



Guide to Alternatives[®]

2Q 2025

As of May 31, 2025



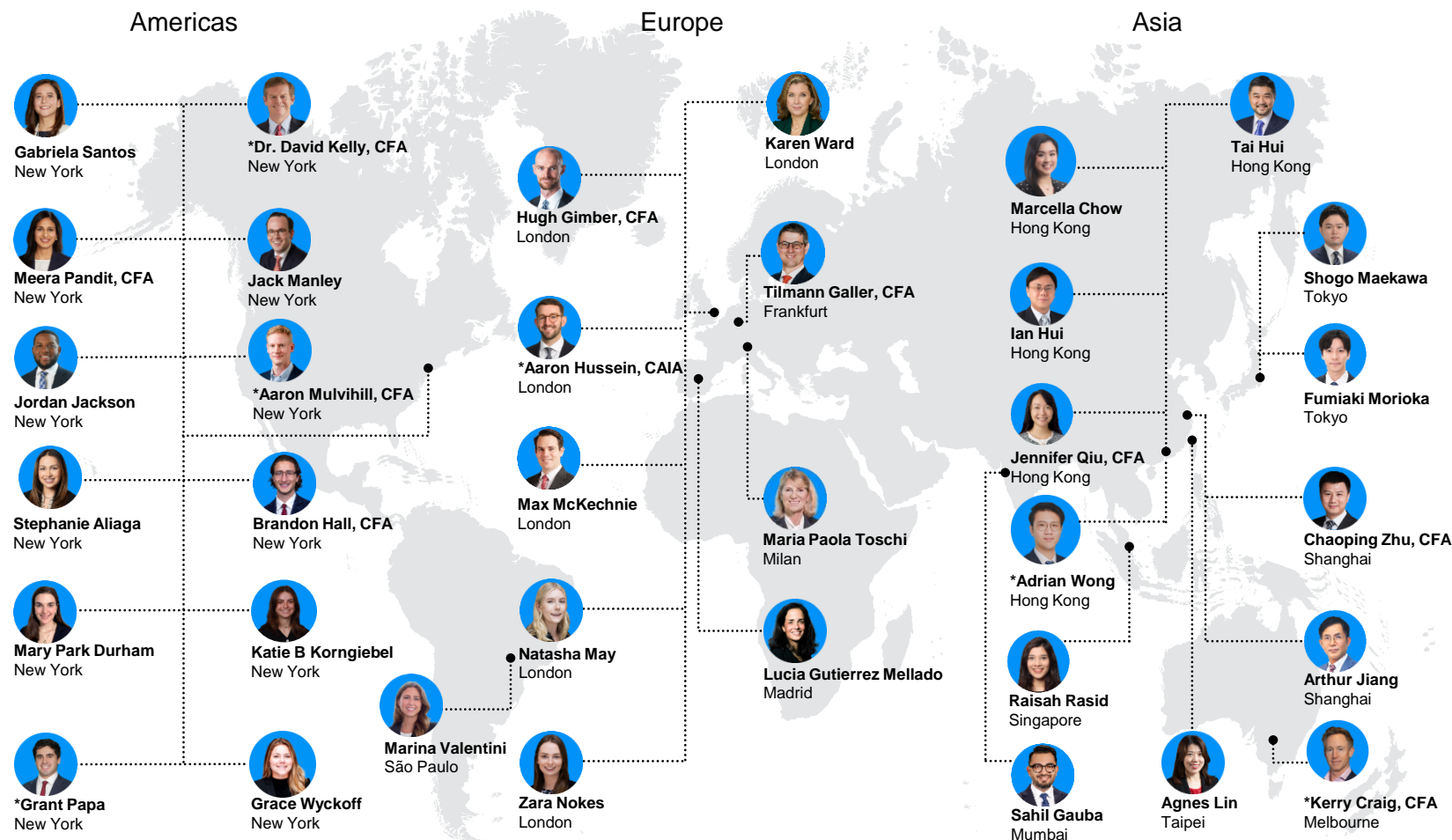


Global Market Insights Strategy Team

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Earnings/coupon yield and the 60/40

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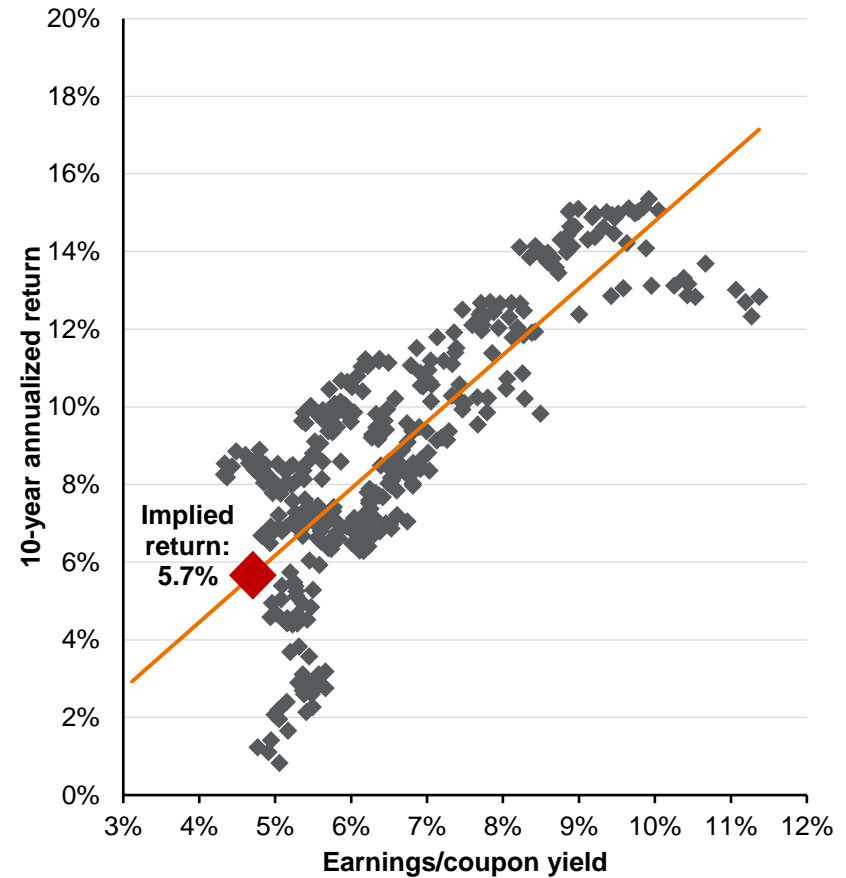
Earnings/coupon yield on a 60/40 portfolio

Blended S&P 500 forward E/P ratio and Bloomberg U.S. Agg. YTW



60/40 earnings/coupon yield and subsequent returns

10-year annualized returns, Jan. 1985 – May 2015



Source: Bloomberg, FactSet, IBES, Standard & Poor's, Thomas Reuters, J.P. Morgan Asset Management.

Valuation is calculated by summing 60% weight to earnings yield on the S&P 500 (inverse of forward P/E) and a 40% weight to the yield-to-worst on the U.S. Aggregate. Earnings yield is the forward earnings yield (consensus analyst estimates of EPS over the next 12 months divided by price) as provided by IBES since December 1984 and by FactSet since January 2022. Returns are based on a 60% weighting in the S&P 500 Total Return Index and a 40% weighting in the U.S. Aggregate Total Return index. 60/40 is rebalanced annually. Returns are 120-month annualized total returns, measured monthly, beginning December 31, 1984. Past performance is not a reliable indicator of current and future results. Data are based on availability as of May 31, 2025.



60/40 returns and stock-bond correlation

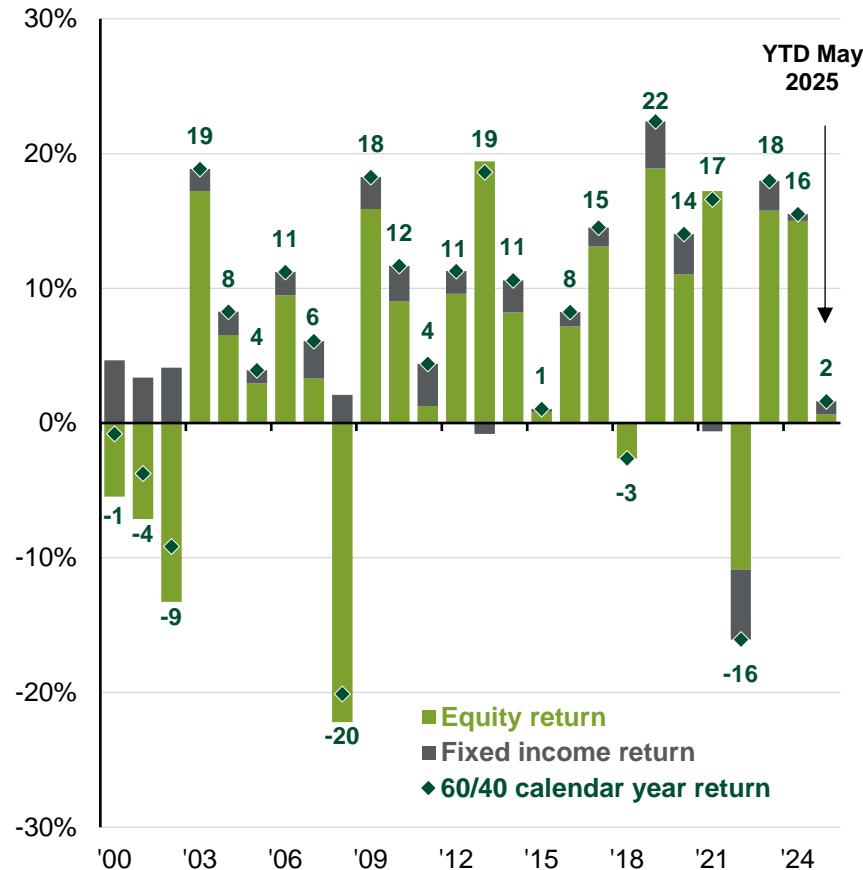
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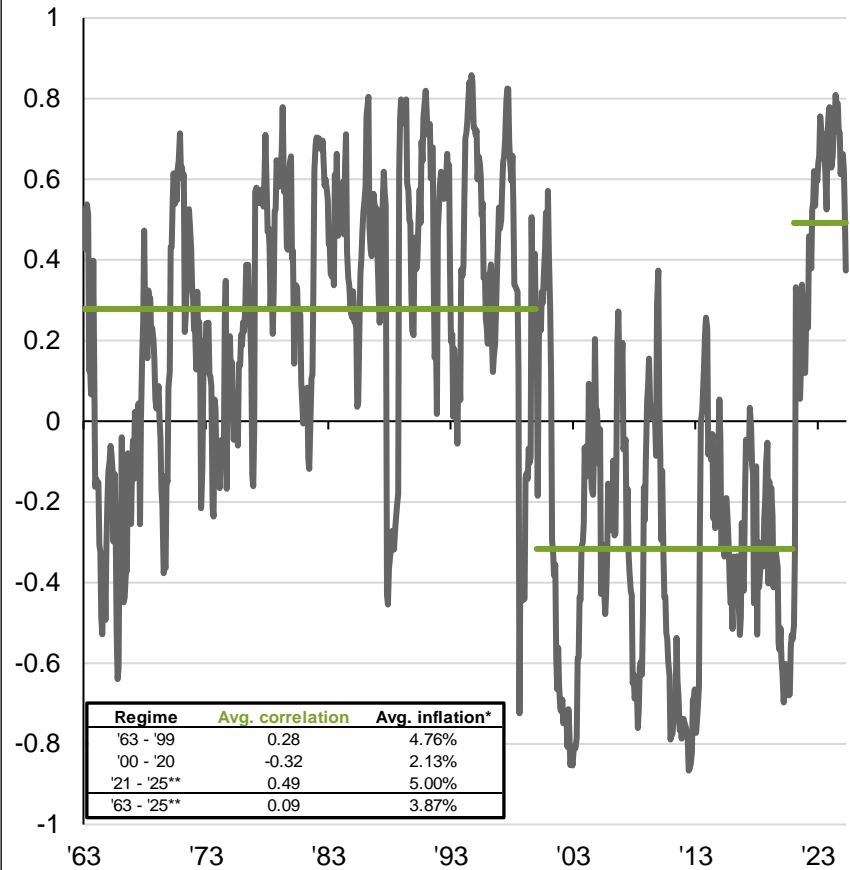
60/40 portfolio annual return decomposition

%, total return



S&P 500 / U.S. 10-year Treasury correlation

Rolling 12-month correlation based on monthly total returns



Source: Bloomberg, FactSet, Haver Analytics, LSEG, Standard & Poor's, J.P. Morgan Asset Management.

(Left) The 60/40 portfolio is 60% invested in the S&P 500 Total Return Index and 40% invested in the Bloomberg U.S. Aggregate Total Return Index.

(Right) *Simple average of the year-over-year percent change in headline CPI during each period. **2025 figures are through 4/30/2025. Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.



60/40 portfolio income generation

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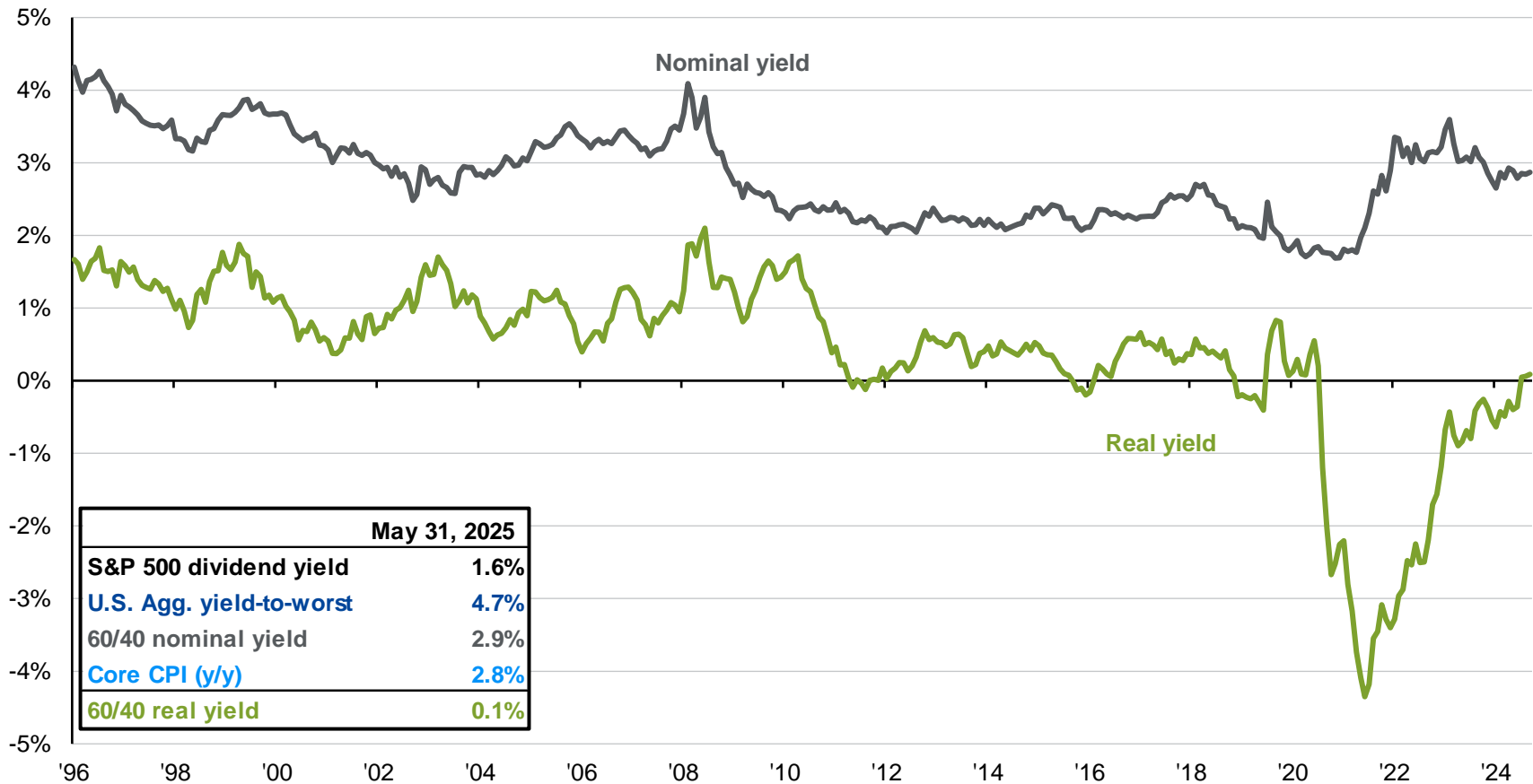
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Alternatives in portfolios

60/40 portfolio real yield

60/40 portfolio yield minus the y/y % change in core CPI, monthly



Source: Bloomberg, FactSet, Standard & Poor's, J.P. Morgan Asset Management.

60/40 portfolio nominal yield is calculated by taking the sum of the S&P 500's dividend yield and the yield-to-worst of the Bloomberg U.S. Aggregate multiplied by their respective weights in the portfolio. Analysis is based on month-end data. For the current month, we use the prior month's core CPI figures until the latest data are available. Past performance is not a reliable indicator of current and future results.

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Portfolio diversification

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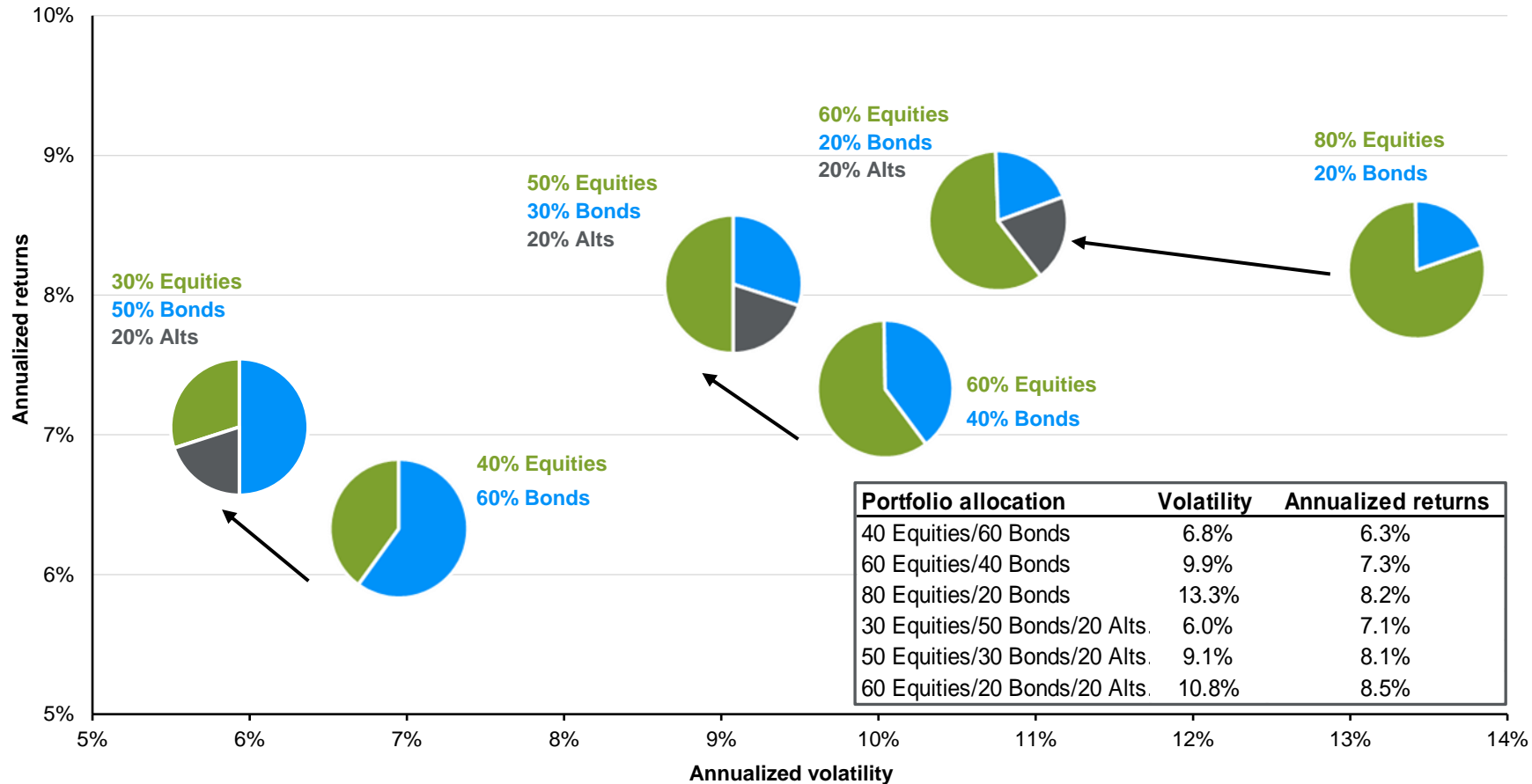
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Alternatives in portfolios

Alternatives and portfolio risk/return

Annualized volatility and return, 1Q98 – 4Q24



Source: Bloomberg, Burgiss, FactSet, NCREIF, PivotalPath, Standard & Poor's, J.P. Morgan Asset Management.

The alternatives allocation includes hedge funds, real estate, and private equity, with each receiving an equal weight. Portfolios are rebalanced at the start of the year. Equities are represented by the S&P 500 Total Return Index. Bonds are represented by the Bloomberg U.S. Aggregate Total Return Index. Volatility is calculated as the annualized standard deviation of quarterly returns. Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.

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Alternatives: Correlations, returns and yields

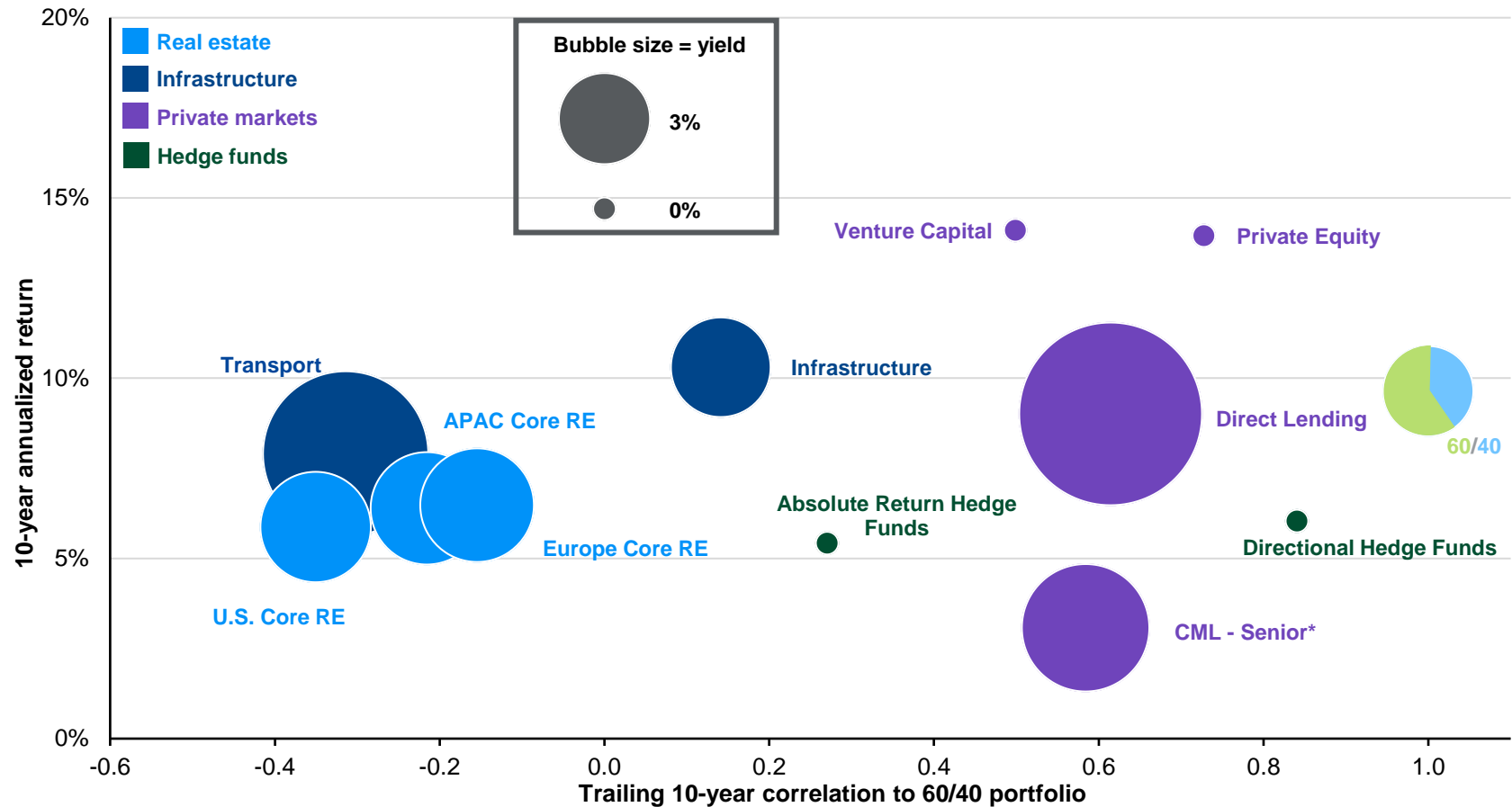
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Correlations, returns and yields

10-year correlations and 10-year annualized total returns, 1Q15 – 4Q24



Source: Burgiss, Clarkson, Cliffordwater, Drewry Maritime Consultants, FactSet, Gilberto-Levy, MSCI, NCREIF, PivotalPath, J.P. Morgan Asset Management. Correlations are based on quarterly returns over the time period indicated. A 60/40 portfolio is comprised of 60% stocks and 40% bonds. Stocks are represented by the S&P 500 Total Return Index. Bonds are represented by the Bloomberg U.S. Aggregate Total Return Index. 10-year annualized returns are calculated based on the time period indicated. "Absolute Return Hedge Funds" represent asset-weighted returns from the PivotalPath Global Macro and Relative Value Indices. "Directional Hedge Funds" represent asset-weighted returns from the PivotalPath Credit, Equity Diversified and Event Driven Indices. Direct Lending uses yields from the Cliffordwater Direct Lending Index. All other indices and data used for alternative asset class returns and yields are as described on pages 12 and 16 of the *Guide to Alternatives*. Yields are based on latest available data as described on page 12 of the *Guide to Alternatives*. Transportation returns are shown on an unlevered basis and returns can be enhanced by adding leverage. *CML is commercial mortgage loans tracked by the Gilberto-Levy Commercial Mortgage Index. Past performance is not a reliable indicator of current and future results. Data are based on availability as of May 31, 2025.



Alternatives and manager selection

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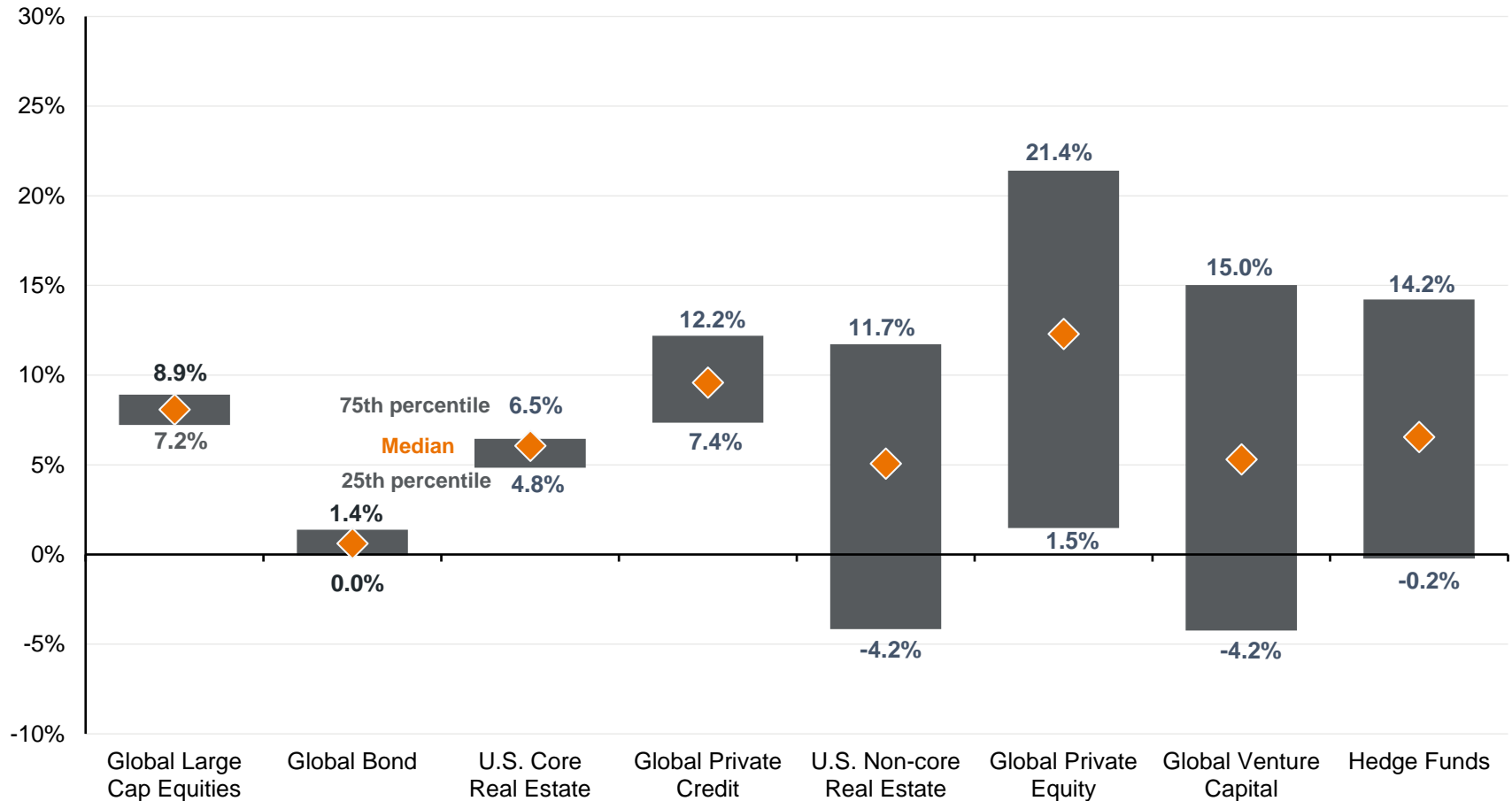
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Alternatives in portfolios

Public and private manager dispersion

Based on returns from 1Q15 – 1Q25*



Source: Burgiss, Morningstar, NCREIF, Pitchbook | LCD, PivotalPath, J.P. Morgan Asset Management.

Global Large Cap Equities and Global Bond are based on the Morningstar Global Large Stock Blend and Global Bond (not hedged) categories, respectively. U.S. Core Real Estate is based on the NCREIF Fund Index – ODCE. Global Private Credit is represented by Pitchbook | LCD fund data. U.S. Non-core Real Estate, Global Private Equity and Global Venture Capital are based on indices from the MSCI Private Capital Universe. Hedge Funds are based on the PivotalPath index. *Manager dispersion is based on annual returns over the 10-year period indicated for: Global Large Cap Equities, Global Bond, U.S. Core Real Estate and Hedge Funds. Manager dispersion is based on the 10-year internal rate of return (IRR) ending 4Q24 for: Global Private Credit, U.S. Non-core Real Estate, Global Private Equity and Global Venture Capital. Past performance is not a reliable indicator of current and future results. Data are based on availability as of May 31, 2025.

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Valuations monitor

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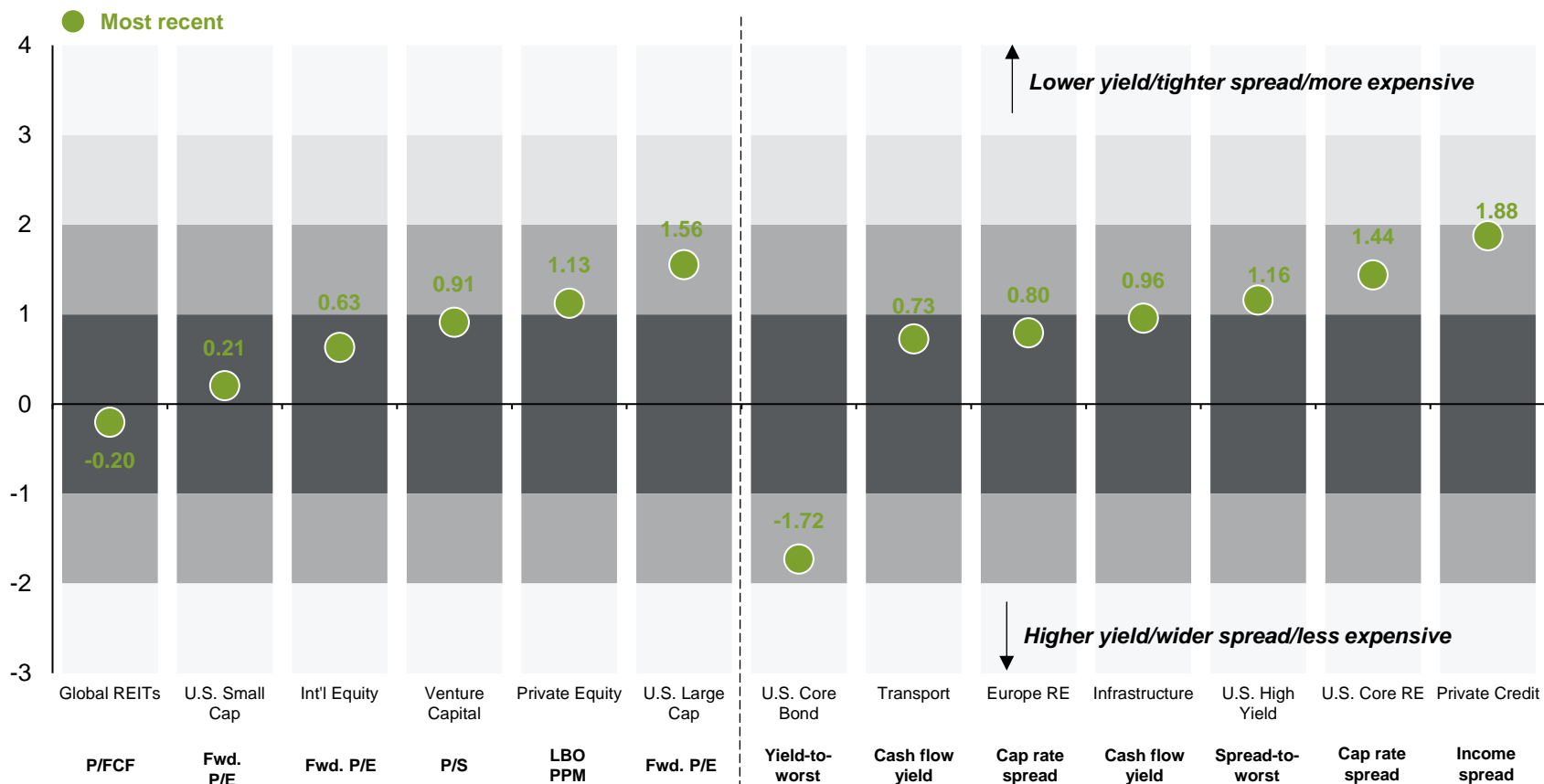
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Alternatives in portfolios

Asset class valuations

Z-scores based on average valuations since March 2009*



Source: Burgiss, Cliffwater, FactSet, Jay Ritter, University of Florida, J.P. Morgan Markets, MSCI, NCREIF, Pitchbook | LCD, RCA, J.P. Morgan Asset Management.

All alternative asset class valuation measures are quarterly, except VC, which is annual. Public market asset class valuations are monthly. Equity valuations are measured using next 12 months price-to-earnings ratios. Fixed income valuations are measured using yield-to-worst and spread-to-worst. Global REITs valuations are measured using price-to-free cash flow (P/FCF) multiples. Real estate valuations are measured using the spread between transaction-based cap rates and the yield on the appropriate 10-year government bond. Private equity valuations are determined using leveraged buyout purchase price multiples (LBO PPM). Private credit valuations are measured using the spread between quarterly income returns and 3-month SOFR (LIBOR pre-2019). VC valuations measured using the median VC-backed IPO price-to-sales (P/S) ratio. Infrastructure valuations are measured using 12-month trailing infrastructure income returns. *VC average valuation is since 12/31/2009. Global REITs average valuation is since 1/31/2010. Past performance is not a reliable indicator of current and future results. Data are based on availability as of May 31, 2025.

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Public and private market correlations

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Public and private market correlations

Quarterly returns

2Q08 - 4Q24		Global Bonds	Global Equities	U.S. Core RE	Europe Core RE*	APAC Core RE	Global Core Infra	Transport	Timber	Direct Lending	Venture Capital	Private Equity	Equity Long/Short	Relative Value	Macro
Financial assets	Global Bonds	1.0													
	Global Equities	0.4	1.0												
Global real estate	U.S. Core RE	-0.2	0.0	1.0											
	Europe Core RE*	-0.2	0.0	0.7	1.0										
	APAC Core RE	-0.2	0.0	0.8	0.7	1.0									
Real assets	Global Core Infra	-0.1	0.1	0.4	0.3	0.5	1.0								
	Transport	-0.2	-0.1	0.4	0.2	0.3	-0.1	1.0							
	Timber	-0.1	-0.1	0.1	-0.1	0.0	0.2	0.1	1.0						
Private markets	Direct Lending	0.0	0.7	0.2	0.2	0.2	0.3	0.0	-0.1	1.0					
	Venture Capital	0.1	0.5	0.3	0.5	0.3	0.2	0.0	-0.1	0.5	1.0				
	Private Equity	0.3	0.8	0.3	0.3	0.3	0.2	0.0	-0.1	0.8	0.8	1.0			
Hedge funds	Equity Long/Short	0.3	0.9	-0.2	0.0	-0.1	0.1	-0.2	-0.1	0.7	0.6	0.8	1.0		
	Relative Value	0.2	0.8	-0.1	0.0	-0.1	-0.1	-0.2	-0.2	0.7	0.5	0.7	0.9	1.0	
	Macro	0.0	0.3	-0.1	0.1	0.0	0.0	-0.2	0.0	0.3	0.2	0.2	0.5	0.5	1.0

Low correlation High correlation

Source: Bloomberg, Burgiss, Cliffwater, MSCI, NCREIF, PivotalPath, J.P. Morgan Asset Management.

*Europe Core RE includes continental Europe. Private Equity and Venture Capital are time-weighted returns from Burgiss. RE: real estate. Global equities: MSCI AC World Index. Global Bonds: Bloomberg Global Aggregate Index. U.S. Core Real Estate: NCREIF Property Index – Open End Diversified Core Equity component. Europe Core Real Estate: MSCI Global Property Fund Index – Continental Europe. Asia Pacific (APAC) Core Real Estate: MSCI Global Property Fund Index – Asia-Pacific. Global infrastructure (Infra.): MSCI Global Private Infrastructure Asset Index. U.S. Direct Lending: Cliffwater Direct Lending Index. Timber: NCREIF Timberland Property Index (U.S.). Hedge fund indices are from PivotalPath. Transport returns are derived from a J.P. Morgan Asset Management index. All correlation coefficients are calculated based on quarterly total return data for the period indicated. Returns are denominated in USD. Past performance is not a reliable indicator of current and future results. Data are based on availability as of May 31, 2025.



Yield alternatives

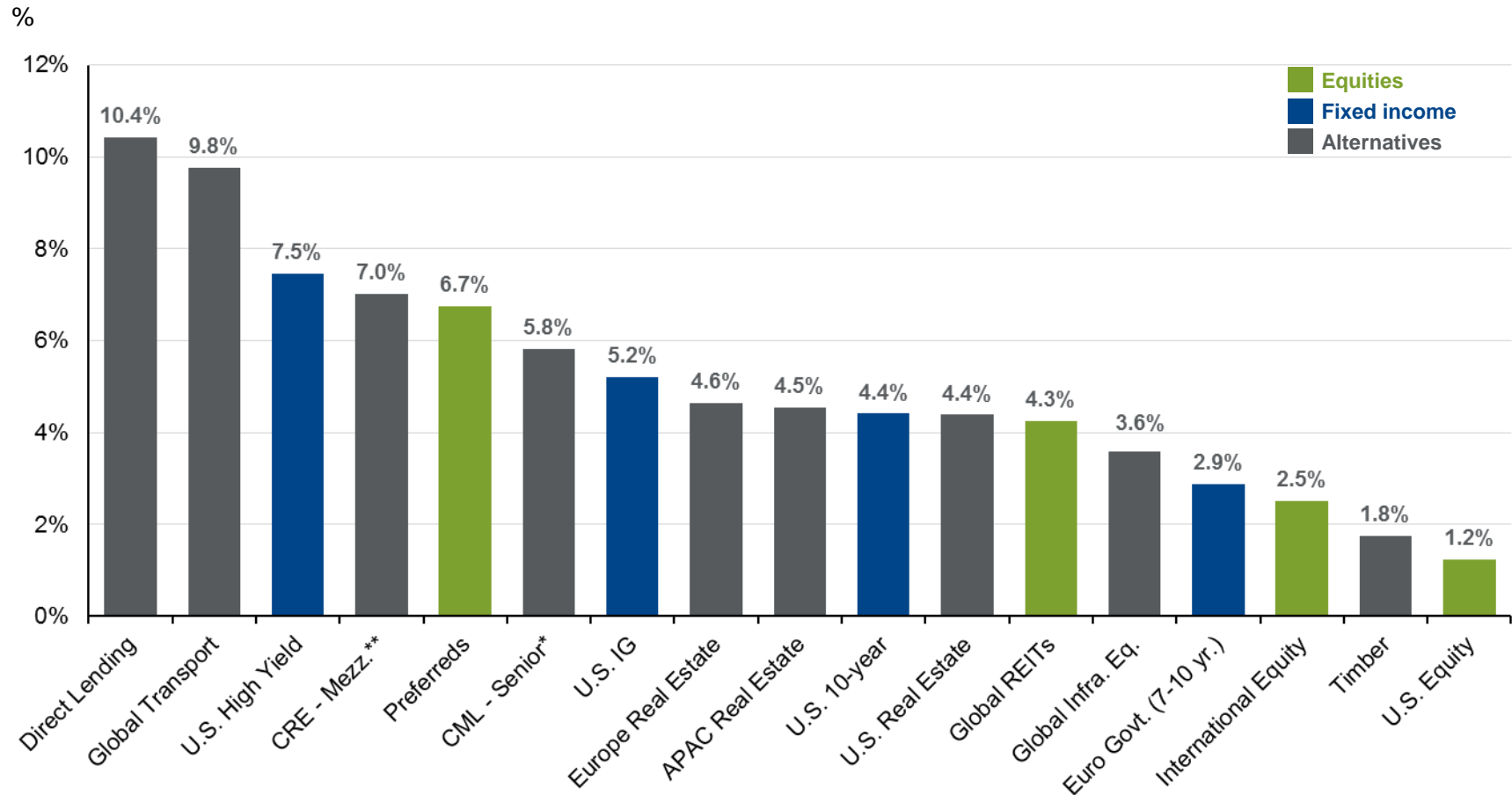
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Alternatives in portfolios

Asset class yields



Source: BAML, Bloomberg, Clarkson, Drewry Maritime Consultants, FactSet, Federal Reserve, FTSE, KBRA DLD, MSCI, NCREIF, Wells Fargo J.P. Morgan Asset Management.
*CML is commercial mortgage loans tracked by the Gilberto-Levy Commercial Mortgage Index. **CRE - Mezz is mezzanine commercial real estate debt. Equities and fixed income yields are as of 5/31/2025. Alternative yields are as of 12/31/2024, except CRE- Mezz, which is as of 5/31/2025; and CML - Senior, which is as of 3/31/2025. CML - Senior: Market-capitalization weighted average for all mortgages in the Gilberto-Levy Commercial Mortgage Index. Mezzanine commercial mortgage loans yield is derived from a J.P. Morgan Survey and U.S. Treasuries of a similar duration. Global Transport: Levered yields for transport assets calculated as the difference between charter rates (rental income), operating expenses, debt amortization and interest expenses, as a percentage of equity value, and are based on a historical 15-year average. Yields for each of the sub-vessel types are calculated and respective weightings are applied to arrive at the current levered yields for Global Transportation; Preferreds: BAML Hybrid Preferred Securities; Direct Lending: KBRA DLD Index; U.S. High Yield: Bloomberg U.S. Aggregate Corporate High Yield; Global Infrastructure: MSCI Global Private Infrastructure Asset Index; Global REITs: FTSE NAREIT Global REITs; International Equity: MSCI AC World ex-U.S.; U.S. 10-year: 10-year U.S. Treasury yield; U.S. Equity: MSCI USA, Europe Real Estate: Market weighted-avg. of MSCI Global Property Fund Indices - U.K. & Cont. Europe; U.S. and Asia Pacific (APAC) core real estate; MSCI Global Property Fund Index. Euro Govt. (7-10 yr.): Bloomberg Euro Aggregate Government - Treasury (7-10Y); Timber: NCREIF Timberland Index (U.S.) - EBITDA Return. Past performance is not a reliable indicator of current and future results. Data are based on availability as of May 31, 2025.

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Assets under management

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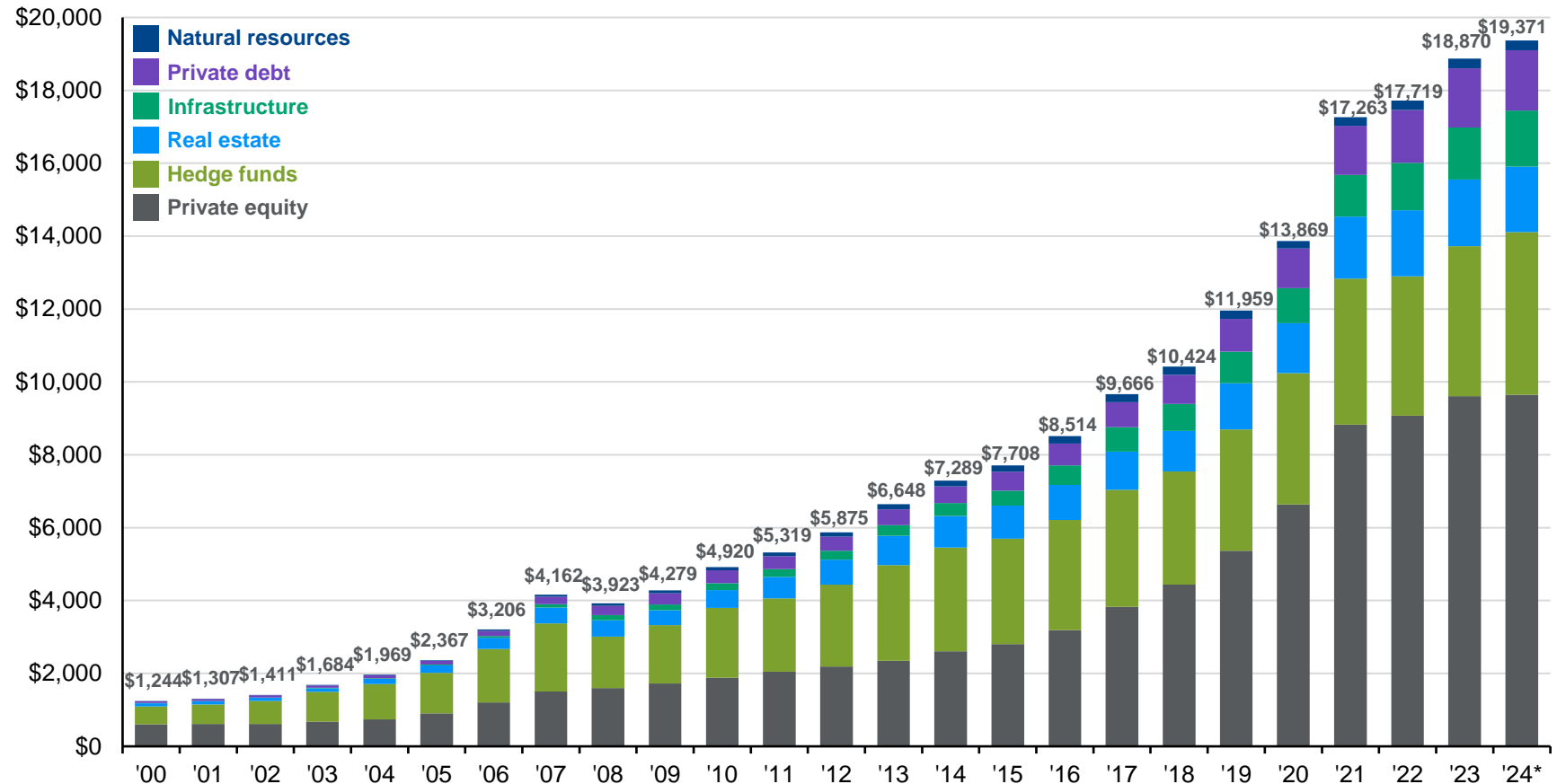
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Alternatives in portfolios

Global alternative assets under management

USD billions, end of period



Source: HFR, Preqin, J.P. Morgan Asset Management.

