

Market commentary

U.S. ECONOMICS

- Job growth continued to surpass expectations as nonfarm payrolls grew by 223,000, above the expected increase of 200,000. The unemployment rate fell -0.1% to 3.5% and labor force participation edged +0.2% higher to 62.3%. Year-over-year wage growth (+4.6%) decelerated and came in below expectations (+5.0%).
- The ISM Manufacturing PMI declined -0.6 points to 48.4 and marked the index's second consecutive month in contractionary territory (indicated by a reading below 50).
- In a reversal from November, all components of the University of Michigan Consumer Sentiment Index (59.7) improved. Inflation expectations for the year ahead fell -0.5% to 4.4%, the lowest level in 18 months.

U.S. EQUITIES

- All major equity indices ended the month in the red. The S&P 500 Index fell -5.8% to end the year down -18.1%, its lowest calendar year return since 2008. Equities pared earlier gains following hawkish commentary from the Fed at their December meeting.
- Expectations for Q4 S&P 500 earnings growth continue to fall. Per FactSet, the bottom-up estimate for year-over-year Q4 earnings growth measured -4.1%, down from -1.0% in November.
- Nine of the eleven S&P GICS sectors saw downward revisions to their Q4 earnings growth estimates in the fourth quarter. Declines in estimates were led by the Materials, Consumer Discretionary, and Communications sectors. In a continuation of recent earnings trends, the Energy sector is expected to deliver the highest year-over-year Q4 earnings growth rate at +62.7%.

U.S. FIXED INCOME

- The Fed increased their target rate by 50bps, in line with market expectations. The hike was lower than the four 75bp hikes that preceded but came alongside hawkish commentary and a downward revised Summary of Economic Projections.
- In the Fed's latest Summary of Economic Projections, GDP growth expectations were revised lower compared to September while the expected unemployment rate increased. Estimates for the terminal rate moved to 5.1%, +0.5% higher from the previous quarter's forecast of 4.6%.
- The Bloomberg U.S. Aggregate Bond Index (-0.5%) fell slightly to end the year down -13.1%, the worst calendar year performance for the U.S. Agg in its 46-year recorded history.

INTERNATIONAL MARKETS

- News of reduced COVID-19 restrictions along with hopes of a full 2023 reopening boosted Chinese equities (MSCI China Index +5.6%). China's recent move to end quarantine periods for inbound travelers made it one of few major equity markets to end the month in the green.
- Shares in the U.K. (MSCI UK Index -0.4%) were more resilient relative to other markets but still finished the month down. The BOE followed other central banks and raised rates by 50bps while warning of future hikes if inflationary pressures persist.
- The Japanese yen (+5.8%) continued to strengthen and hit a four-month high against the dollar. The currency rallied after the BOJ expanded the interest rate band around its target rate to 50bp from 25bp. Japanese equities (MSCI Japan Index +0.3%) rose over the month despite declines in many other developed markets.

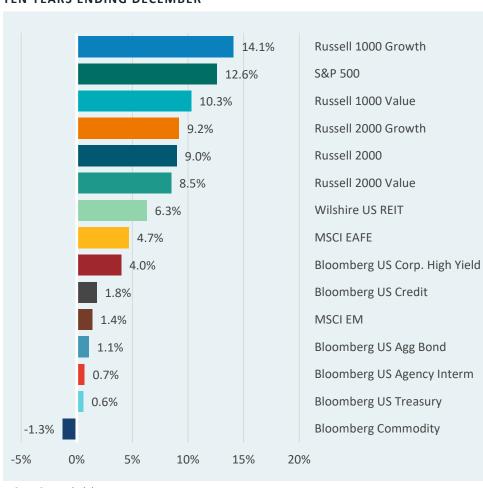


Major asset class returns

ONE YEAR ENDING DECEMBER



TEN YEARS ENDING DECEMBER



*Only publicly traded asset performance is shown here. Performance of private assets is typically released with a 3- to 6-month delay.

