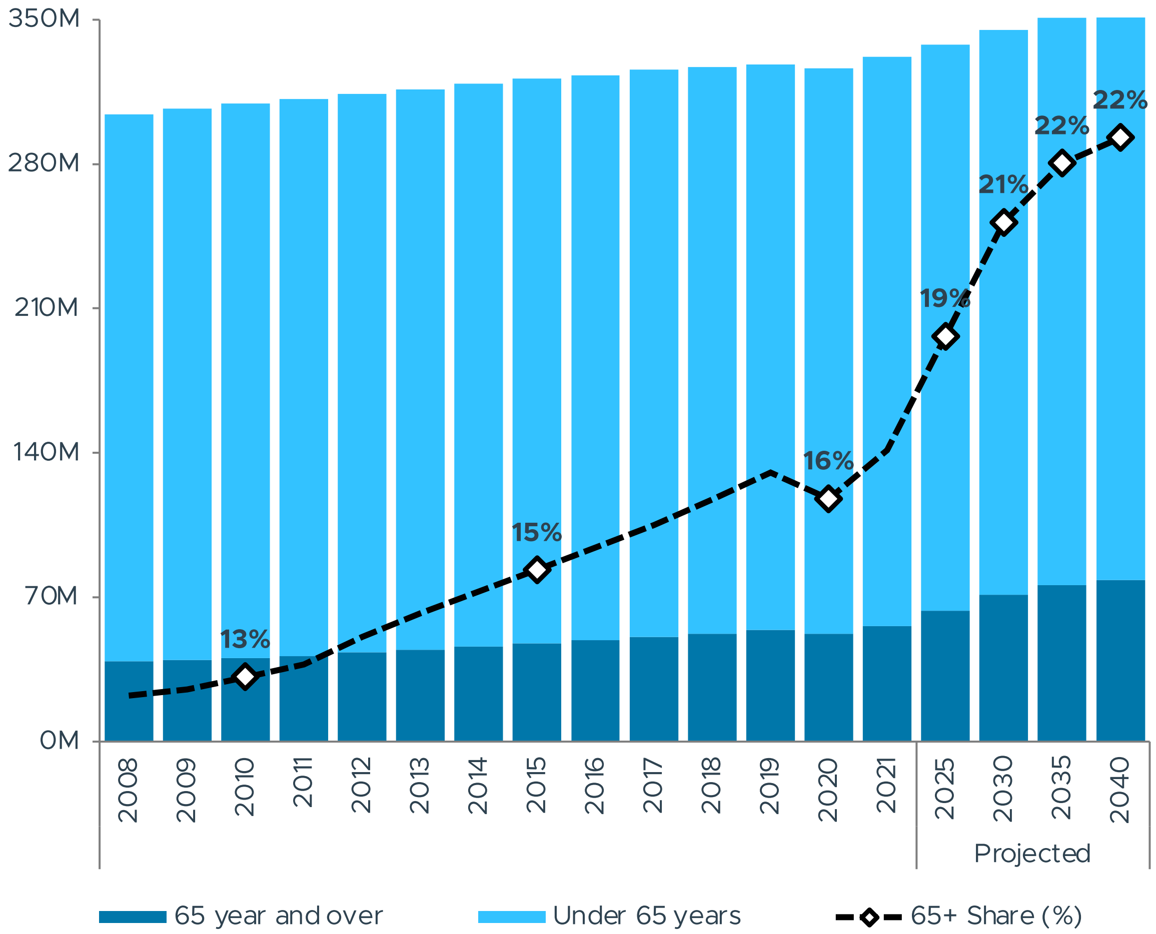
Spreads between fixed annuity and CD rates remain near historic highs

Three-year average fixed annuity and CD rates (%, as of June 2024)



Growing population of retirees may turn to annuities for income

Actual and projected U.S. population by age group (million)



Source: (Left) LIMRA, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Data as of June 2024 and is subject to change based on potential updates to source(s) database. (Right) Bloomberg, United States Census Bureau, iCapital Investment Strategy, with data based on availability as of Oct. 31, 2024. Note: Historical population data is included through December 2021 and is subject to change based on potential updates to source(s) database. Projected population data covers December 2025 to December 20240, with projections based on U.S. Census Bureau 2023 National Population Projections Tables. See glossary for further definitions. For illustrative purposes only. Past performance is not indicative of future results. Future results are not guaranteed.