Assets under management is defined as managed assets in private closed-end funds, which includes the latest available valuation of investments (including unrealized value), as well as committed capital available for investment by fund managers. *2024 figures are as of 3Q24.

Data are based on availability as of May 31, 2025.

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Alternatives fundraising and dry powder

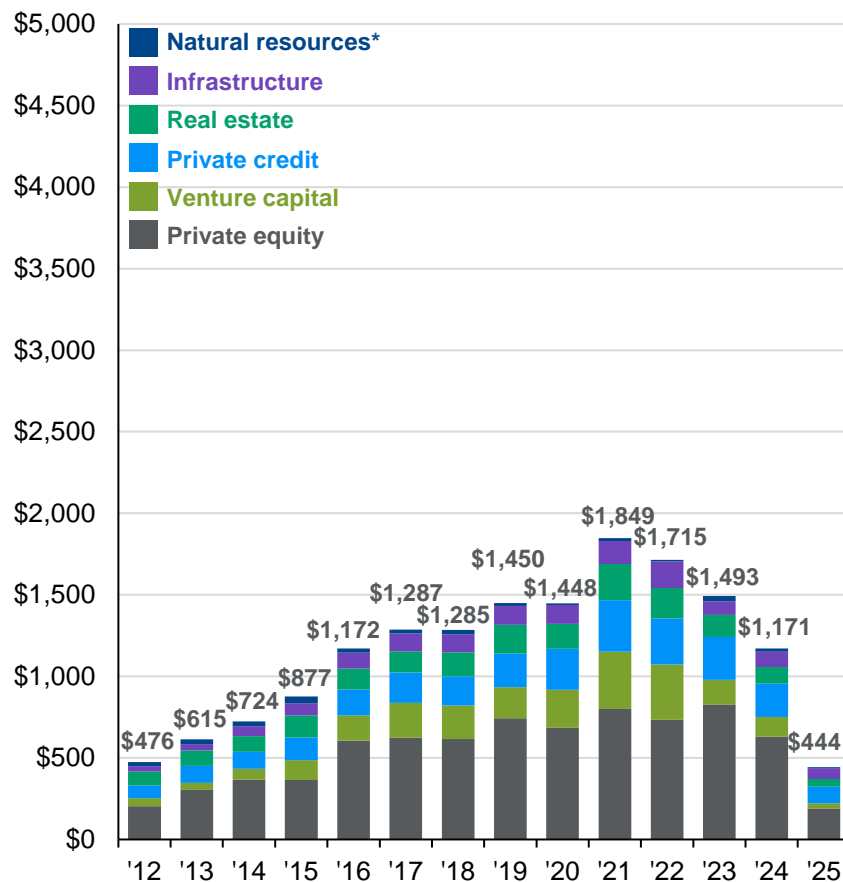
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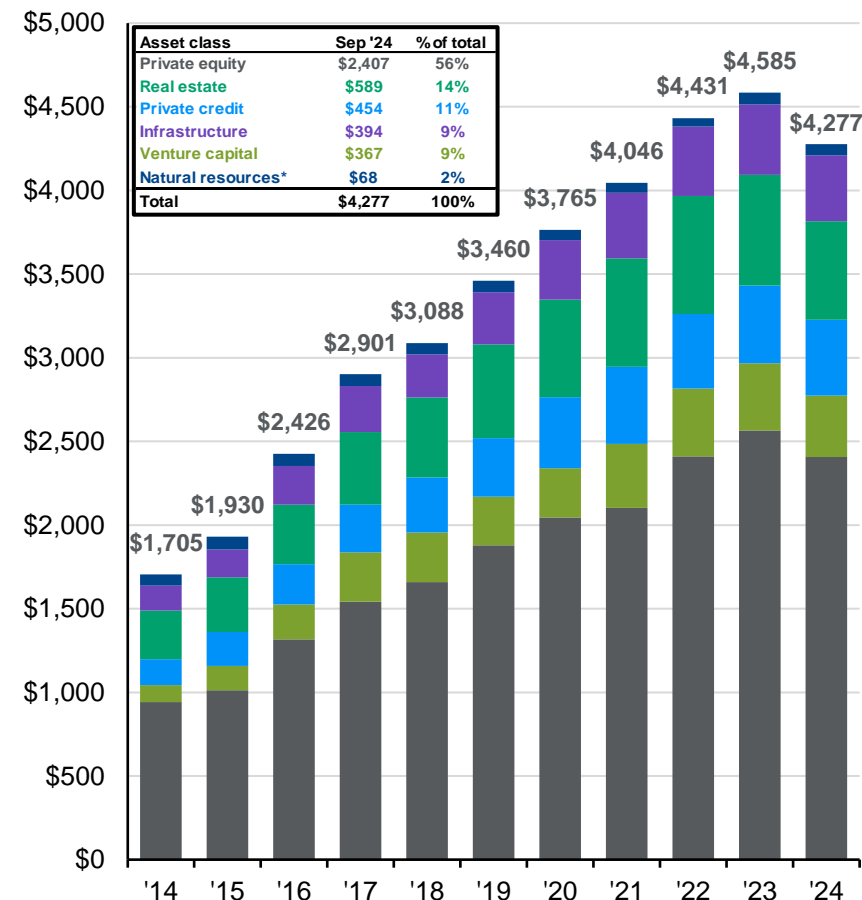
Global private capital fundraising

USD billions



Global dry powder by asset class

Total committed but uninvested LP capital, USD billions, end of period



Source: Preqin, J.P. Morgan Asset Management.

(Left) Fundraising data are latest as of 5/31/2025. Fundraising categories are provided by Preqin and represent its estimate of annual capital raised in closed-end funds. *Natural resources includes energy, timberland, agriculture and farmland, metals and mining, water and diversified business. Data may not sum to total due to rounding. (Right) Dry powder data are latest as of 3Q24. Dry powder refers to committed but uninvested capital. Percentages may not sum to 100 due to rounding.

Data are based on availability as of May 31, 2025.



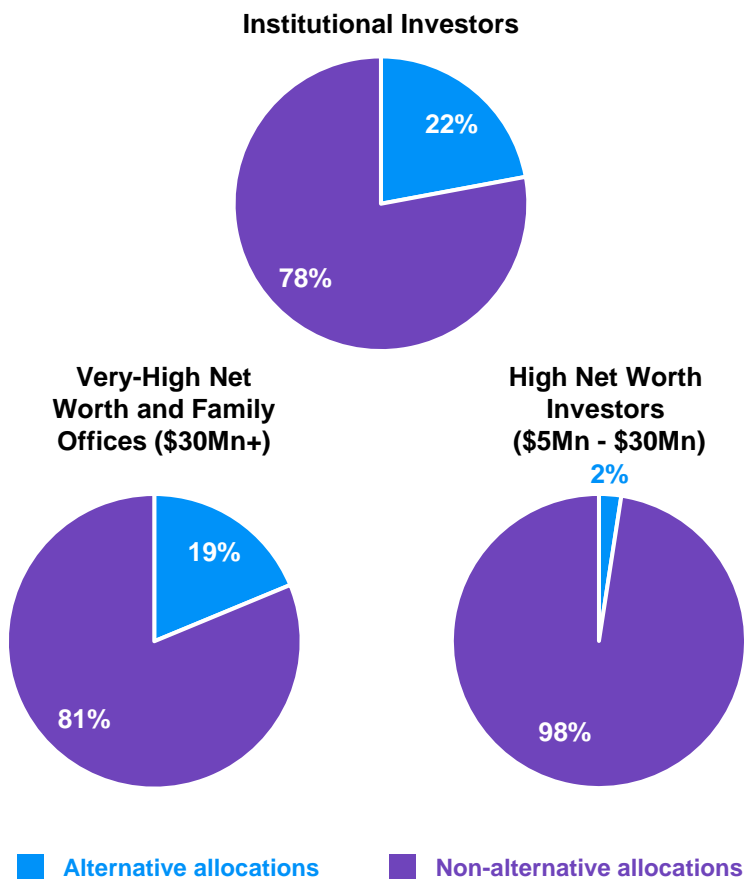
Investor positioning

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Alternatives in portfolios

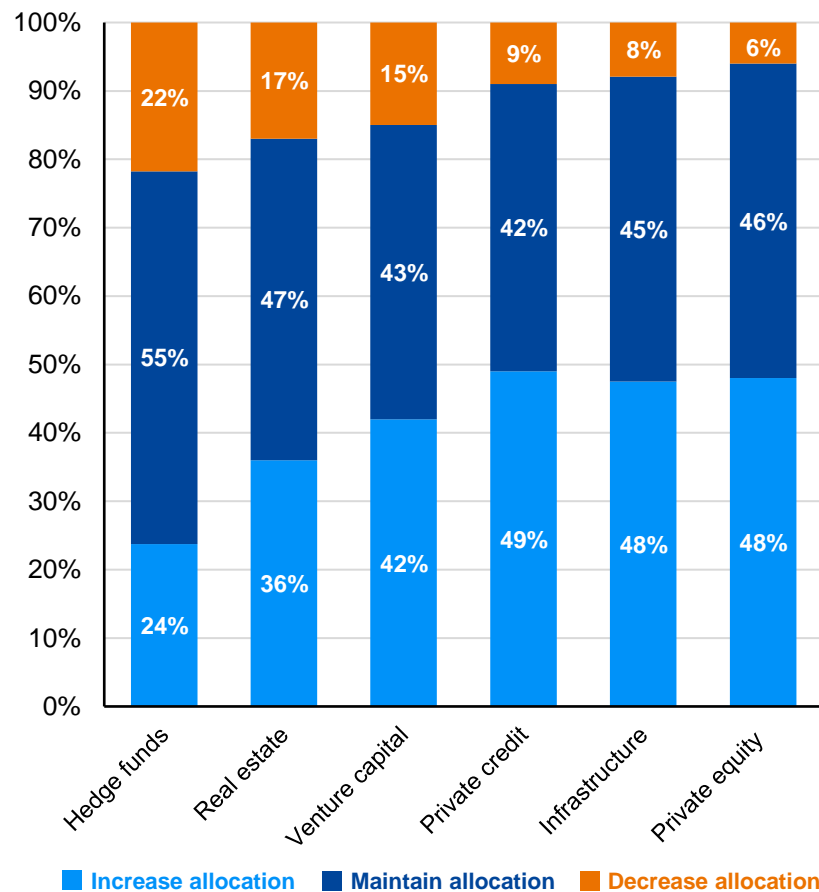
Investor asset allocation

Alternatives asset allocation by investor type



Long-term alternatives allocation plans

Share of institutional investors, Nov. 2024



Source: Bain and Company, Preqin, J.P. Morgan Asset Management.

(Left) Institutional investor allocations data sourced from Preqin's 2025 Institutional Allocation Study. Simple average allocation is calculated using data across 4,129 investors representing \$22.4tn in AUM. Very-High Net Worth and Family Offices and High Net Worth investor data sourced from Bain and Company's "Global Private Equity Report 2023". (Right) Preqin H1 2025 Investor Outlook. Data are based on availability as of May 31, 2025.

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Alternative asset class returns vs. selected portfolios

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2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2015-2024	
										Ann.	Vol.*
Infra. 15.5%	Infra. 14.2%	Private Equity 22.9%	Venture Capital 21.2%	60/40 Portfolio 22.4%	Venture Capital 58.3%	Venture Capital 49.8%	Transport 12.1%	60/40 Portfolio 18.0%	60/40 Portfolio 15.5%	Venture Capital 14.1%	Venture Capital 13.1%
Venture Capital 15.1%	Private Equity 12.2%	Venture Capital 14.8%	Infra. 11.6%	Venture Capital 20.3%	Private Equity 24.1%	Private Equity 37.6%	Infra. 9.6%	50/30/20 Portfolio 15.3%	50/30/20 Portfolio 14.0%	Private Equity 14.0%	60/40 Portfolio 10.3%
U.S. Core RE 15.0%	Direct Lending 11.2%	60/40 Portfolio 14.5%	Europe Core RE 9.9%	50/30/20 Portfolio 20.3%	60/40 Portfolio 14.0%	U.S. Core RE 22.2%	U.S. Core RE 7.5%	Direct Lending 12.1%	Direct Lending 11.3%	Infra. 10.3%	50/30/20 Portfolio 8.8%
Europe Core RE 12.8%	APAC Core RE 10.4%	50/30/20 Portfolio 14.3%	APAC Core RE 9.3%	Private Equity 16.8%	50/30/20 Portfolio 13.9%	50/30/20 Portfolio 17.7%	APAC Core RE 6.8%	Private Equity 9.6%	Infra. 10.7%	Direct Lending 9.0%	Private Equity 8.5%
APAC Core RE 11.8%	U.S. Core RE 8.8%	Infra. 12.2%	Private Equity 9.0%	Infra. 11.5%	Hedge Funds 11.4%	60/40 Portfolio 16.6%	Direct Lending 6.3%	Transport 8.9%	Hedge Funds 10.6%	50/30/20 Portfolio 8.7%	Hedge Funds 5.9%
Private Equity 8.8%	50/30/20 Portfolio 8.5%	APAC Core RE 11.5%	U.S. Core RE 8.3%	Europe Core RE 9.4%	Transport 6.8%	Europe Core RE 14.2%	Hedge Funds -1.1%	Infra. 7.9%	Transport 7.4%	60/40 Portfolio 8.1%	U.S. Core RE 5.6%
Transport 8.8%	60/40 Portfolio 8.2%	Transport 10.6%	Direct Lending 8.1%	Direct Lending 9.0%	Direct Lending 5.5%	Direct Lending 12.8%	Private Equity -1.5%	Hedge Funds 7.6%	Private Equity 4.9%	Transport 7.9%	Transport 4.7%
Direct Lending 5.5%	Europe Core RE 8.1%	Europe Core RE 9.8%	Transport 5.2%	Hedge Funds 9.0%	Europe Core RE 4.8%	APAC Core RE 11.8%	Europe Core RE -2.4%	Venture Capital -2.2%	Venture Capital 4.8%	Europe Core RE 6.5%	Europe Core RE 4.1%
50/30/20 Portfolio 3.0%	Transport 7.8%	Direct Lending 8.6%	50/30/20 Portfolio -0.4%	APAC Core RE 6.6%	U.S. Core RE 1.2%	Infra. 10.5%	50/30/20 Portfolio -12.6%	APAC Core RE -2.3%	Europe Core RE 4.7%	APAC Core RE 6.4%	Infra. 3.2%
Hedge Funds 2.5%	Hedge Funds 5.0%	Hedge Funds 8.0%	Hedge Funds -1.6%	U.S. Core RE 5.3%	APAC Core RE 0.3%	Transport 10.3%	60/40 Portfolio -16.1%	Europe Core RE -4.9%	APAC Core RE -1.0%	U.S. Core RE 5.9%	APAC Core RE 3.0%
60/40 Portfolio 1.1%	Venture Capital 0.6%	U.S. Core RE 7.6%	60/40 Portfolio -2.6%	Transport 1.5%	Infra. 0.2%	Hedge Funds 7.8%	Venture Capital -20.5%	U.S. Core RE -12.0%	U.S. Core RE -1.4%	Hedge Funds 5.8%	Direct Lending 2.9%

Source: Bloomberg, Burgiss, Cliffwater, FactSet, MSCI, NCREIF, PivotalPath, J.P. Morgan Asset Management.

Private Equity and Venture Capital are time-weighted returns from Burgiss. Hedge funds: PivotalPath Composite Index. Transport returns are derived from a J.P. Morgan Asset Management index and are shown on an unlevered basis, which can be enhanced by adding leverage. U.S. Core RE: NCREIF Property Index – Open End Diversified Core Equity component. Europe Core Real Estate: MSCI Global Property Fund Index – Continental Europe, Asia Pacific (APAC) Core Real Estate: MSCI Global Property Fund Index – Asia-Pacific. Direct Lending: Cliffwater Direct Lending Index. Global infrastructure (Infra.): MSCI Global Private Infrastructure Asset Index. A 50/30/20 portfolio is comprised of 50% U.S. equities weight, 30% fixed income weight and 20% alternatives asset allocation weight. Portfolios are rebalanced at the start of the year. A 60/40 portfolio is comprised of 60% equities and 40% fixed income. Equities in both the 60/40 portfolio and the 50/30/20 portfolio are represented by the S&P 500 Total Return Index. Fixed income in both the 60/40 portfolio and the 50/30/20 portfolio are represented by the Bloomberg U.S. Aggregate Total Return Index. Alternatives in the 50/30/20 portfolio are represented by an equal-weight asset allocation mix of the returns from the other nine alternatives asset classes on the chart. Annualized return (Ann.) and volatility (Vol.) represents the 40-quarter period ending 12/31/2024. *Volatility calculated as the annualized standard deviation of quarterly returns. Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.



Sources of global private real estate returns

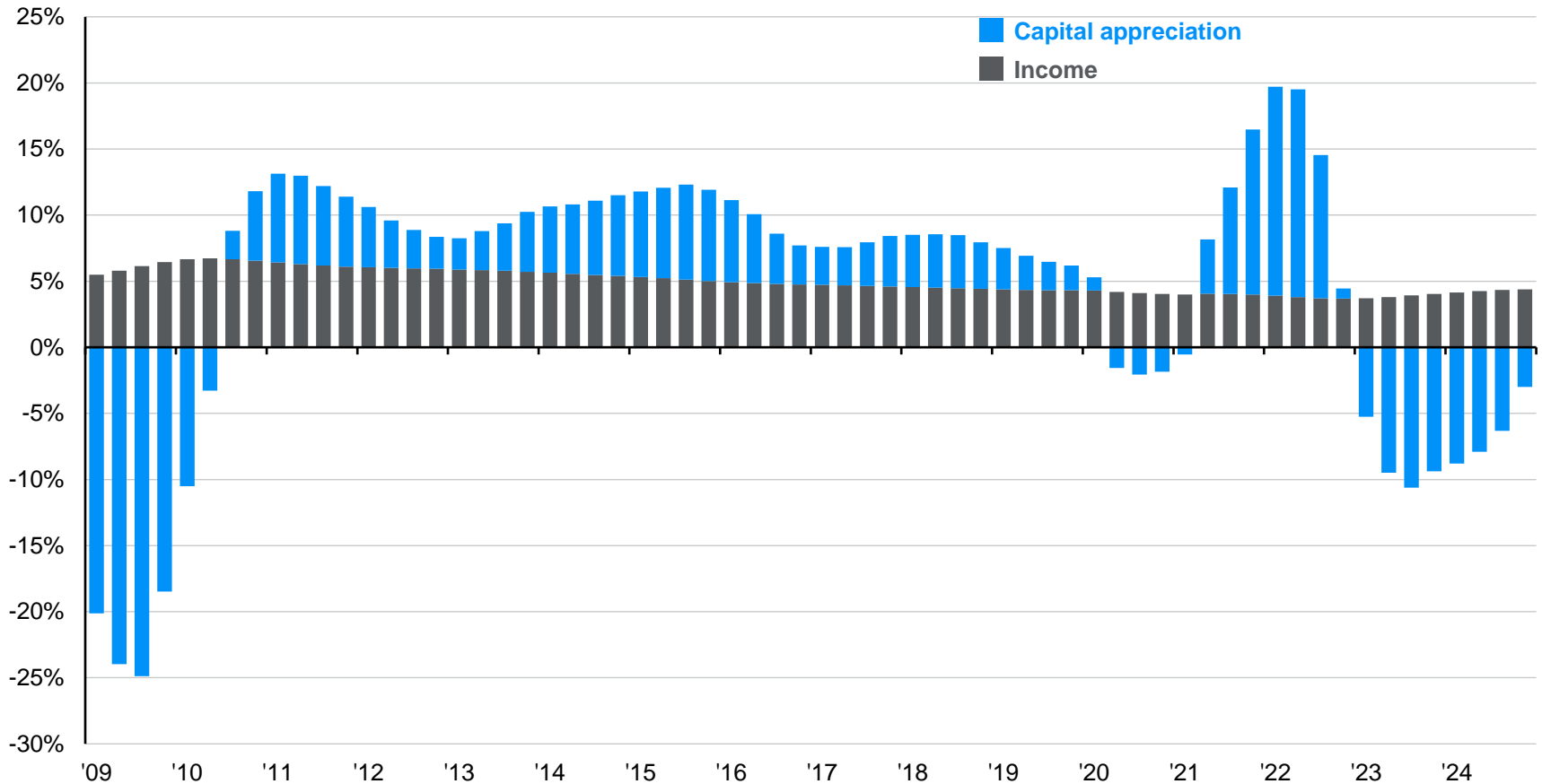
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Global private real estate returns

Rolling 4-quarter returns from income and capital appreciation



Source: MSCI, J.P. Morgan Asset Management.

Real Estate returns represented by the MSCI Global Property Fund Index. Data show rolling four-quarter returns from income and capital appreciation. The chart shows the full index history, beginning in 1Q09, and ending in 4Q24. Alternative investments carry more risk than traditional investments and are recommended only for long-term investment. Some alternative investments may be highly leveraged and rely on speculative investments that can magnify the potential for loss or gain. Diversification does not guarantee investment returns or eliminate the risk of loss. Past performance is not a reliable indicator of current and future results. Data are based on availability as of May 31, 2025.



U.S. REITs and direct real estate returns

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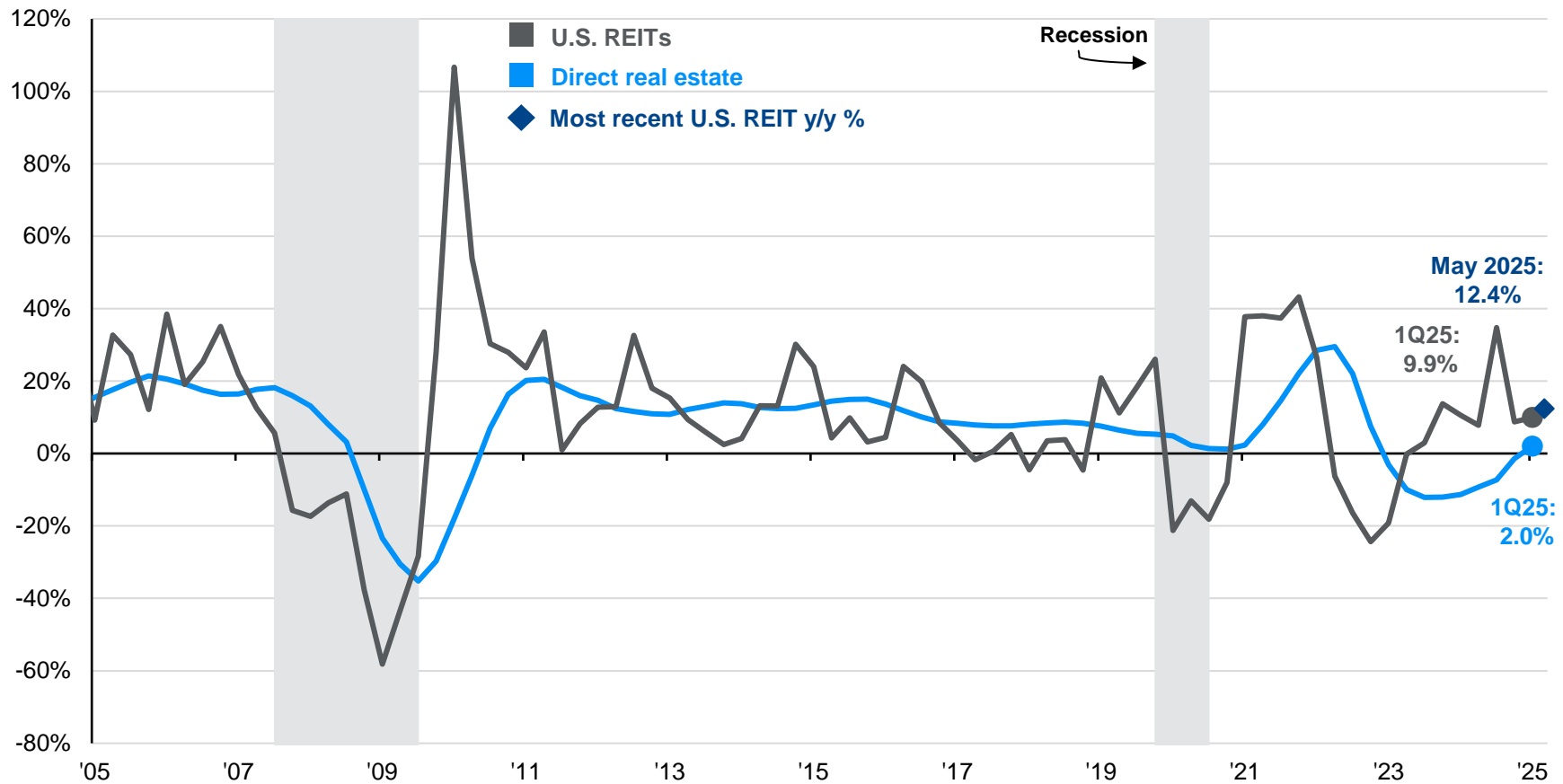
MI

18

Real estate

U.S. REITs and direct real estate returns

4-quarter total return %



Source: FactSet, NAREIT, NCREIF, J.P. Morgan Asset Management.

U.S. REITs: FTSE NAREIT All Equity Index. Direct real estate: NCREIF Fund Index - Open End Diversified Core Equity Fund Index. It is a capitalization-weighted, gross of fee, time-weighted return index. Indices do not include fees or operating expenses and are not available for actual investment.

Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.

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Real estate correlation to equities

GTA

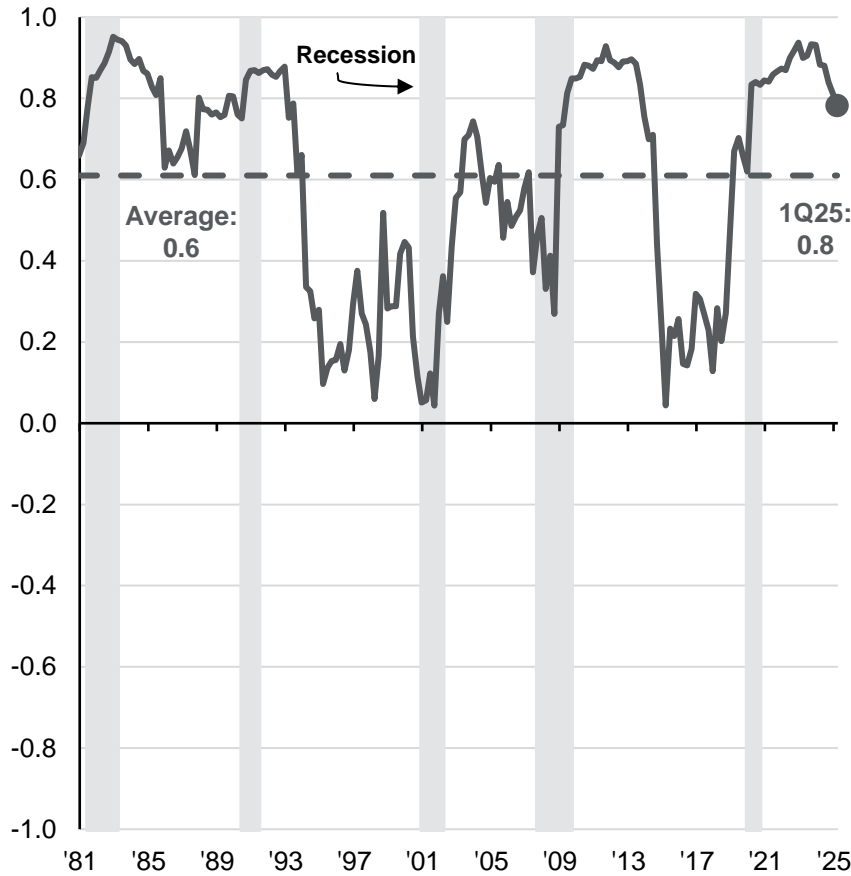
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Real estate

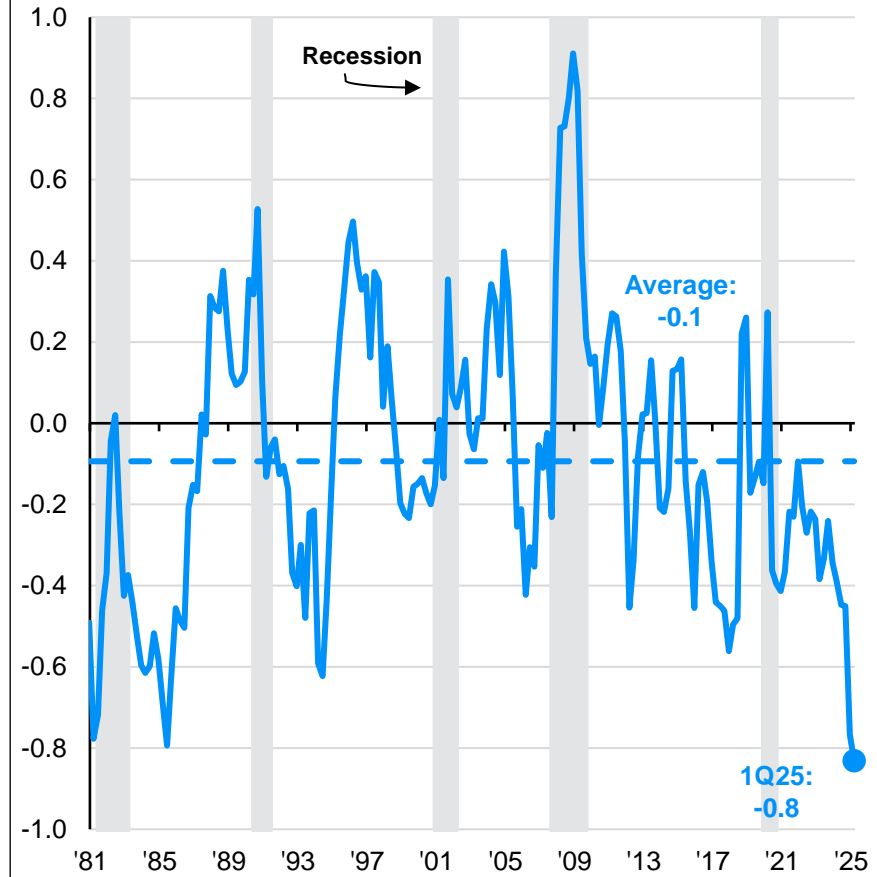
U.S. REITs correlation to S&P 500

12-quarter rolling, total return, 1Q81 – 1Q25



Direct real estate correlation to S&P 500

12-quarter rolling, total return, 1Q81 – 1Q25



Source: FactSet, NAREIT, NCREIF, Standard & Poor's, J.P. Morgan Asset Management. The S&P 500 is represented by the S&P 500 total return index. Indices do not include fees or operating expenses and are not available for actual investment. Past performance is not a reliable indicator of current and future results. Data are based on availability as of May 31, 2025.

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U.S. real estate, GDP and inflation

GTA

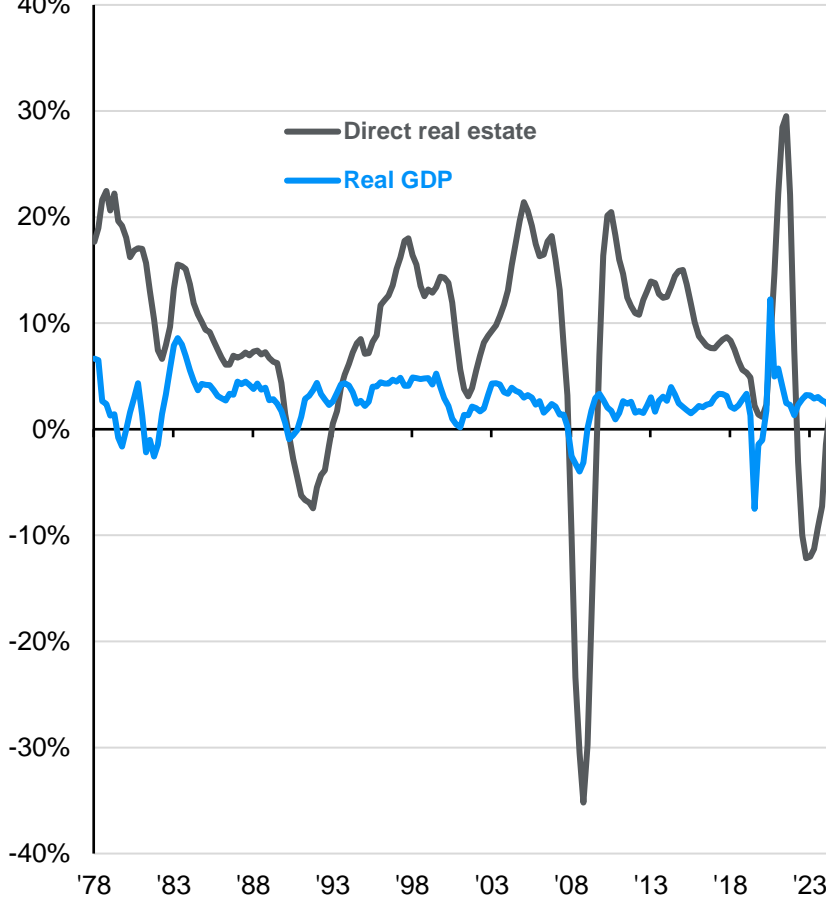
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Real estate

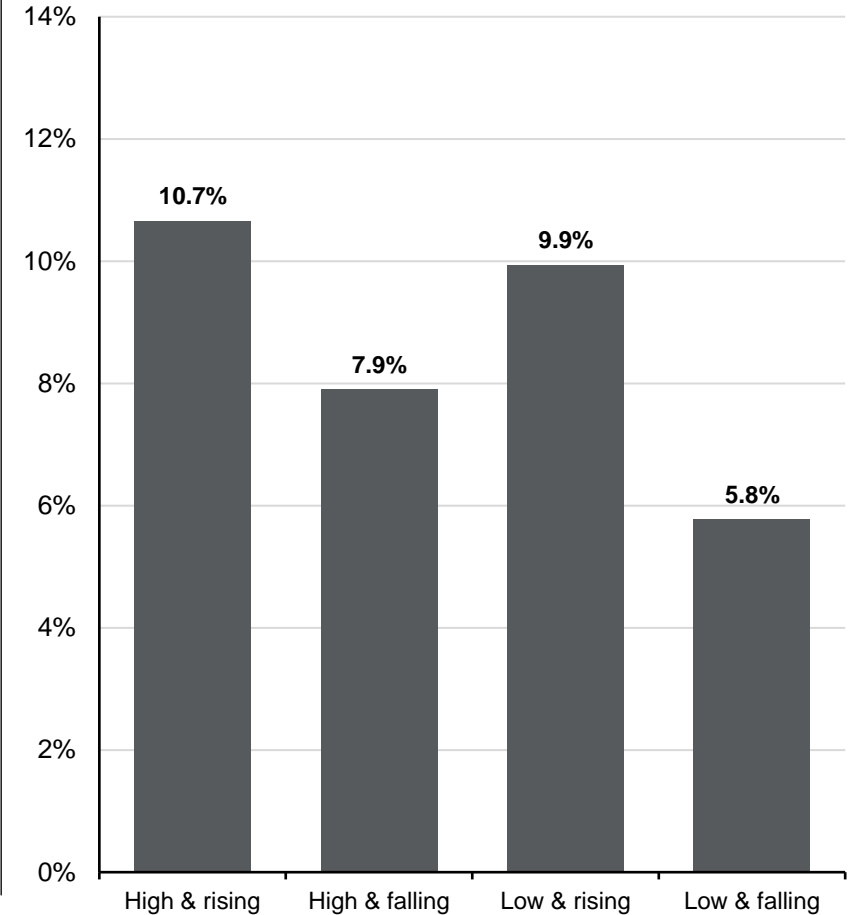
Direct real estate returns and real GDP growth

4Q78 – 1Q25, Real GDP SA, y/y %
40%



Direct real estate returns in different inflation regimes

4Q78 – 1Q25, quarterly, headline CPI, y/y %



Source: BEA, BLS, FactSet, NCREIF, J.P. Morgan Asset Management.

Direct real estate is represented by the NCREIF Fund Index - Open End Diversified Core Equity Fund Index. Real estate performance is measured using total returns. (Right) "High" inflation is defined as any year-over-year headline CPI reading above the historical median, while "low" inflation is defined as any year-over-year headline CPI reading below the historical median. The median y/y headline CPI for period between 4Q78 – 1Q25 is 2.84%. Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.

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U.S. real estate: Transaction volumes

GTA

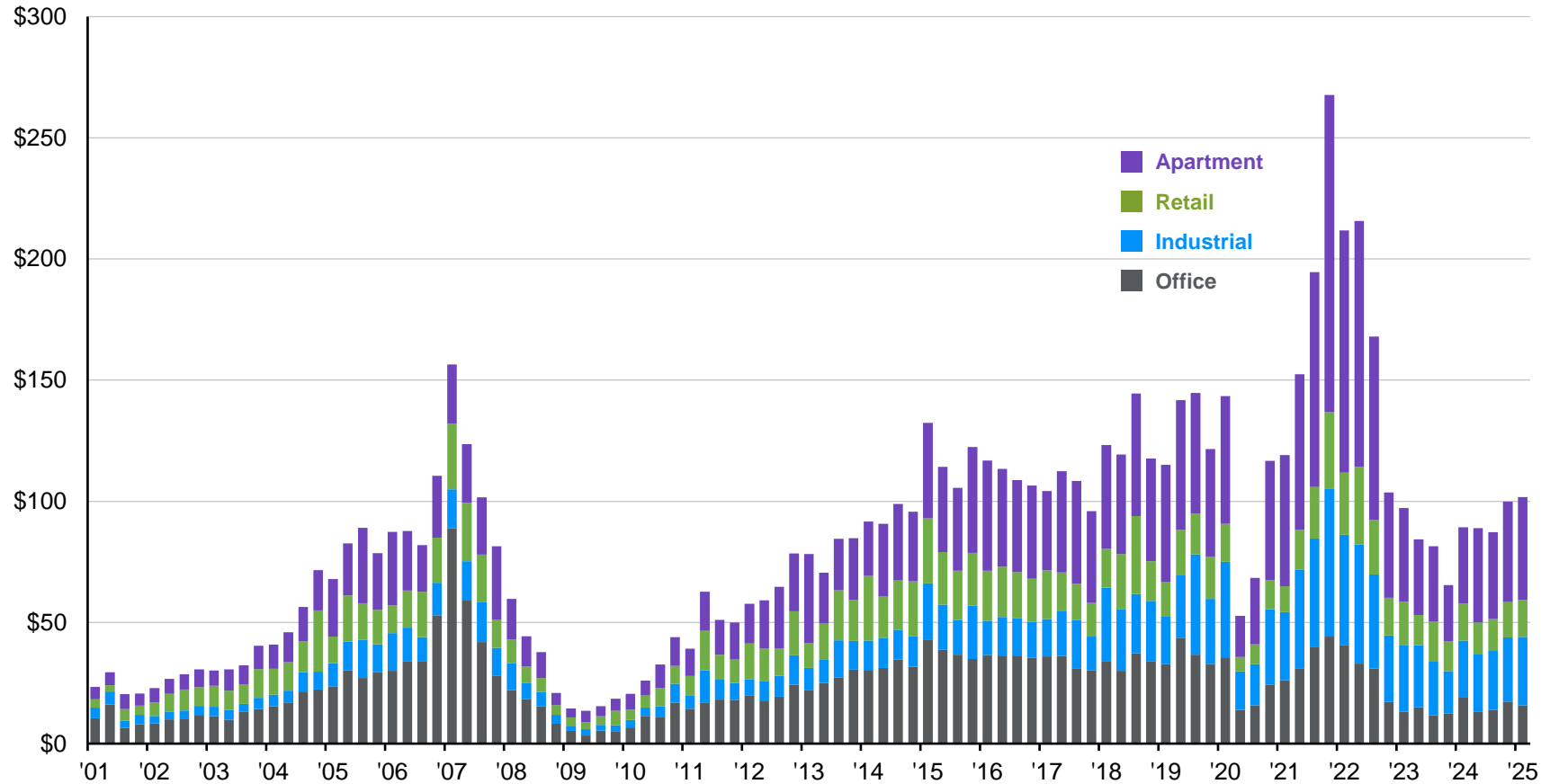
MI

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Real estate

U.S. real estate transaction volumes

USD billions, seasonally adjusted, 1Q01 – 1Q25



Source: RCA, J.P. Morgan Asset Management.
Data are based on availability as of May 31, 2025.



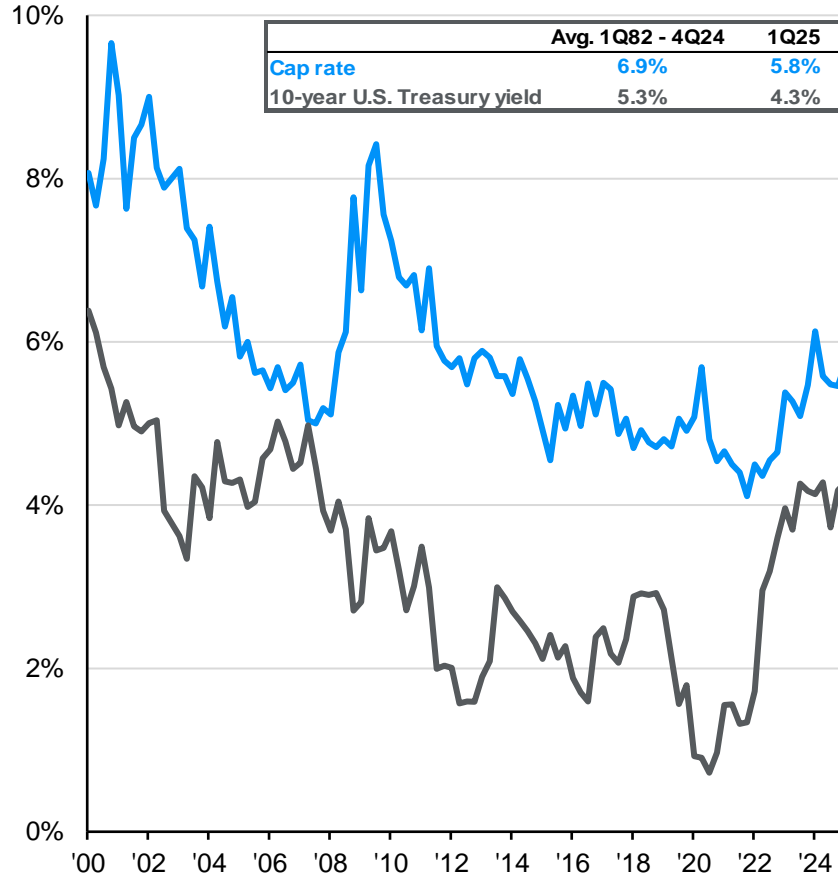
U.S. real estate: Cap rates and property prices

GTA MI 22

Real estate

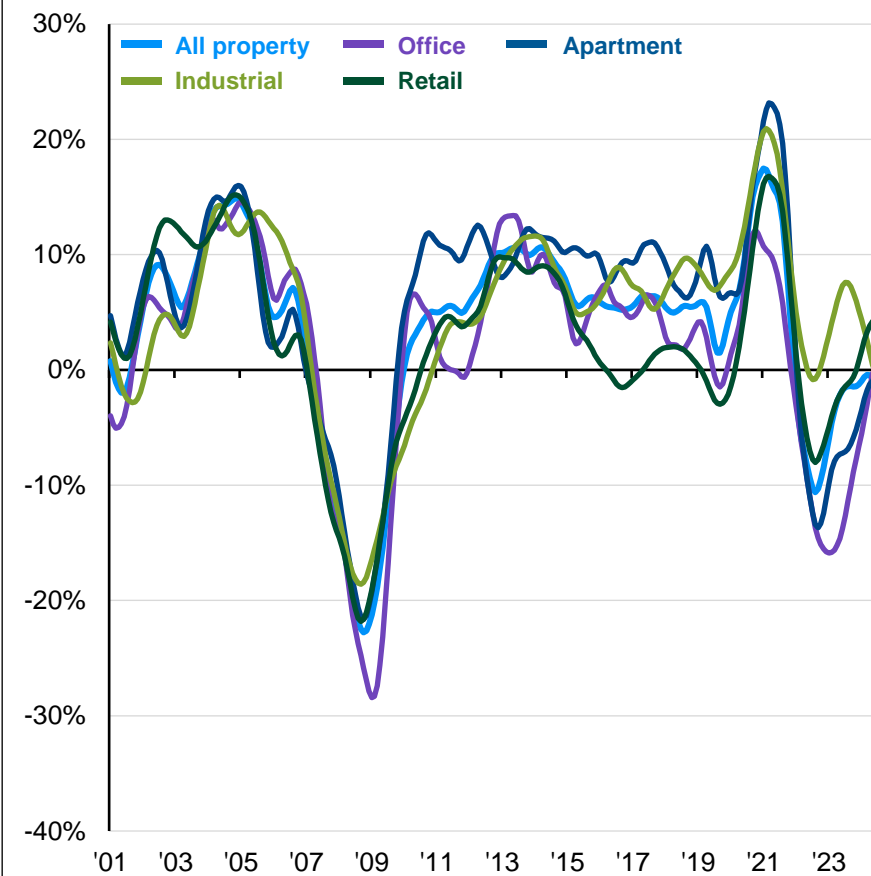
U.S. real estate cap rates and interest rates

Transaction based, 10-year U.S. Treasury yield



U.S. commercial real estate property prices

Y/y % change



Source: Apollo Global Management, Bloomberg, LSEG Datastream, MSCI, NCREIF, J.P. Morgan Asset Management.