Source: Morningstar, as of 12/31/22

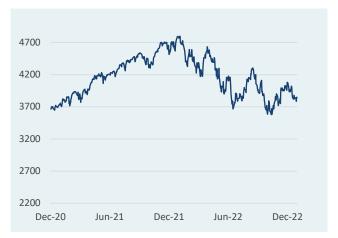
Source: Morningstar, as of 12/31/22



U.S. large cap equities

- The S&P 500 Index (-5.8%) reversed course and erased prior month gains. Positive investor sentiment from the preceding two months was quelled by renewed fears of an impending recession and persistent hawkish comments and actions from the Federal Reserve.
- All 11 S&P 500 GICS Sectors ended lower. Defensive sectors outperformed, led by Utilities (-0.5%), Health Care (-1.9%), and Consumer Staples (-2.8%). Growth-oriented sectors including Consumer Discretionary (-11.3%), Information Technology (-8.4%), and Communications (-7.8%) saw the biggest declines.
- The Cboe VIX Index increased +1.1 points to 21.7 despite reaching an intra-month high of 25.1. The index declined markedly (-10.0) in the fourth quarter to end 2022 below its 1-year daily moving average (25.6) and near its 5-year moving average (21.3).
- Only 16.7% of S&P 500 constituents advanced over the month, with no index members gaining more than 10.0%. Losses were widespread and steep in 2022 as 72.3% of constituents declined, each by an average of -24.6% per S&P Global.

S&P 500 PRICE INDEX



IMPLIED VOLATILITY (VIX INDEX)



Source: Choe, as of 12/31/22

S&P 500 VALUATION SNAPSHOT



Source: Bloomberg, as of 12/31/22

Domestic equity size and style

- Value (Russell 1000 Value Index -4.0%) outperformed growth (Russell 1000 Growth Index -7.7%) for the fifth straight month. Value stocks gained steam in the second half of the year alongside high inflation and rate hikes, outperforming growth by +21.6% in 2022.
- Within value, large-cap names (-4.0%) held up better than small-caps (Russell 2000 Value -6.6%) and outperformed by +7.0% on the year. The performance gap was largely driven by higher weights to energy and lower weights to information technology and consumer discretionary in the large-cap value index.
- Mid-cap stocks (Russell Mid Cap Index -5.4%) beat large- (Russell 1000 Index -5.8%) and small-cap stocks (Russell 2000 Index -6.5%) for a second consecutive month. Mid-caps fell the least among equity sizes on a 1-year basis, down -17.3% compared to large- (-19.1%) and small-cap companies (-20.4%).
- The S&P 500 Equal Weighted Index (-4.7%) beat the cap-weighted index (-5.8%) for a third consecutive month with help from strong performance from defensive sectors. In 2022, the equal-weighted index outperformed the cap-weighted index by +6.7%, its largest margin of overperformance since 2010.