Index Definitions

Bloomberg Emerging Marking USD Aggregate Index: A flagship hard currency Emerging Markets debt benchmark that includes fixed and floating-rate US dollar-denominated debt issued from sovereign, quasi-sovereign, and corporate EM issuers.

Bloomberg Global Aggregate Bond Index: A flagship measure of global investment grade debt from a multitude local currency markets. This multi-currency benchmark includes treasury, government-related, corporate and securitized fixed-rate bonds from both developed and emerging markets issuers.

Bloomberg U.S. Aggregate Bond Index: A broad base, market capitalization-weighted bond market index. The index includes Treasury securities, government agency bonds, mortgage-backed bonds, corporate bonds, and several foreign bonds traded in the United States.

Bloomberg U.S. CMBS Investment Grade Index: measures the investment-grade market of US Agency and US Non-Agency conduit and fusion commercial mortgage-backed security CMBS deals with a minimum current deal size of $300mn. The index includes both US Aggregate eligible (ERISA eligible) and non-US Aggregate eligible (non-ERISA eligible) securities.

Bloomberg U.S. Corporate High Yield Index: Measures the U.S. Dollar-denominated, high yield, fixed-rate corporate bond market. Securities are classified as high yield if the middle rating of Moody's, Fitch and S&P is Ba1/BB+/BB+ or below.

Bloomberg U.S. Long Treasury Index: Measures US dollar-denominated, fixed-rate, nominal debt issued by the US Treasury with 10 years or more to maturity.

Bloomberg U.S. Municipal Index: Measures the U.S. Dollar-denominated long-term tax-exempt investment grade bond market. The index has four main sectors: state and local general obligation bonds, revenue bonds, insured bonds, and prerefunded bonds

Cboe Crude Oil ETF Volatility Index: Measures the 30-day expected volatility of crude oil as priced by the United States Oil Fund (USO). The USO ETF tracks the performance of NYMEX near-month WTI crude oil futures.

Cboe S&P 500 Dispersion Index: Measures the expected dispersion in the S&P 500 over the next 30 calendar days, as calculated from the prices of S&P 500 index options and the prices of single stock options of selected S&P 500 constituents, using a modified version of the VIX methodology

Cboe Volatility Index (VIX Index): The VIX Index is a calculation designed to produce a measure of constant, 30-day expected volatility of the U.S. stock market, derived from real-time, mid-quote prices of S&P 500 Index (SPX) call and put options.

Cliffwater Direct Lending Index (CDLI): An asset-weighted index of over 11,000 directly originated middle market loans totaling $264B. It seeks to measure the unlevered, gross of fee performance of U.S. middle market corporate loans, as represented by the asset-weighted performance of the underlying assets of Business Development Companies (BDCs), including both exchange-traded and unlisted BDCs, subject to certain eligibility requirements.

Cliffwater Public BDC Index (CWBDC): Measures the performance of lending-oriented, exchange-traded Business Development Companies, subject to certain eligibility criteria regarding portfolio composition, market capitalization, and dividend history. The CWBDC is a capitalization-weighted index that is calculated on a daily basis using publicly-available closing share prices and reported dividend payouts. The CWBDC Total Return Index includes two components: 1) Income Return and 2) Price Return.

Index Definitions (cont'd)

Deutsche Bank Currency Volatility Index (CVIX): Provides an implied volatility benchmark for major currency markets. The index is designed to represent investors' expectation of future volatility, and is calculated as the weighted arithmetic average of the 3-month level of implied volatility for major currency pairs.

Dow Jones Brookfield Global Infrastructure Composite Index: An index designed to measure the performance of pure-play infrastructure companies domiciled globally. The index covers all sectors of the infrastructure market and includes Master Limited Partnerships (MLPs) in addition to other equity securities. To be included in the index, a company must derive at least 70% of cash flows from infrastructure lines of business.

Dow Jones Industrial Average: The Dow Jones Industrial Average, or Dow, is a price-weighted average of 30 U.S. blue-chip companies that are generally the leaders in their industry. The index covers all industries except transportation and utilities.

Fed Funds Target Rate: is the interest rate at which banks and credit unions lend reserves to other depository institutions overnight on an uncollateralized basis. It is set by the Federal Reserve, specifically the Federal Open Market Committee.

FTSE Three-Month US T Bill Index: The FTSE Three-Month US T Bill Index Series is intended to track the daily performance of 3-month US Treasury bills as published by the Federal Reserve Bank of St. Louis. The indexes are designed to operate as a reference rate for a series of funds.