(Left) The cap rate is calculated as the net operating income over sales price. It is transaction-based and value weighted. (Right) The RCA Commercial Property Price Indices are transaction-based indices that measure property prices at a national level. Property price data are as of 5/31/2025. Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.

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U.S. real estate: Vacancy rates and NOI growth

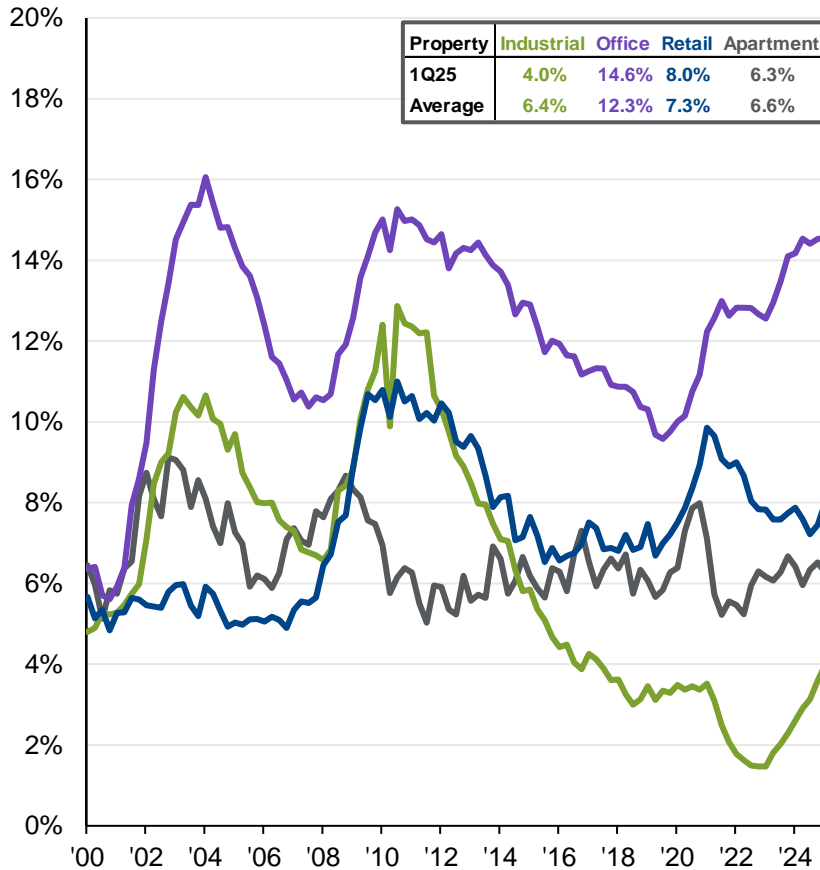
GTA

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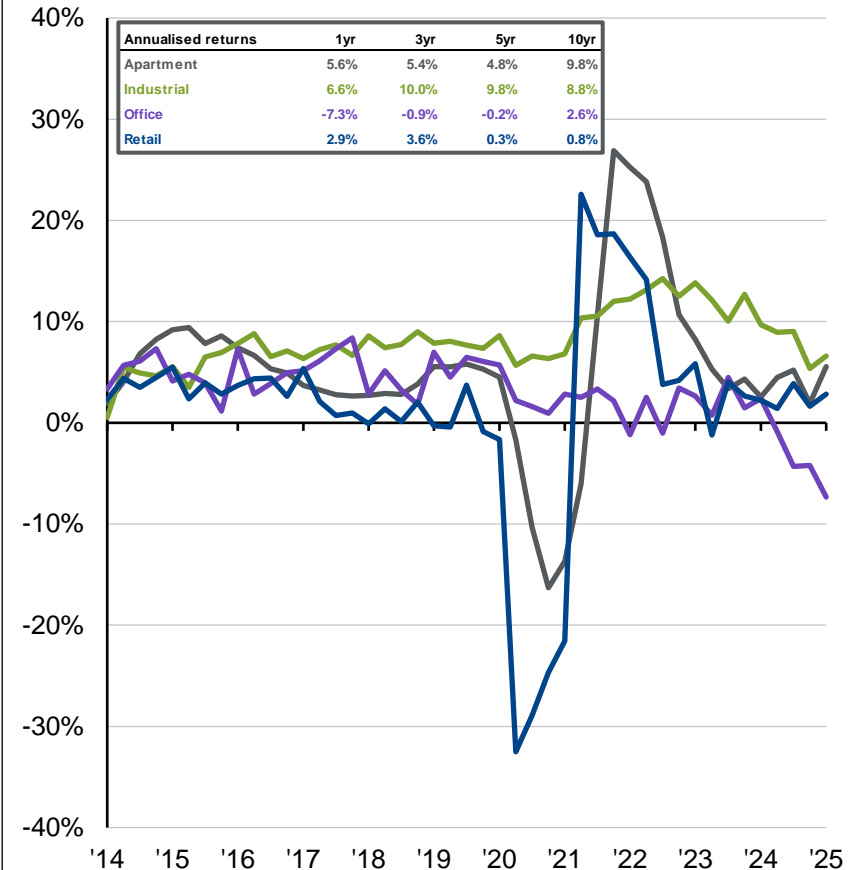
U.S. vacancy rates by property type

%, 1Q00 – 1Q25



Net operating income growth by property type

Y/y %, 1Q14 – 1Q25



Source: NCREIF, J.P. Morgan Asset Management.

Annualized returns are calculated to 1Q25. Past performance is not a reliable indicator of current and future results.

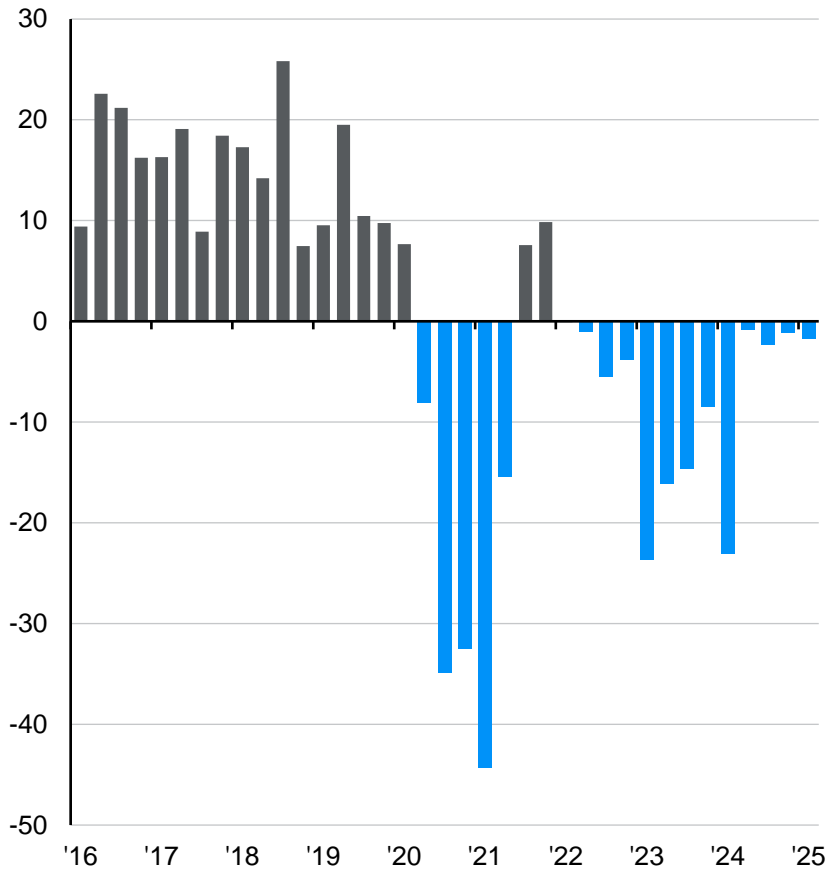
Data are based on availability as of May 31, 2025.



U.S. real estate: Office leasing activity

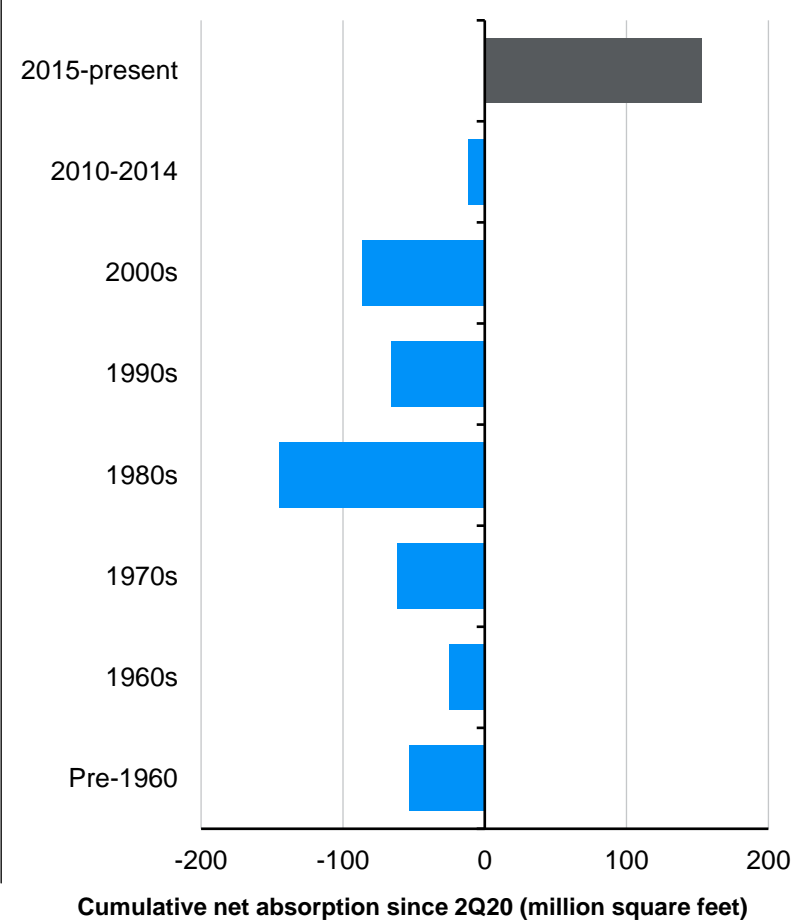
U.S. office net absorption

Million square feet, 1Q16 – 1Q25



Net absorption by building vintage

Year built, million square feet



Source: CoStar, JLL, J.P. Morgan Asset Management.
(Right) Data is sourced from the "U.S. Office Market Dynamics, January 2025" report.
Data are based on availability as of May 31, 2025.



U.S. real estate: Office supply

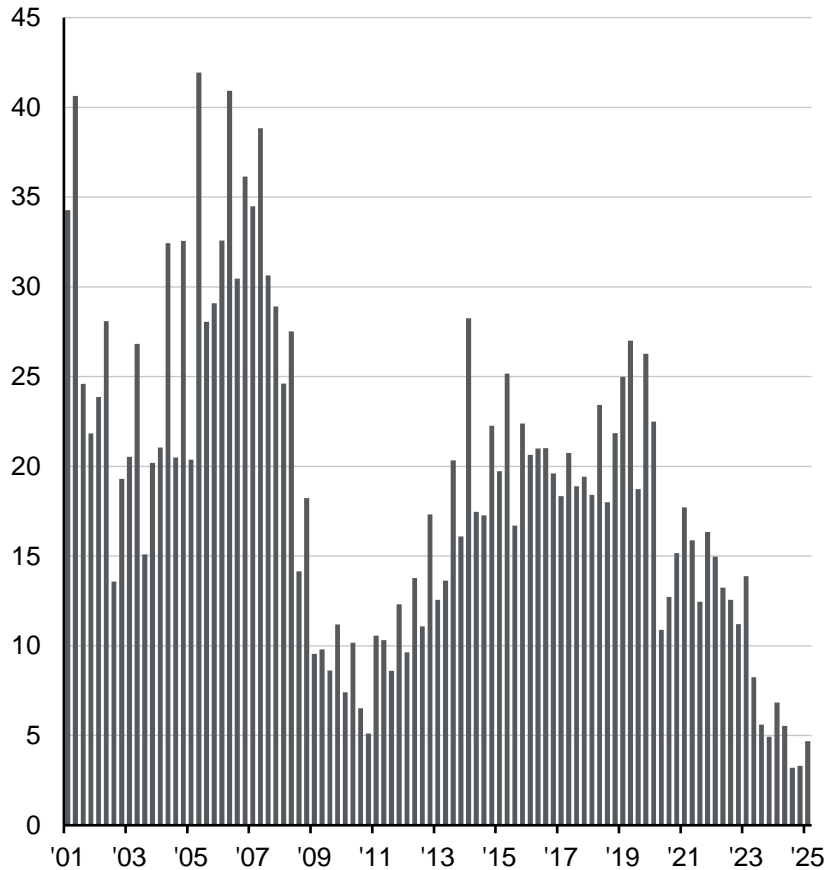
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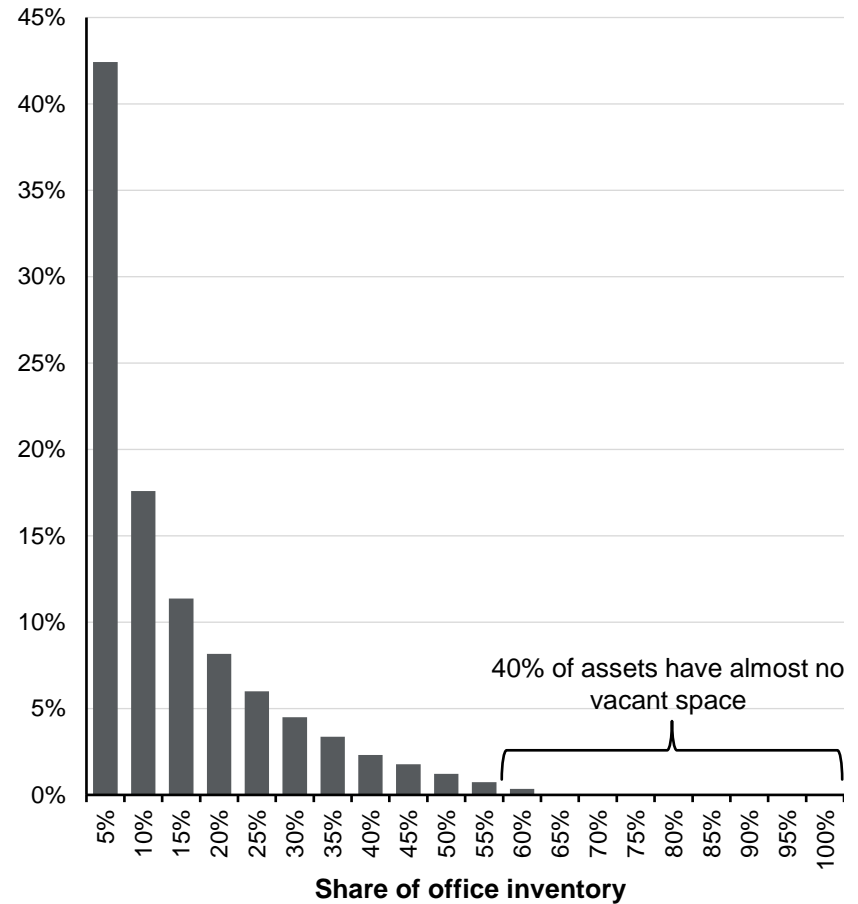
U.S. office construction starts

Million square feet, 1Q00 – 1Q25



Office vacancy concentration

Share of vacant space



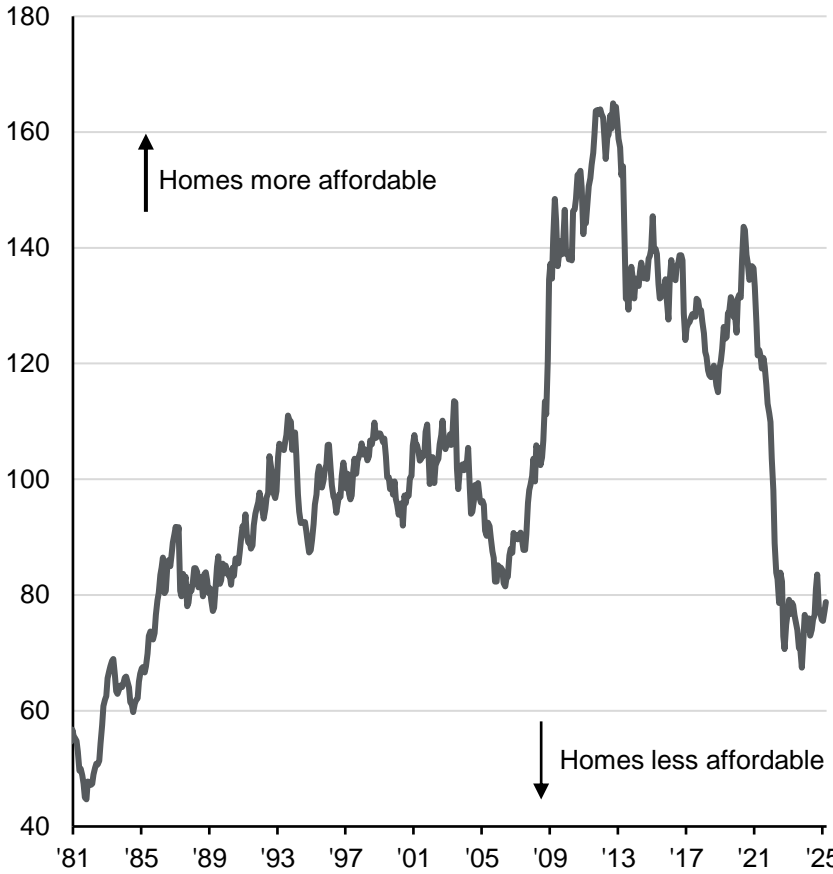
Source: CoStar, JLL, J.P. Morgan Asset Management.
(Right) Data is sourced from the "U.S. Office Market Dynamics, January 2025" report.
Data are based on availability as of May 31, 2025.



U.S. housing affordability

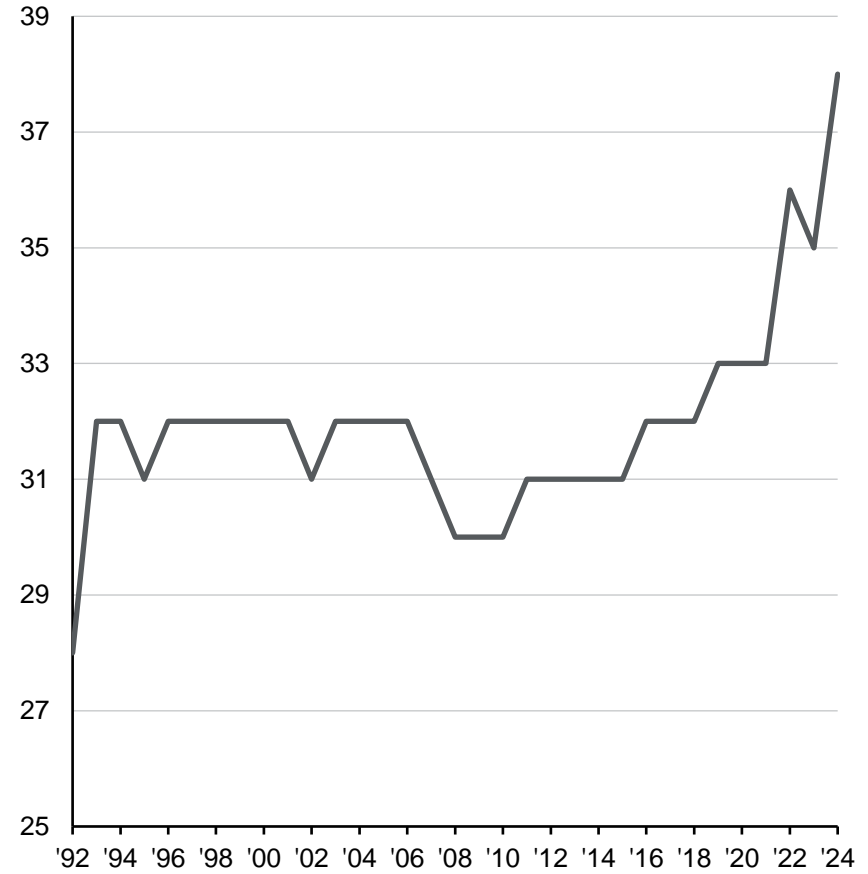
Existing home price affordability index

Median household income to qualifying income on existing home sales



Median age of a first-time U.S. homebuyer

Years



Source: Census Bureau, Fannie Mae, National Association of Realtors, J.P. Morgan Asset Management.
(Left) Ratio of median household income to qualifying income on existing home sales price. Qualifying income = 4 * annual mortgage cost.
Data are based on availability as of May 31, 2025.



U.S. real estate: Industrial and multifamily

GTA

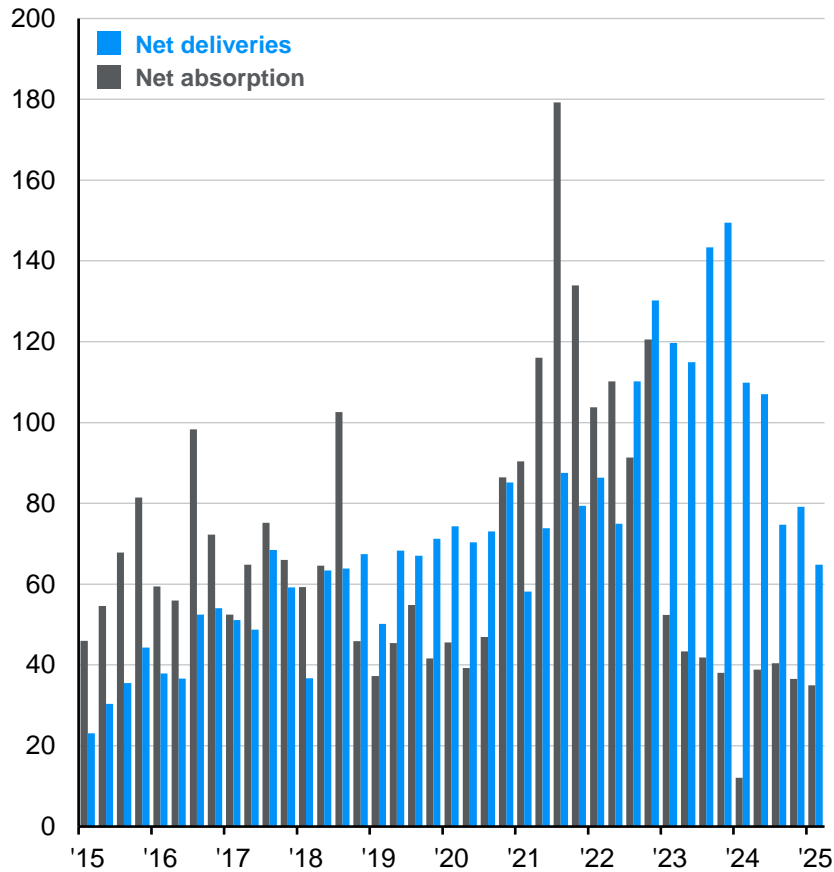
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Real estate

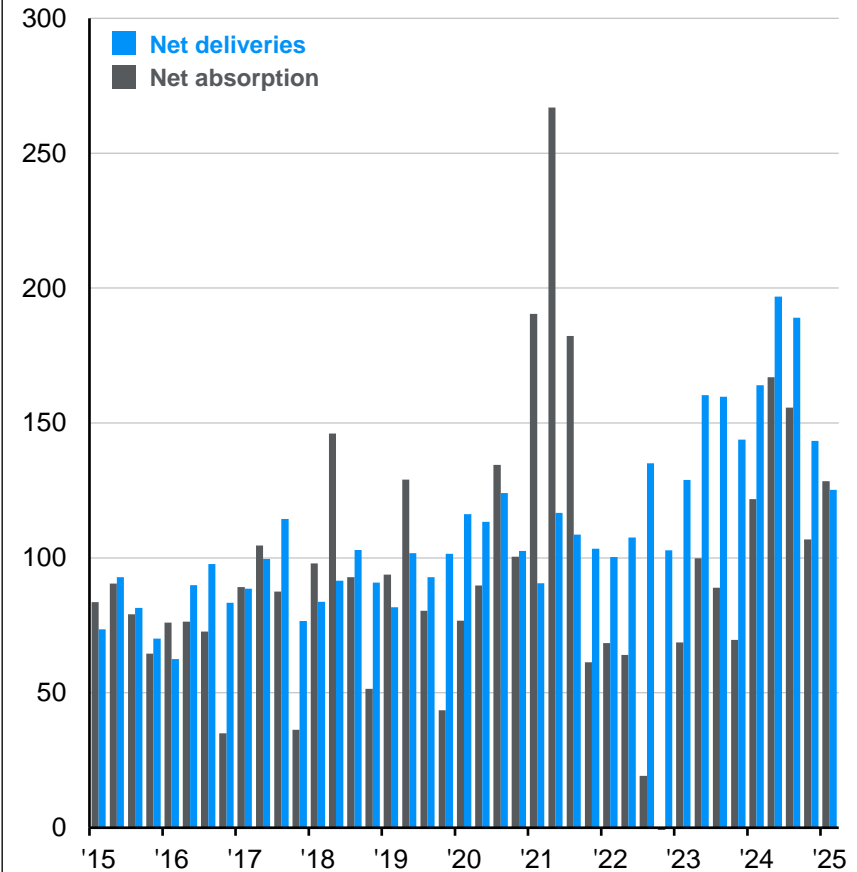
U.S. industrial absorption and deliveries

Million square feet, 1Q15 – 1Q25



U.S. multifamily absorption and deliveries

Thousand units, 1Q15 – 1Q25



Source: CoStar, J.P. Morgan Asset Management.
Data are based on availability as of May 31, 2025.



U.S. real estate: Retail

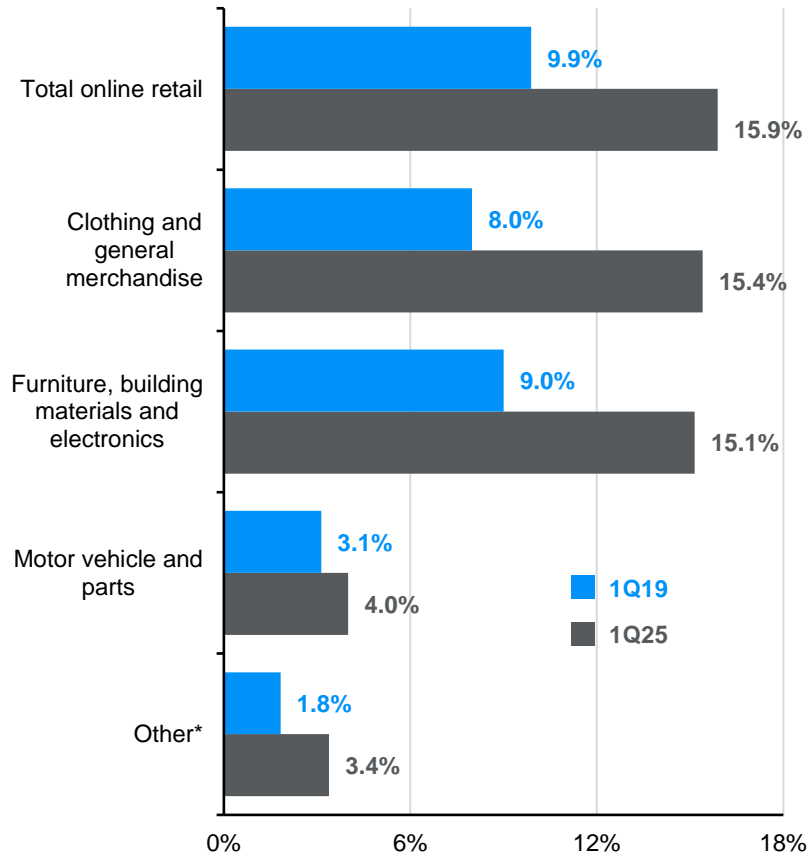
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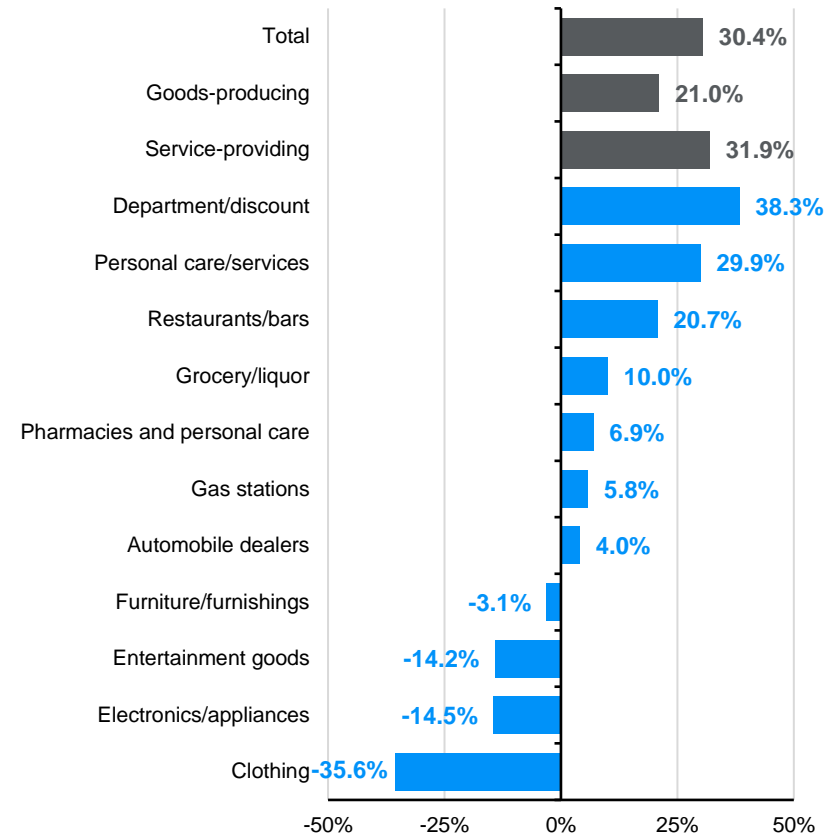
U.S. online retail sales by segment

% of total retail sales by segment, NSA



Change in number of physical retail establishments

%, 4Q14 – 4Q24



Source: Bureau of Labor Statistics, U.S. Census Bureau, J.P. Morgan Asset Management.

*Other includes food, health and entertainment.

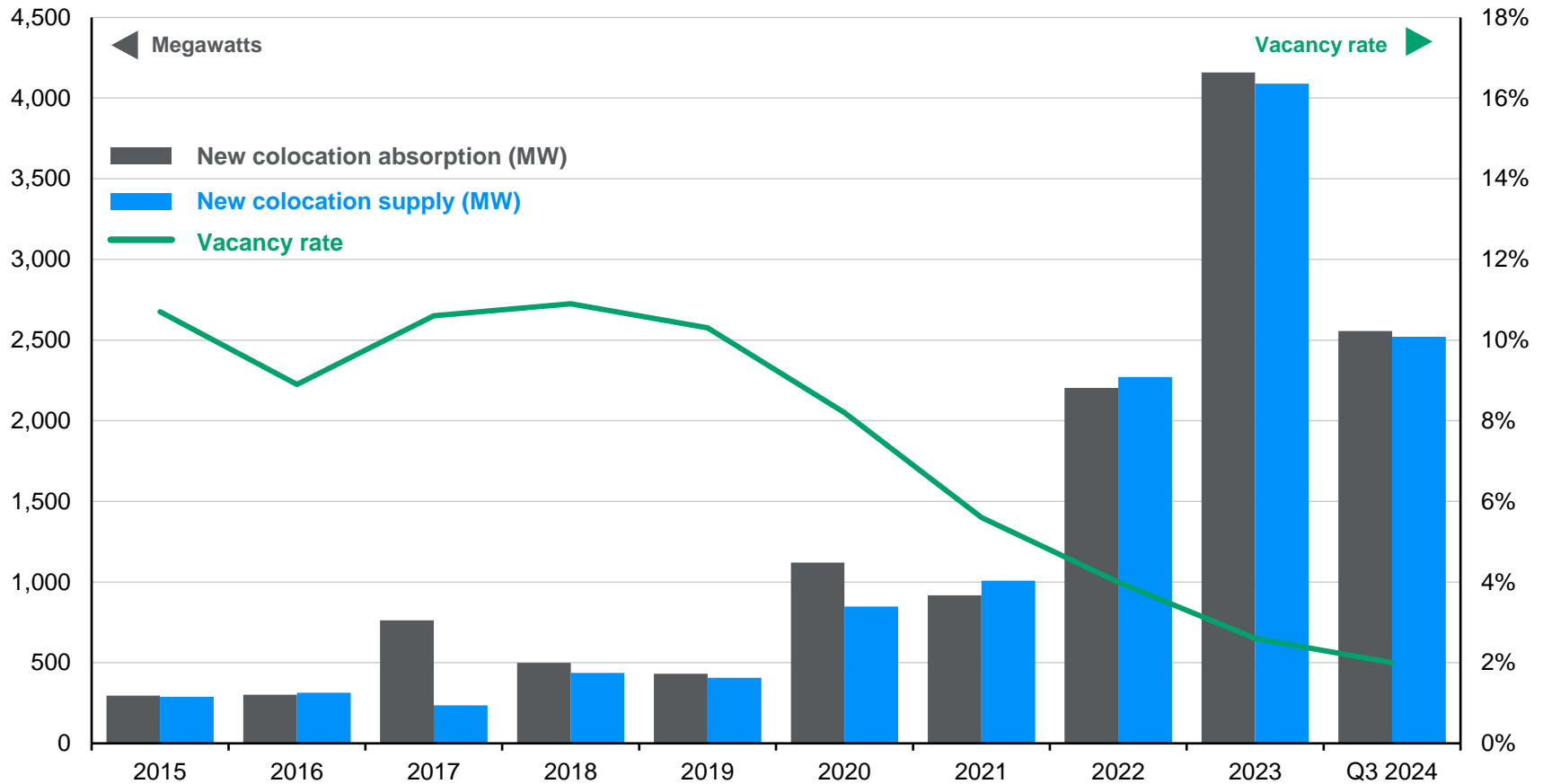
Data are based on availability as of May 31, 2025.



U.S. real estate: Data centers

U.S. data center absorption and supply

Megawatts (MW)



Source: Cushman and Wakefield, J.P. Morgan Asset Management.

"Colocation" is when organizations place their own servers and essential computing hardware for data storage in space rented in a physical data center. A colocation facility is a data center in which a business can rent space for servers, storage and other computing or networking hardware. Data are based on availability as of May 31, 2025.



Europe real estate: Transaction volumes

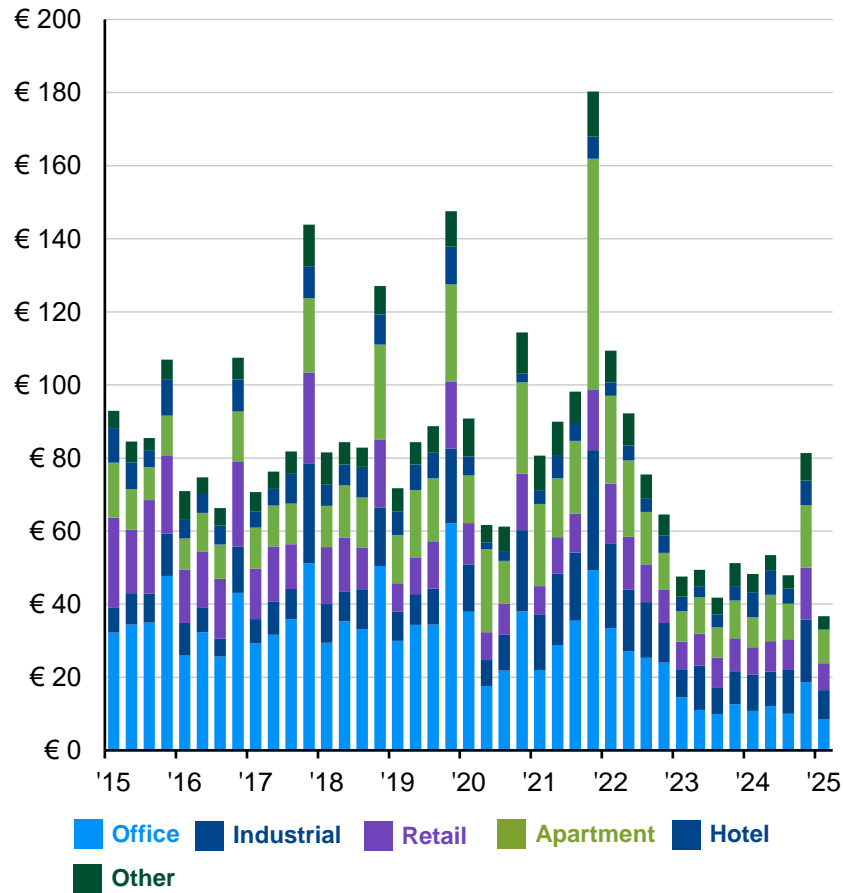
GTA

MI

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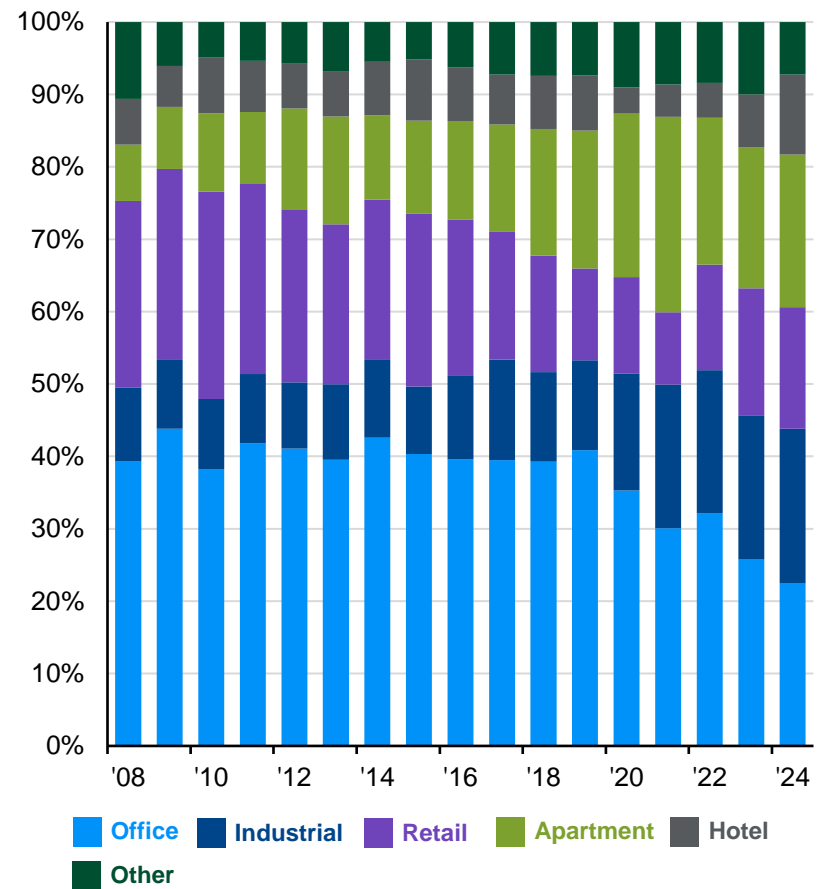
European transaction volumes

EUR billions 1Q15 – 1Q25



European transaction volumes by property type

Share of total, 2008 - 2024



Source: RCA, J.P. Morgan Asset Management.
Percentages may not sum to 100 due to rounding.
Data are based on availability as of May 31, 2025.



Europe real estate: Yield and income

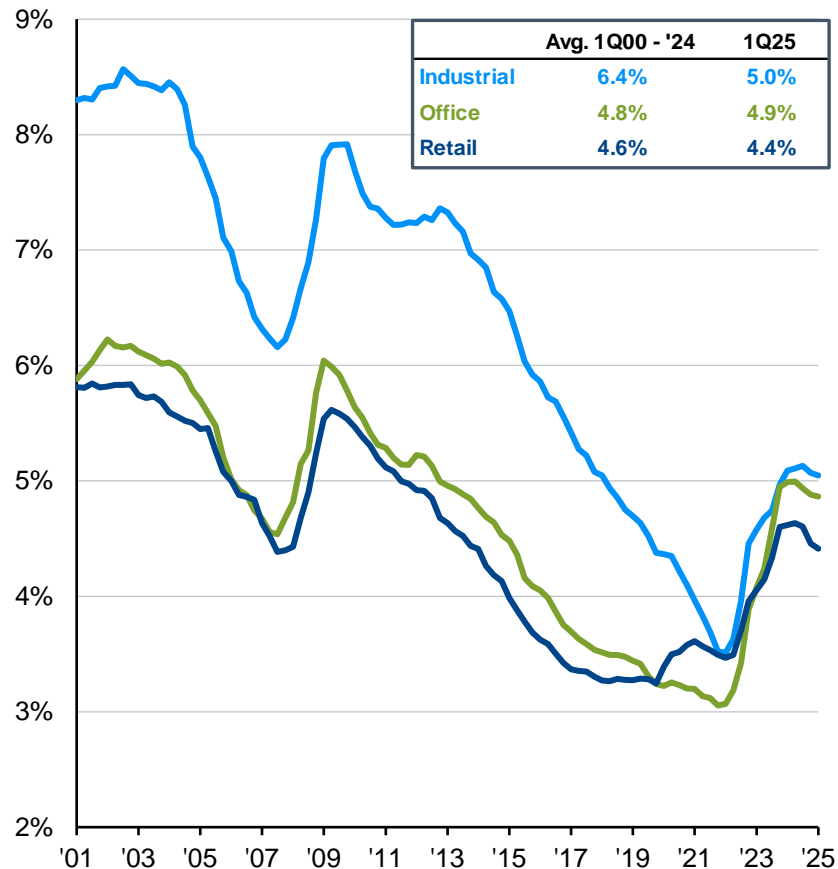
GTA

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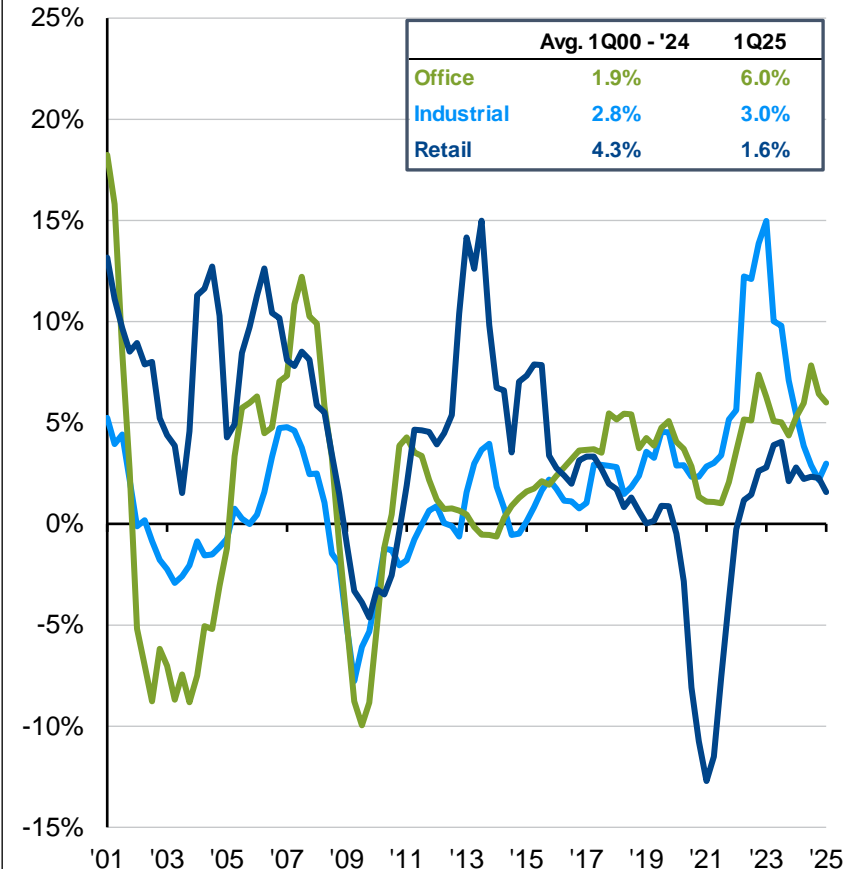
Prime yield by property type

1Q01 – 1Q25



Prime rent growth by property type

Y/y % change, 1Q01 – 1Q25



Source: CBRE ERIX, J.P. Morgan Asset Management.

Industrial is represented by industrial logistics. Retail is represented by high street retail. Prime yields are absolute and weighted by property value. (Left) Prime yield is the yield an investor receives from acquiring a fully-let grade A building in a prime location, reflecting current market transaction levels. (Right) Prime rent is the highest open-market rent expected for a top-quality unit in a prime location at the survey date. Past performance is not a reliable indicator of current and future results.

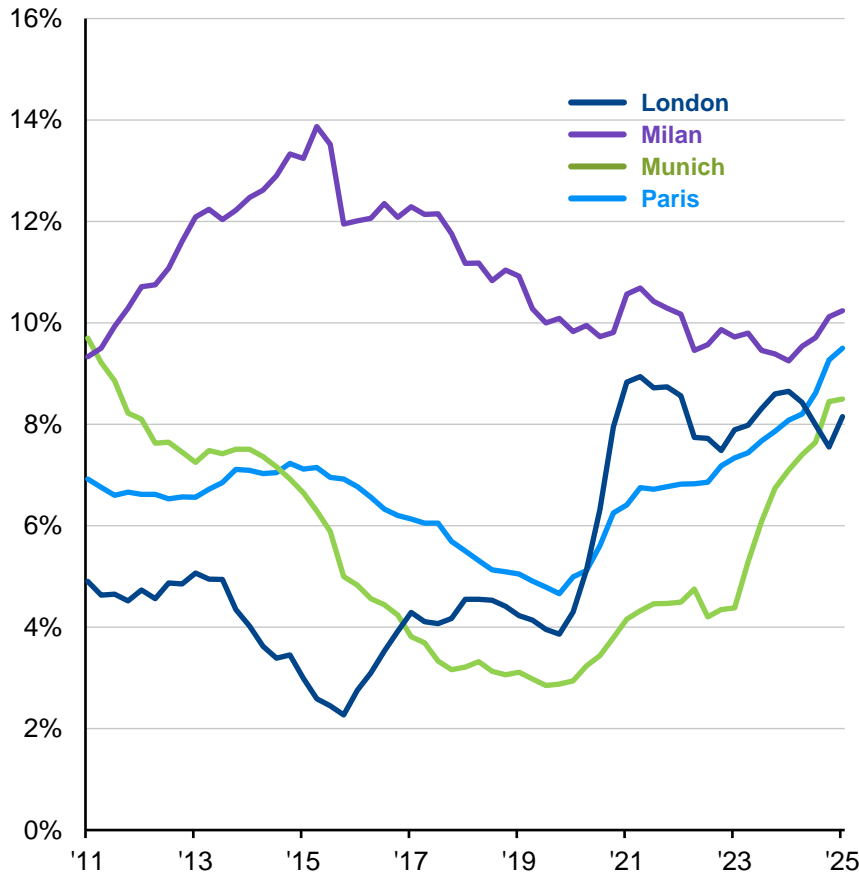
Data are based on availability as of May 31, 2025.