VALUE VS. GROWTH RELATIVE VALUATIONS



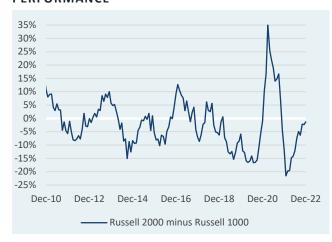
Source: FTSE, Bloomberg, as of 12/31/22

VALUE VS. GROWTH 1-YR ROLLING RELATIVE PERFORMANCE



Source: FTSE, Bloomberg, as of 12/31/22

SMALL VS. LARGE 1-YR ROLLING RELATIVE PERFORMANCE

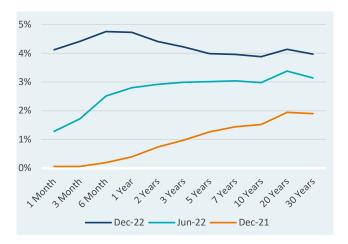




Fixed income

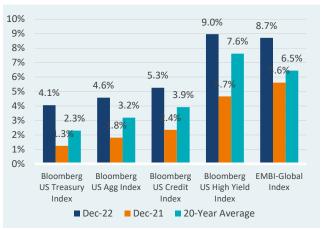
- Yields rose across the curve after a volatile month. Despite falling sharply in the first half of the month on a cooler-than-expected November inflation print, yields moved higher toward month end as market participants responded to upward revisions in the interest rate path estimated by Fed officials.
- The 10-2 spread remained inverted but narrowed to -53bps, down -17bps from the four decade high of -70bps in the month prior. 2-year yields increased a modest 3bps over the month while 10-year yields rose 20bps.
- The Bloomberg US Long Treasury Index (-1.7%) declined as yield increases were more exaggerated on the longend of the curve. Yields on 20- and 30-year Treasuries jumped in excess of 40bps in the second half of the month.
- U.S. market-based inflation expectations moved lower on signs of potentially decelerating consumer prices and Fed tightening. The 10-year breakeven inflation rate hit its lowest level of the year (2.13%) near mid-month and both the 5- and 10-year breakeven rates ended more than -20bp below their 1-year daily averages.

U.S. TREASURY YIELD CURVE



Source: Bloomberg, as of 12/31/22

NOMINAL YIELDS



Source: Morningstar, as of 12/31/22

BREAKEVEN INFLATION RATES

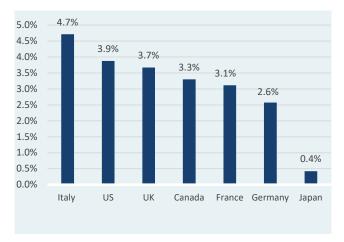




Global markets

- Global equities (MSCI ACWI Index -3.9%) fell across major markets, driven largely by declines in U.S. shares.
 Developed markets outperformed emerging markets, although moves were relatively muted.
- Value outperformed growth in both U.S. and International equities. International value (MSCI EAFE Value Index +1.3%) rose while growth (MSCI EAFE Growth Index -1.1%) declined in December. This trend held over the 1-year period as international value outperformed growth by +17.3%
- Yields on sovereign debt rose across developed markets. Italian bonds fell most among G-10 countries as 10-year yields jumped +80bps to 4.7%. Yields faced upward pressure from the ECB's recently announced quantitative tightening measures set to commence in March.
- Latin American equities (MSCI EM Latin American Index -4.0%) lagged peers in a reversal of recent trends.
 Underperformance in the region was likely driven by weakness in Mexican stocks (-6.5%) and double-digit declines in Peruvian equities fueled by political unrest.

GLOBAL SOVEREIGN 10-YEAR YIELDS



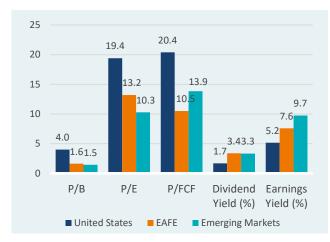
Source: Bloomberg, as of 12/31/22

U.S. DOLLAR MAJOR CURRENCY INDEX



Source: Federal Reserve, as of 12/31/22

MSCI VALUATION METRICS (3-MONTH AVG)





Commodities

- The Bloomberg Commodity Index fell -2.4% driven by a sharp reversal in natural gas prices (-35.4%) which weighed on overall energy performance (Bloomberg Energy Sub-Index -12.2%). Energy declines were buoyed by continued gains in metals along with positive performance from agriculture.
- The Bloomberg Industrial Metals Sub-Index rose +2.2% after nickel prices (+11.2%) saw a second-straight month of double-digit gains. Nickel finished the year +43.2% higher and was the only constituent of the sub-index to end the year in positive territory.