FTSE NAREIT All Equity Index: The FTSE Nareit All Equity REITs Index is a free-float adjusted, market capitalization-weighted index of U.S. equity REITs. Constituents of the index include all tax-qualified REITs with more than 50 percent of total assets in qualifying real estate assets other than mortgages secured by real property.

HFRI Credit Index: A composite index of strategies trading primarily in credit markets. It is an aggregation of following seven HFRI sub-strategy indices. HFRI ED: Credit Arbitrage Index, HFRI ED: Distressed/Restructuring Index, HFRI ED: Multi-Strategy Index, HFRI RV: Fixed Income-Asset Backed Index, HFRI RV: Fixed Income-Convertible Arbitrage Index, HFRI RV: Fixed Income-Corporate Index, and HFRI RV: Multi-Strategy Index.

HFRI Equity Hedge Index: The Equity Hedge Index is made up of investment managers who maintain positions both long and short in primarily equity and equity derivative securities. Strategies in the Index can be broadly diversified or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations and valuation ranges of typical portfolios. Equity Hedge managers would typically maintain at least 50% exposure to, and may in some cases be entirely invested in, equities, both long and short.

HFRI Event-Driven Index: The Event-Driven Index is made up of investment managers who maintain positions in companies currently or prospectively involved in corporate transactions of a wide variety including but not limited to mergers, restructurings, financial distress, tender offers, shareholder buybacks, debt exchanges, security issuance or other capital structure adjustments.

HFRI Fund Weighted Composite Index: The HFRI Fund Weighted Composite Index is a global, equal-weighted index of single-manager funds that report to HFR Database. The HFRI Fund Weighted Composite Index does not include Funds of Hedge Funds.

HFRI Macro Index: The Macro Index is made up of investment managers that trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed income, hard currency and commodity markets.

HFRI Relative Value Multi-Strategy Index: The RV Multi-Strategy Index is made up of Strategies that employ an investment thesis is predicated on realization of a spread between related yield instruments in which one or multiple components of the spread contains a fixed income, derivative, equity, real estate, MLP or combination of these or other instruments.

Index Definitions (cont'd)

ICE 3-Month London Interbank Offered Rate (LIBOR): The average of the interest rates that some of the world's leading banks charged each other for short-term loans. It was a benchmark used to set rates for various loans, mortgages, and corporate bonds.

ICE BofA MOVE Index: A measure of U.S. interest rate volatility that tracks the movement in U.S. Treasury yield volatility implied by current prices of one-month options on 2-year, 5-year, 10-year and 30-year Treasuries.

Lincoln Senior Debt Index (LSDI): The LSDI is a quarterly index that tracks the fair market value of middle market, direct lending credit investments across funds in the U.S. and in Europe.

Morningstar LSTA U.S. Leveraged Loan 100 Index: The Morningstar LSTA US Leveraged Loan 100 Index is designed to measure the performance of the 100 largest facilities in the US leveraged loan market. Index constituents are market-value weighted, subject to a single loan facility weight cap of 2%.

Morningstar LSTA U.S. Leveraged Loan Index: An Index designed to deliver comprehensive, precise coverage of the US leveraged loan market. Underpinned by PitchBook and LCD data, the index serves as the market standard for the US leveraged loan asset class and tracks the performance of more than 1,400 USD denominated loans.

MSCI ACWI Index: MSCI's flagship global equity index is designed to represent performance of the full opportunity set of large- and mid-cap companies from developed and emerging markets around the world.

MSCI EAFE Index: Is an equity index which captures large and mid cap representation across 21 Developed Markets countries around the world, excluding the US and Canada.

NASDAQ 100 Index: An index comprised of equity securities issued by 100 of the largest non-financial companies listed on the Nasdaq stock exchange. It is a modified capitalization-weighted index.

NASDAQ Composite Index: An index that measures all NASDAQ domestic and international based common type stocks listed on The NASDAQ Stock Market. The NASDAQ Composite is a capitalization-weighted index.

NCREIF Farmland Property Index: The NCREIF Farmland Index is a quarterly time series composite return measure of investment performance of a large pool of individual farmland properties acquired in the private market for investment purposes only.

NCREIF Open End Diversified Core Equity (NFI-ODCE) Index: The ODCE is a capitalization-weighted, gross of fee, time-weighted return index of investment returns reporting on both a historical and current basis the results of 38 open-end commingled funds pursuing a core investment strategy.