Europe real estate: Office vacancy rates

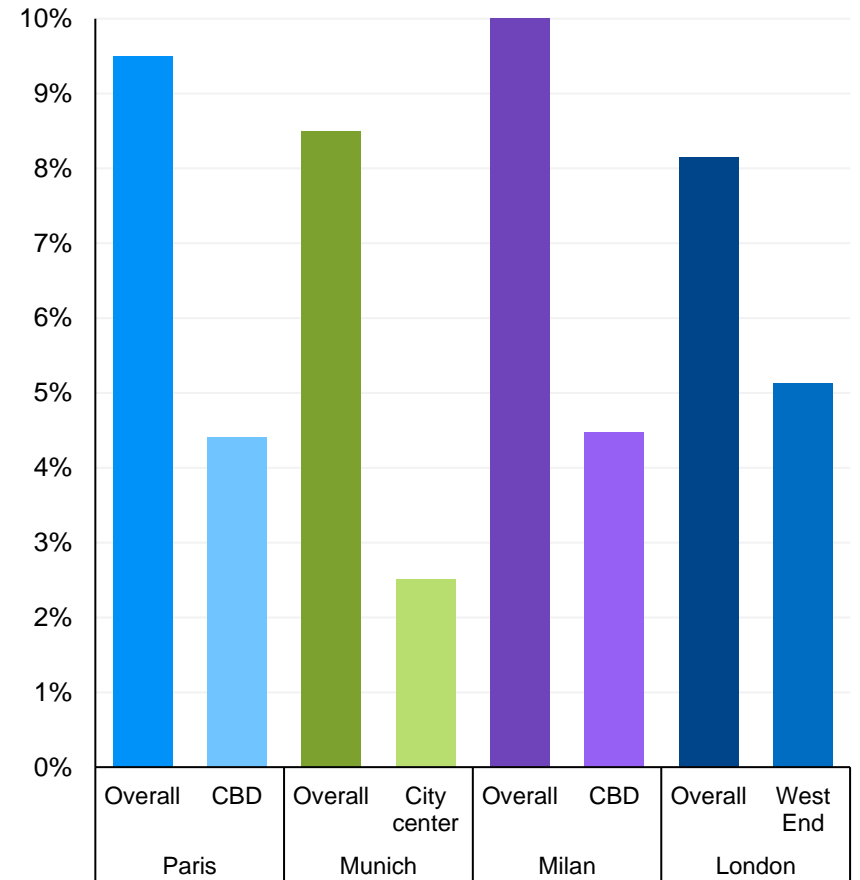
Office vacancy rates by city

1Q10 – 1Q25



Office vacancy rates within cities

Total city vacancy rates vs. central business districts*, 1Q25



Source: CBRE ERIX, J.P. Morgan Asset Management.
(Right) *Includes both central business districts (CBDs) and prime areas.
Data are based on availability as of May 31, 2025.



Asia Pacific real estate: Transaction volumes

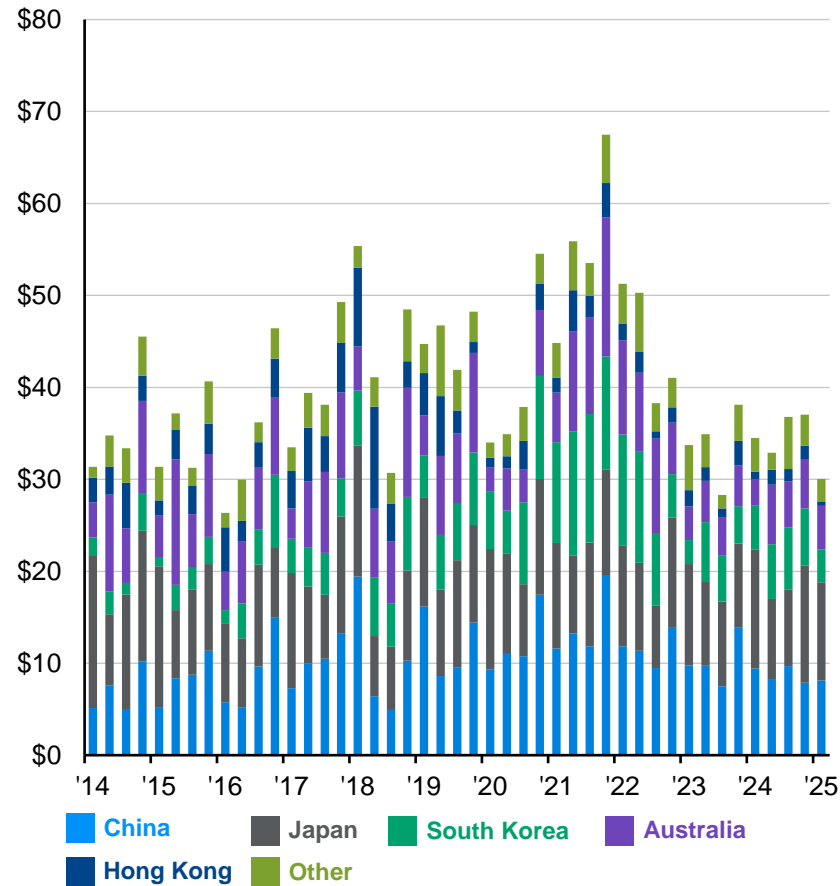
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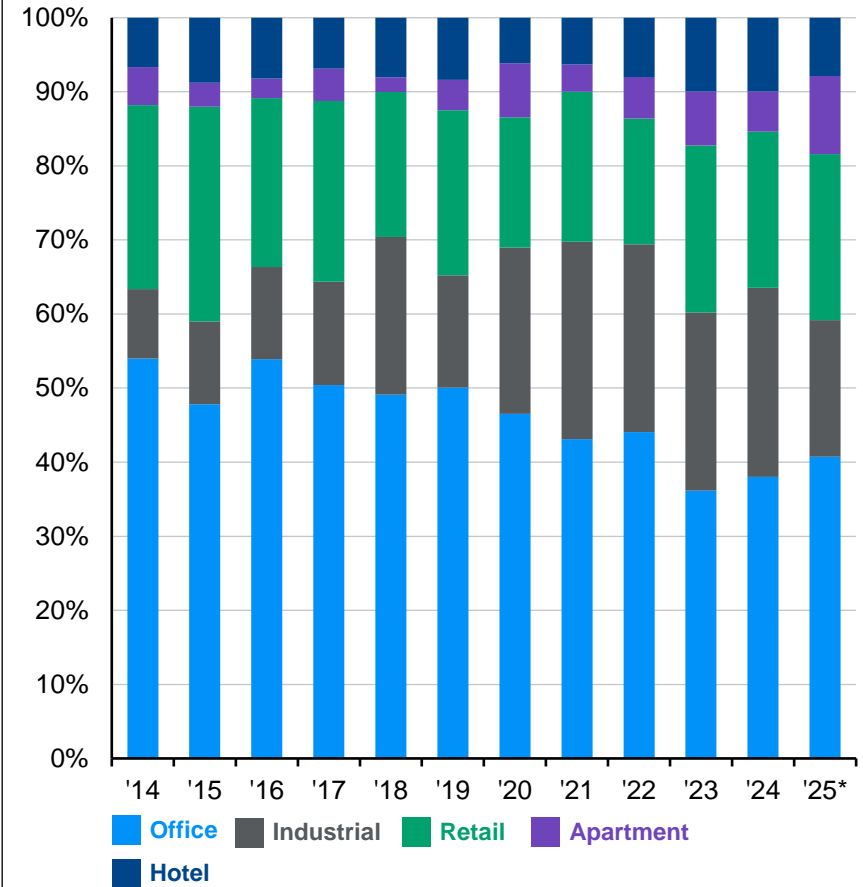
APAC transaction volumes

USD billions, 1Q14 – 1Q25



APAC transaction volume by property type

Share of total, 2014 – 2025*



Source: MSCI Real Capital Analytics, J.P. Morgan Asset Management.

(Left) Transaction volumes include office, industrial, retail, hotel, residential (professional investor) properties and portfolios >= USD 10 million and excludes development sites. Figures are not frozen and subject to updates by RCA. (Right) *2025 is as of 1Q25.

Data are based on availability as of May 31, 2025.



Asia Pacific real estate: Yields and capital values

GTA

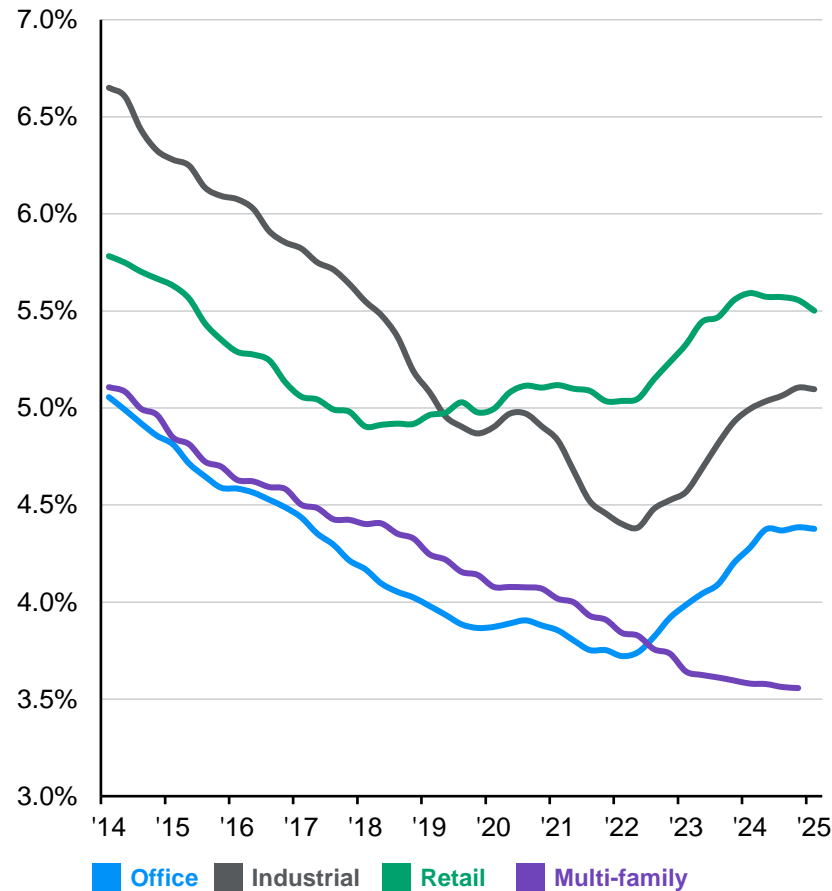
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Real estate

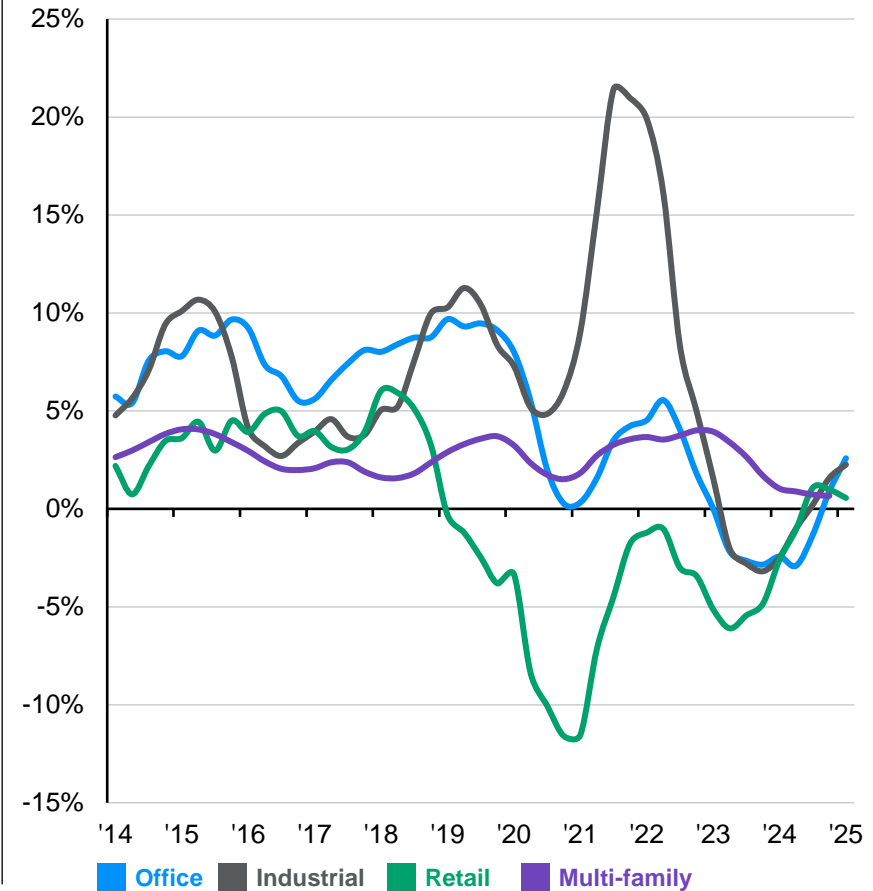
Yields by property type

%, 1Q14 – 1Q25*



Capital growth by property type

Y/y % change, 1Q14 - 1Q25*



Source: JLL REIS, MSCI, J.P. Morgan Asset Management.

*Multi-family data available through 4Q24. (Left) All yield and capital growth data from JLL REIS, except multi-family sector from MSCI-IPD. Weight of each market based on country allocation % of ANREV ODCE Fund Index. Yields for office, industrial and retail sectors refer to market yields of overall APAC, while yields for multi-family refers to the value cap rate for Japan markets only. Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.

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Asia Pacific real estate: Japan multifamily

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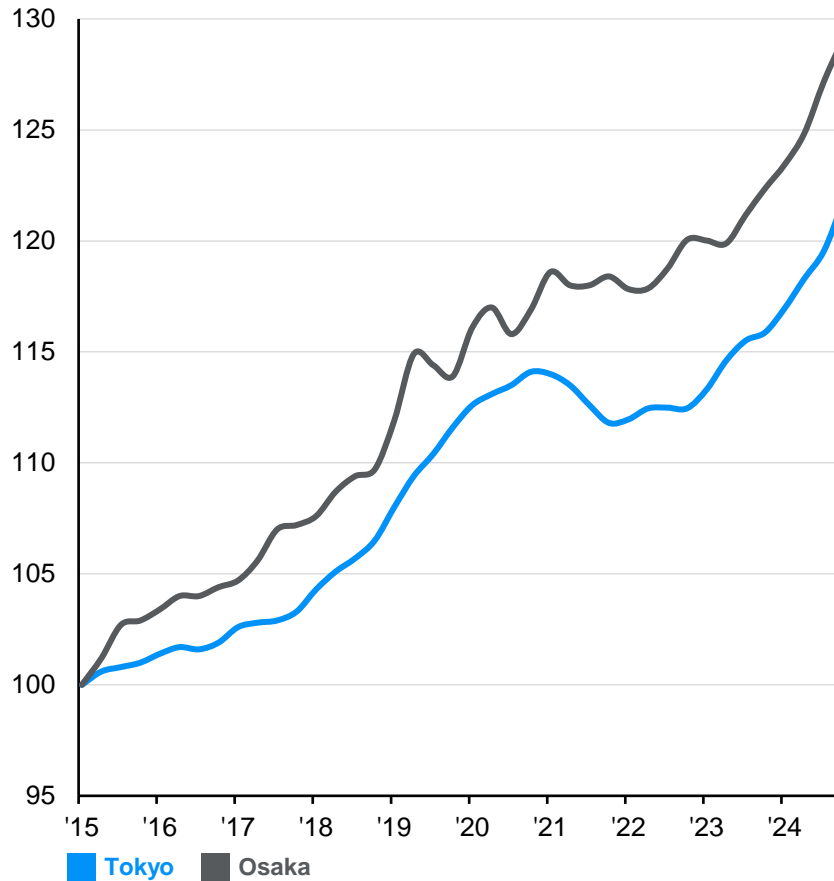
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Real estate

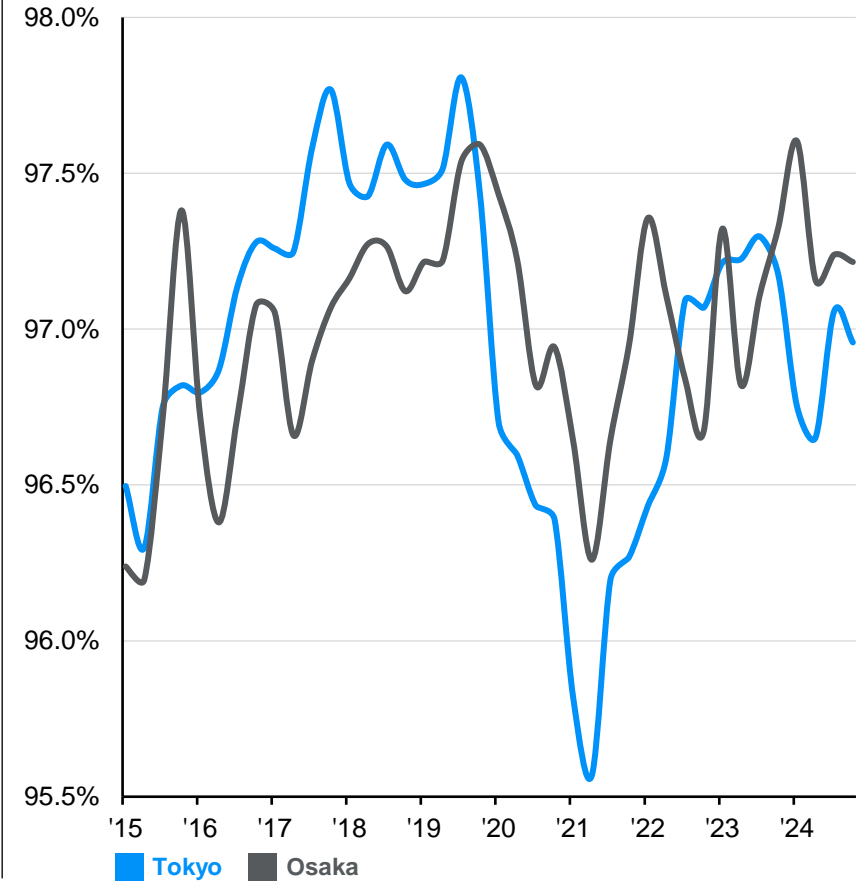
Japan residential rents

Rent index, 1Q15 = 100



Japan residential occupancy rates

%, 1Q15 – 4Q24



Source: MSCI-IPD, Sumitomo Mitsui Trust Research Institute, J.P. Morgan Asset Management.

(Left) Data as of 4Q24. Rent index based on rolling 2-quarter average index returns. (Right) Data as of 4Q24. Occupancy based on 3-month moving average level. Occupancy rates in recent periods are subject to regular changes when source data becomes available. Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.

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Global real estate: Retail

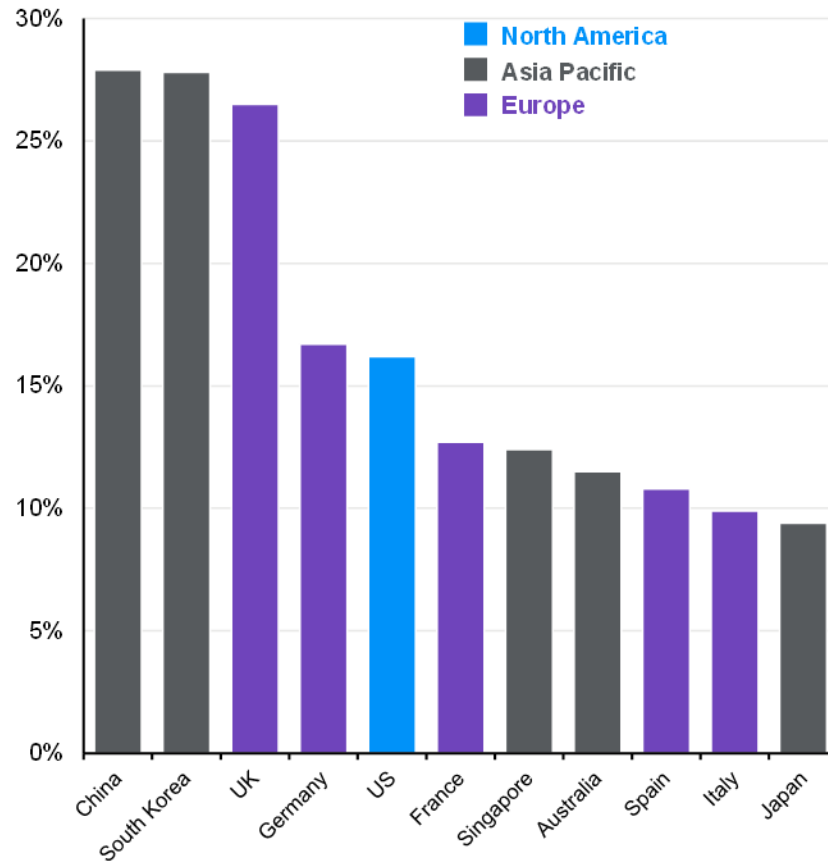
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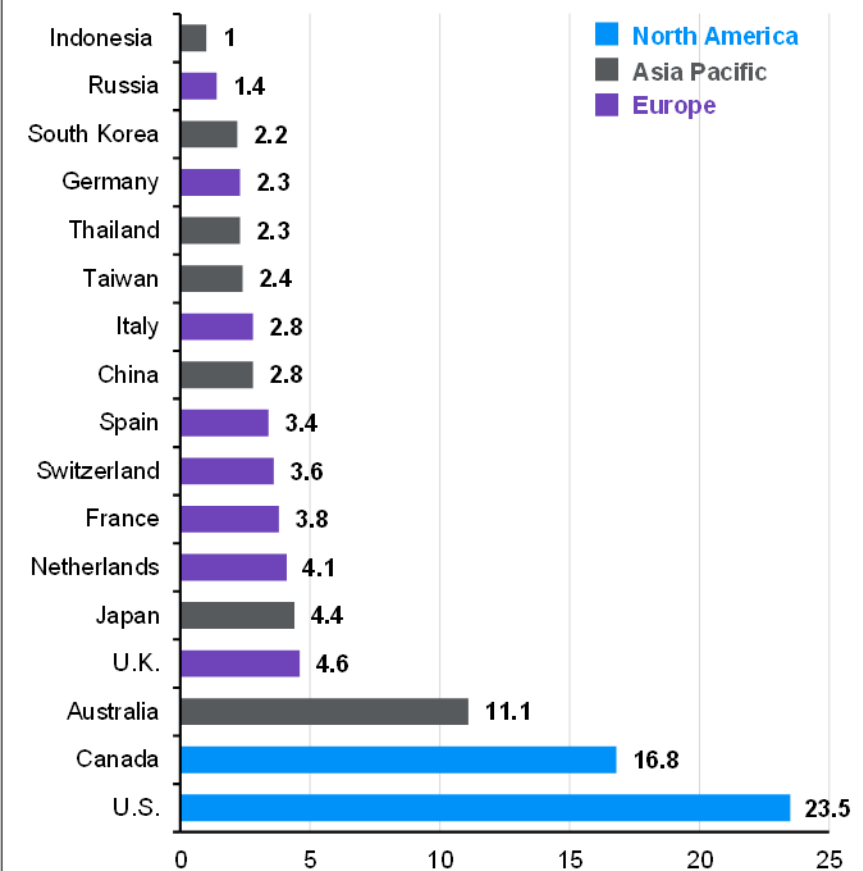
Global online retail sales

% of total retail sales, 1Q25*



Retail real estate per capita

Square feet per person



Source: Australian Bureau of Statistics, Centre for Retail Research (Germany, France, Italy, Spain), Korean Statistical Information Service, METI (Japan), National Bureau of Statistics (China), ONS (UK), Statista, Statistics of Singapore, U.S. Census Bureau, J.P. Morgan Asset Management.

*All data are as of 1Q25 except for Japan which is as of 2023. (Right) Retail space per capita per country data was published in November 2020 and represents retail square footage per person in 2018.

Data are based on availability as of May 31, 2025.



Commercial mortgage loans

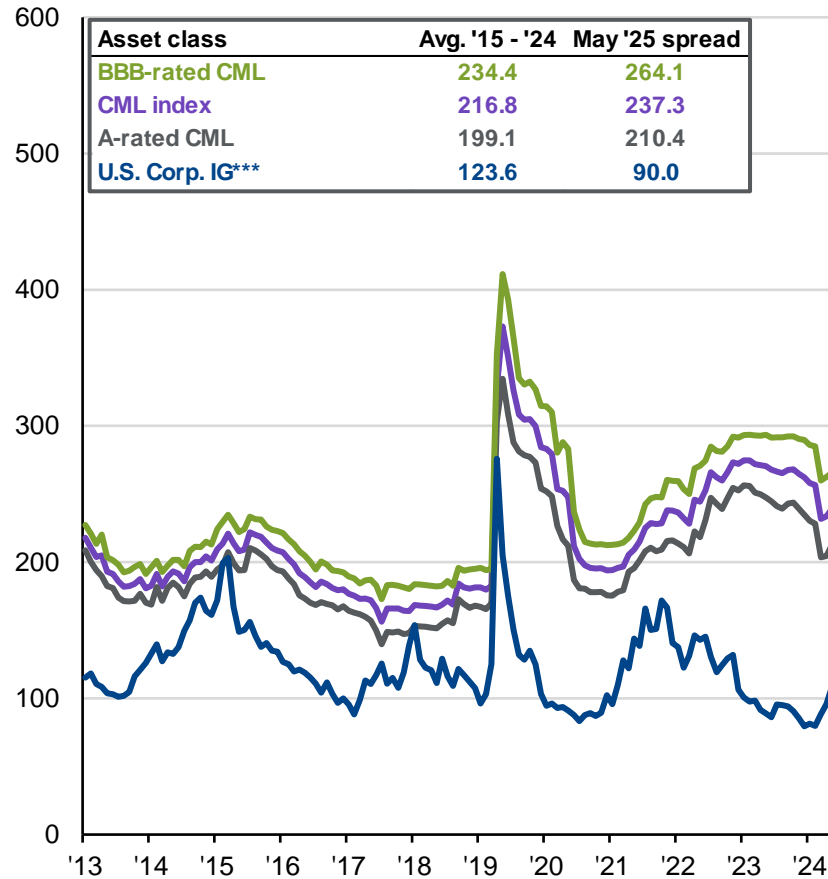
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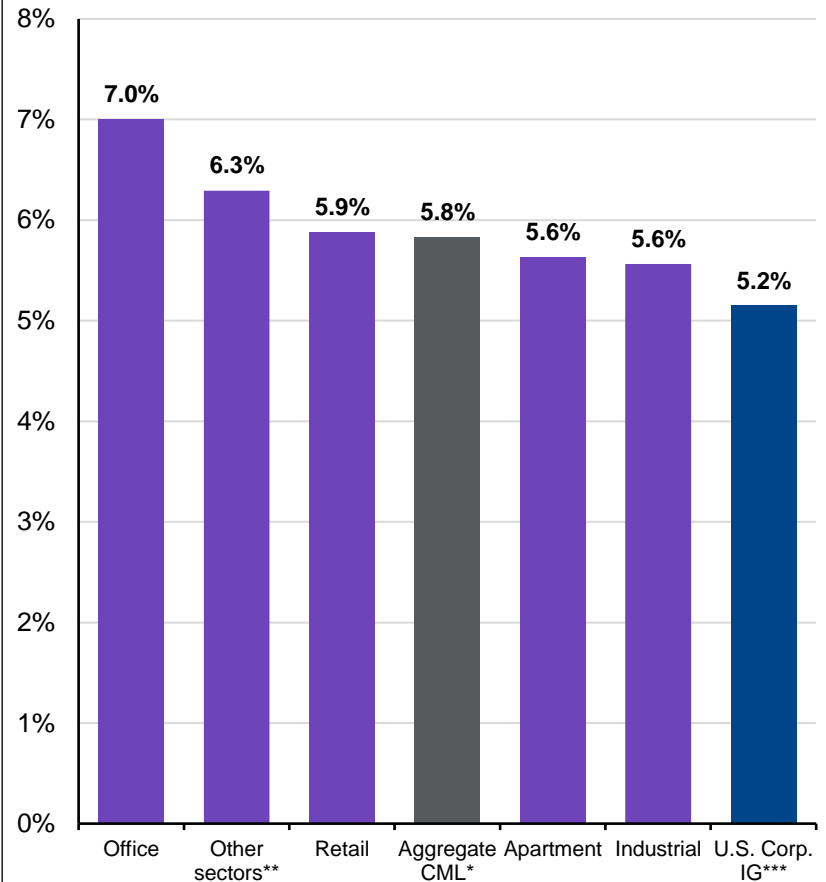
Commercial mortgage spreads

Spreads over Treasury, basis points, senior loans



Commercial mortgage yields

Weighted average yield, senior loans, 1Q25



Source: Bloomberg, FactSet, Gilberto-Levy, J.P. Morgan Asset Management.

(Left) All spreads are as of 5/31/2025. Commercial mortgage spreads are from a J.P. Morgan survey and are calculated as the difference between the average yield as indicated by the survey and the yield of a U.S. Treasury security with a similar duration. (Right) Commercial mortgage yields shown are market-capitalization weighted average yields for all mortgages in each sector as of quarter end. *Aggregate CML: Gilberto-Levy Commercial Mortgage Loans Performance Index. **Other sectors includes hotels, motels, mixed-use and miscellaneous. ***U.S. Corp. IG: Bloomberg U.S. Corporate Investment Grade Index. Yield shown for U.S. Corp IG is the yield-to-worst as of quarter-end. Past performance is not a reliable indicator of current and future results. Data are based on availability as of May 31, 2025.



Commercial mortgage maturities and delinquencies

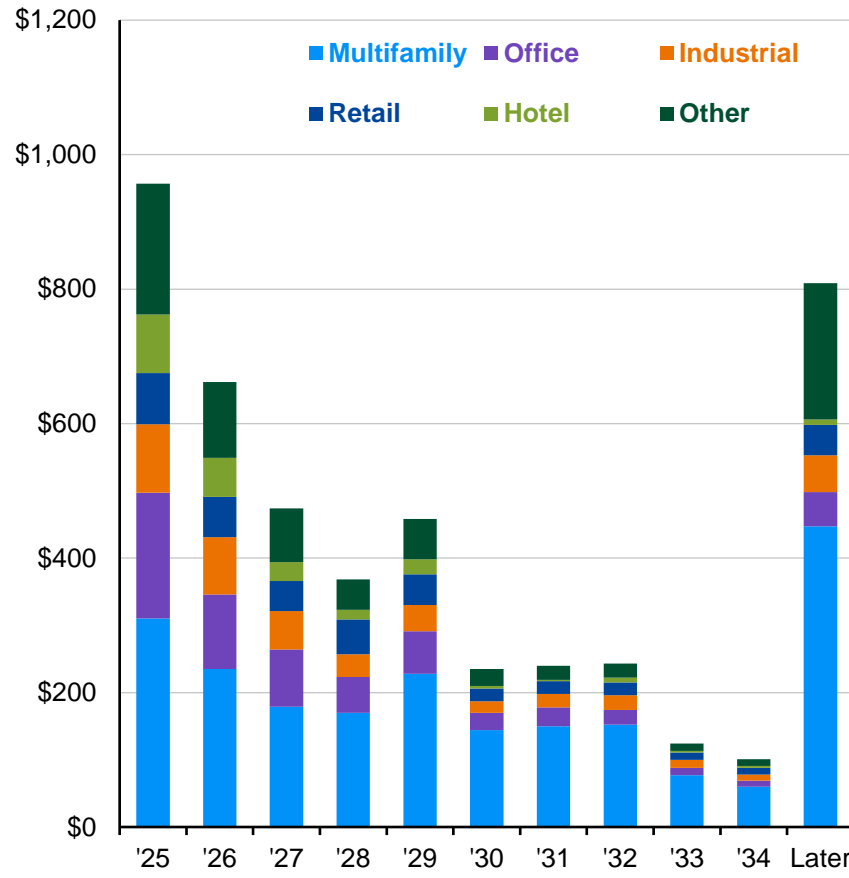
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U.S. commercial mortgage maturity schedule

By property type, USD billions

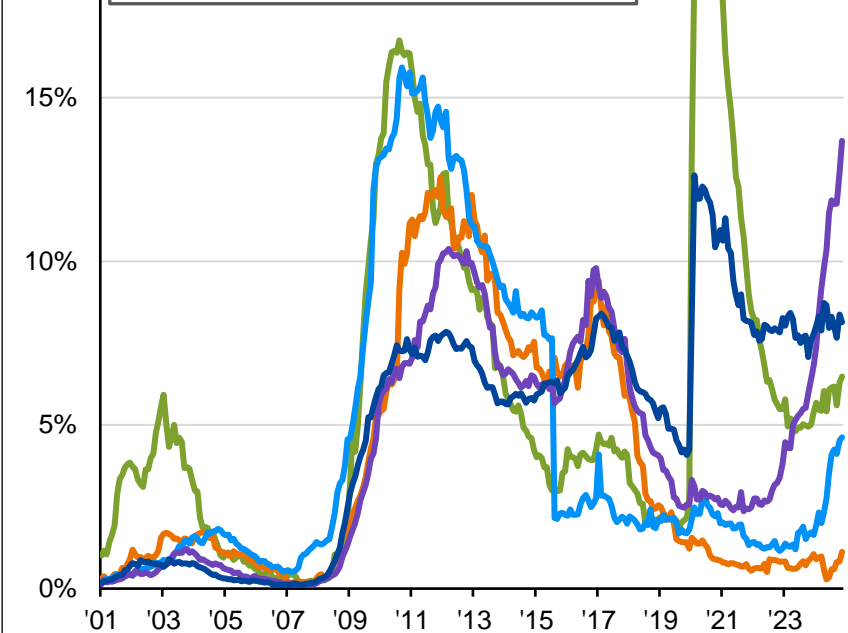


U.S. commercial mortgage delinquencies

Delinquency rates by property type, monthly

25%

Property type	Avg. '01 - '24	Apr. '25
Office	5.9%	13.7%
Retail	4.9%	8.1%
Hotel	5.9%	6.5%
Multifamily	4.3%	4.6%
Industrial	3.8%	1.1%



Source: Moody's, Mortgage Bankers Association, J.P. Morgan Asset Management.

(Left) Data are as of 12/31/2024. Other includes hospitals. (Right) Moody's defines delinquencies as loans that are 60 or more days in payment arrears, that are matured and performing, matured and nonperforming, foreclosure in progress or REO ("real estate owned" by a bank).

Data are based on availability as of May 31, 2025.



U.S. REITs sector returns

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Real estate

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	YTD '25	2015-2024	
												Ann.	Vol.*
Self Storage	40.6%	Industrial	Data Centers	Ret. Free Standing	Mfgd. Homes	Data Centers	Regional Malls	Ret. Free Standing	Data Centers	Regional Malls	Health Care	Industrial	Regional Malls
		30.7%	28.4%	13.9%	49.1%	21.0%	92.1%	-6.5%	30.1%	27.4%	9.5%	11.5%	35.0%
Mfgd. Homes	25.6%	Lodging/ Resorts	Mfgd. Homes	Mfgd. Homes	Industrial	Self Storage	Self Storage	Shopping Centers	Regional Malls	Data Centers	Ret. Free Standing	Mfgd. Homes	Lodging/ Resorts
		24.3%	24.9%	11.4%	48.7%	12.9%	79.4%	-12.5%	29.9%	25.2%	7.5%	11.4%	29.5%
Apartments	16.5%	Ret. Free Standing	Industrial	Health Care	Data Centers	Industrial	Shopping Centers	Lodging/ Resorts	Lodging/ Resorts	Health Care	Self Storage	Self Storage	Shopping Centers
		17.0%	20.6%	7.6%	44.2%	12.2%	65.1%	-15.3%	23.9%	24.2%	2.9%	10.6%	28.9%
Ret. Free Standing	5.9%	Mfgd. Homes	All Equity REITs	Apartments	Office	Mfgd. Homes	Apartments	Health Care	Industrial	Office	All Equity REITs	Apartments	Self Storage
		14.2%	8.7%	3.7%	31.4%	-1.7%	63.6%	-22.2%	19.2%	21.5%	1.9%	6.9%	23.2%
Shopping Centers	4.7%	Office	Lodging/ Resorts	Self Storage	All Equity REITs	All Equity REITs	Industrial	Regional Malls	Self Storage	Apartments	Industrial	Ret. Free Standing	Ret. Free Standing
		13.2%	7.2%	2.9%	28.7%	-5.1%	62.0%	-22.9%	18.5%	20.5%	0.8%	6.2%	23.1%
Regional Malls	4.2%	All Equity REITs	Office	Industrial	Apartments	Health Care	Mfgd. Homes	All Equity REITs	Health Care	Shopping Centers	Mfgd. Homes	All Equity REITs	Office
		8.6%	5.2%	-2.5%	26.3%	-9.9%	42.0%	-24.9%	13.9%	17.0%	0.3%	5.8%	22.9%
All Equity REITs	2.8%	Health Care	Self Storage	All Equity REITs	Shopping Centers	Ret. Free Standing	All Equity REITs	Self Storage	Shopping Centers	All Equity REITs	Apartments	Health Care	Health Care
		6.4%	3.7%	-4.0%	25.0%	-10.5%	41.3%	-26.7%	12.0%	4.9%	-1.2%	4.1%	21.7%
Industrial	2.6%	Shopping Centers	Apartments	Regional Malls	Ret. Free Standing	Apartments	Data Centers	Data Centers	All Equity REITs	Ret. Free Standing	Data Centers	Shopping Centers	Industrial
		3.7%	3.7%	-7.0%	24.8%	-15.3%	25.5%	-28.0%	11.4%	2.0%	-3.9%	3.5%	21.7%
Office	0.3%	Apartments	Ret. Free Standing	Lodging/ Resorts	Health Care	Office	Office	Mfgd. Homes	Apartments	Self Storage	Regional Malls	Regional Malls	Apartments
		2.9%	3.1%	-12.8%	21.2%	-18.4%	22.0%	-28.3%	5.9%	-0.5%	-5.3%	2.3%	18.3%
Health Care	-7.2%	Regional Malls	Health Care	Data Centers	Lodging/ Resorts	Lodging/ Resorts	Ret. Free Standing	Industrial	Mfgd. Homes	Lodging/ Resorts	Shopping Centers	Office	All Equity REITs
		-5.2%	0.9%	-14.1%	15.6%	-23.6%	19.7%	-28.6%	2.5%	-2.0%	-7.8%	0.3%	17.7%
Lodging/ Resorts	-24.4%	Self Storage	Regional Malls	Office	Self Storage	Shopping Centers	Lodging/ Resorts	Apartments	Office	Mfgd. Homes	Office	Lodging/ Resorts	Mfgd. Homes
		-8.1%	-2.7%	-14.5%	13.7%	-27.6%	18.2%	-32.0%	2.0%	-3.1%	-11.5%	-0.6%	16.9%
Data Centers	N/A	Data Centers	Shopping Centers	Shopping Centers	Regional Malls	Regional Malls	Health Care	Office	Ret. Free Standing	Industrial	Lodging/ Resorts	Data Centers	Data Centers
		N/A	-11.4%	-14.5%	-9.1%	-37.2%	16.3%	-37.6%	-1.5%	-17.8%	-15.7%	N/A	N/A

Source: FactSet, FTSE NAREIT, J.P. Morgan Asset Management.

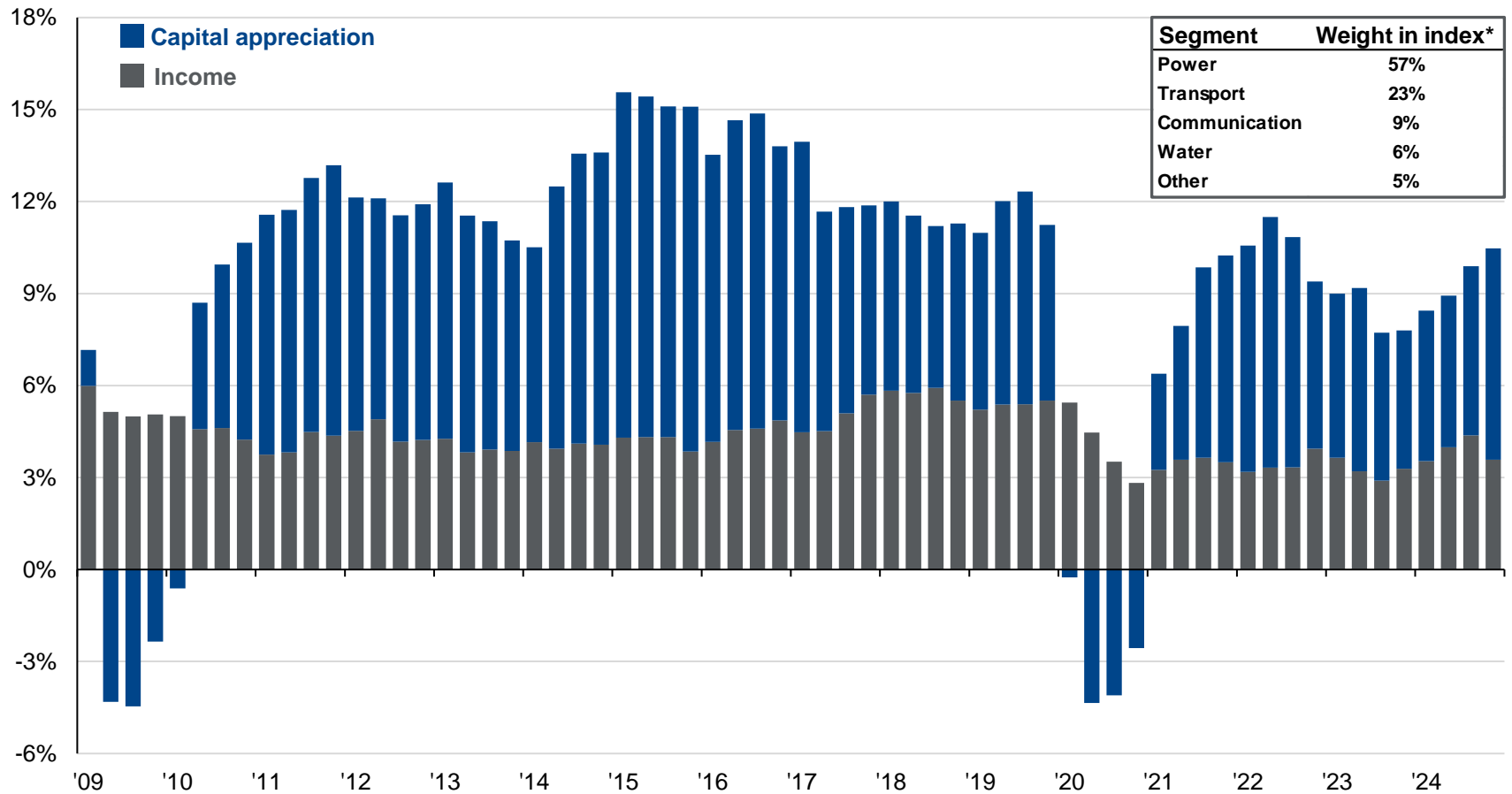
All indices are from FTSE NAREIT. *Volatility calculated as the annualized standard deviation of quarterly returns. Mfgd. Homes represents manufactured homes. Data for Data Centers begins in 2017. Annualized return (Ann.) and volatility (Vol.) represents the 40-quarter period ending 12/31/2024. Past performance is not a reliable indicator of current and future results. Data are based on availability as of May 31, 2025.



Sources of global infrastructure returns

Global core infrastructure returns

1Q09-4Q24, rolling 4-quarter returns from income and capital appreciation



Source: MSCI, J.P. Morgan Asset Management.

Infrastructure returns represented by the MSCI Global Private Quarterly Infrastructure Asset Index. Data show rolling one-year returns from income and capital appreciation. *Weights are based on enterprise value. Alternative investments carry more risk than traditional investments and are recommended only for long-term investment. Some alternative investments may be highly leveraged and rely on speculative investments that can magnify the potential for loss or gain. Diversification does not guarantee investment returns or eliminate the risk of loss. Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.

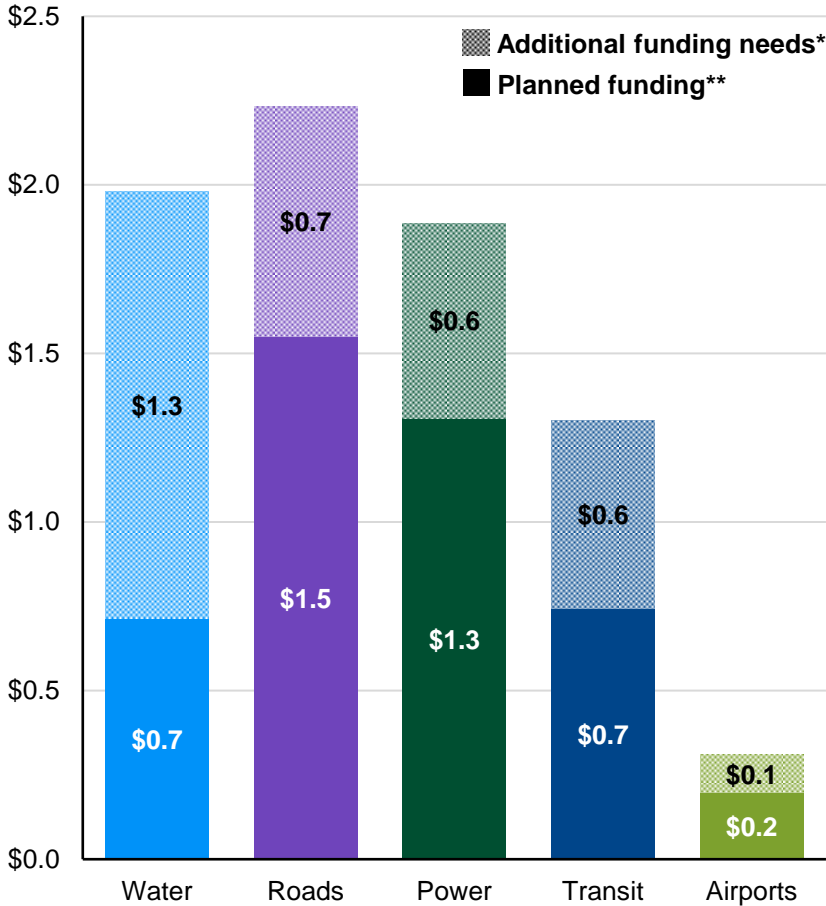


Infrastructure investment needs

Other real assets

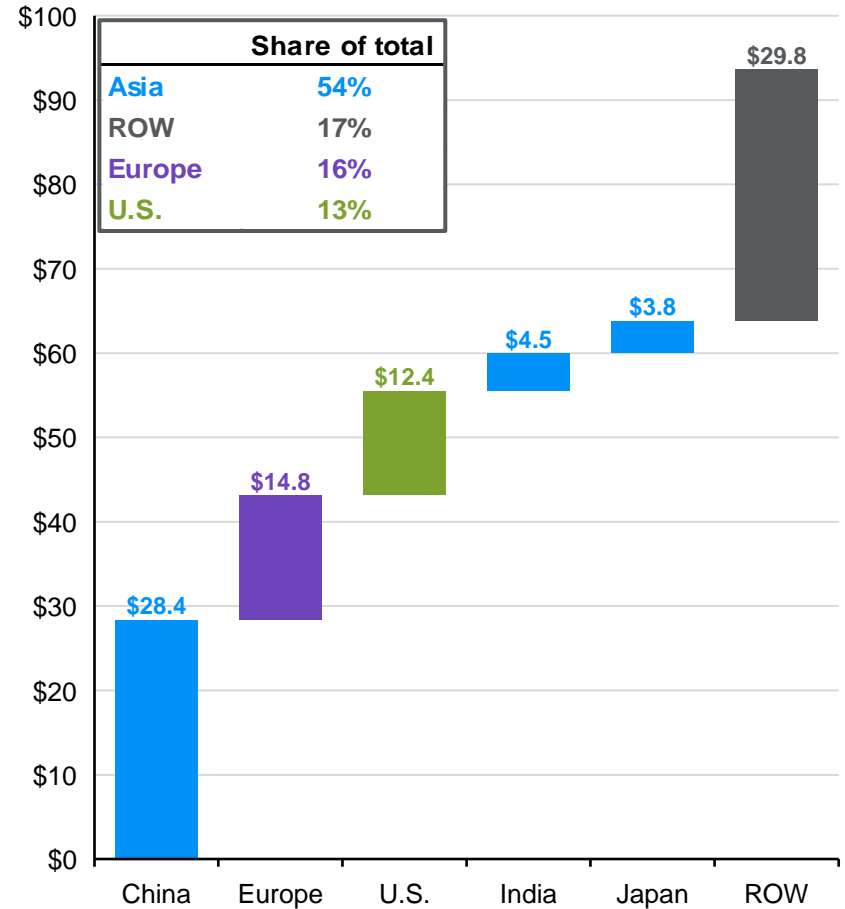
U.S. infrastructure funding & funding gaps

USD trillions, 2024-2033, as of 2024



Infrastructure investment needs by region

USD trillions, 2016-2040, constant 2016



Source: American Society of Civil Engineers (ASCE), Global Infrastructure Hub by G20, J.P. Morgan Asset Management.