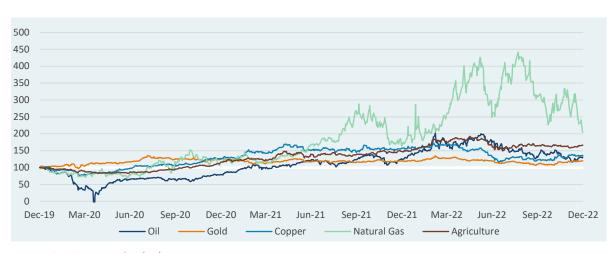
INDEX AND SECTOR PERFORMANCE

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg Commodity	(2.4)	2.2	16.1	16.1	12.7	6.4	(1.3)
Bloomberg Agriculture	1.6	2.4	15.5	15.5	19.5	9.1	(8.0)
Bloomberg Energy	(12.2)	(9.1)	36.2	36.2	5.9	3.0	(6.6)
Bloomberg Grains	2.0	(0.3)	18.0	18.0	19.4	9.7	(2.1)
Bloomberg Industrial Metals	2.2	16.4	(2.4)	(2.4)	14.0	5.0	1.5
Bloomberg Livestock	2.2	8.5	7.4	7.4	(3.7)	(3.8)	(3.2)
Bloomberg Petroleum	(0.7)	7.5	45.6	45.6	12.3	8.9	(3.4)
Bloomberg Precious Metals	5.7	13.3	0.1	0.1	5.7	5.7	(0.9)
Bloomberg Softs	0.6	(2.8)	(3.5)	(3.5)	12.7	3.0	(2.8)

Source: Morningstar, as of 12/31/22

- Precious metals prices (Bloomberg Precious Metals Sub-Index +5.7%) continued to rise. Gold prices gained +4.6% to finish a flat year (-0.1%) and silver prices rallied +11.6% to end the year higher (+2.9%). Signs of a potential slowdown in both rate hikes and economic growth likely contributed to recent price appreciation.
- The Bloomberg Grains Sub-Index gained +2.0% on higher prices for soybean related products. Ongoing drought in Argentina, one of the world's largest soybean producers, contributed to sharp increases in soybean meal (+14.6%), a soybean by-product used as a protein supplement for livestock.