NCREIF Timberland Property Index: The NCREIF Timberland Index is a quarterly time series composite return measure of investment performance of a large pool of individual U.S. timber properties acquired in the private market for investment purposes only.

OECD Major 7 CPI Total Index: A consumer price index for all items non-food non-energy for G7 countries.

Preqin Growth Equity Index: The index covers over 14,000 closed-end funds captured in the broader Private Capital index including funds/strategies listed as Growth, as defined by Preqin.

Preqin Infrastructure Index: The index covers over 14,000 closed-end funds captured in the broader Private Capital index including funds/strategies listed as Infrastructure core, infrastructure core-plus, infrastructure debt, infrastructure fund of funds, infrastructure opportunistic, infrastructure secondaries, infrastructure value added, as defined by Preqin.

Index Definitions (cont'd)

Preqin Private Equity Buyout Index: The index covers over 14,000 closed-end funds captured in the broader Private Capital index including funds/strategies listed as Buyout, as defined by Preqin.

Preqin Real Estate Debt Index: The index covers over 14,000 closed-end funds captured in the broader Private Capital index including funds/strategies listed as Real estate debt, as defined by Preqin.

Preqin Real Estate Opportunistic Index: The index covers over 14,000 closed-end funds captured in the broader Private Capital index including funds/strategies listed as Real estate opportunistic, as defined by Preqin.

Preqin Real Estate Value Add Index: The index covers over 14,000 closed-end funds captured in the broader Private Capital index including funds/strategies listed as Real estate value added, as defined by Preqin.

Preqin Secondaries Index: The index covers over 14,000 closed-end funds captured in the broader Private Capital index including funds/strategies listed as Secondaries (PE), as defined by Preqin.

Preqin Venture Capital Index: The index covers over 14,000 closed-end funds captured in the broader Private Capital index including funds/strategies listed as Early Stage, Early Stage: Seed, Early Stage: Start-up, Expansion/Late Stage, Venture (general), as defined by Preqin.

Real Capital Analytics (RCA) Commercial Property Price Index: Measure the actual price movements for commercial properties based on exclusive transaction data using repeat-sales regression methodology.

Russell 2000: Measures the performance of approximately 2,000 small-cap US equities. Stocks in the Russell U.S. indexes are weighted by their available (also called float-adjusted) market capitalization.

Russell 2000 Growth Index: Measures the performance of the small-cap growth segment of the U.S. equity universe. It includes those Russell 2000 companies with relatively higher price-to-book ratios, higher I/B/E/S forecast medium term (2 year) growth and higher sales per share historical growth (5 years). Stocks in the Russell U.S. indexes are weighted by their available (also called float-adjusted) market capitalization.

S&P 500 Index: The S&P 500 is widely regarded as the best single gauge of large-cap U.S. equities. The index includes 500 of the top companies in leading industries of the U.S. economy and covers approximately 80% of available market capitalization.

S&P 500 Equal-Weighted Index: The equal-weight version of the widely-used S&P 500. The index includes the same constituents as the capitalization weighted S&P 500, but each company in the S&P 500 EWI is allocated a fixed weight - or 0.2% of the index total at each quarterly rebalance.

S&P Global Agribusiness Composite Index: The S&P Global Agribusiness Index provides liquid exposure to some of the largest publicly-traded agribusiness companies that meet specific investability requirements.

S&P Global Timber and Forestry Index: The S&P Global Timber & Forestry Index is designed to measure the performance of companies engaged in the ownership, management or upstream supply chain of forests and timberlands, with a target constituent count of 100.

Secured Overnight Financing Rate (SOFR) Three-Month: The SOFR is a broad measure of the cost of borrowing cash overnight collateralized by Treasury securities. SOFR futures offer the leading source of price discovery and liquidity on SOFR. Three-Month SOFR futures are cash settled and based on a business-day compounded SOFR per annum during contract Reference Quarter.

STOXX Europe 600: The STOXX Europe 600 Index offers diversified country and industry allocation to Europe's developed economies, replicating almost 90% of the underlying investable market.

Index Definitions (cont'd)

STOXX Europe Total Market Index: The STOXX Europe Total Market Index represents the Western Europe region as a whole. With a variable number of components, it covers approximately 95 percent of the free float market capitalization across 17 European countries.

U.S. Consumer Price Index: is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. Percent changes in the price index measure the inflation rate between any two time periods. Index captures roughly 88 percent of the total population, accounting for wage earners, clerical workers, technical workers, self-employed, short-term workers, unemployed, retirees, and those not in the labor force.

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