(Left) Categories defined by the ASCE in the March 2025 "A Comprehensive Assessment of America's Infrastructure: 2025 Report Card for America's Infrastructure" report. *Additional funding is the amount of funding needed to get each category to a "B" rating, or a state of "Good" repair, as defined by the ASCE. **Planned public funding is the amount of investment from 2024-2033 that is currently in place by U.S. law. (Right) ROW = Rest of World.

Data are based on availability as of May 31, 2025.



Global infrastructure transactions

GTA

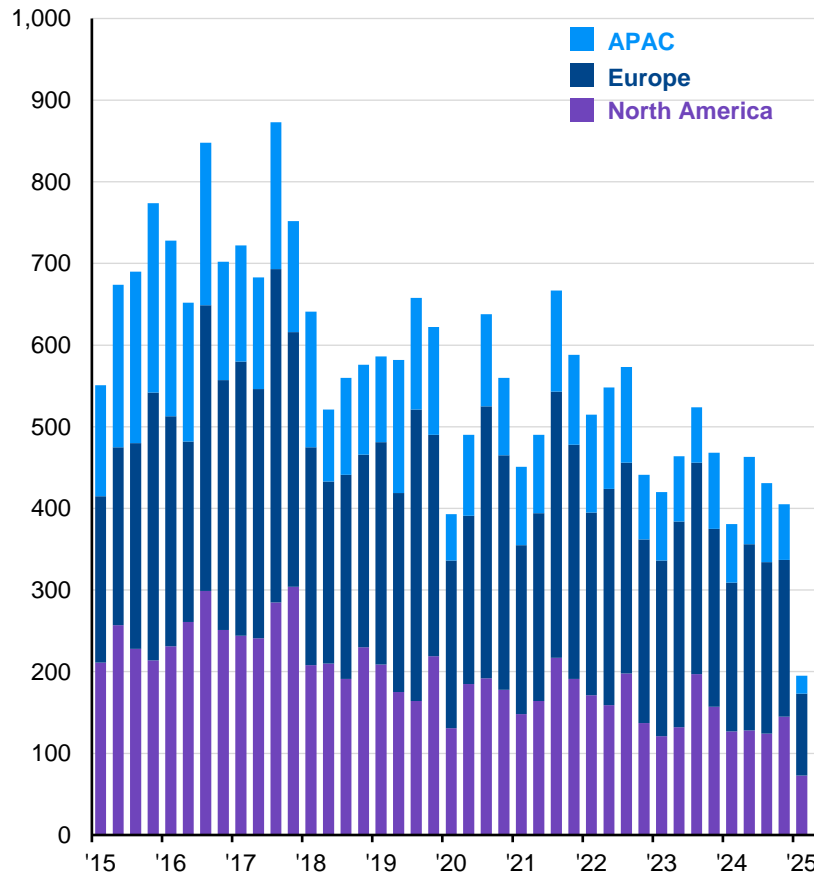
MI

42

Other real assets

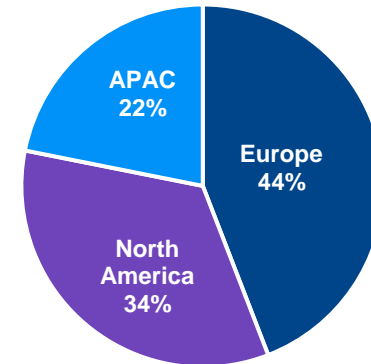
Number of private infrastructure deals

1Q15-1Q25



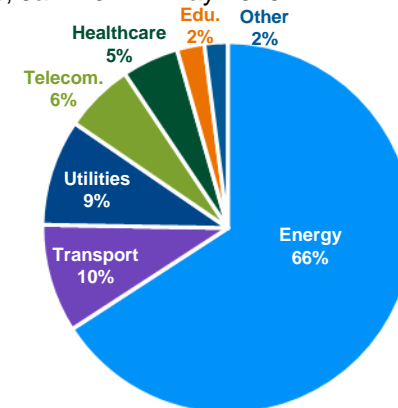
Deals by region

Share of deals, Jan. 2014 – May 2025



Deals by type

Number of deals, Jan. 2014 – May 2025



Source: Preqin, J.P. Morgan Asset Management.
(Bottom right) Other includes waste management, government buildings, logistics and defense.
Data are based on availability as of May 31, 2025.



U.S. utility profitability and consumption

GTA

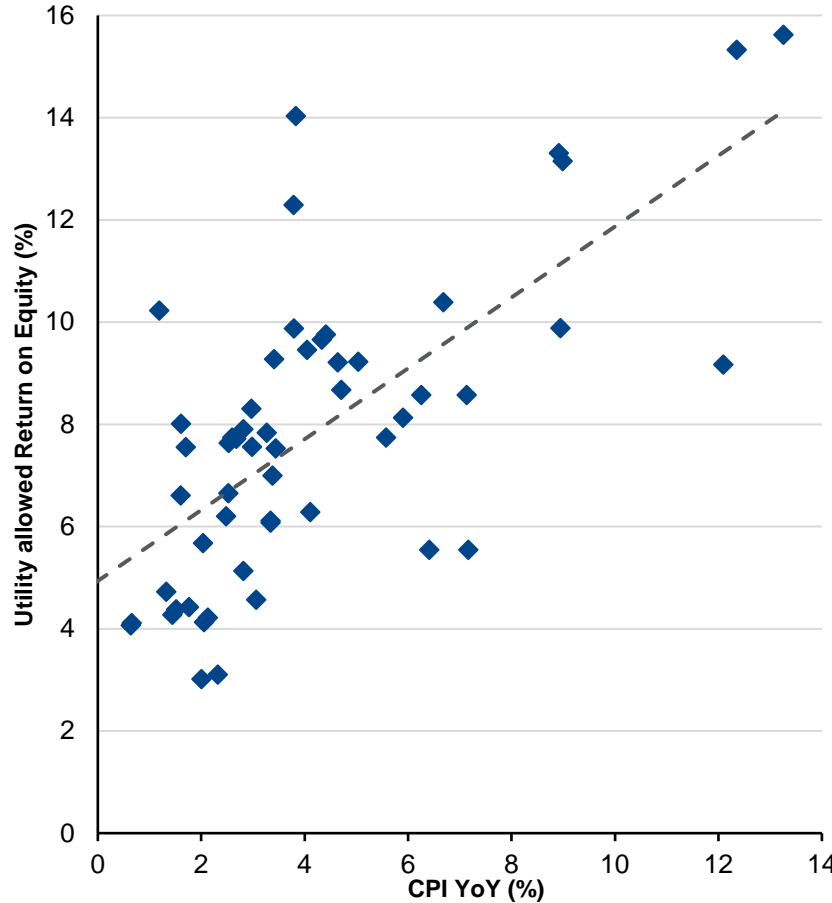
MI

43

Other real assets

Gas and electric utilities: Allowed returns vs. inflation

Average allowed return on equity* 1970-2024



Household utility spending

Household utility spending % of GDP



Source: AEU, Bloomberg, Bureau of Economic Analysis, SNL, J.P. Morgan Asset Management.

(Left) Data represent average allowed return on equities (RoEs) for electricity and natural gas utilities and annual inflation from December 1970 through December 2024. *Return on equity is lagged by 2 years.

Data are based on availability as of May 31, 2025.

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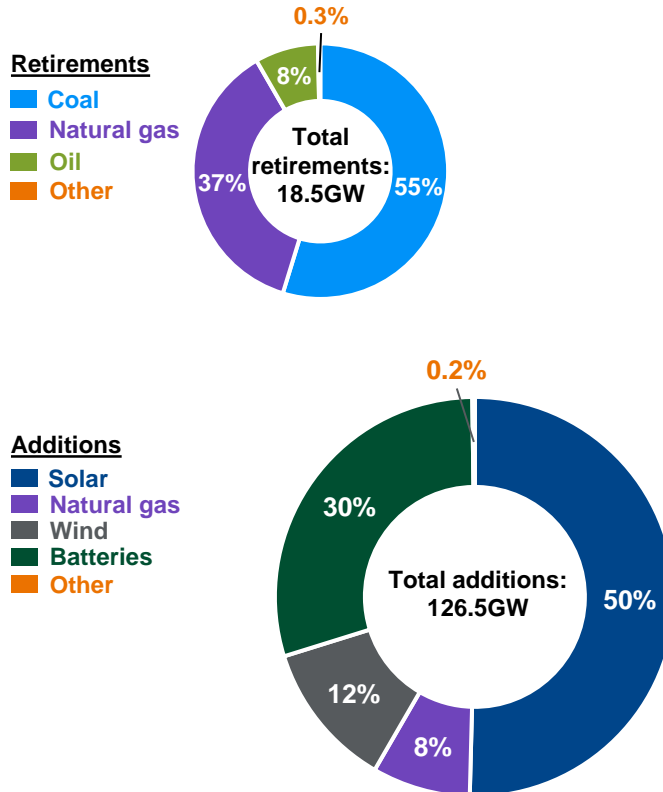
U.S. electricity generation

GTA

MI

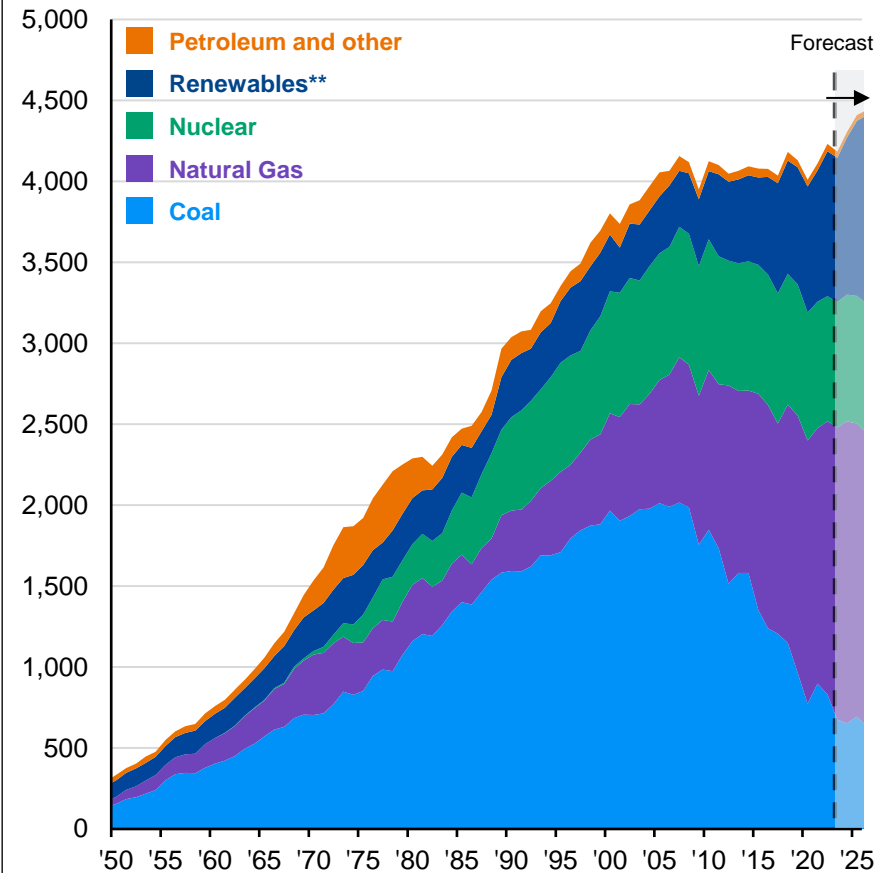
44

Planned U.S. electricity generating capacity 2025 and 2026



U.S. electricity generation by source

Billion kWh, 1950-2026F*



Source: EIA, J.P. Morgan Asset Management.

(Left) Data is from the EIA's "May 2025 Electric Power Monthly" report and uses net summer capacity to illustrate share of retirements and additions. (Right) Data is from the EIA's "May 2025 Monthly Energy Review" report. *Energy forecast figures are from EIA's "Short Term Energy Outlook" and "International Energy Outlook 2024." **Renewables include wind, solar, geothermal, biomass waste, biomass wood and hydroelectric.

Data are based on availability as of May 31, 2025.

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U.S. electricity consumption

GTA

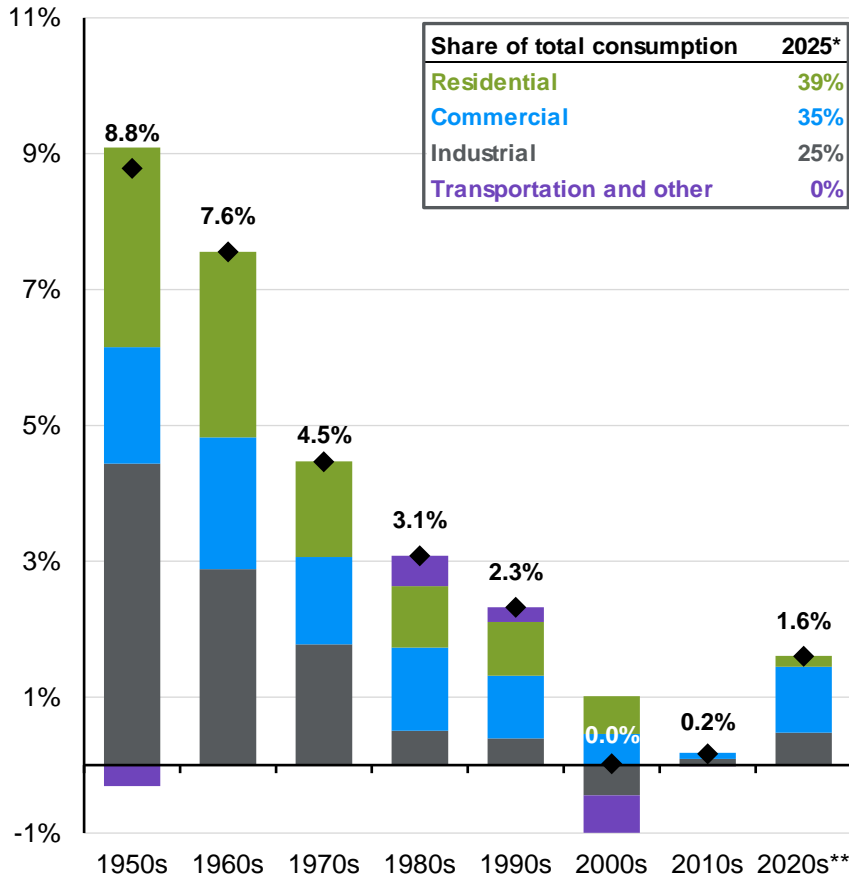
MI

45

Other real assets

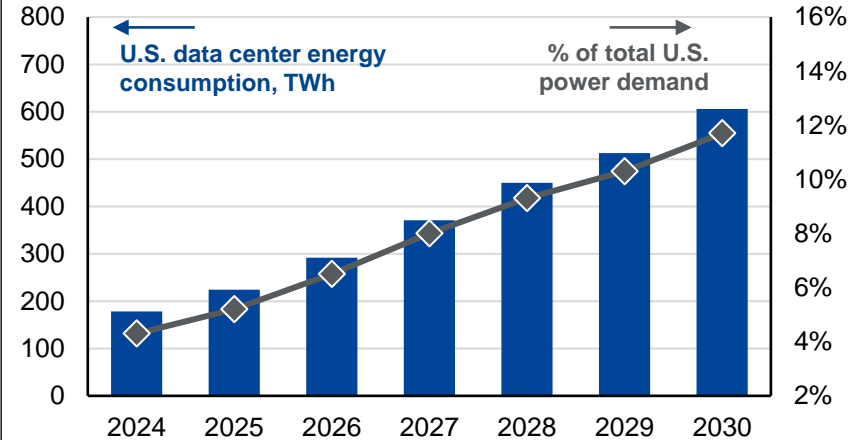
U.S. electricity consumption growth

10yr ann. growth rate, retail sales to major end-use sectors



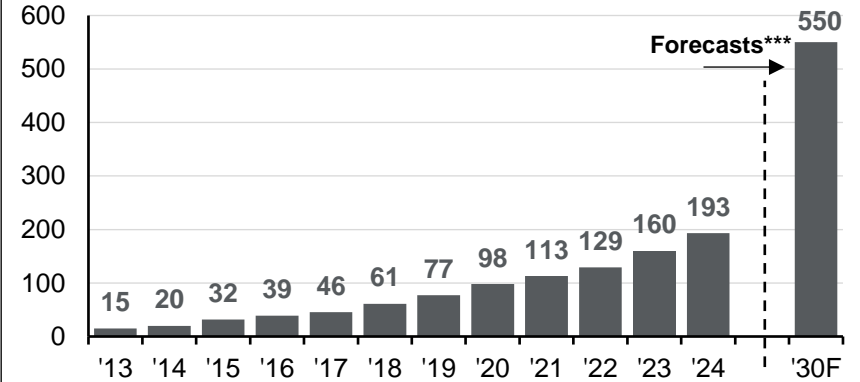
U.S. electricity consumption from data centers

Forecasts through 2030**



Number of electric vehicle charging points in the U.S.

Thousands



Source: EIA, McKinsey & Company, J.P. Morgan Asset Management.

The transportation, industrial, residential and commercial sectors are called end-use sectors because they consume electricity produced by and purchased from the electric power sector. The industrial sector primarily uses electricity to operate machinery and facilities (i.e. heat processing, cooling); the commercial sector primarily uses electricity for computers and office equipment, space heating, air conditioning and lighting; and residential usage is concentrated in air conditioning. Petroleum is the main U.S. transportation energy source, and electric vehicles are included in this data. End-use sector contribution to total consumption growth is calculated by taking each sector's annualized consumption growth multiplied by its average share of total consumption for each decade. *Calculations are based on year-to-date data through May 2025. **2020s electricity consumption growth is calculated through year-end 2024. Due to data availability, consumption growth for the 1950s is calculated from 12/31/1950 to 12/31/1959. ***Forecasts are from the International Energy Agency (IEA) - Global EV Outlook 2025 and are made assuming its "STEPS" outlook. The State Policies Scenario (STEPS) outlook from the IEA does not assume governments will meet announced policy goals and instead looks at what the IEA considers feasible given current progress. Data are based on availability as of May 31, 2025.

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U.S. timber investments

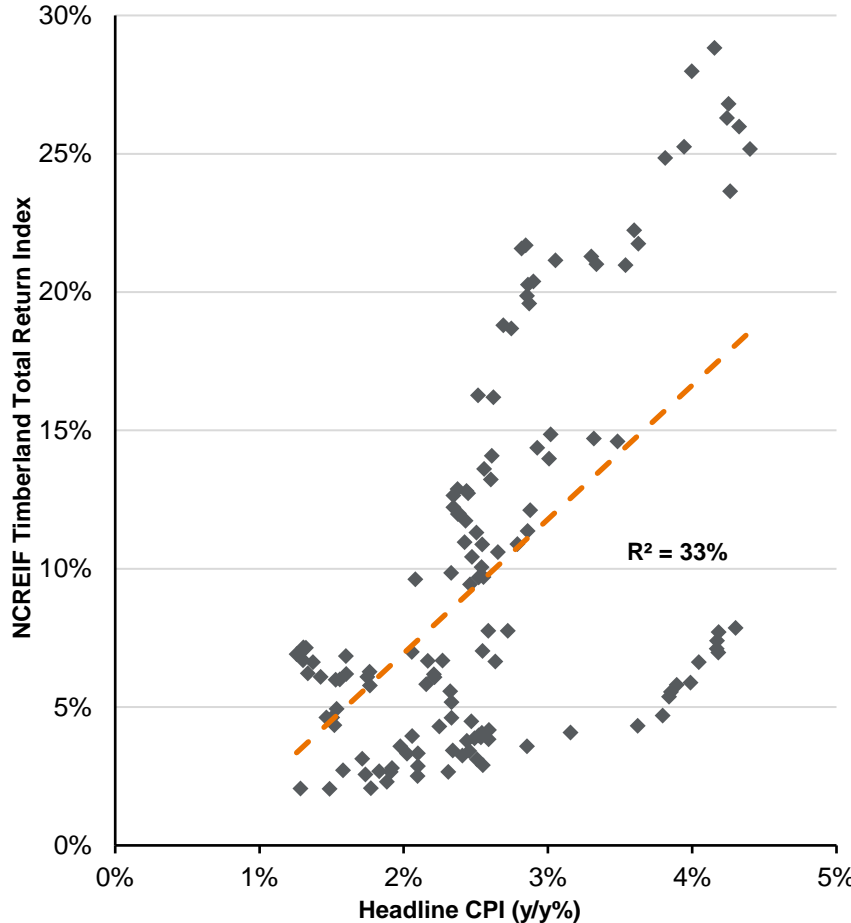
GTA

MI

46

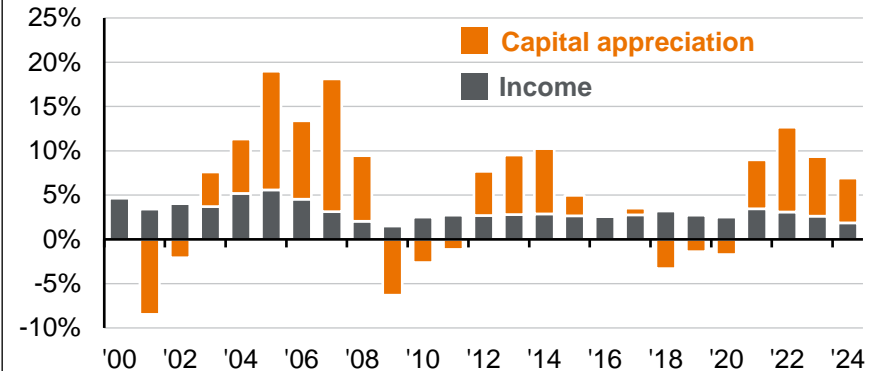
U.S. timber returns and inflation

Headline CPI, NCREIF Timberland Index, 5-yr. ann. change, quarterly



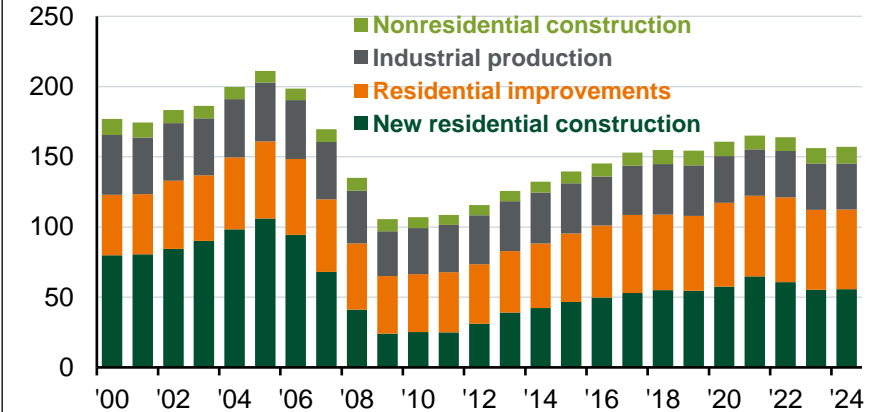
Sources of U.S. timber returns

NCREIF Timberland Index, total return, yearly



U.S. wood product consumption

By end-use sector, in million cubic meters



Source: BLS, FactSet, Forest Economic Advisors, National Council of Real Estate Investment Fiduciaries (NCREIF), World Bank, J.P. Morgan Asset Management.

(Left) Represents the time period from 1Q87-1Q25. Past performance is not a reliable indicator of current and future results.

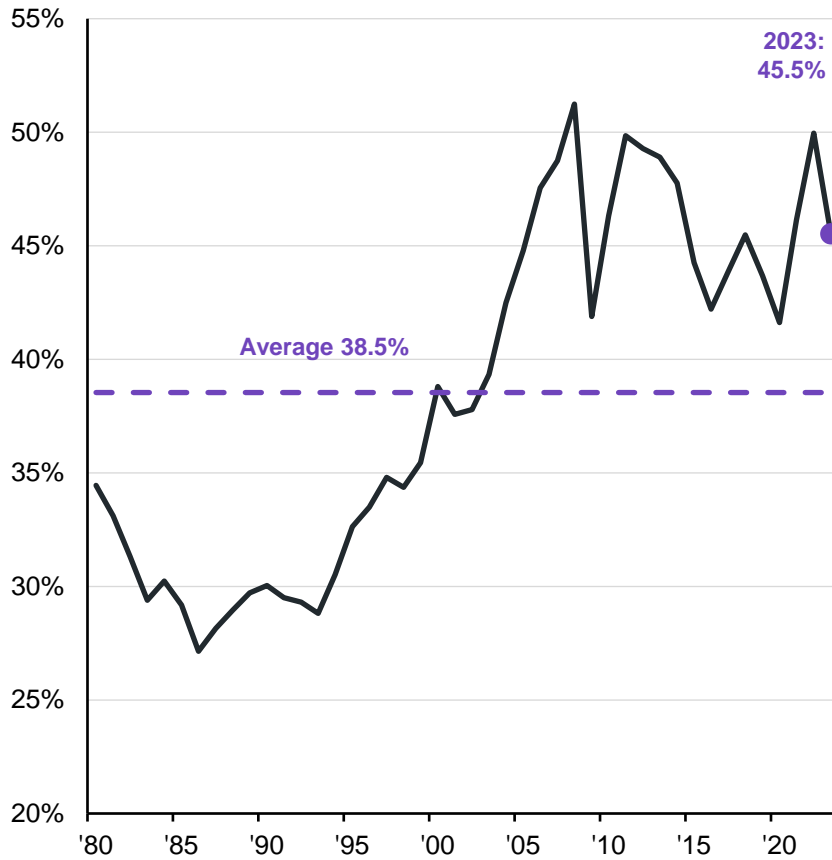
Data are based on availability as of May 31, 2025.



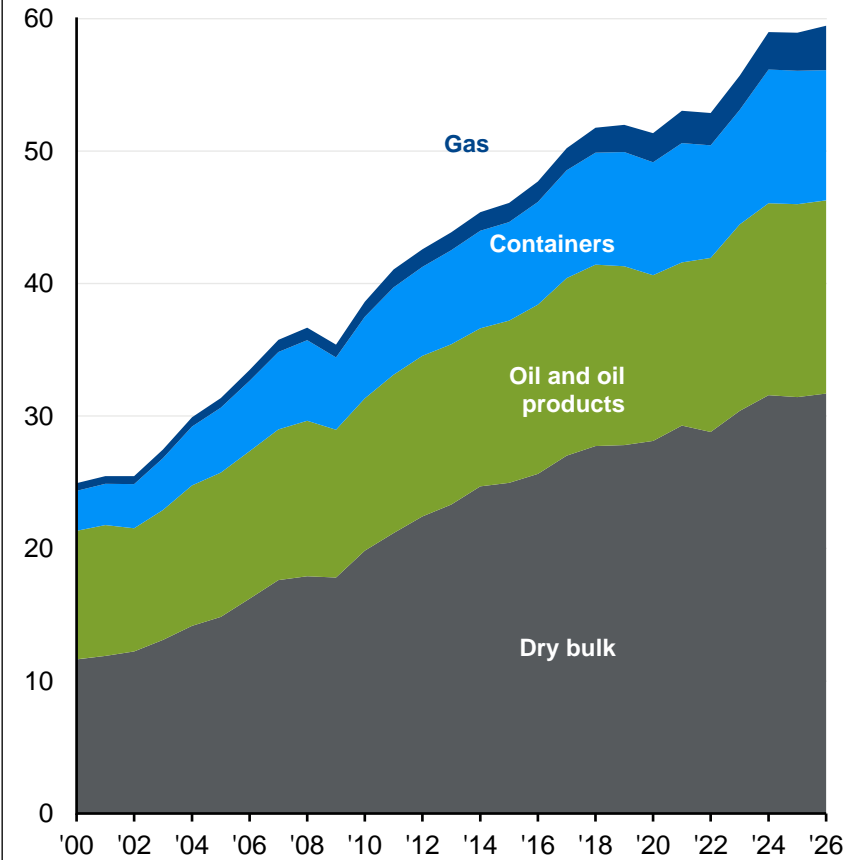
Global trade

Other real assets

Global merchandise trade
% of global GDP



World seaborne trade by product
Estimated in trillion ton-miles



Source: Clarksons, FactSet, World Bank – World Development Indicators, J.P. Morgan Asset Management.
(Right) World seaborne trade by product as of April 2025. Dry bulk refers to unpackaged commodity cargo.
Data are based on availability as of May 31, 2025.



Global shipping: Orders, capacity and age

GTA

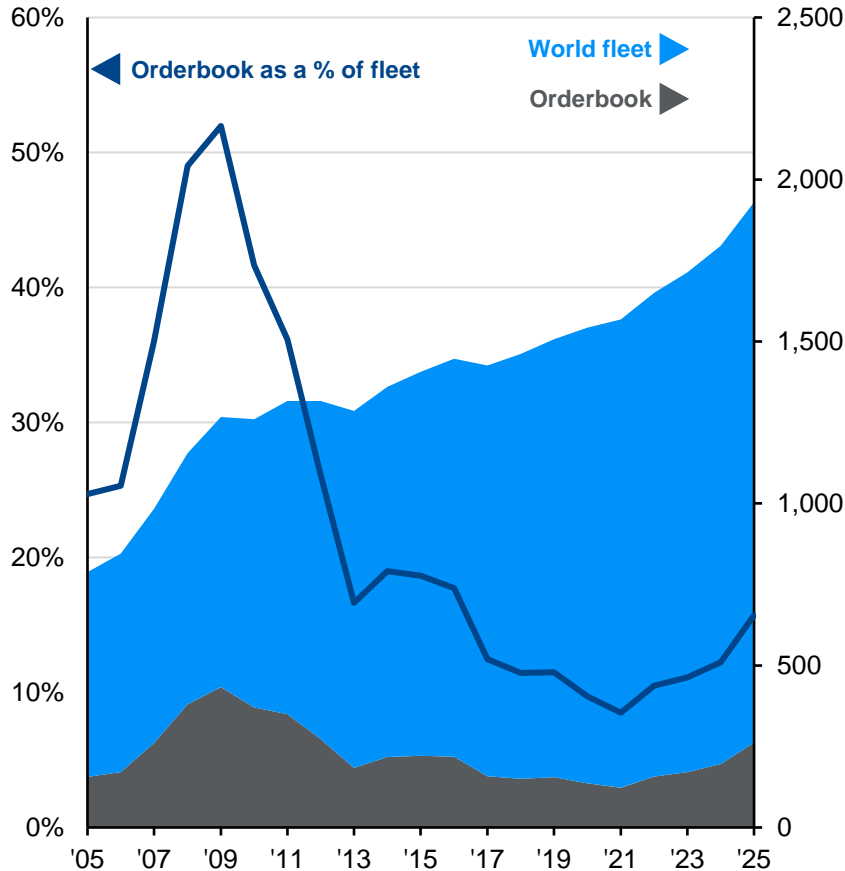
MI

48

Other real assets

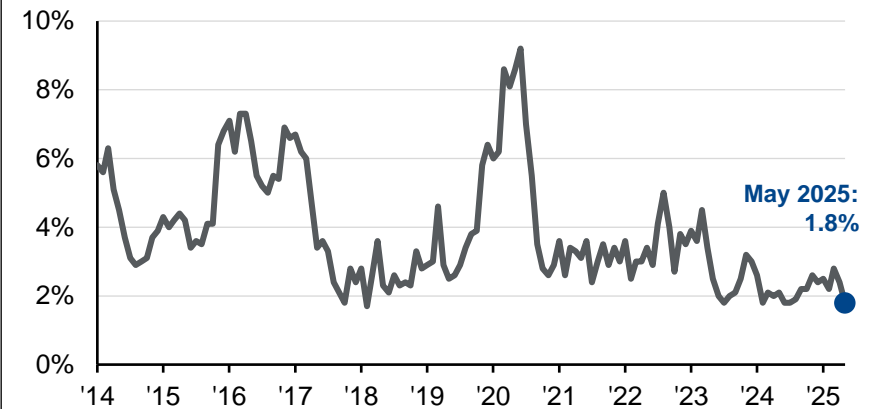
Global fleet and orderbook

Gross tonnage



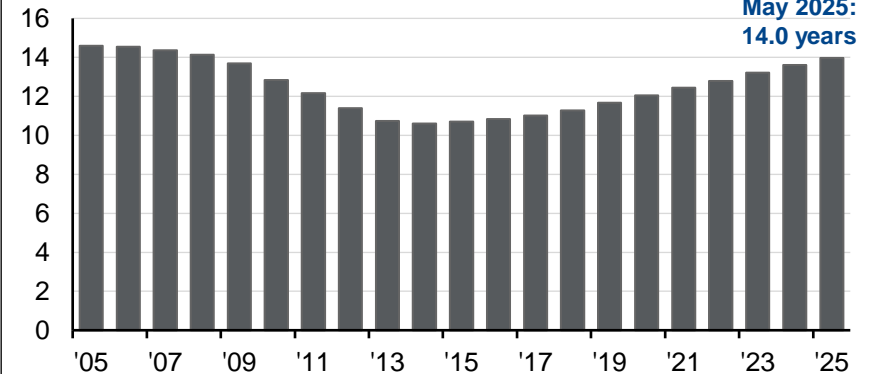
Idle containership capacity

% of global fleet



Global fleet age

5,000+ gross tonnage, average number of years



Source: Clarksons Research, MSI, Sea/net, J.P. Morgan Asset Management.

(Left) An orderbook contains all the vessels that have been delivered as well as the current order or expected ship orders. The orderbook to fleet

ratio is a useful indicator of future supply growth. (Bottom right) Gross tonnage is the volume of a ship's enclosed spaces in cubic meters.

Data are based on availability as of May 31, 2025.

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Global shipping: Pricing and port calls

GTA

MI

49

Other real assets

Global shipping costs

USD per 40-foot container, weekly



Global port call duration*

Number of days, 30-day moving average



Source: Bloomberg, Clarksons Research, MSI, Sea/net, J.P. Morgan Asset Management.

(Right) Port calls defined as all instances of a vessel entering and leaving a defined port location, excluding instances where vessel not recorded as traveling at less than 1 knot, and combining multiple consecutive instances at the same port where the vessel has not left a buffered shape around the port. Data basis date vessel last recorded in port location. *Global port calls excludes calls at ports by tugs. U.S. and Europe port calls are of deep-sea cargo vessels, which only includes larger bulkers. Port call duration is defined as the average number of days spent by the vessels seen at a location. The duration is calculated using the total number of hours a vessel spent at location to complete the visit based on the time arrival and time of departure.

Data are based on availability as of May 31, 2025.

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U.S. public vs. private equity

GTA

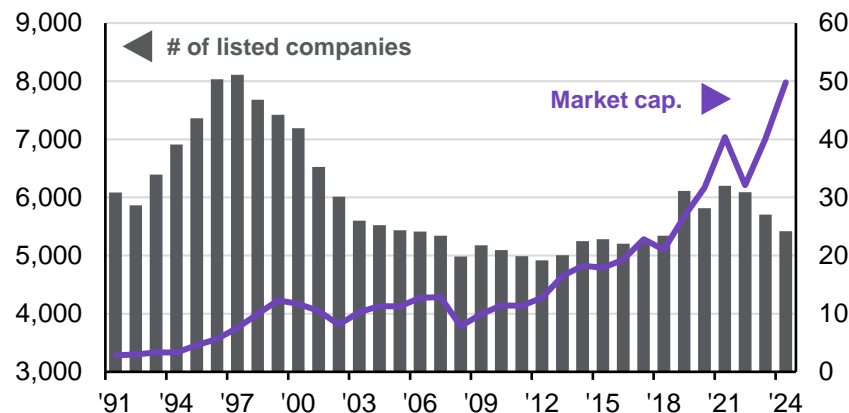
MI

50

Private equity

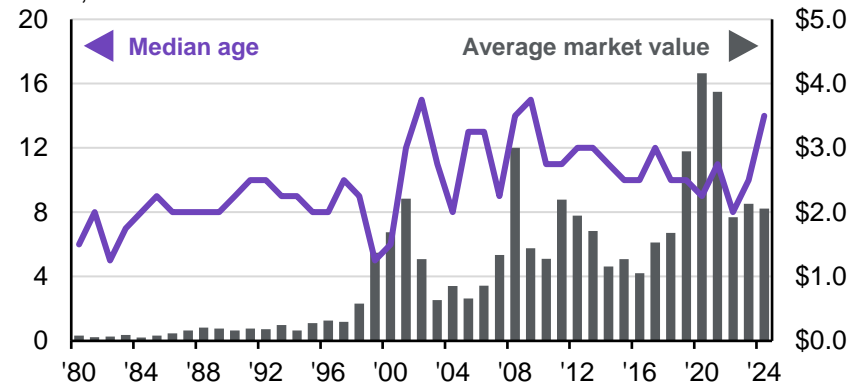
Number of listed U.S. companies* and market cap.

Number, S&P 500 market capitalization in USD trillions



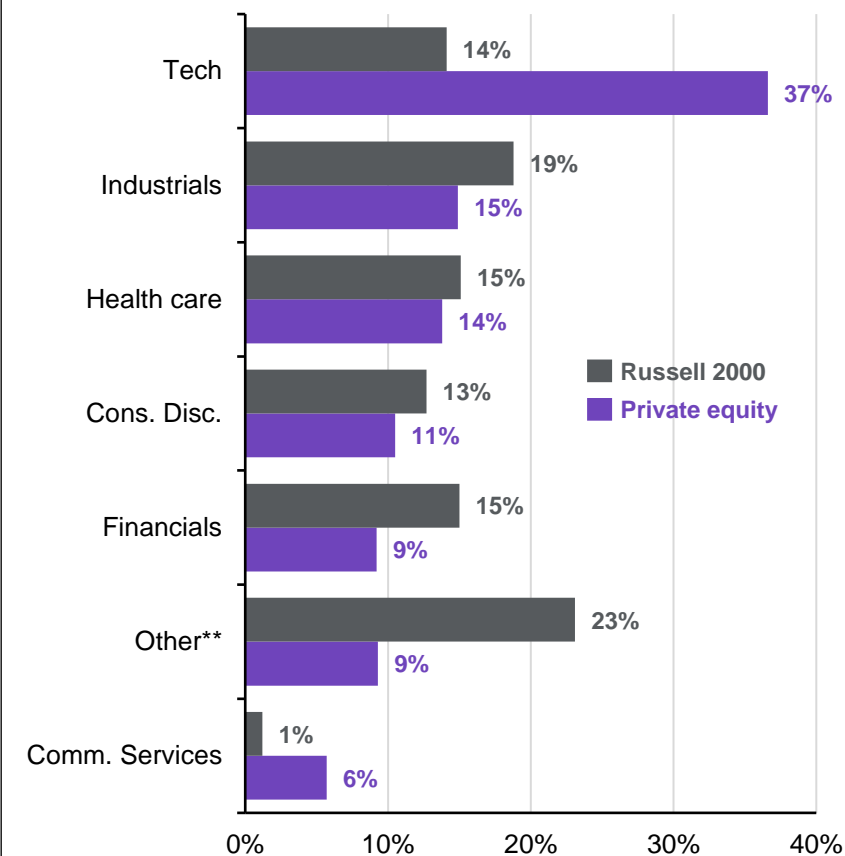
Median age and average market value at IPO

Years, USD billions



Private equity vs. small cap sector weights

2Q24



Sources: Cambridge Associates, FactSet, FTSE Russell, Jay Ritter, University of Florida, World Federation of Exchanges, J.P. Morgan Asset Management.
(Top left) *Number of listed U.S. companies is represented by the sum of number of companies listed on the NYSE and the NASDAQ. (Bottom left) Average market value is calculated by dividing the total market value at first closing price by the total number of IPOs for each period. The sample is IPOs with an offer price of at least \$5, excluding ADRs, unit offers, closed-end funds, REITs, natural resource limited partnerships, small best efforts offers, banks and S&Ls and stocks not listed on CRSP (CRSP includes Amex, NYSE and NASDAQ stocks). (Right) Private equity weights are from the Cambridge Associates LLC U.S. Private Equity Index. **Other includes real estate, utilities and energy. Percentages may not sum due to rounding. Sector weights are as of 2Q24. Data are based on availability as of May 31, 2025.

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Global private equity fundraising

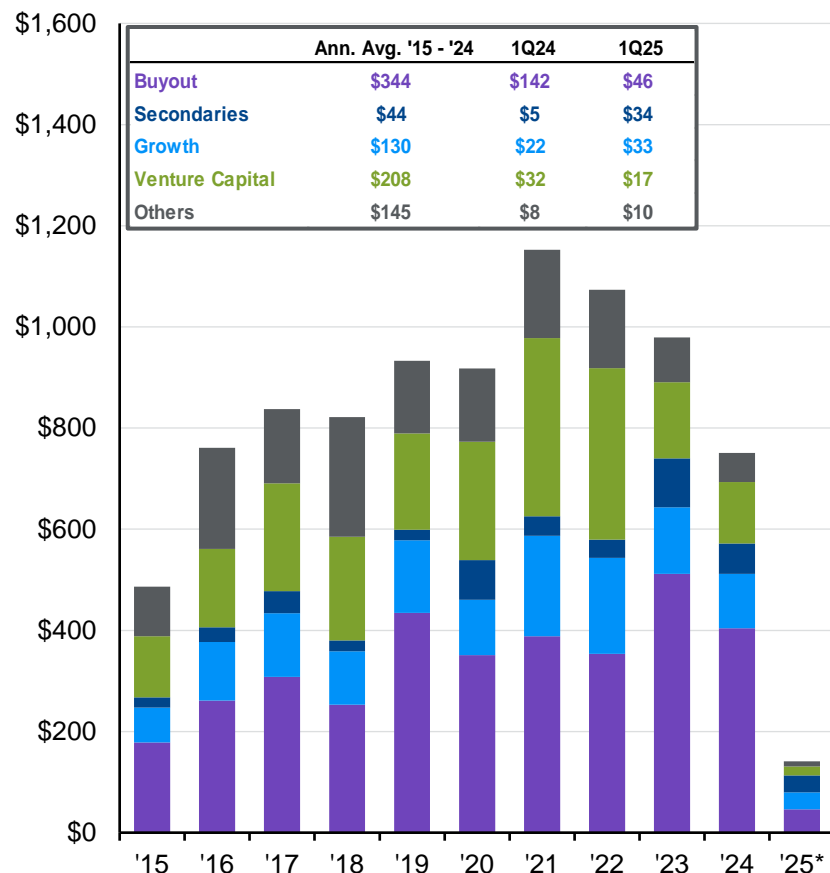
GTA

MI

51

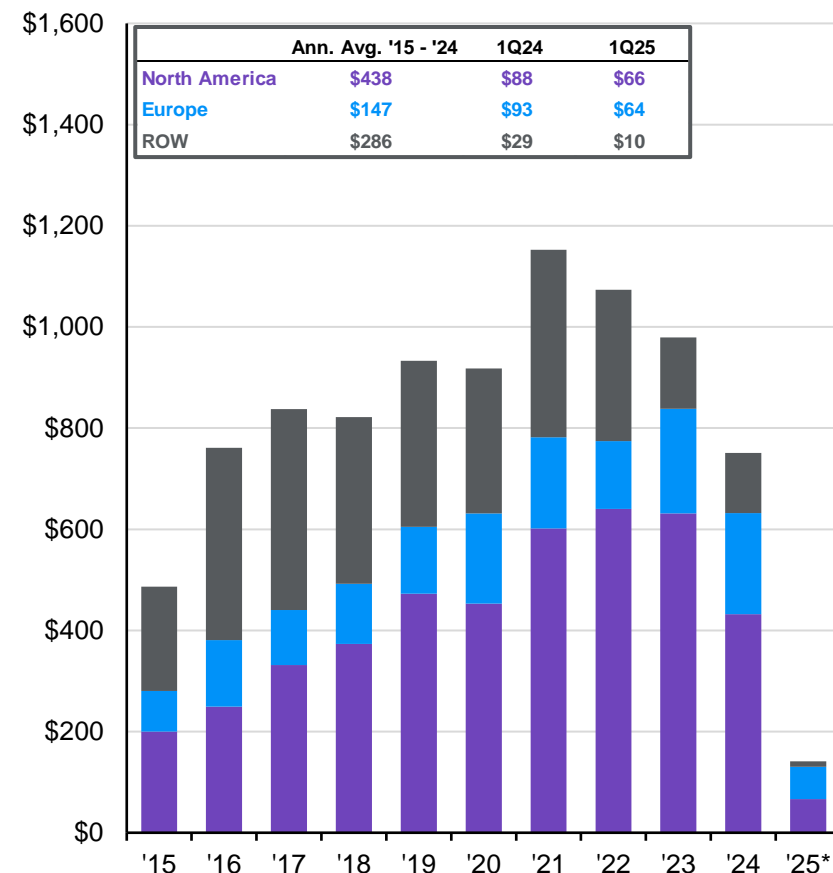
Global private equity fundraising by type

USD billions, 2015 – 2025*



Global private equity fundraising by region

USD billions, 2015 – 2025*



Source: Preqin, J.P. Morgan Asset Management.

*2025 data are as of 1Q25. (Left) Buyout funds: Acquire all or a significant amount of equity in their target company, often financed by a high proportion of debt; Growth equity funds: Take minority stakes in companies, financed by all-equity deal structures; Secondary funds: Purchase existing stakes in private equity funds from other limited partners (LPs); Venture capital funds: Invest in early-stage companies with high growth potential; Others: Includes funds raised for restructuring or turnaround deals that use a combination of debt and equity financing. (Right) Fundraising by region is defined as the location of the manager raising the funds. Data are based on availability as of May 31, 2025.

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Global private equity investments and exits

GTA

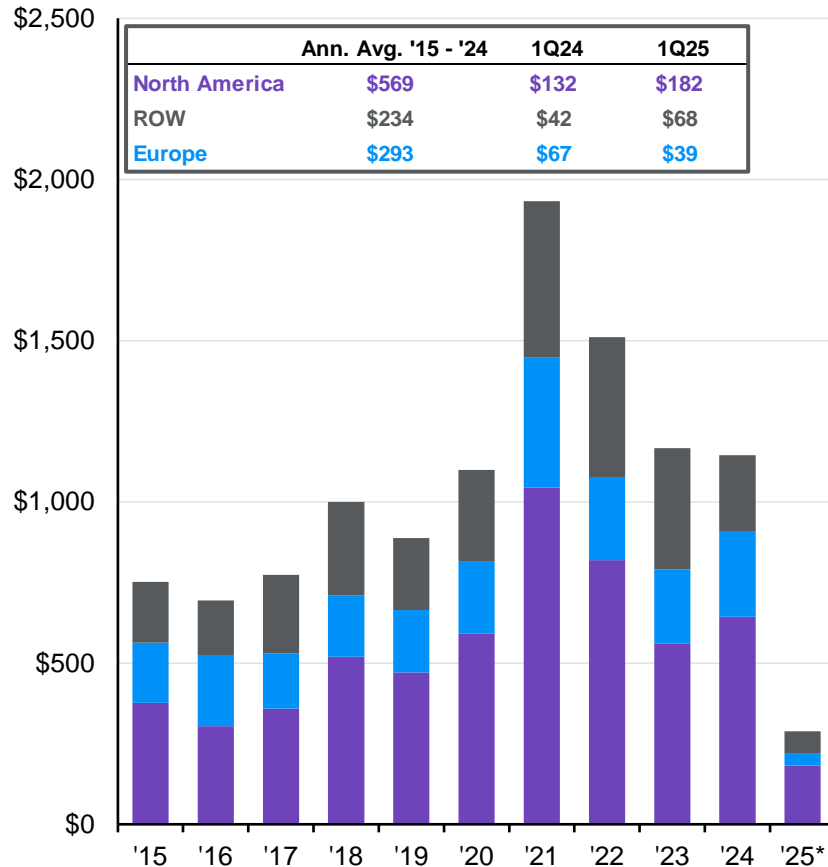
MI

52

Private equity

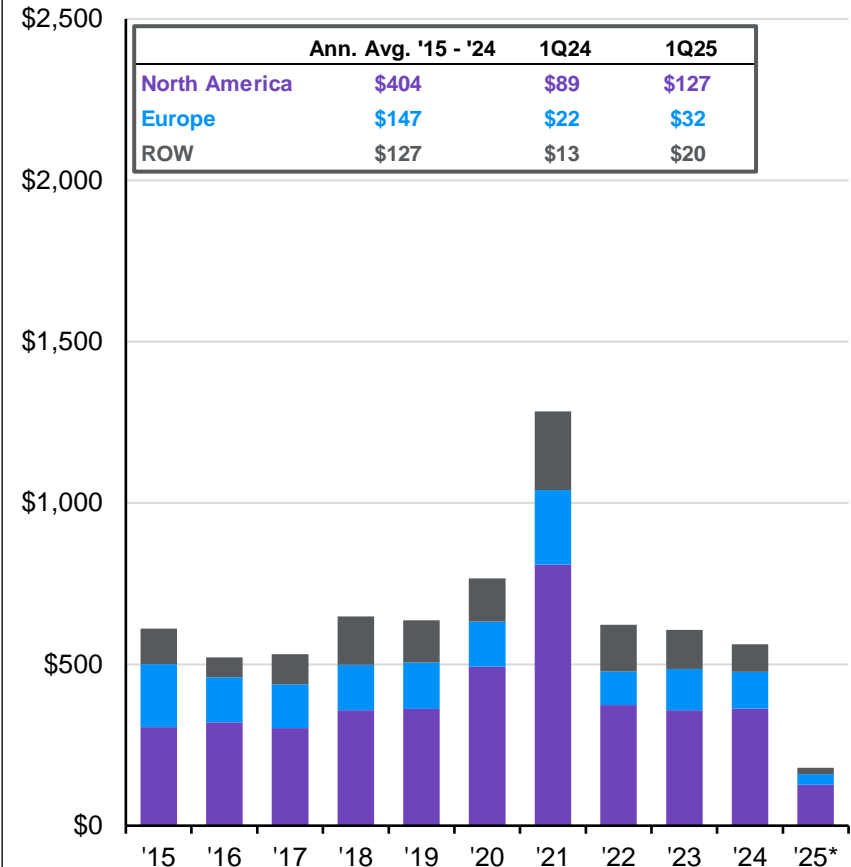
Private equity investments by value

USD billions, 2015 – 2025*



Private equity exits by value

USD billions, 2015 – 2025*



Source: Preqin, J.P. Morgan Asset Management.

*2025 data are as of 1Q25. Data are based on availability as of May 31, 2025.



U.S. private equity investments and exits

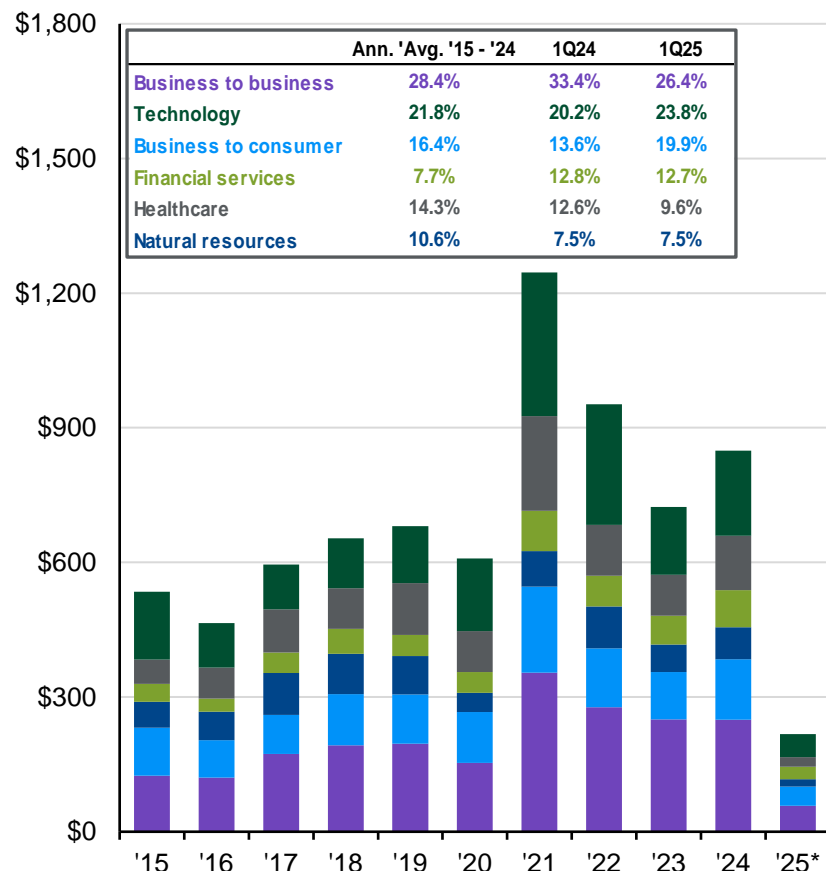
GTA

MI

53

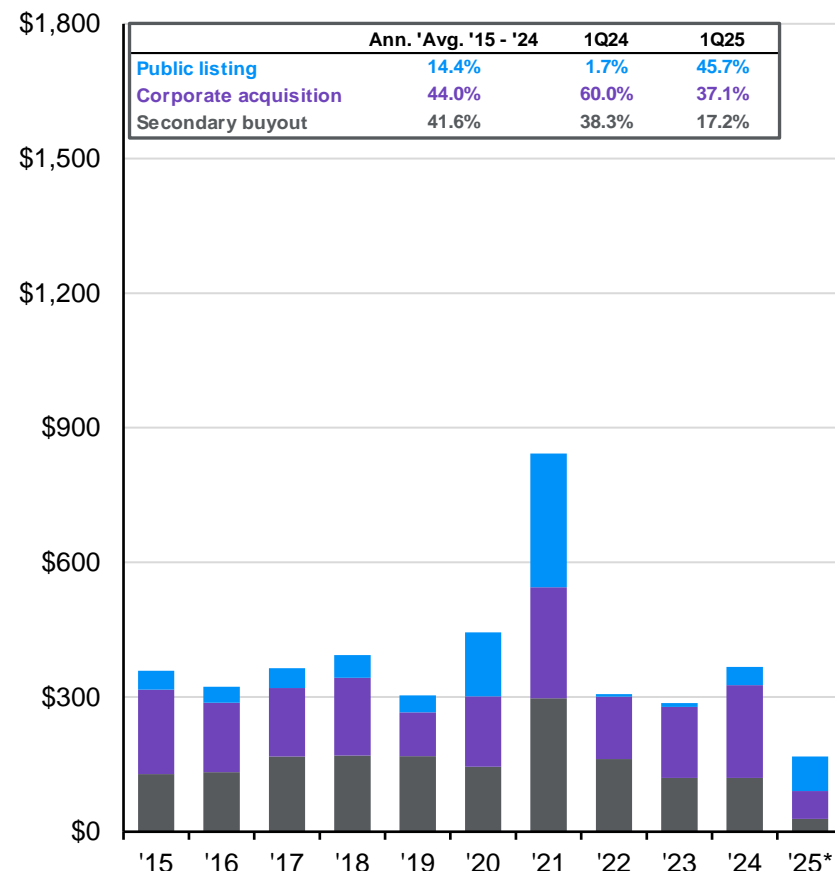
U.S. private equity investments by sector

USD billions, 2015 – 2025*



U.S. private equity exits by type

USD billions, 2015 – 2025*



Source: Pitchbook | LCD, J.P. Morgan Asset Management.

*2025 data are as of 1Q25. (Left) Natural resources = Materials & resources and energy.
Data are based on availability as of May 31, 2025.



Cash flows, the J-curve and returns in private equity

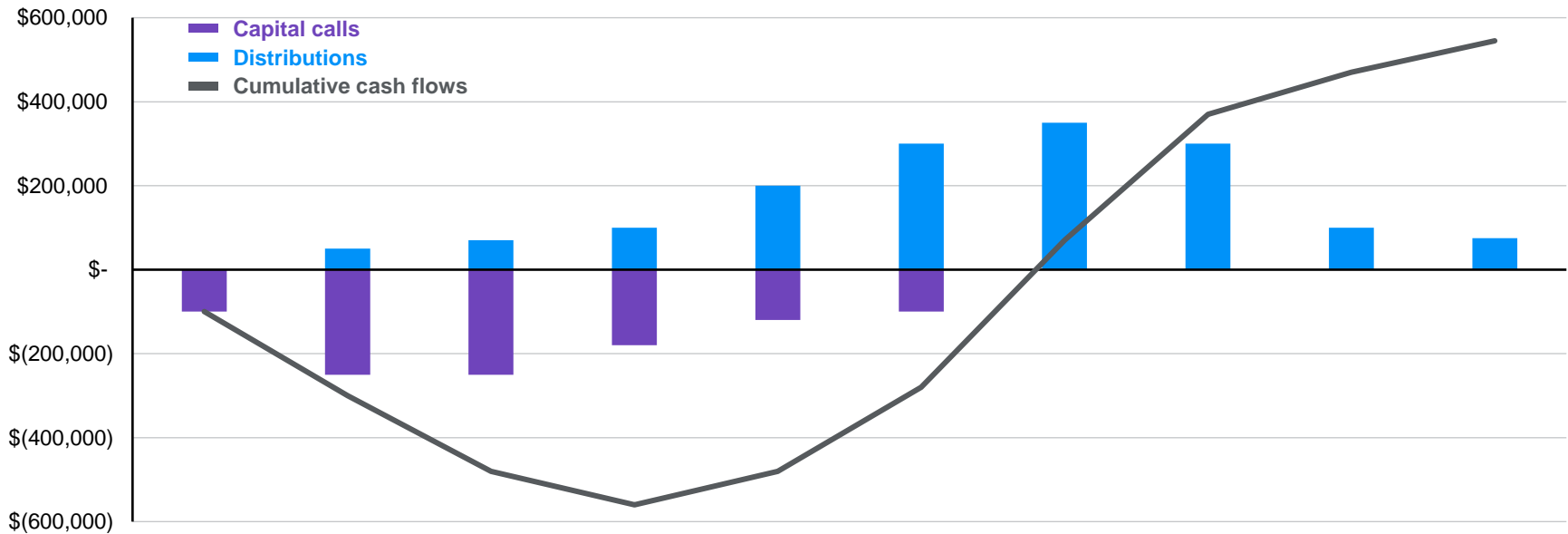
GTA

MI

54

Illustrative annual cash flows from a private equity investment

Assuming a \$1M investment



End of Year	1	2	3	4	5	6	7	8	9	10
Net Cash Flow	-\$100,000	-\$200,000	-\$180,000	-\$80,000	\$80,000	\$200,000	\$350,000	\$300,000	\$100,000	\$75,000
Balance	\$900,000	\$700,000	\$520,000	\$440,000	\$520,000	\$720,000	\$1,070,000	\$1,370,000	\$1,470,000	\$1,545,000
Annual Return	-10%	-22%	-26%	-15%	18%	38%	49%	28%	7%	5%

Internal Rate of Return: 15%

Discount rate that equates the sum of positive and negative discounted cash flows

Multiple on Invested Capital: 1.54x

Ending Balance/Starting Balance
 $= 1,545,000 / 1,000,000 = 1.545$

Time-Weighted Return: 4.4%

(Ending Balance/Starting Balance) $^{(1/\text{Number of Years})} - 1$
 $= (1.545^{0.1}) - 1 = 4.4\%$

Source: J.P. Morgan Asset Management.

Assumes a 10-year investment cycle with a five-year investment period (common direct investment private equity fund terms). In calculating both the multiple on invested capital and time-weighted return, the above example implicitly assumes that capital earns a zero return before it is called and after it is distributed. If we instead assume that this capital is invested in a USD cash account paying 3.1%, the MOIC and TWR are 1.59 times and 4.76%, respectively. If we assume that it is invested in U.S. equities, returning 6.70%, the MOIC and TWR are 1.65 times and 5.14%, respectively. (*from JPMAM's 2025 Long-term Market Assumptions). There is no assurance that a private equity fund will make any distributions or perform in a similar fashion. The above cash flows are illustrative of those that may be experienced by an investor in a direct investment private equity fund. They are not intended to be representative of the actual cash flows experienced by an investor.

Data are based on availability as of May 31, 2025.

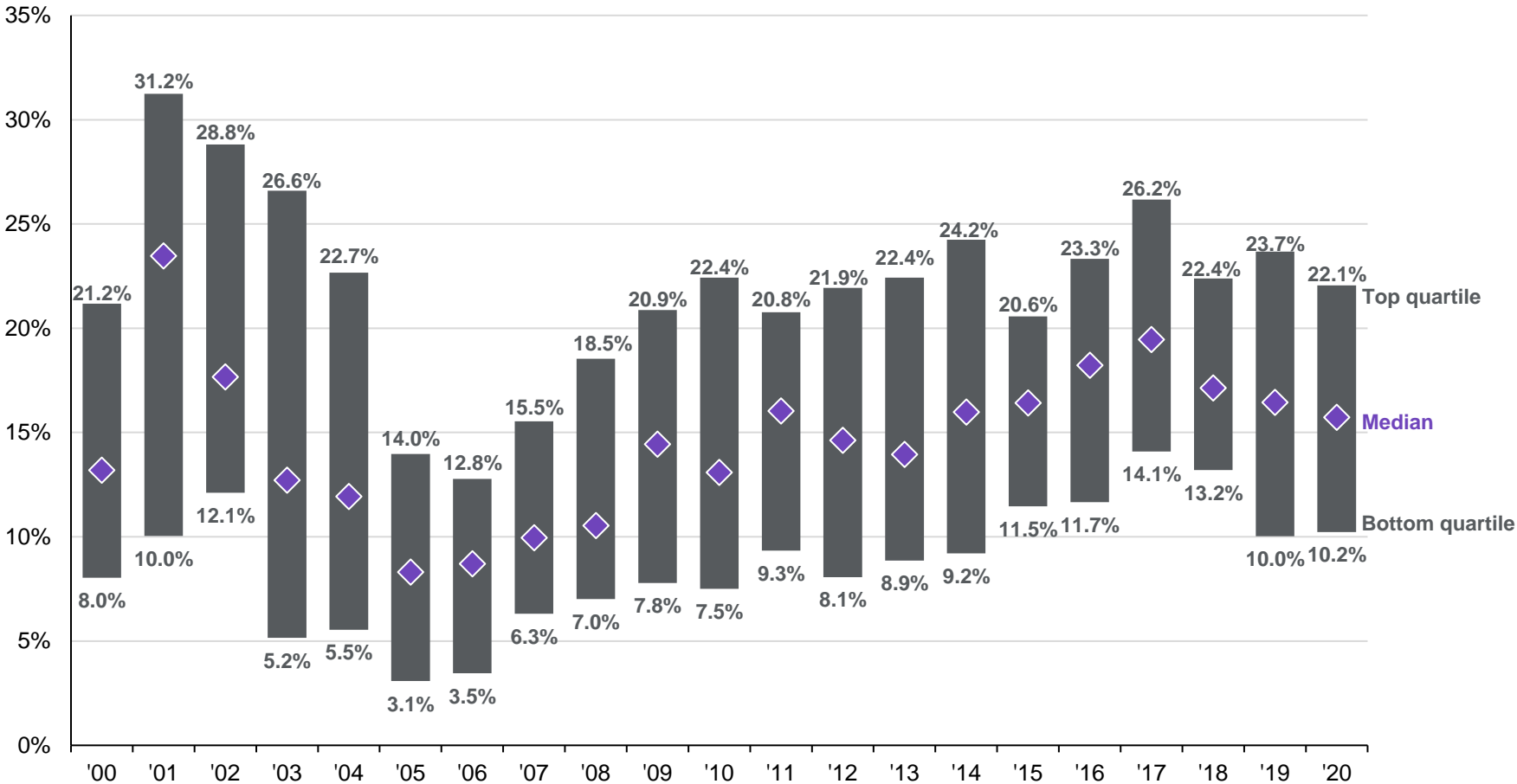
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Global private equity returns

Global private equity return dispersion by vintage year

2000 - 2020, Internal rate of return (IRR)



Source: Burgiss, J.P. Morgan Asset Management.
Global private equity is represented by global buyout funds. IRR performance data are as of 12/31/2024. Past performance is not a reliable indicator of current and future results.
Data are based on availability as of May 31, 2025.



U.S. private equity investments and multiples by size

GTA

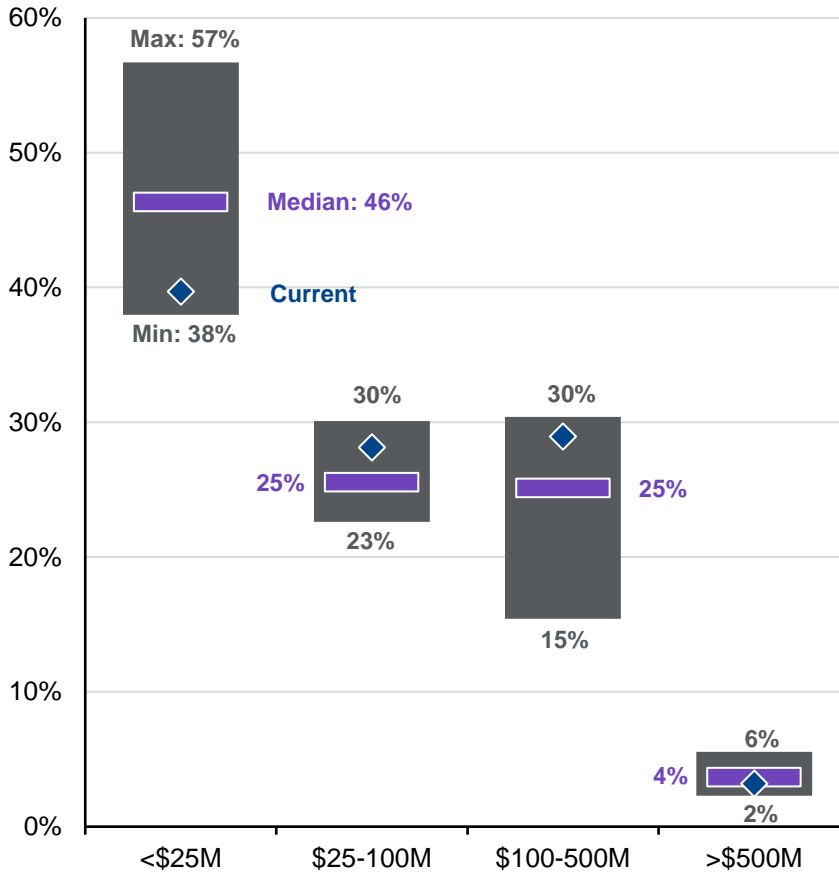
MI

56

Private equity

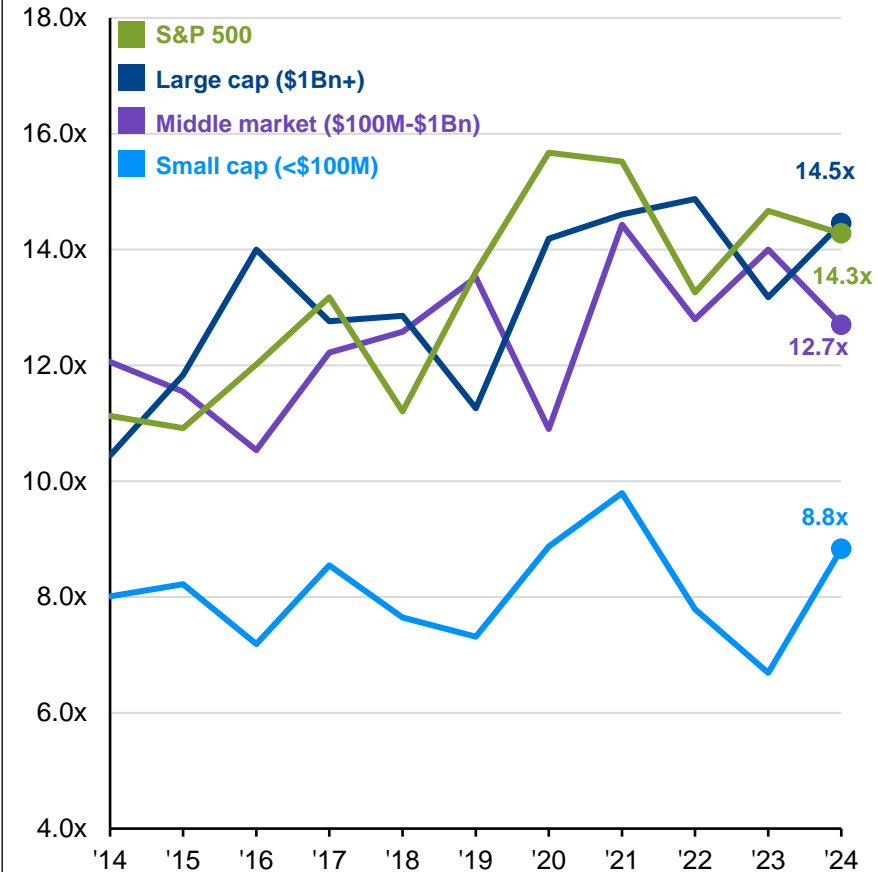
U.S. private equity investments by size

% of total number of investments, 2008 – 1Q25



Private company buyout multiples vs. S&P 500

Median enterprise value/EBITDA, trailing 12-month multiples



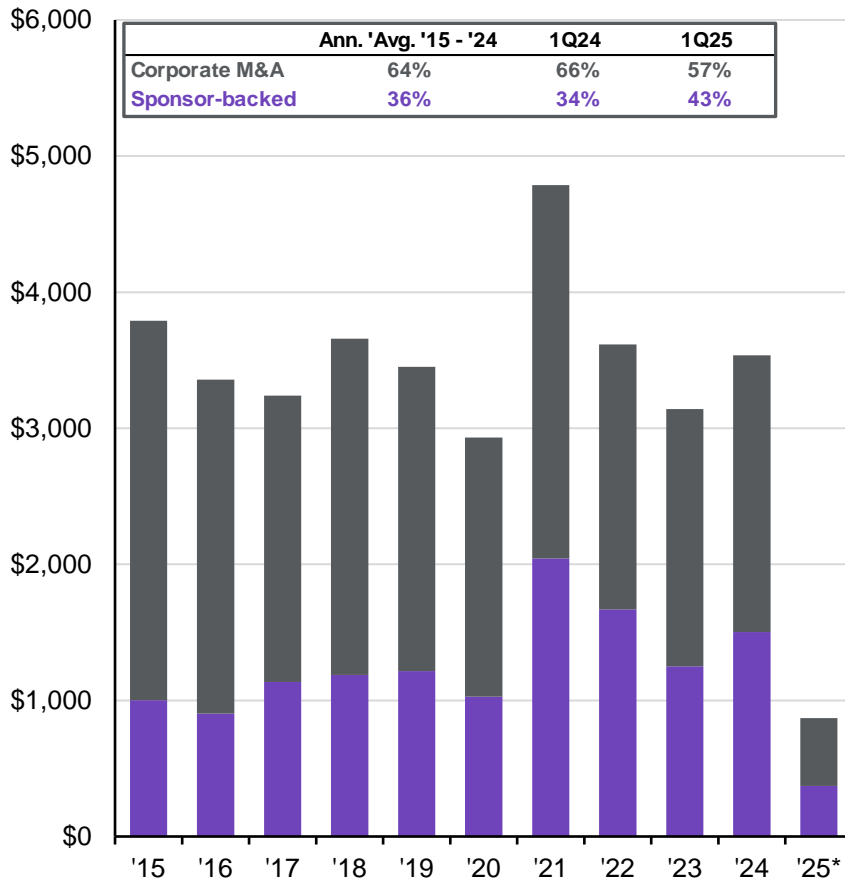
Source: Pitchbook | LCD, J.P. Morgan Asset Management.
(Left) Private equity investment sizes are as of 1Q25.
Data are based on availability as of May 31, 2025.



Global mergers and acquisitions

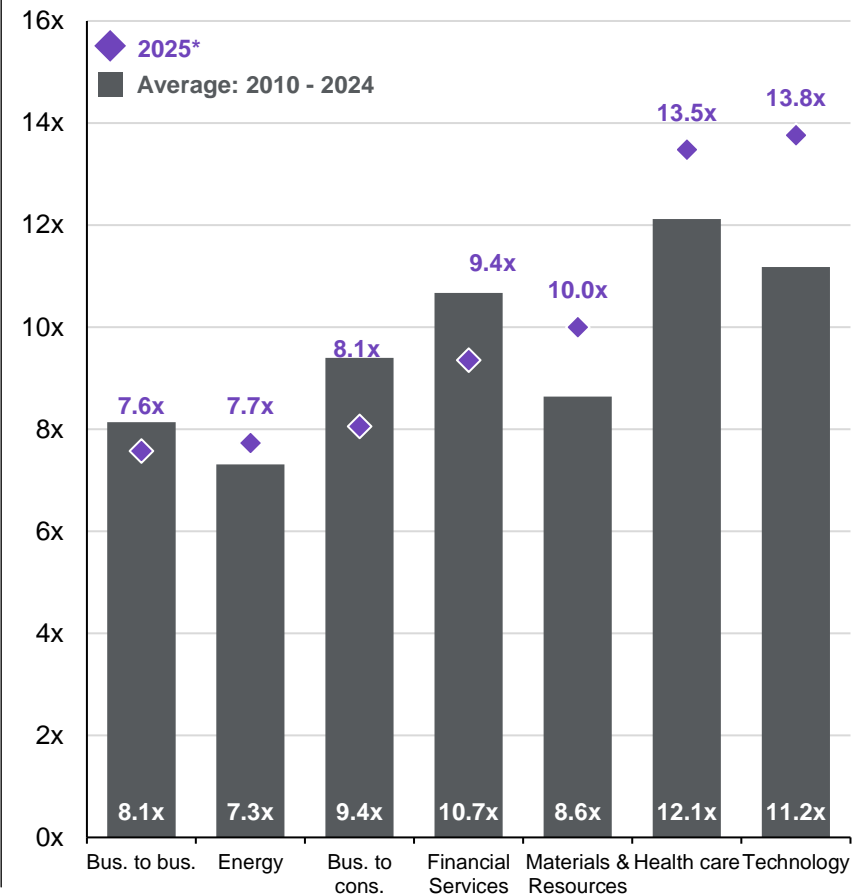
Global M&A by acquirer type

USD billions, 2015 – 2025*



Global M&A multiples by sector

Enterprise value/EBITDA, trailing 12-month multiples



Source: Pitchbook | LCD, J.P. Morgan Asset Management.

(Left) *2025 data are as of 1Q25. Percentages may not sum to 100 due to rounding. (Right) "Bus. to bus." = Business to business. "Bus. to cons." = Business to consumer.

Data are based on availability as of May 31, 2025.



U.S. leveraged buyouts

GTA

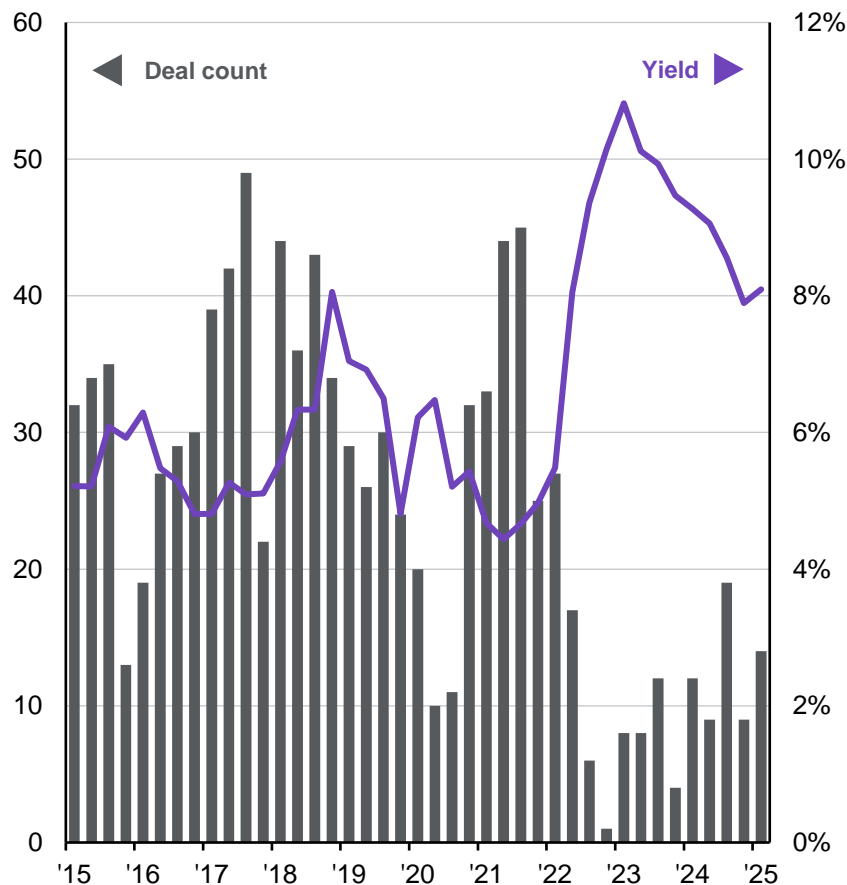
MI

58

Private equity

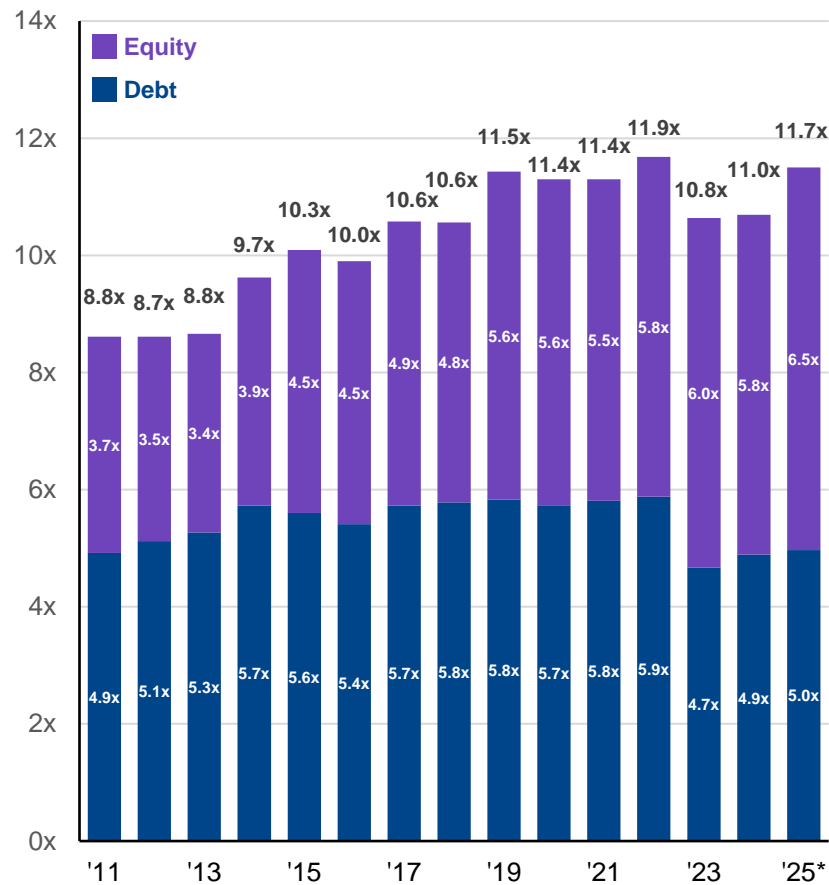
U.S. LBOs: Deal activity and yield

1Q15 – 1Q25



U.S. LBOs: Purchase price multiples

Equity and debt over trailing EBITDA



Source: PitchBook|LCD, J.P. Morgan Asset Management.

(Left) Yield represents the average new-issue yield on broadly syndicated loans. (Right) *2025 data are as of 1Q25. Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.

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Capital calls and distributions

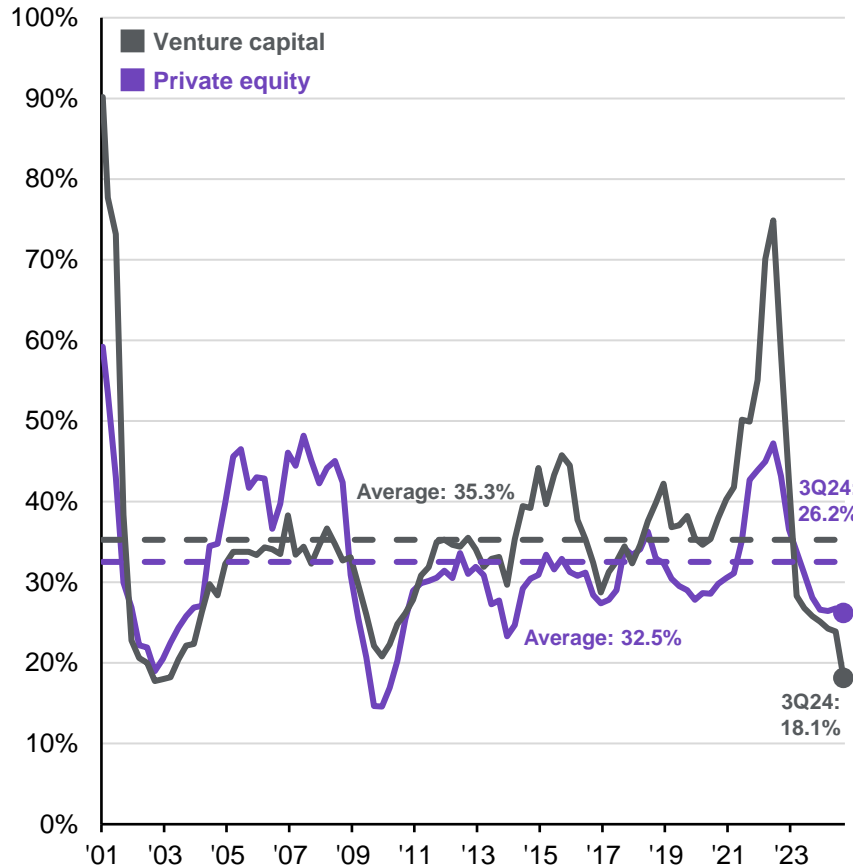
GTA

MI

59

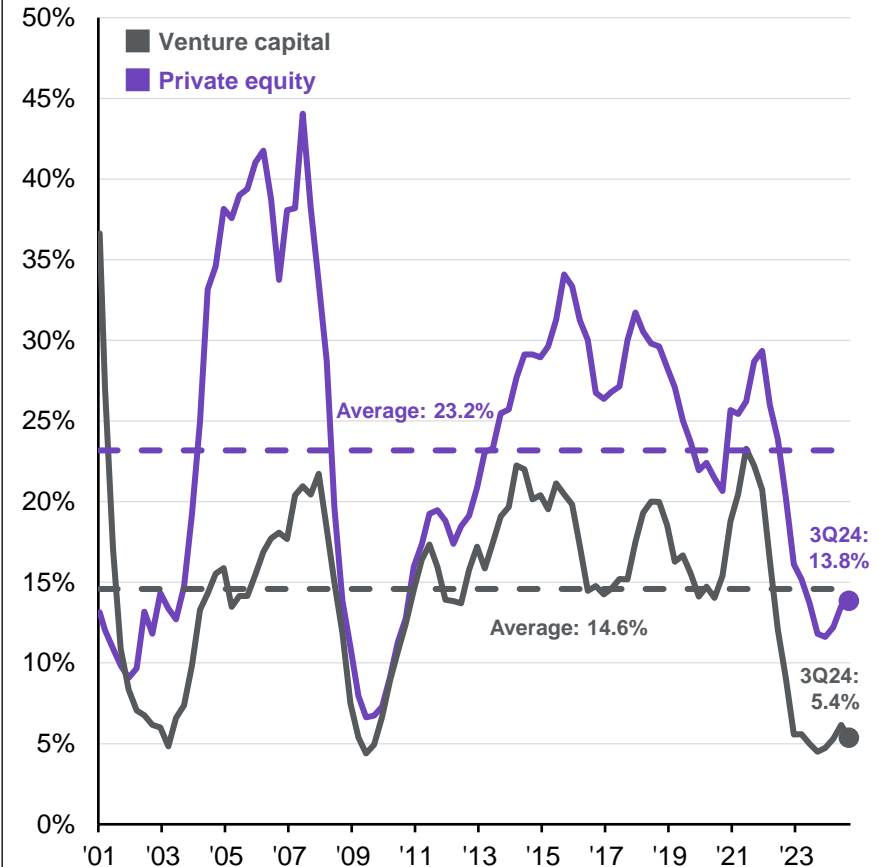
U.S. PE and VC capital call rates

Capital calls as a % of beginning dry powder, 1Q01-3Q24



U.S. PE and VC distribution rates

Distributions as a % of beginning net asset value (NAV), 1Q01-3Q24



Source: Pitchbook | LCD, J.P. Morgan Asset Management.

Latest quarter data are preliminary. Distribution and capital call rates are calculated on a rolling 12-month basis. (Left) The capital call rate is the rate at which funds ask their investors to provide a portion of funds that they committed. (Right) The distribution rate is the rate at which investors are paid after fund managers realize their investments in underlying companies or assets, providing returns on the capital invested.

Data are based on availability as of May 31, 2025.

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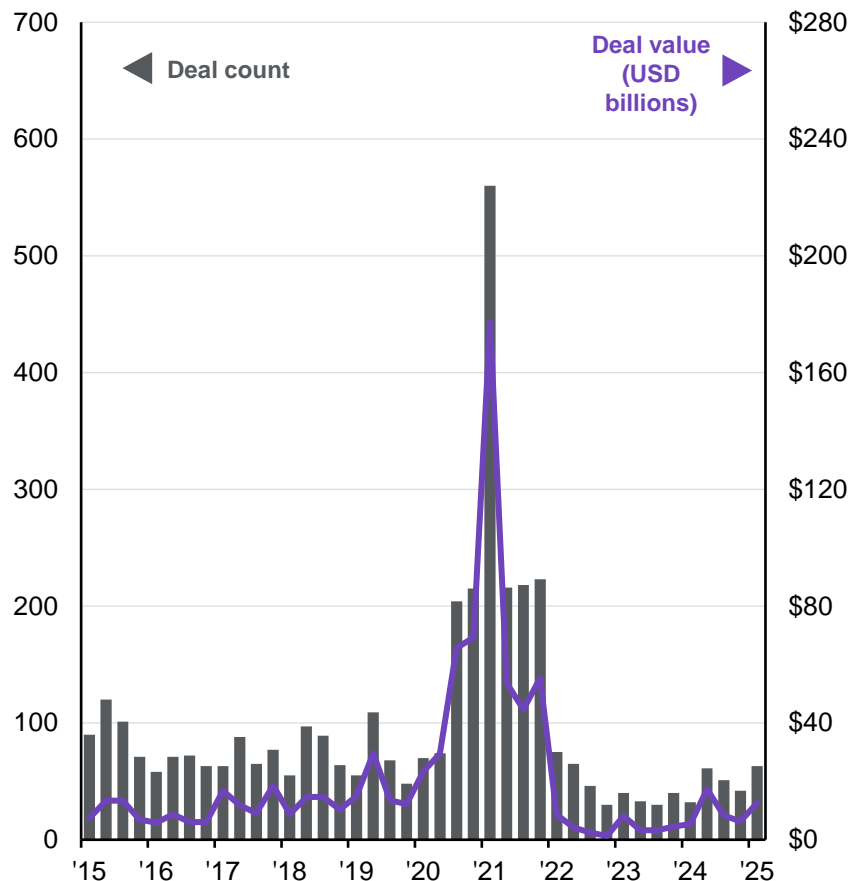
IPOs by deal value and count

GTA MI 60

Private equity

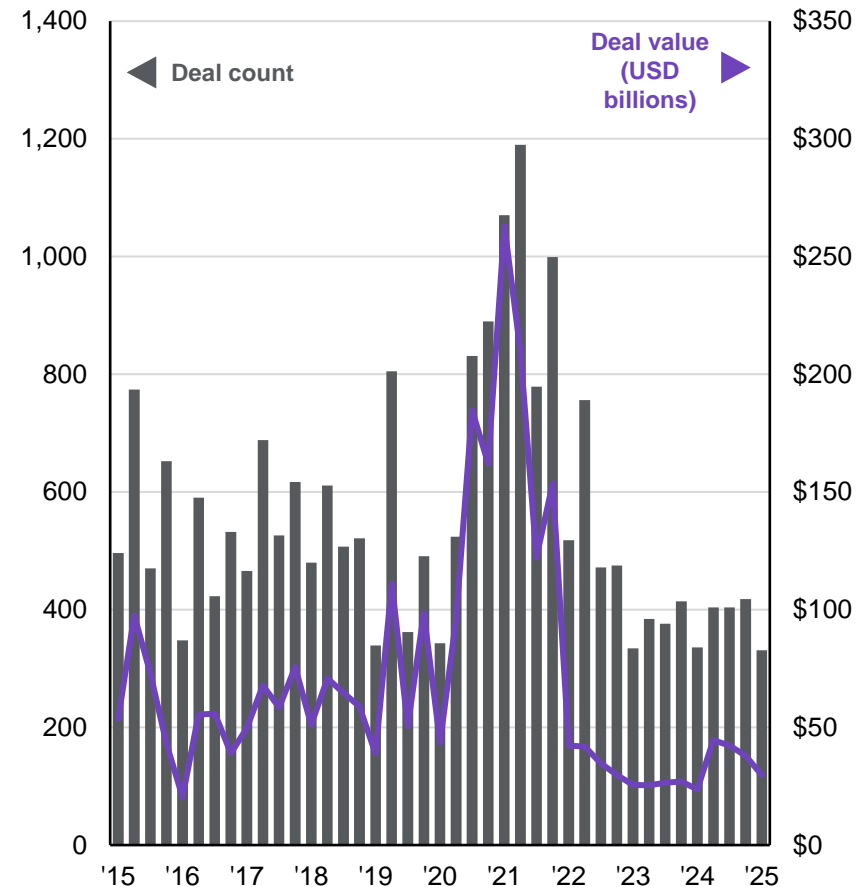
U.S. IPOs

Deal count and deal value by announcement, 1Q15 – 1Q25



Global IPOs

Deal count and deal value by announcement, 1Q15 – 1Q25



Source: Bloomberg, J.P. Morgan Asset Management.

Initial Public Offerings data are provided by Bloomberg and is tracked through public announcements or disclosed directly via the deal's lead underwriters. Exceptions include direct listings as IPO actions or SPAC mergers that result in the private company becoming listed.

Data are based on availability as of May 31, 2025.

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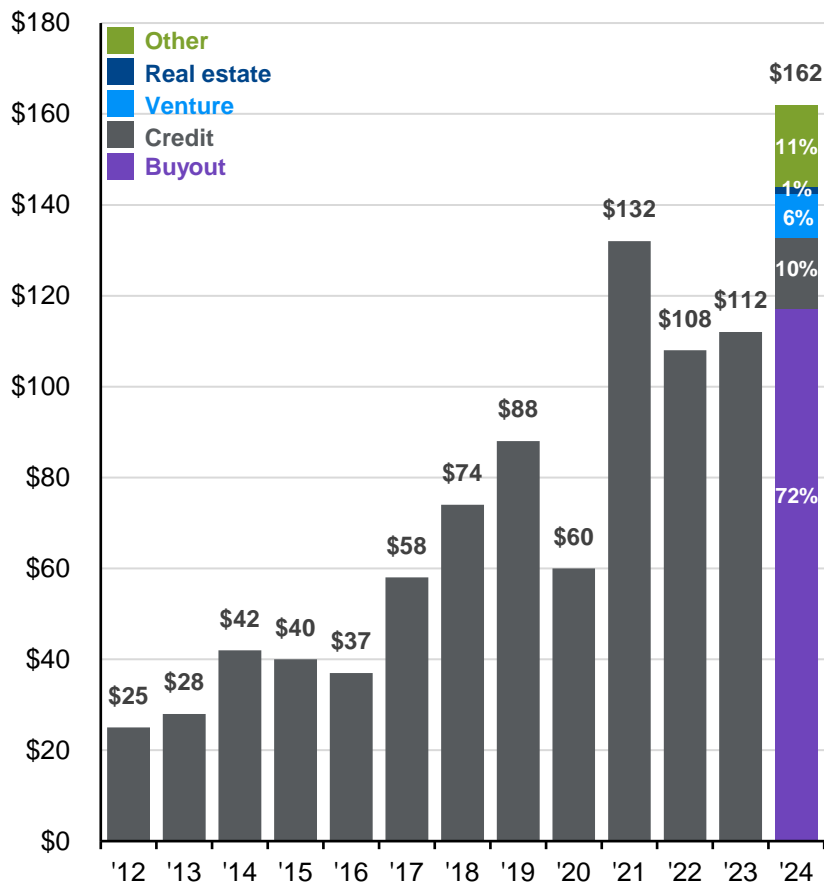
Global private secondary market

GTA MI 61

Private equity

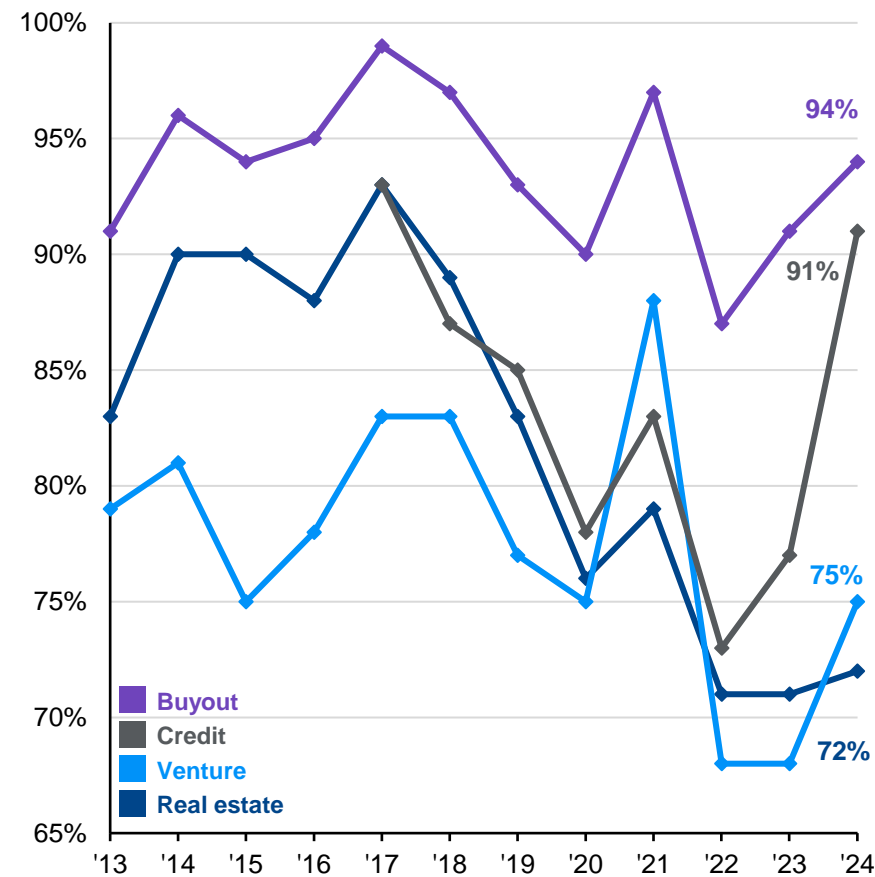
Secondary market volume

USD billions



Secondary pricing*

Percent of net asset value (NAV)



Source: Greenhill, Jefferies, J.P. Morgan Asset Management.

"Global Secondary Market Review," Jefferies, January 2025. (Left) Secondary market volume represents the total value of general partner (GP) and limited partner (LP)-led secondary transactions. Other represents unclassified GP and LP-led secondaries. Secondary transactions involve selling an existing stake of a target company or fund to raise liquidity, exit a position, modify exposures or lock in gains. (Right) *Secondary pricing of LP portfolios.

Data are based on availability as of May 31, 2025.

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U.S. venture capital

GTA

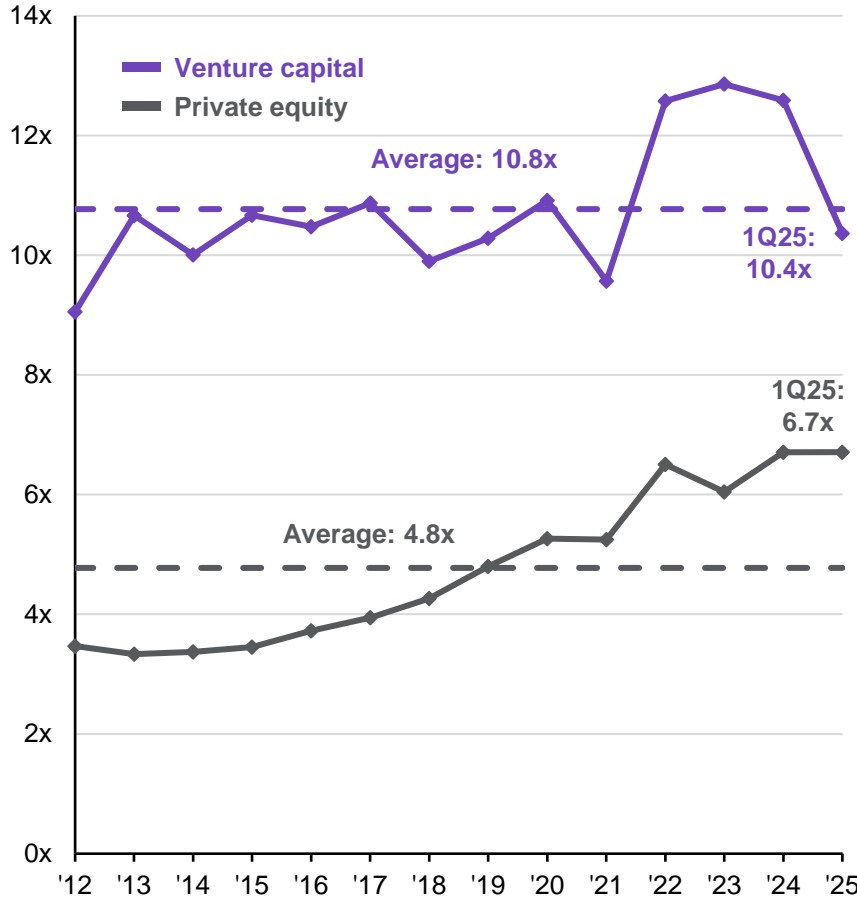
MI

62

Private equity

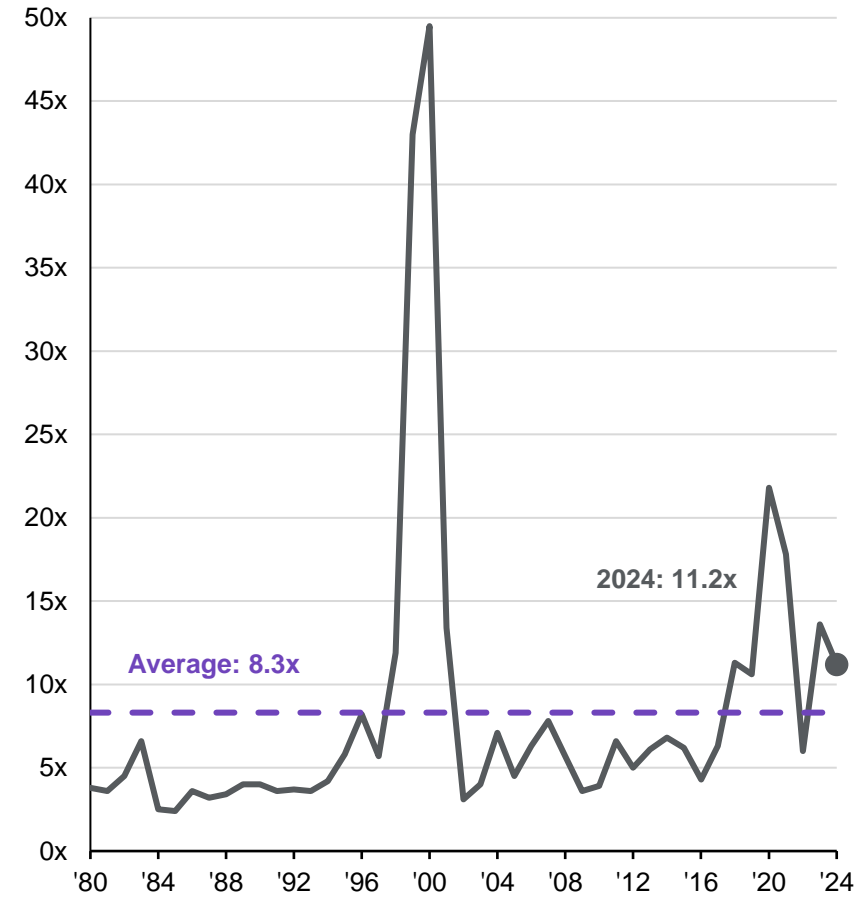
Investment and exit activity

Number of investments/number of exits*, 2012 – 1Q25



Venture capital IPO valuations

1980 – 2024, price-to-sales**



Source: Jay Ritter, University of Florida, Pitchbook|LCD, J.P. Morgan Asset Management.

*Number of investments is defined as deal count. **Price is defined as the first closing market price. Sales are defined as the last 12 months' revenues as reported in the prospectus.

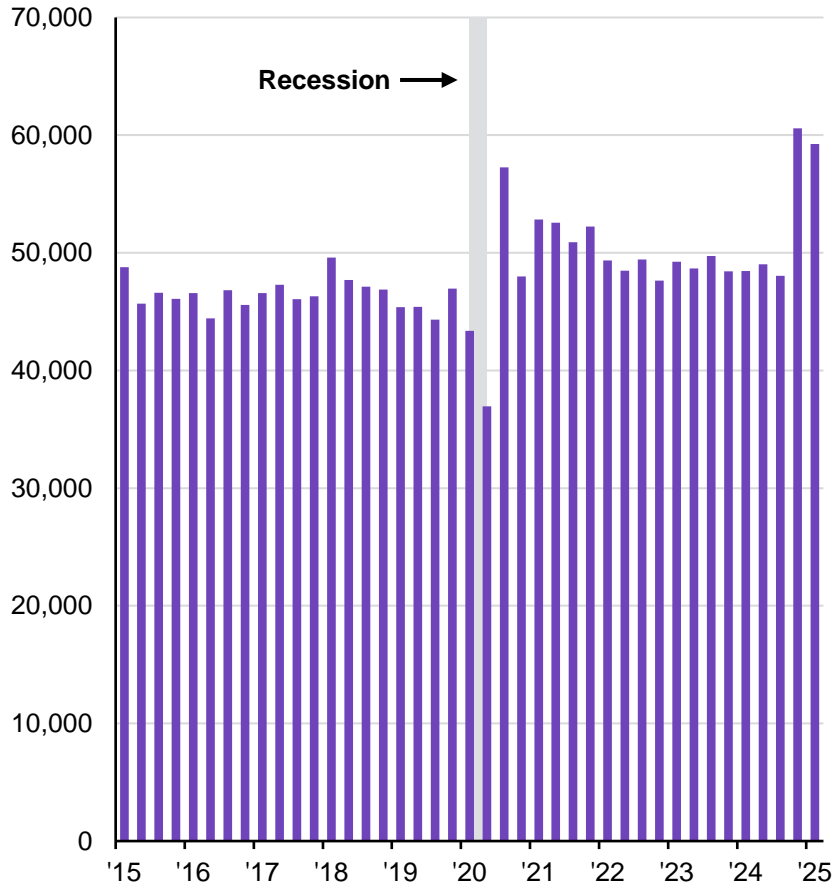
Data are based on availability as of May 31, 2025.

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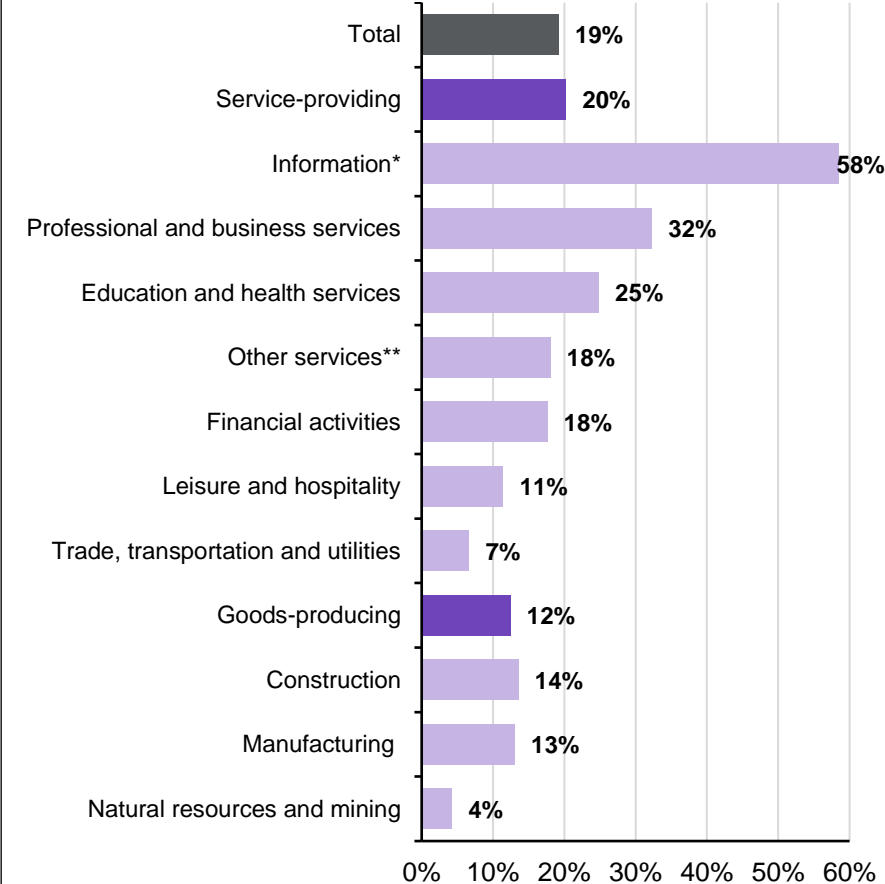


U.S. business formation

U.S. applications for business formation by corps.
Seasonally adjusted, 1Q15 – 1Q25



Growth in business establishments by private industry
December 2019 – September 2024



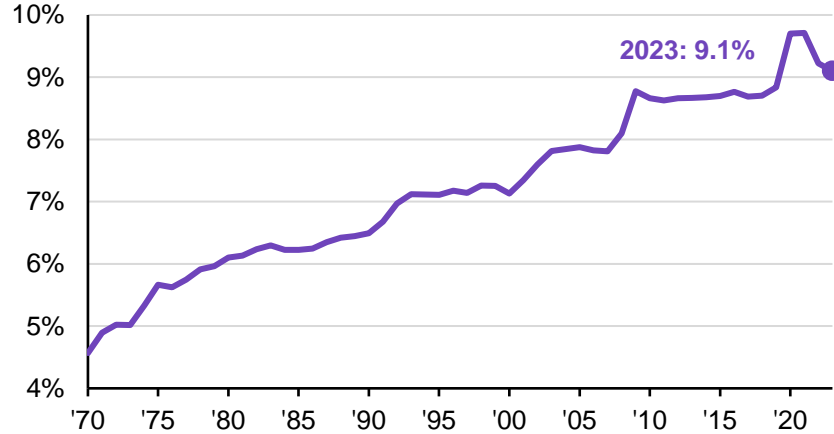
Source: Bureau of Labor Statistics, U.S. Census Bureau, J.P. Morgan Asset Management.
(Left) Business formation data represents the average monthly business applications from corporations. This is defined as business applications from a corporation or personal service corporation, based on their stated IRS Form SS-4 form of organization, that have a high-propensity of turning into businesses with payroll. (Right) *Information includes broadcasting (excluding internet), data processing, hosting and related services, motion picture and sound recording industries, publishing industries (excluding internet) and telecommunications. **Other services includes unclassified businesses.
Data are based on availability as of May 31, 2025.



Healthcare dynamics

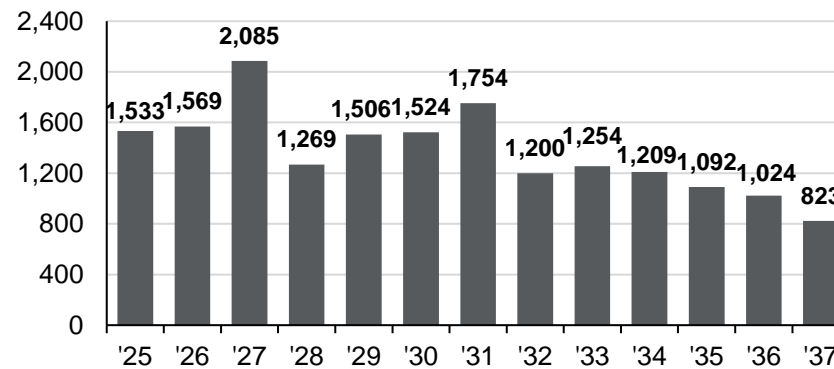
OECD average current expenditure on health

Percent of GDP



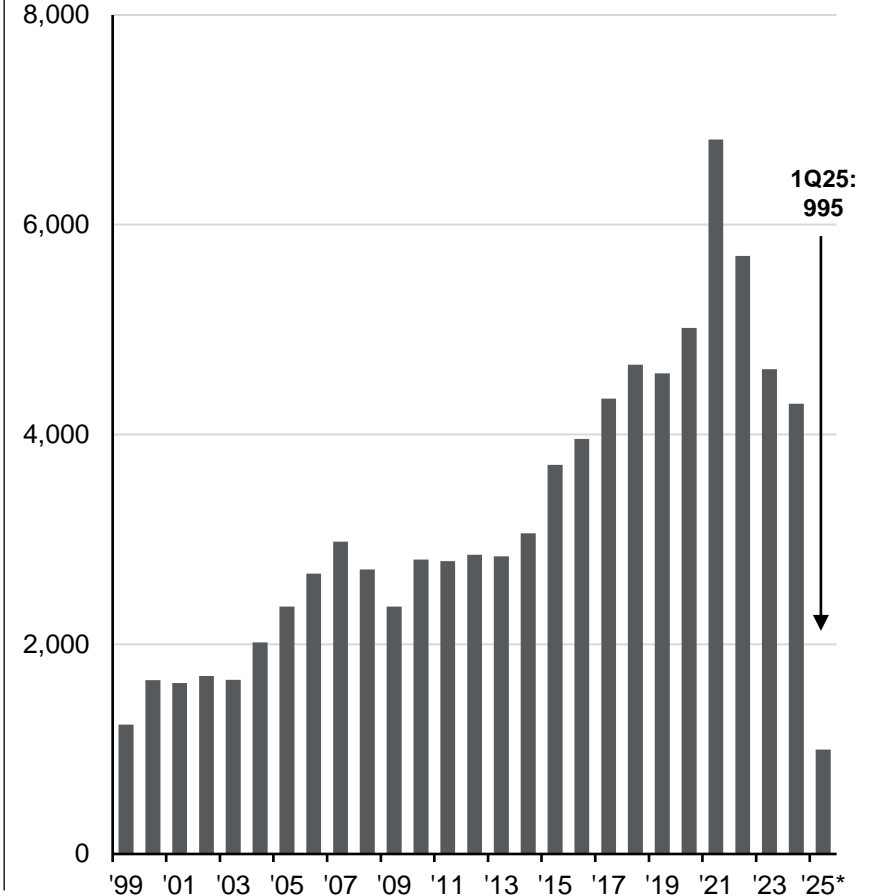
U.S. drug patent expiration

Number of patents expiring each calendar year



Global healthcare M&A activity

Completed deal count



Source: Bloomberg, FDA, OECD, J.P Morgan Asset Management.

(Top left) OECD Health Statistics. (Bottom left) Total patents expiring are from the FDA's Orange Book and Purple Book. (Right) *2025 data are as of 1Q25.

Data are based on availability as of May 31, 2025.



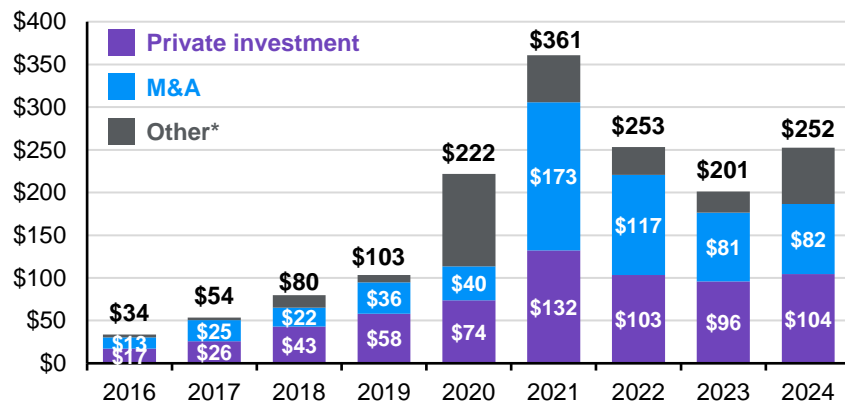
Global investment in artificial intelligence

GTA MI 65

Private equity

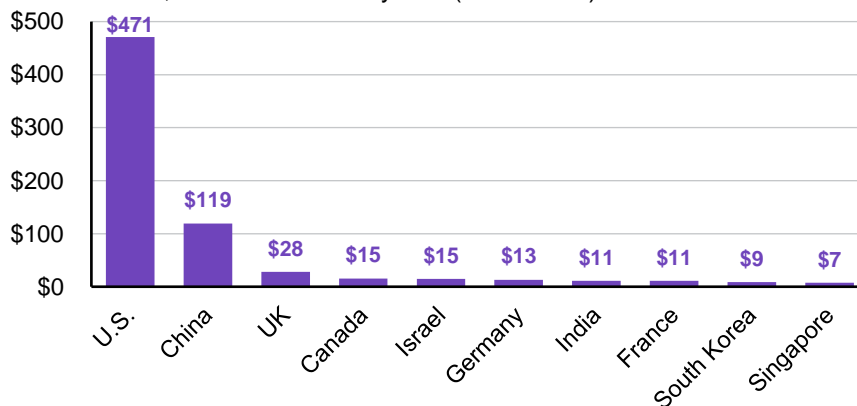
Global corporate investment in AI by type

USD billions



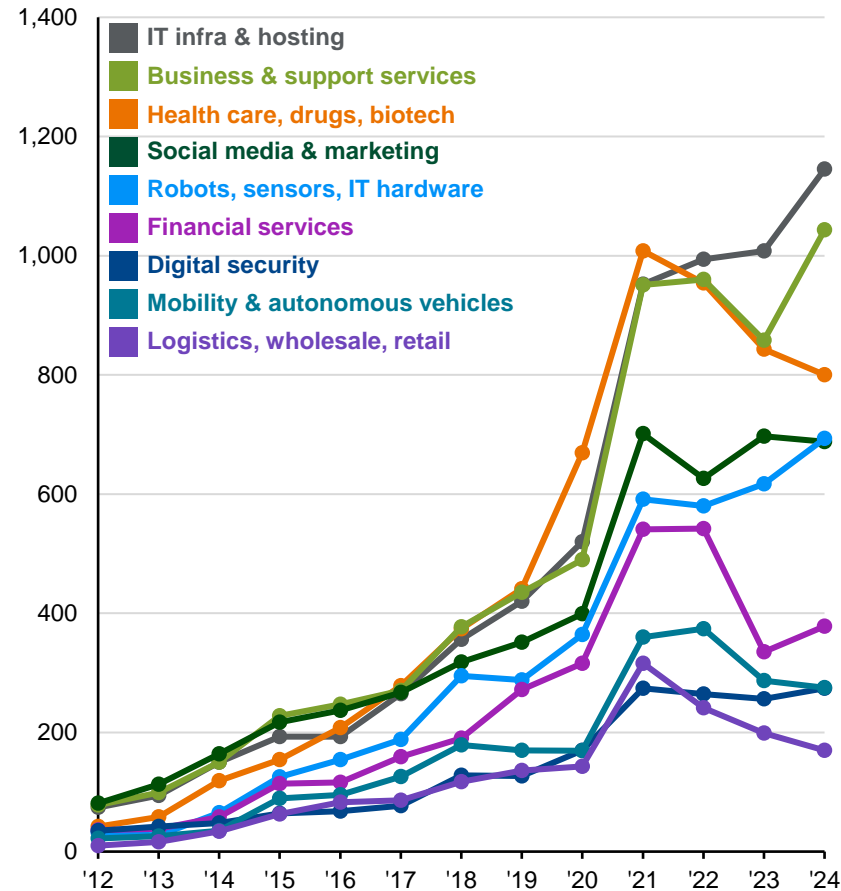
Global private investment in AI by region

USD billions, sum over last 10 years (2013-2024)



Global venture capital investments in AI by industry

Number of investments



Source: OECD, Preqin, Stanford University, J.P Morgan Asset Management.

(Left) Stanford Artificial Intelligence Index Report 2025. *Other includes minority stake and public offering. (Right) Data from OECD.AI.

Data are based on availability as of May 31, 2025.



Venture investment in artificial intelligence

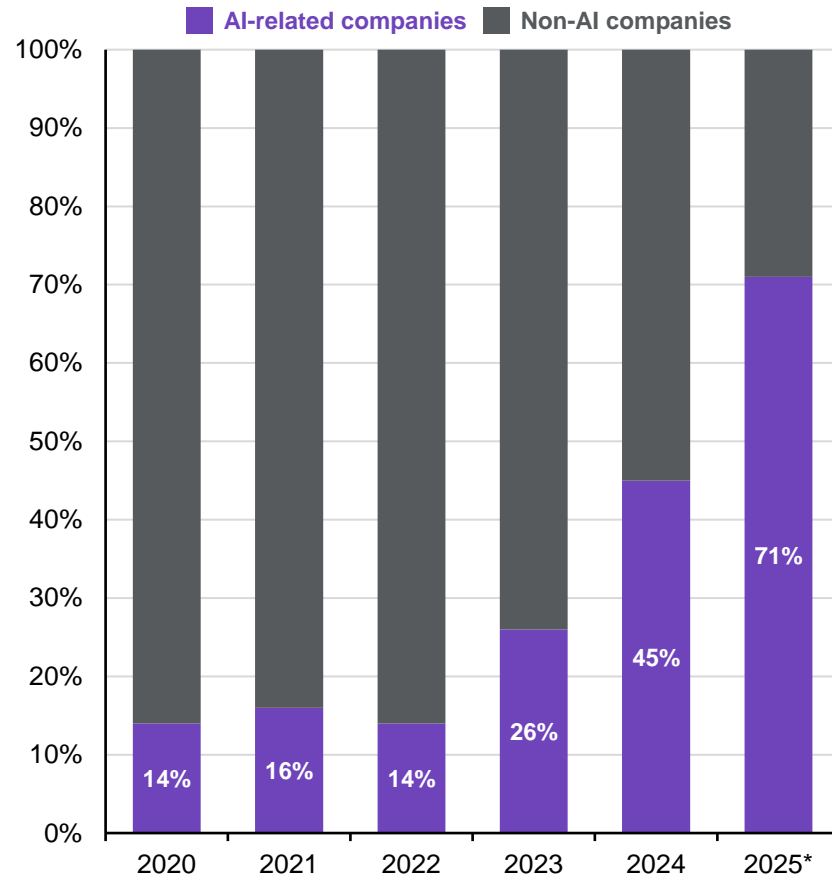
GTA

MI

66

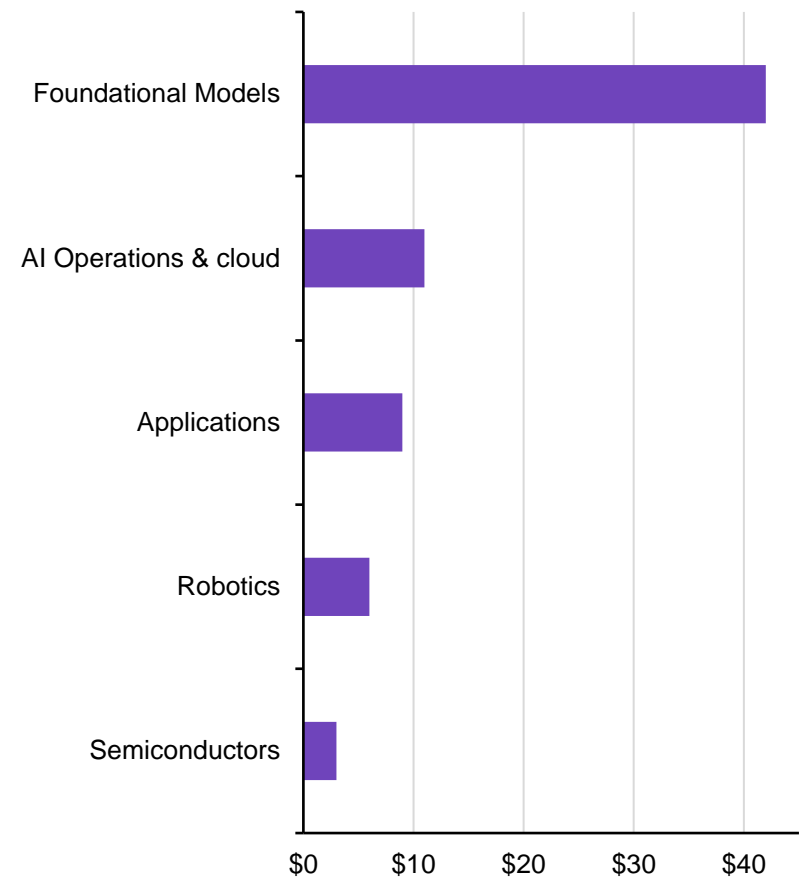
U.S. VC investments in AI

% share of equity investments into U.S. VC-backed companies



AI & Machine Learning VC investment by type

2024 VC deals, USD billions



Source: Crunchbase, EY, Pitchbook, J.P. Morgan Asset Management.

(Left) *2025 data are as of 1Q25.

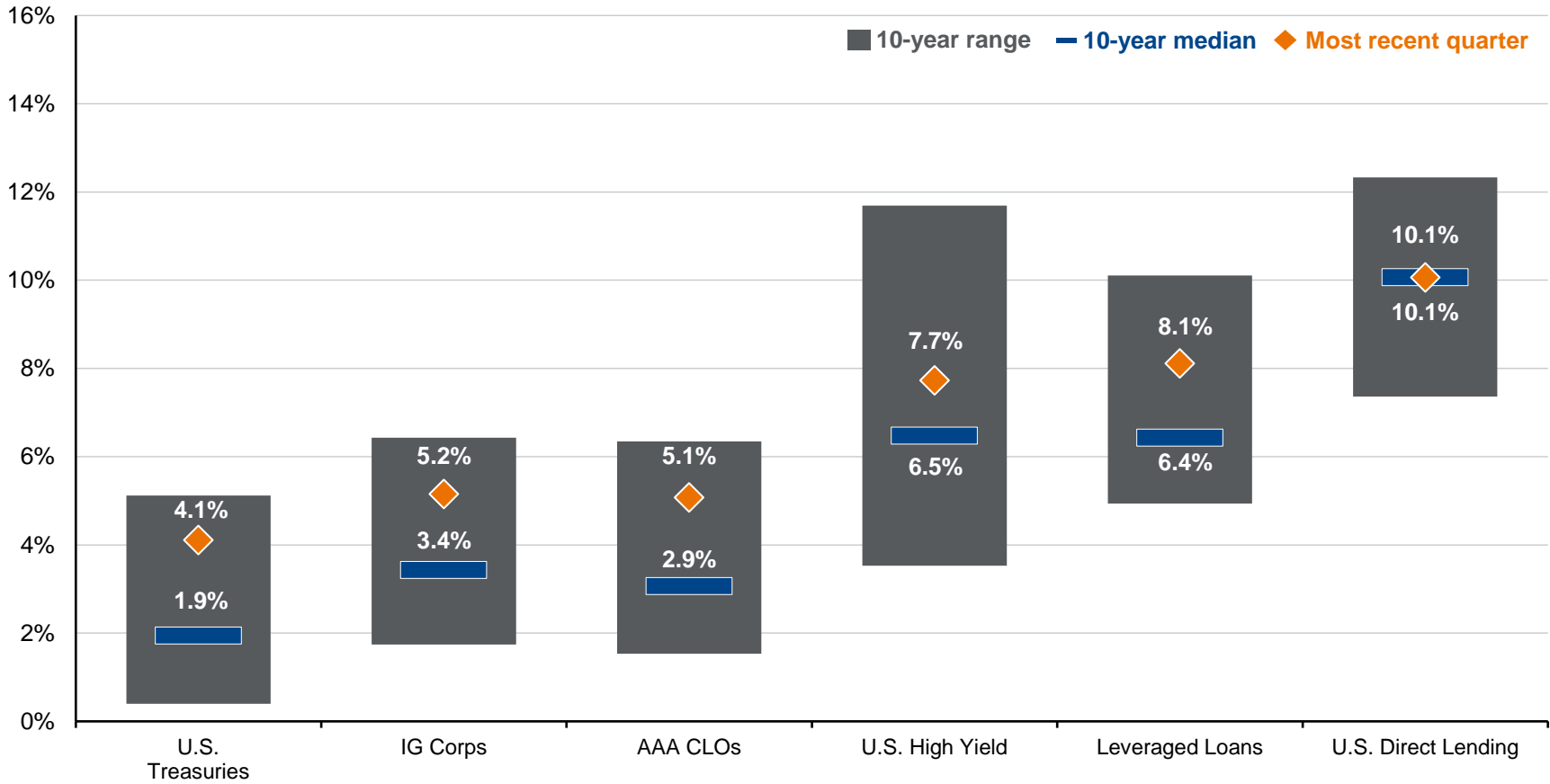
Data are based on availability as of May 31, 2025.



Credit yields comparison

Yields across public and private debt instruments

%, past 10 years



Private credit

Source: Bloomberg, Cliffwater, FactSet, J.P. Morgan Credit Research, KBRA DLD, J.P. Morgan Asset Management. The yields of all categories are evaluated for the 10-year period ending 3/31/2025. U.S. Treasuries, IG corporates and U.S. High Yield categories use the yield-to-worst of their respective Bloomberg indices. AAA CLOs use the quarterly yield-to-worst of AAA-rated debt tranches as tracked by the J.P. Morgan Collateralized Loan Obligation Index (CLOIE). Leveraged Loans are represented by the yield to maturity from the J.P. Morgan Leveraged Loan Index. Direct lending uses the annualized quarterly income return from the Cliffwater Direct Lending Index from the start of the period to 12/31/2021, and the quarterly yield to maturity from the KBRA DLD Index thereafter. Data are based on availability as of May 31, 2025.



Yield and spread trends

GTA

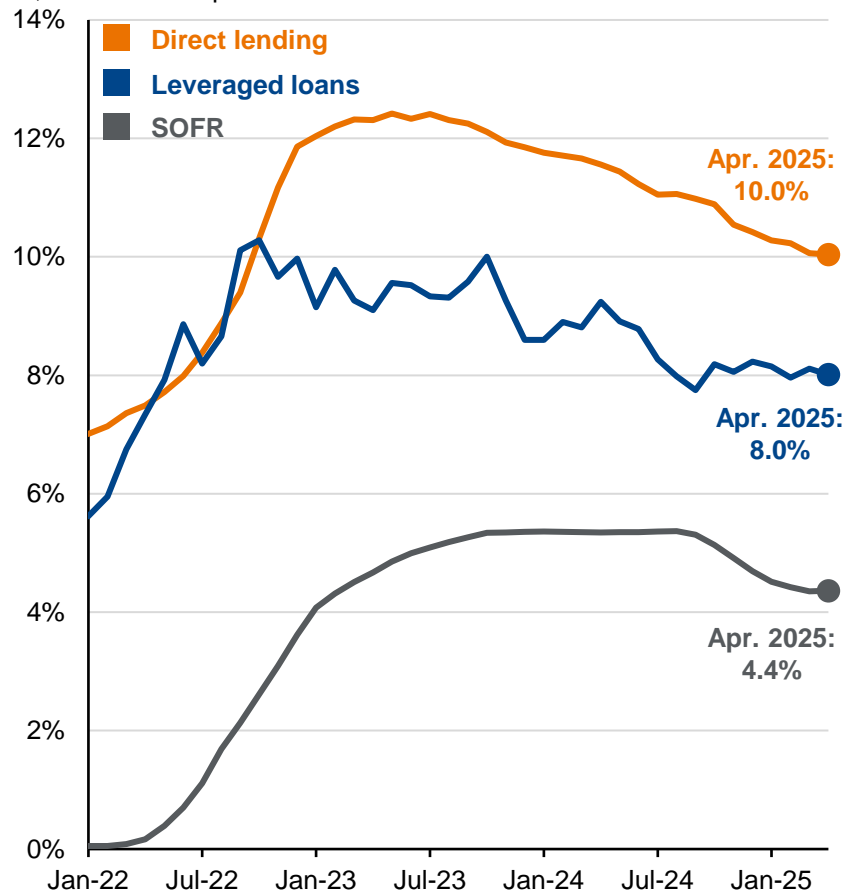
MI

68

Private credit

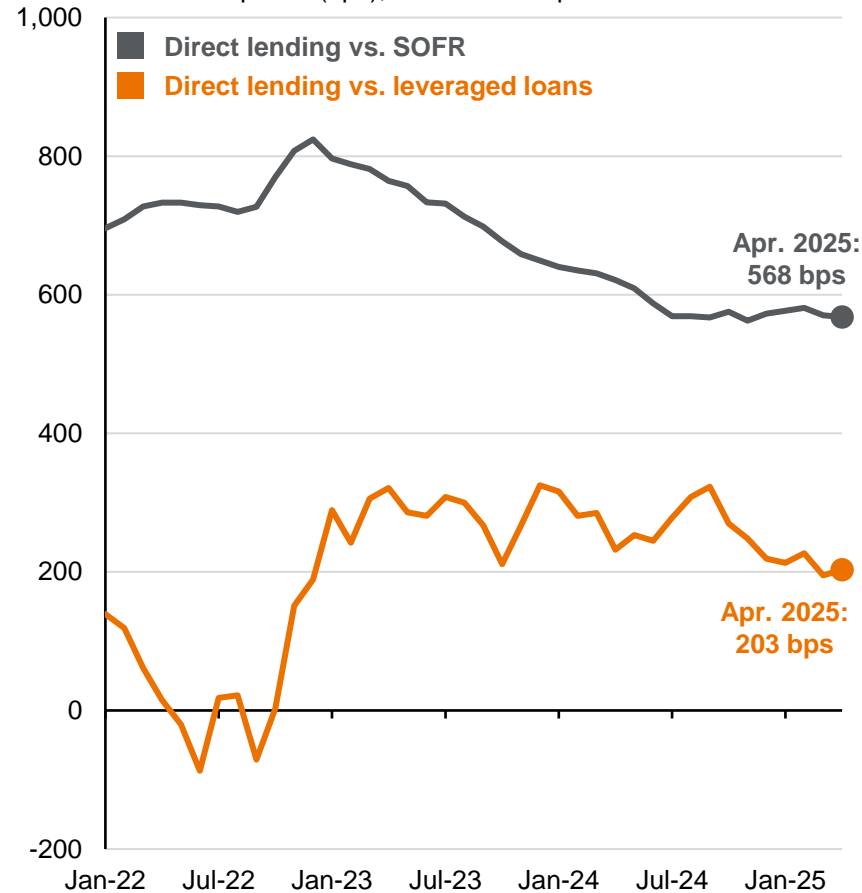
Private and public yields vs. benchmark

%, Jan. 2022 – Apr. 2025



Direct lending yield spreads to other debt instruments

Difference in basis points (bps), Jan. 2022 – Apr. 2025



Source: FactSet, Federal Reserve Bank of New York, J.P. Morgan Credit Research, KBRA DLD, J.P. Morgan Asset Management. SOFR: 90-day average Secured Overnight Financing Rate. Leveraged loans: yield to maturity from the J.P. Morgan Leveraged Loan Index. Private credit: yield to maturity from the KBRA DLD Index. (Right) The spreads are calculated by subtracting the monthly yield of the respective instrument from the monthly direct lending yield. Spreads and yields may not sum due to rounding. Data are based on availability as of May 31, 2025.



Private credit dry powder, fundraising and deal activity

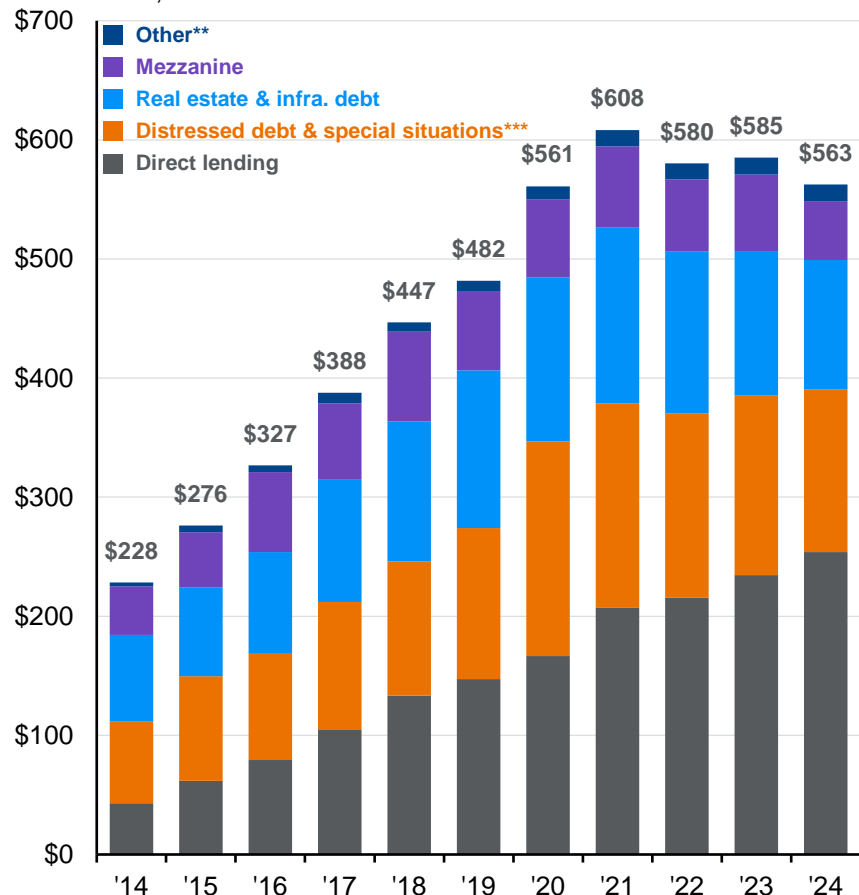
GTA

MI

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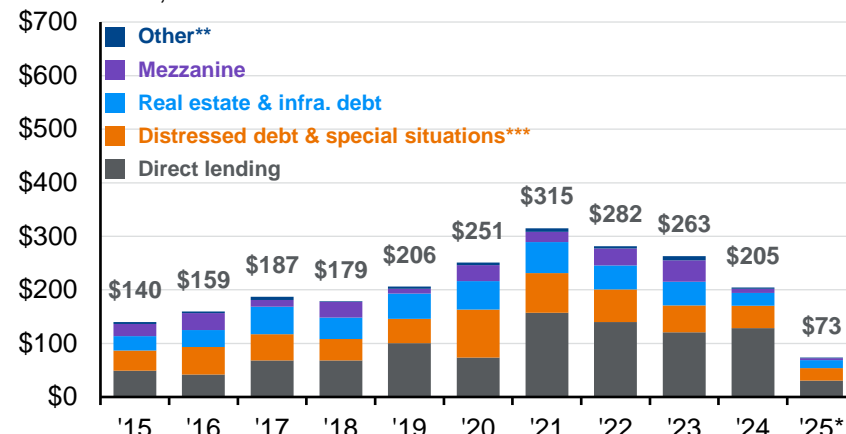
Global private credit dry powder by type

USD billions, 2014 – 2024



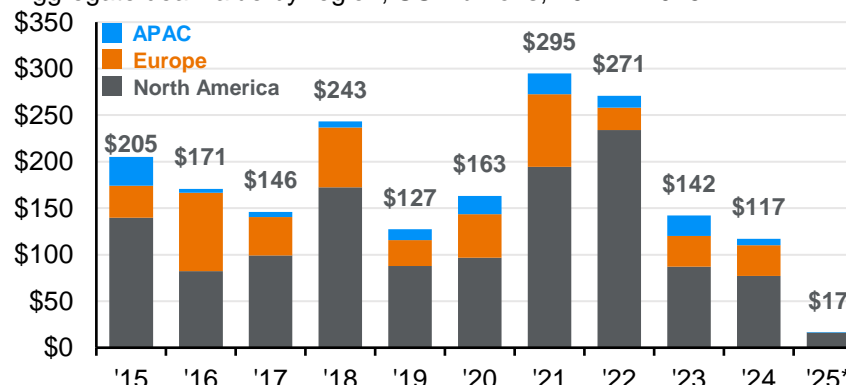
Global private credit fundraising by type

USD billions, 2014 – 2025*



Global private credit deal activity

Aggregate deal value by region, USD billions, 2014 – 2025*



Source: Preqin, J.P. Morgan Asset Management.

*2025 data are as of 1Q25. **Other includes venture debt and fund of funds. ***Special situations are non-traditional financing scenarios for distressed or urgent borrower needs. (Left) 2024 dry powder figures are as of 3Q24.

Data are based on availability as of May 31, 2025.

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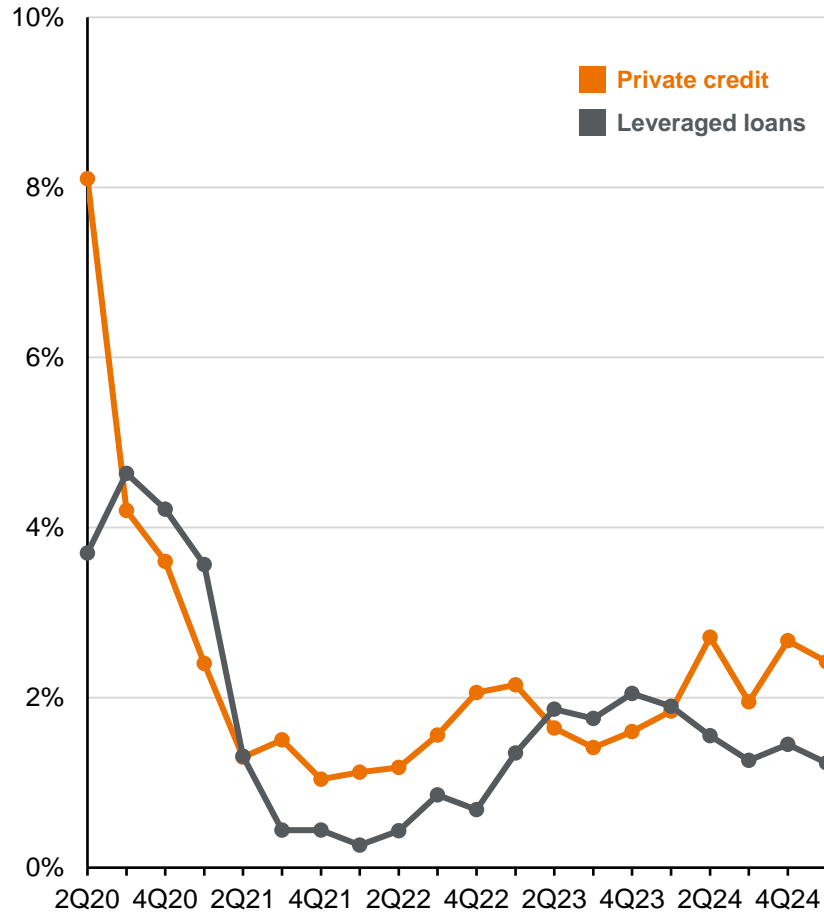
Defaults and restructuring trends

GTA MI 70

Private credit

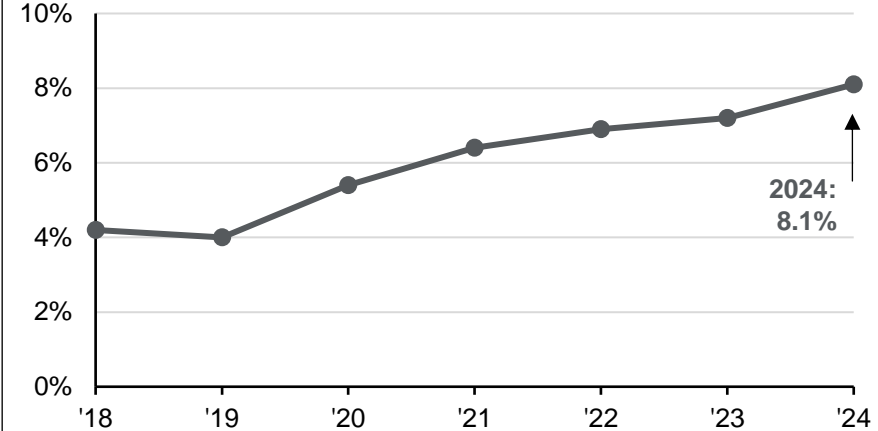
Private credit and leveraged loans default rate

Quarterly, 2Q20 – 1Q25



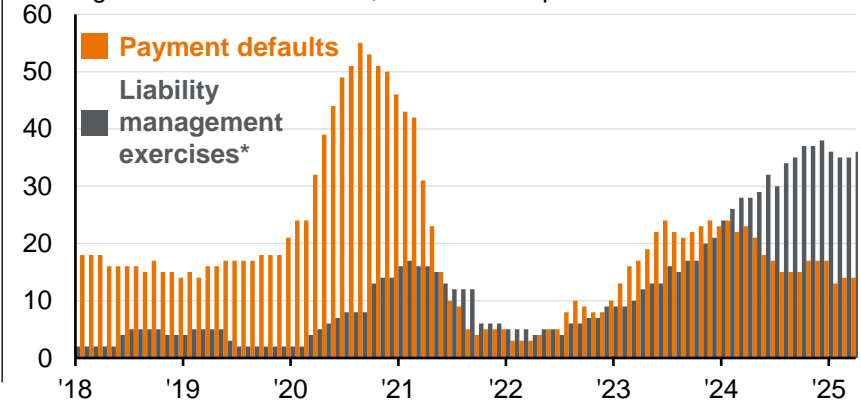
Payment-in-kind income by year

% of Business Development Co.'s int. and div. income, 2018 – 2024



Leveraged loans defaults and restructurings

Trailing 12-month event count, Jan. 2018 - Apr. 2025



Source: Fitch, Morningstar, Pitchbook | LCD, Proskauer, J.P. Morgan Asset Management.

All leveraged loans data are from the Morningstar LSTA U.S. Leveraged Loan Index. The leveraged loans default rate is calculated using the LTM number of defaults as a % of total issuers. The private credit default rate is calculated by dividing the number of defaulted loans by the aggregate number of loans in the Proskauer Private Credit Default Index. (Top right) Payment-in-kind (PIK) is a borrowing arrangement under which a borrower can make interest payments in non-cash forms. Data is an average of Fitch-rated Business Development Companies (BDCs). (Bottom right) *Liability management exercises are mechanisms where a distressed company restructures its debt outside of a formal court-supervised restructuring. Data are based on availability as of May 31, 2025.

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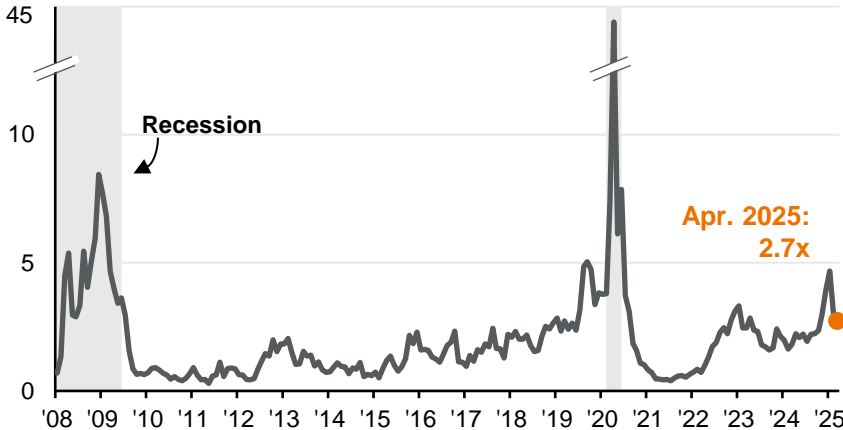
Leveraged loans market stress

GTA MI 71

Private credit

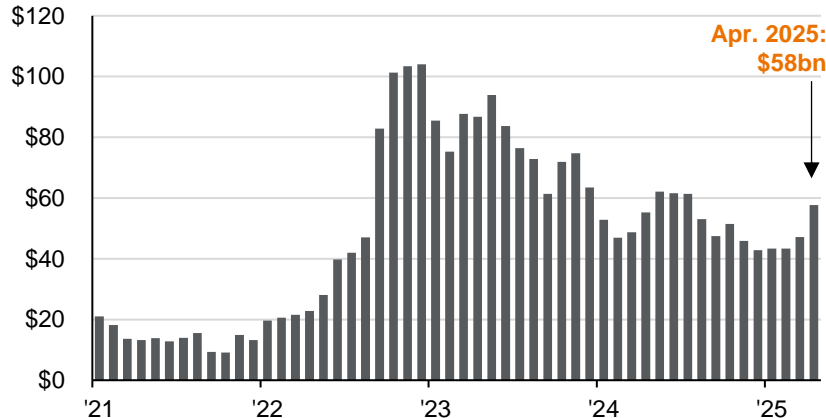
U.S. leveraged loans downgrade/upgrade ratio

Rolling 3-month period



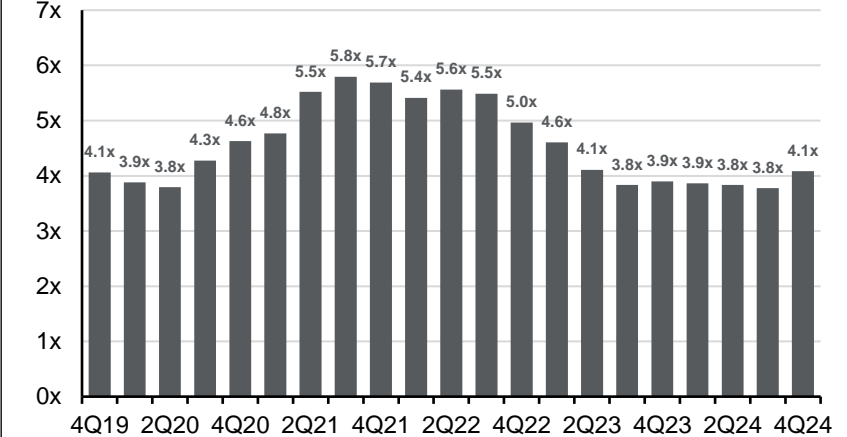
U.S. distressed loan volume outstanding

USD billions



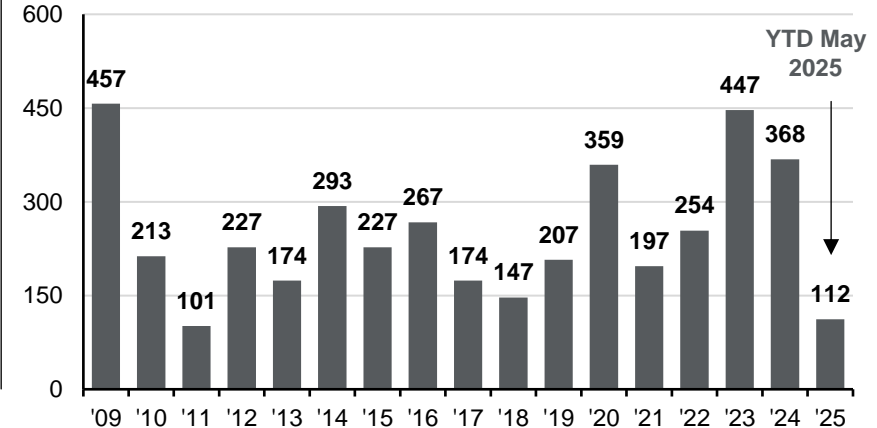
U.S. leveraged loans interest rate coverage

Weighted average*, EBITDA/Interest expense, 4Q19 – 4Q24



U.S. leveraged loans amend and extends by year

Count



Source: Pitchbook|LCD, J.P. Morgan Asset Management.

(Top right) *Averages are weighted by outstanding loan amount. (Bottom left) Distressed loan data are from the Morningstar LSTA U.S. Leveraged Loan Index, which defines distressed loans as performing leveraged loans priced below 80 cents on the dollar.

Data are based on availability as of May 31, 2025.

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Syndicated and private credit convergence

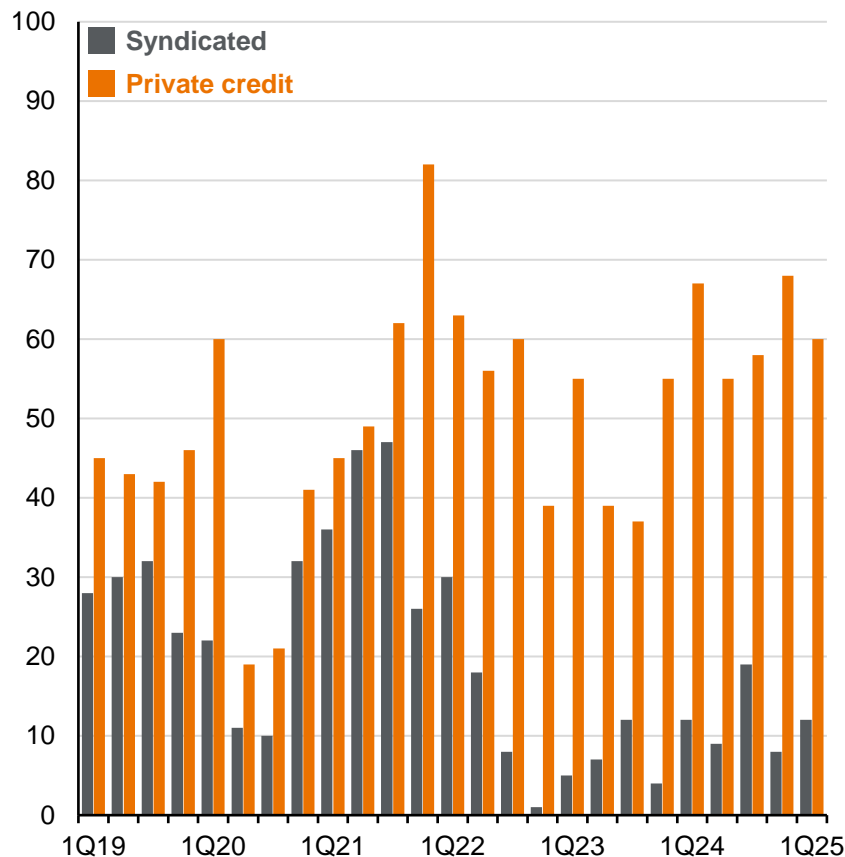
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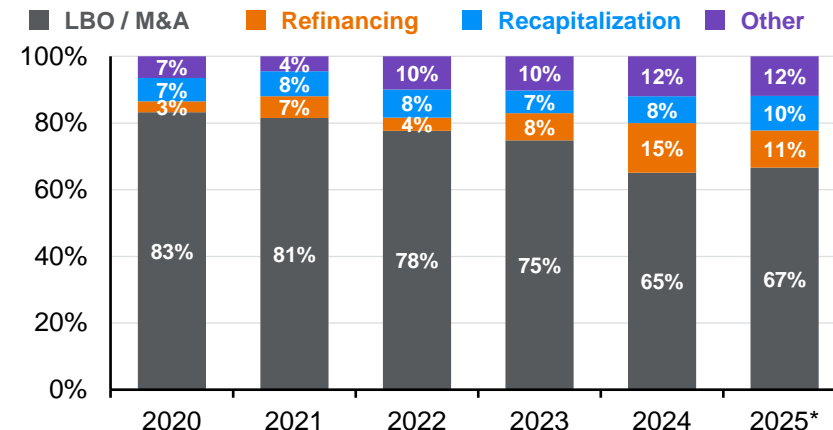
Sources of LBO financing

Number of deals financed by broadly syndicated or private credit loans, quarterly, 1Q19–1Q25



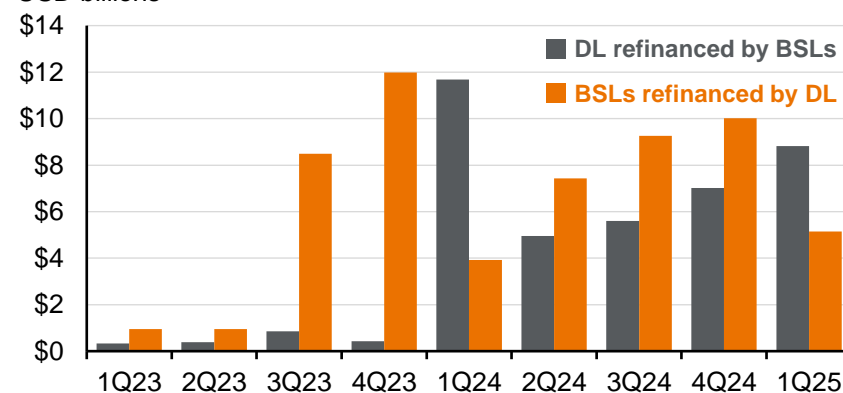
PE-backed direct lending deals by type

% of total deals, 2020 – 1Q25



Syndicated loans (BSL) & direct lending (DL) takeouts

USD billions



Source: Pitchbook | LCD, J.P. Morgan Asset Management.

(Top right) *2025 data are as of 1Q25. (Bottom right) A takeout loan is defined as financing that a lender provides that replaces a borrower's existing loan.

Data are based on availability as of May 31, 2025.



Public and private credit returns

GTA

MI

73

Private credit

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2015-2024	
										Ann.	Vol.**
Mezzanine Debt 16.0%	High Yield 17.1%	Mezzanine Debt 14.0%	Mezzanine Debt 9.2%	Mezzanine Debt 14.6%	Investment Grade 9.9%	Distressed Debt 22.4%	Mezzanine Debt 7.3%	High Yield 13.4%	Direct Lending 11.3%	Mezzanine Debt 11.4%	High Yield 8.6%
Direct Lending 5.5%	Direct Lending 11.2%	Distressed Debt 11.4%	Direct Lending 8.1%	Investment Grade 14.5%	High Yield 7.1%	Mezzanine Debt 18.0%	Direct Lending 6.3%	Leveraged Loans 13.2%	Mezzanine Debt 11.2%	Direct Lending 9.0%	Investment Grade 7.4%
CML - Office 3.2%	Leveraged Loans 9.8%	Direct Lending 8.6%	CML - Industrial 3.7%	High Yield 14.3%	CML - Industrial 6.6%	Direct Lending 12.8%	Distressed Debt 4.6%	Direct Lending 12.1%	Leveraged Loans 9.3%	Distressed Debt 7.1%	Leveraged Loans 6.3%
CML - Retail 3.0%	Distressed Debt 8.5%	High Yield 7.5%	Distressed Debt 3.5%	Direct Lending 9.0%	CML - Apartment 6.5%	Leveraged Loans 5.5%	Leveraged Loans 0.1%	Mezzanine Debt 11.4%	High Yield 8.2%	Leveraged Loans 5.5%	Distressed Debt 5.2%
CML - Industrial 2.9%	Mezzanine Debt 8.0%	Investment Grade 6.4%	CML - Senior* 2.6%	Leveraged Loans 8.6%	CML - Senior* 6.3%	High Yield 5.3%	CML - Retail -7.6%	Distressed Debt 10.4%	Distressed Debt 7.8%	High Yield 5.2%	CML - Apartment 4.5%
CML - Senior* 2.7%	Investment Grade 6.1%	CML - Apartment 6.3%	CML - Apartment 2.6%	CML - Apartment 8.3%	CML - Office 6.3%	CML - Apartment 2.0%	CML - Office -7.6%	Investment Grade 8.5%	CML - Retail 5.8%	CML - Retail 3.3%	CML - Senior* 4.1%
CML - Apartment 1.6%	CML - Retail 3.4%	CML - Senior* 5.7%	CML - Retail 2.4%	CML - Senior* 8.1%	CML - Retail 6.1%	CML - Senior* 1.9%	CML - Senior* -9.0%	CML - Retail 6.2%	CML - Apartment 5.2%	CML - Senior* 3.1%	CML - Industrial 4.1%
Distressed Debt 0.6%	CML - Senior* 2.9%	CML - Office 5.5%	CML - Office 2.4%	CML - Retail 8.0%	Direct Lending 5.5%	CML - Retail 1.9%	CML - Industrial -9.5%	CML - Industrial 5.8%	CML - Senior* 5.0%	CML - Industrial 3.1%	CML - Retail 3.8%
Leveraged Loans 0.5%	CML - Industrial 2.8%	CML - Industrial 5.2%	Leveraged Loans 1.1%	CML - Office 7.9%	Mezzanine Debt 4.7%	CML - Industrial 1.8%	CML - Apartment -9.8%	CML - Apartment 5.6%	CML - Industrial 4.8%	CML - Apartment 3.0%	CML - Office 3.7%
Investment Grade -0.7%	CML - Apartment 2.7%	CML - Retail 5.1%	High Yield -2.1%	CML - Industrial 7.5%	Leveraged Loans 3.2%	CML - Office 1.6%	High Yield -11.2%	CML - Senior* 5.6%	CML - Office 3.6%	CML - Office 2.9%	Mezzanine Debt 3.2%
High Yield -4.5%	CML - Office 2.6%	Leveraged Loans 4.2%	Investment Grade -2.5%	Distressed Debt 2.2%	Distressed Debt 1.8%	Investment Grade -1.0%	Investment Grade -15.8%	CML - Office 4.5%	Investment Grade 2.1%	Investment Grade 2.4%	Direct Lending 2.9%

Source: Bloomberg, Cliffwater, Gilberto-Levy, J.P. Morgan, Preqin, J.P. Morgan Asset Management.

CML is commercial mortgage loans. CML: Gilberto-Levy Commercial Mortgage Performance Index; Direct Lending: Cliffwater Direct Lending Index; Distressed Debt: Preqin Quarterly Distressed Debt Index; Investment Grade: Bloomberg U.S. Aggregate Credit - Corporates - Investment Grade Index; High Yield: Bloomberg U.S. Aggregate Credit - Corporate - High Yield Index; Leveraged Loans: J.P. Morgan Leveraged Loan Index; Mezzanine Debt: Preqin Quarterly Mezzanine Debt Index. Annualized return (Ann.) and volatility (Vol.) represents the 40-quarter period ending 12/31/2024. **Volatility is calculated as the annualized standard deviation of quarterly returns. Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.

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Hedge funds and manager selection

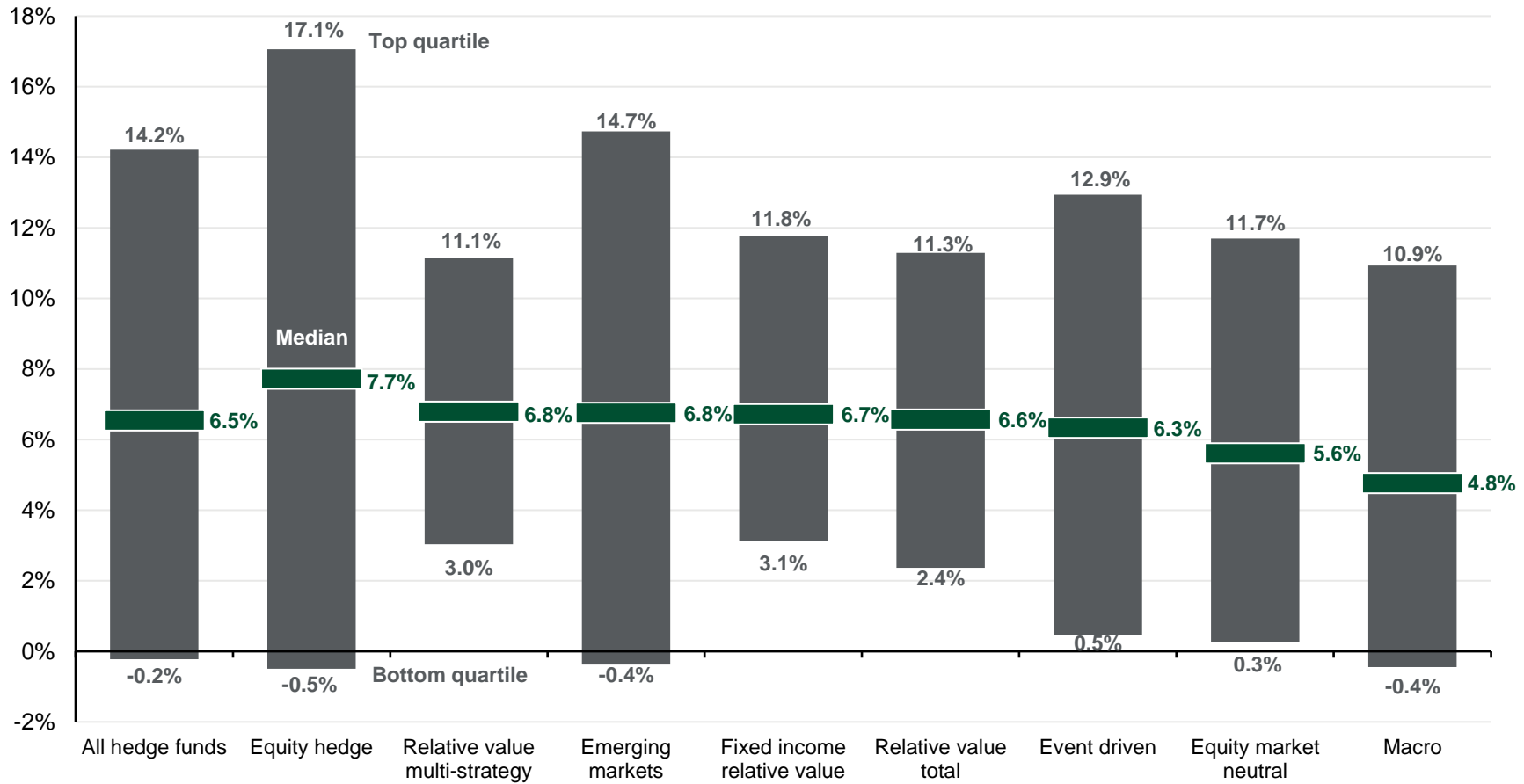
GTA

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74

Hedge fund manager dispersion

Based on returns from 2014-2025* in USD



Source: PivotalPath, J.P. Morgan Asset Management.

Manager dispersion is based on monthly returns for hedge funds. Green bar denotes median. All hedge funds: Fund Weighted Composite Index, Equity hedge: Equity Hedge (Total), Relative value multi-strategy: Relative Value Multi-Strategy, Emerging markets: Emerging Markets Global, Relative value: Relative Value (Total), Event-driven: Event-Driven (Total), Equity market neutral: Equity hedge – equity market neutral, Macro total: Macro (Total). Past performance is not a reliable indicator of current and future results. *2025 data are as of 1Q25.

Data are based on availability as of May 31, 2025.



Hedge fund strategy returns

GTA

MI

75

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	YTD*	2015-2024	
												Ann.	Vol.
Merger Arbitrage	7.8%	Distressed 15.3%	Global Equities 20.4%	Eq. Market Neutral 5.8%	Global Equities 26.9%	Relative Value 16.1%	Global Equities 21.4%	Global Macro 11.5%	Global Equities 22.2%	Global Equities 20.7%	Global Macro 3.0%	Global Equities 10.6%	Global Equities 14.5%
Eq. Market Neutral	7.1%	Global Equities 9.7%	Equity Long/Short 11.5%	Relative Value 3.5%	Equity Long/Short 12.6%	Global Equities 14.8%	Distressed 16.9%	Eq. Market Neutral 7.1%	Equity Long/Short 11.0%	Distressed 14.2%	Global Bonds 2.6%	Eq. Market Neutral 7.8%	Equity Long/Short 8.4%
Relative Value	6.0%	Relative Value 5.8%	PivotalPath Composite 8.0%	Merger Arbitrage 3.2%	Merger Arbitrage 10.2%	Eq. Market Neutral 13.8%	Eq. Market Neutral 11.9%	Relative Value 5.3%	Eq. Market Neutral 8.5%	Equity Long/Short 12.6%	Relative Value 1.1%	Relative Value 7.4%	Distressed 7.6%
Equity Long/Short	4.3%	Global Macro 5.1%	Global Bonds 7.4%	Distressed -1.1%	PivotalPath Composite 9.0%	Equity Long/Short 13.4%	Relative Value 9.4%	Merger Arbitrage 1.7%	Distressed 7.8%	PivotalPath Composite 10.6%	Merger Arbitrage 1.1%	Equity Long/Short 6.3%	Global Bonds 7.4%
PivotalPath Composite	2.5%	PivotalPath Composite 5.0%	Distressed 7.1%	Global Bonds -1.2%	Relative Value 7.1%	PivotalPath Composite 11.4%	Equity Long/Short 9.3%	PivotalPath Composite -1.1%	PivotalPath Composite 7.6%	Relative Value 9.7%	Distressed 0.6%	PivotalPath Composite 5.8%	Merger Arbitrage 6.8%
Global Macro	2.3%	Eq. Market Neutral 2.6%	Eq. Market Neutral 6.1%	PivotalPath Composite -1.6%	Eq. Market Neutral 6.9%	Global Bonds 9.2%	Merger Arbitrage 8.9%	Distressed -2.7%	Relative Value 5.9%	Eq. Market Neutral 8.7%	Eq. Market Neutral 0.3%	Distressed 5.4%	PivotalPath Composite 5.9%
Global Equities	1.8%	Equity Long/Short 2.2%	Relative Value 6.0%	Global Macro -2.0%	Global Bonds 6.8%	Merger Arbitrage 5.9%	PivotalPath Composite 7.8%	Equity Long/Short -7.0%	Global Bonds 5.7%	Global Macro 6.4%	PivotalPath Composite 0.1%	Merger Arbitrage 5.0%	Global Macro 4.3%
Global Bonds	-3.2%	Global Bonds 2.1%	Merger Arbitrage 3.0%	Equity Long/Short -4.8%	Global Macro 5.6%	Global Macro 4.9%	Global Macro 4.3%	Global Equities -15.6%	Merger Arbitrage 3.7%	Merger Arbitrage 5.5%	Equity Long/Short -0.2%	Global Macro 4.0%	Eq. Market Neutral 3.0%
Distressed	-7.4%	Merger Arbitrage 0.6%	Global Macro 0.9%	Global Equities -7.2%	Distressed 1.8%	Distressed 4.7%	Global Bonds -4.7%	Global Bonds -16.2%	Global Macro 1.1%	Global Bonds -1.7%	Global Equities -2.0%	Global Bonds 0.2%	Relative Value 2.8%

Source: Bloomberg, FactSet, MSCI, PivotalPath, J.P. Morgan Asset Management.

*YTD returns are as of 1Q25. All returns are in USD. Global equities reflect the MSCI AC World Index and global bonds reflect the Bloomberg Global Aggregate Index. All hedge fund returns are from PivotalPath. PivotalPath Composite: PivotalPath Composite Index. Annualized return (Ann.) and volatility (Vol.) represents the 40-quarter period ending 12/31/2024. Please see disclosure pages for category definitions. Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.

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Hedge funds and traditional portfolios

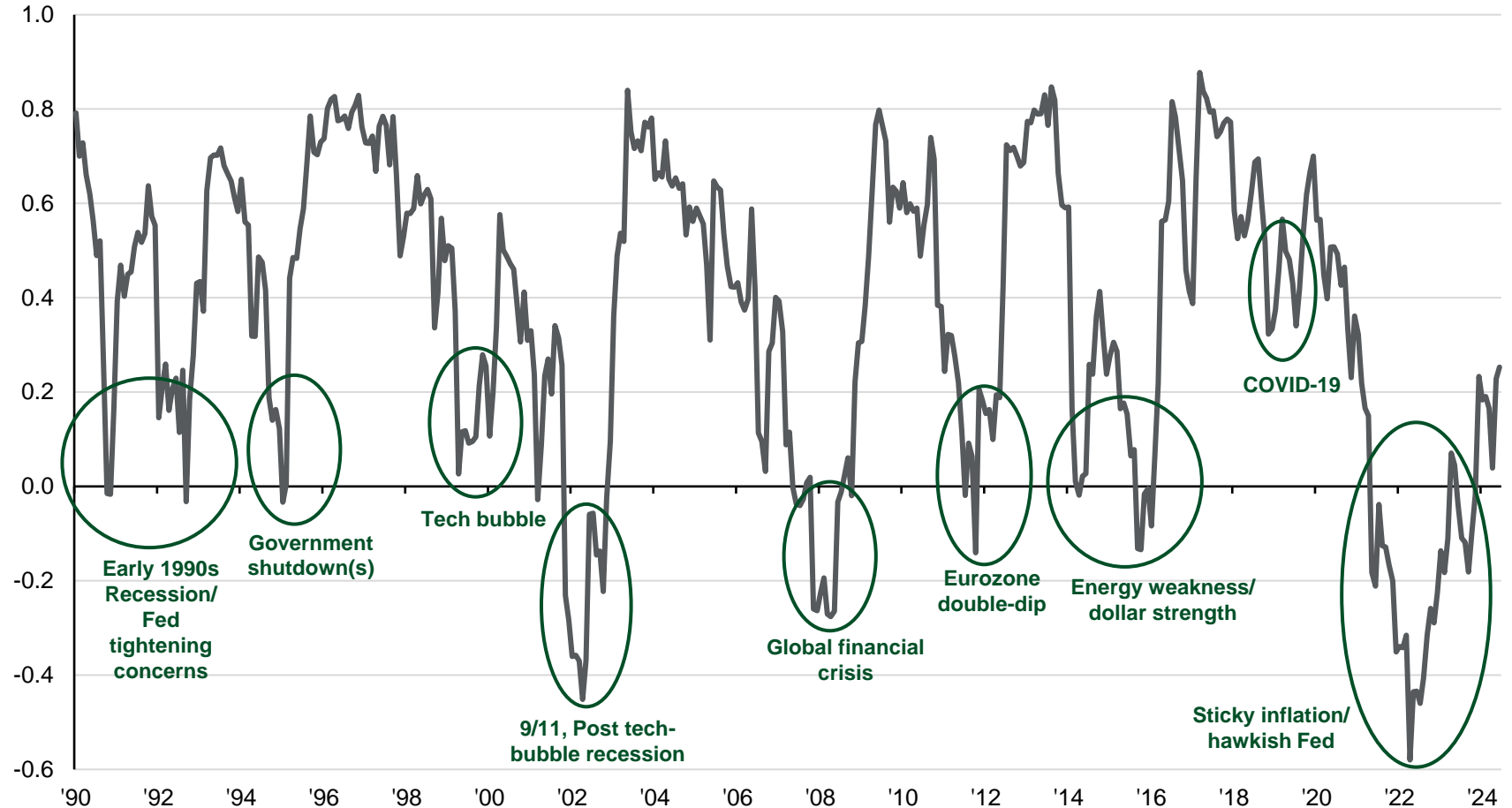
GTA

MI

76

Hedge fund correlation with a 60/40 stock-bond portfolio

Monthly, rolling 12 months



Source: Bloomberg, FactSet, HFRI, Standard & Poor's, J.P. Morgan Asset Management.
60/40 portfolio is 60% S&P 500 and 40% Bloomberg U.S. Aggregate. Hedge funds are represented by HFRI Macro. Past performance is not a reliable indicator of current and future results.
Data are based on availability as of May 31, 2025.

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Hedge fund performance and volatility

GTA

MI

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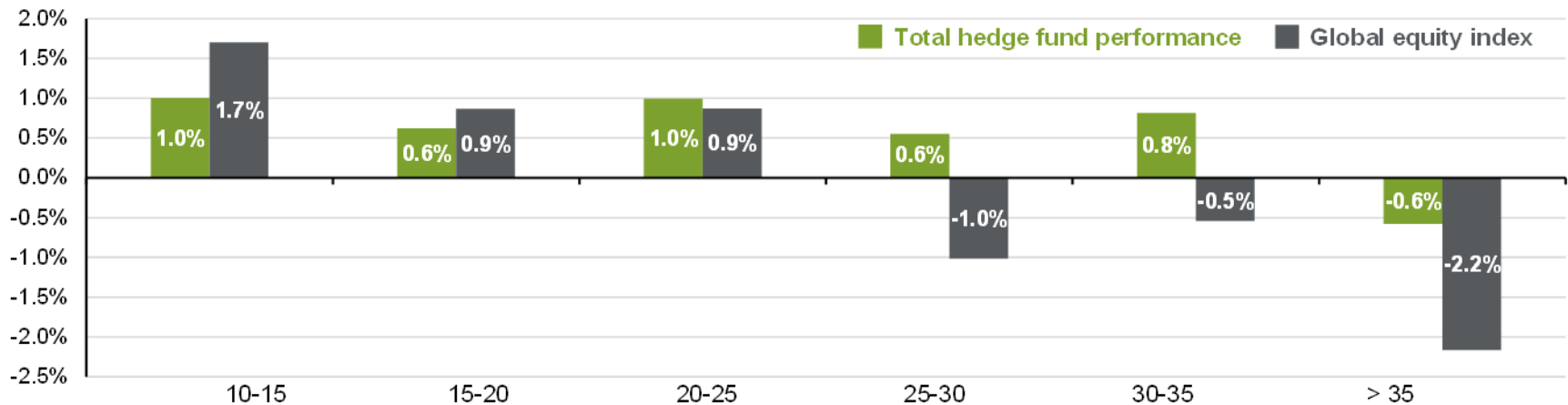
Macro hedge fund relative performance and volatility

VIX index level, y/y change in relative performance of PivotalPath Global Macro Index



Hedge funds vs. global equity performance and volatility

Average monthly returns by VIX level, Jan. 1998 – Apr. 2025, total return



Source: Bloomberg, CBOE, FactSet, MSCI, PivotalPath, Standard & Poor's, J.P. Morgan Asset Management. Monthly VIX reading is an average. (Top) Macro hedge fund relative performance volatility is since 6/30/1998. Numbers may not sum to aggregate total return due to rounding. Global equity index = MSCI All Country World Index. 60/40 portfolio = 60% S&P 500 Total Return Index and 40% Bloomberg U.S. Aggregate Total Return Index. Past performance is not a reliable indicator of current and future results. Data are based on availability as of May 31, 2025.

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Volatility, rates and hedge fund returns

GTA

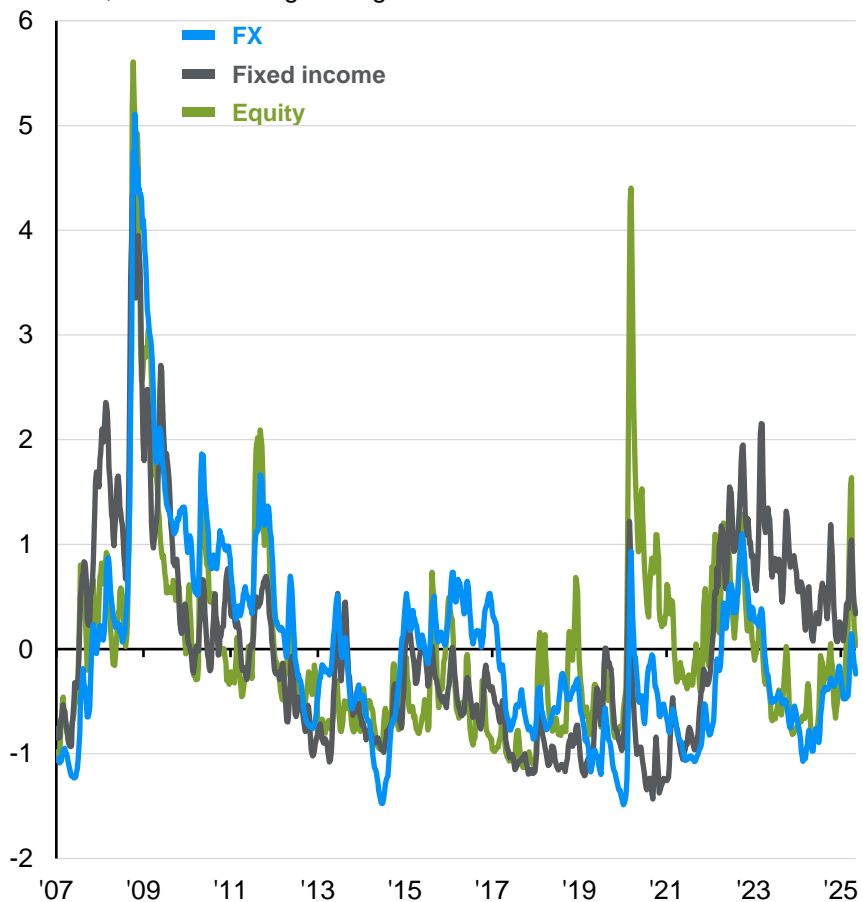
MI

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Hedge funds

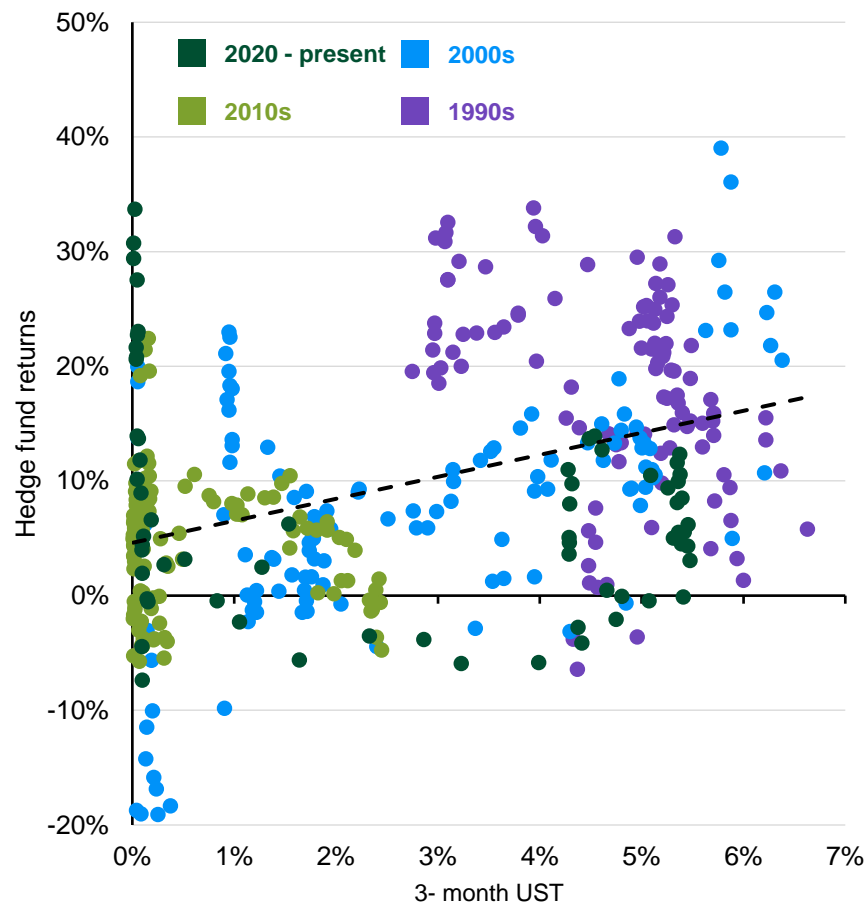
Equity, fixed income and foreign exchange volatility

Z-score, 4-week moving average



Hedge fund excess returns and short rates

Dec. 1990 – May 2025, year-over-year, total return



Source: CBOE, FactSet, HFRI, ICE BofA, J.P. Morgan Index Research, J.P. Morgan Asset Management.

(Left) Equity volatility is represented by the VIX Index, fixed income volatility is represented by the MOVE Index and foreign exchange volatility is represented by the J.P. Morgan Global FX Volatility Index. (Right) 3-month U.S. T-bill yield: Bloomberg U.S. Short Treasury (1-3 months) Index, Hedge fund returns: HRFI Fund Weighted Composite (USD) Index. Past performance is not a reliable indicator of current and future results.

Data are based on availability as of May 31, 2025.

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Real estate

Base rent – The gross revenue from rental payments.

Capitalization rate (Cap rate) – The rate of return on a real estate investment property defined as the net operating income from the property divided by the current market price of the property.

Cap rate spread – The difference between the cap rate and a Treasury security with the same maturity.

Core real estate – High quality properties in primary markets with high occupancy rates, credit-worthy tenants and long leases.

Effective rent – Base rent less rental concessions and tenant improvements.

Gross absorption – Space that became physically occupied in a specific period.

Mezzanine debt – Financing that is half-way between equity and debt by which the lender can convert to equity if the loan is not paid on time or in full.

Net absorption – Space that became physically occupied minus space that was physically vacated in a specific period.

Net absorption rate – Net absorption during a specific period divided by space available to lease at the start of that period.

Occupancy rate – The percentage of available space that is occupied.

Real estate prime yield – The real estate yield on a property at a prime location.

Real estate net operating income – Income after operating expenses but before interest, taxes, capital spending, depreciation and amortization.

Real estate yields – Annual income divided by total investment. Note that annual income, unlike NOI, does deduct interest costs so that real estate yields should be lower than cap rates.

Real estate yield spread – The difference between the yields and a Treasury security with the same maturity.

Vacancy rate – The percentage of available space that is unoccupied.

Private equity

Buyout fund – Private equity fund that focuses on taking a majority stake or full control of mature, undervalued companies.

Called capital – The amount of capital wired to a fund that is “drawn down” over time as the general partner selects investments.

Committed capital – The specific amount of capital that a limited partner is obliged to provide to a closed-end fund for investments. The capital commitment is “drawn down” or “called” over time, meaning a portion of the commitment must be wired to the closed-end fund by a set date.

Corporate mergers and acquisition (M&A) – The consolidation of companies through financial transactions.

Dry powder – The amount of capital that has been committed to a private capital fund minus the amount that has been called by the general partner for investment.

Earnings before interest, taxes, depreciation and amortization (EBITDA) – A broad measure of the cash profit generated by a company’s operations.

Enterprise value (EV) – The total value of a company including equity and debt.

General partner (GP) – The managing partner of a limited partnership. The general partner is managed by the asset management team responsible for making fund investments (i.e., the intermediary between investors with capital and businesses seeking capital to grow).

Growth fund – Private equity fund that targets firms with the potential for scalable and renewed growth.

Initial public offering (IPO) – When shares of a private company are made available to the public for the first time.

Internal rate of return (IRR) – The dollar-weighted internal rate of return. This return considers the daily timing of cash flows and cumulative fair stated value, as of the end of the reported period.

Leveraged buyout (LBO) – The acquisition of another company using a significant amount of debt to finance the acquisition.

Limited partner (LP) – An investor in a Limited Partnership, which is a form of legal entity used for certain hedge funds, private equity funds and real estate funds.

Middle market – Companies having revenues between \$10 million and \$1 billion.

Multiple of invested capital (MOIC) – Calculation performed by adding the remaining (reported) value and the distributions received (cash out) and subsequently dividing that amount by the total capital contributed.

Net asset value (NAV) – This is the current fair stated value for each of the investments, as reported by the administrator of the fund.

Private equity – Equity capital invested in a private company through a negotiated process.

Sponsor-backed acquisition – Acquisition of a company by a private equity firm.

Secondary fund – Private equity funds that purchase existing assets from a primary private equity fund.

Venture capital – A specialized form of private equity, characterized chiefly by high-risk investment in new or young companies following a growth path in technology and other value-added sectors.



Private credit

Amend and extend – A technique that allows an issuer to delay part of its loan maturity or amend existing terms through an amendment rather than a refinancing.

Covenant-lite loans – A type of financing that is issued with fewer restrictions on the borrower regarding collateral, level of income and loan payment terms, and fewer protections for the lender, including financial maintenance tests that measure the debt-service capabilities of the borrower.

Direct lending – A loan made by an investor or non-bank lender to a company.

Distressed debt – The securities of a company that has either defaulted, is under bankruptcy protection or is in financial distress and is moving toward default or bankruptcy in the near future.

Hedge-adjusted yield – The yield on a foreign currency denominated asset minus the cost of hedging the asset back into U.S. dollars. For assets countries with short-term rates that are lower than U.S. rates, the hedge-adjusted yield will be lower than the yield denominated in foreign currency.

Leveraged loan – A commercial loan provided by a group of lenders that is either: 1) rated BB+ or lower, 2) not rated or rated BBB- or higher and has a base rate spread of 125 bps or higher and is secured by a first or second lien. This loan is structured, arranged and administered by one or several banks, and is then syndicated to other institutional investors. As such, this market is often referred to as the broadly syndicated loan market.

Mezzanine commercial real estate debt – Loan finance that is half-way between equity and secured debt, either unsecured or with junior access to security. A mezzanine fund is a fund focusing on mezzanine financing.

Net IRR – The dollar-weighted internal rate of return, net of management fees and carried interest generated by the fund. This return considers the daily timing of all cash flows and the cumulative fair stated value, as of the end of the reported period.

Non-sponsored loan – Credit provided to a business that is *not* wholly-owned or majority-owned by a private equity firm or another financial sponsor.

Payment-in-kind (PIK) – An interest payment in which the borrower makes an interest payment in forms other than cash. This includes, but is not limited to, a type of debt whose interest payments come in the form of additional debt accrued onto existing debt.

Performing loans – Loans that are not in default.

Private credit – Nonbank corporate credit provided through bilateral agreements or small “club deals” outside the realm of public securities or commercial banks. This definition excludes bank loans, broadly syndicated loans and funding provided through publicly traded assets such as corporate bonds.

Sponsored loan – Credit provided by a non-bank lender to a business that is either wholly-owned or majority-owned by a private equity firm or another financial sponsor.

Syndicated loan – A loan extended by a group of financial institutions, often referred to as a loan syndicate, to a single borrower.

Hedge funds

Distressed securities – Funds that invest in debt and equity securities of firms in reorganization or bankruptcy.

Long/short (L/S) equity – Funds that involve long and/or short positions in equity securities deemed to be under- or overvalued, respectively. Exposures to sectors, geographies, and market capitalizations are often flexible and will change over time.

Merger arbitrage/event-driven – Funds that invest in opportunities created by significant corporate transactions and events that tend to alter a company’s financial structure or operating strategy.

Opportunistic/Macro – Funds that involve investments in a wide variety of strategies and instruments, which often have a directional stance based on the manager’s global macroeconomic views.

Relative value/Arbitrage – Funds that involve the simultaneous purchase and sale of similar securities to exploit pricing differentials. Strategies in this sector offer potential to generate consistent returns while minimizing directional risk.



J.P. Morgan Asset Management – Risks & disclosures

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Unless otherwise stated, all data are as of May 31, 2025 or most recently available.

Guide to Alternatives

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