COMMODITY PERFORMANCE





Appendix



Periodic table of returns

Small Cap Value

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	5-Year	10-Year
Commodities	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	43.3	13.5	13.3	31.7	37.3	6.7	36.4	38.5	28.3	16.1	11.0	14.1
Real Estate	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	38.8	13.2	5.7	21.3	30.2	1.9	31.4	34.6	27.6	9.4	9.1	12.4
Cash	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	34.5	13.0	0.9	17.3	25.0	0.0	28.5	21.0	27.1	1.5	8.6	10.3
Hedge Funds of Funds	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	33.5	11.8	0.6	12.1	22.2	-1.5	26.5	20.0	26.5	-4.7	6.7	9.5
Large Cap Value	7.0	2.8	1.0	39.2	16.5	7.5	18.4	11.6	-25.9	28.4	16.8	0.4	16.4	33.1	6.0	0.0	11.8	21.7	-3.5	25.5	18.3	25.2	-7.5	6.4	9.2
US Bonds	6.0	2.5	-5.9	30.0	14.5	7.1	16.6	10.9	-28.9	27.2	16.7	0.1	16.3	32.5	5.6	-0.4	11.3	17.1	-4.8	22.4	14.0	17.7	-13.0	4.1	9.0
Small Cap Value	4.1	-2.4	-6.0	29.9	14.3	6.3	15.5	10.3	-33.8	23.3	16.1	-2.1	15.3	23.3	4.9	-0.8	11.2	14.6	-6.0	22.0	10.3	14.8	-14.5	4.1	8.5
International Equity	-3.0	-5.6	-11.4	29.7	12.9	5.3	15.1	7.0	-35.6	20.6	15.5	-2.9	14.6	12.1	4.2	-1.4	8.0	13.7	-8.3	18.6	7.8	11.3	-14.5	3.5	4.8
60/40 Global Portfolio	-7.3	-9.1	-15.5	25.2	11.4	4.7	13.3	7.0	-36.8	19.7	13.1	-4.2	11.5	11.0	3.4	-2.5	7.1	7.8	-9.3	18.4	7.5	8.9	-17.3	3.2	4.7
Large Cap Equity	-7.8	-9.2	-15.7	23.9	9.1	4.6	10.4	5.8	-37.6	18.9	10.2	-5.5	10.5	9.0	2.8	-3.8	5.7	7.7	-11.0	8.7	4.6	6.5	-19.1	2.7	3.6
Emerging Markets Equity	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.1	0.0	-4.4	2.6	7.0	-11.2	7.8	2.8	2.8	-20.1	1.5	1.4
Small Cap Equity	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-2.0	-1.8	-7.5	1.0	3.5	-12.9	7.7	0.5	0.0	-20.4	1.2	1.1
Small Cap Growth	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-2.3	-4.5	-14.9	0.5	1.7	-13.8	6.4	0.5	-1.5	-26.4	0.0	0.7
Large Cap Growth	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-9.5	-17.0	-24.7	0.3	0.9	-14.6	2.1	-3.1	-2.5	-29.1	-1.4	-1.3
	L	arge C	ap Equ	uity				Sı	mall C	ap Gro	wth				Co	mmo	dities								
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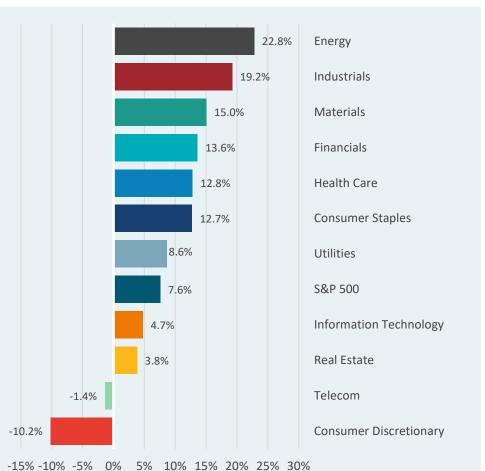
Source Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF). Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Value, Russell 2000, Russell 2000 Growth, MSCI EAFE, MSCI EM, Bloomberg US Aggregate, T-Bill 90 Day, Bloomberg Commodity, NCREIF Property, HFRI FOF, MSCI ACWI, Bloomberg Global Bond. NCREIF Property Index performance data as of 9/30/22.

Cash

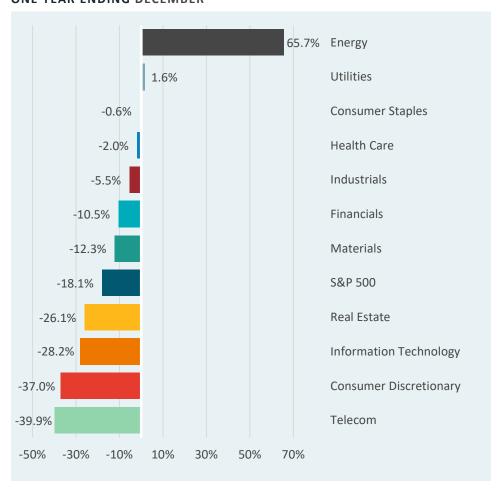


S&P 500 sector returns

QTD



ONE YEAR ENDING DECEMBER



Source: Morningstar, as of 12/31/22 Source: Morningstar, as of 12/31/22



Detailed index returns

DOMESTIC EQUITY								FIXED INCOME							
	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year		Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index								Broad Index							
S&P 500	(5.8)	7.6	(18.1)	(18.1)	7.7	9.4	12.6	Bloomberg US TIPS	(1.0)	2.0	(11.8)	(11.8)	1.2	2.1	1.1
S&P 500 Equal Weighted	(4.7)	11.6	(11.4)	(11.4)	9.0	9.1	12.4	Bloomberg US Treasury Bills	0.4	0.9	1.3	1.3	0.7	1.2	0.8
DJ Industrial Average	(4.1)	16.0	(6.9)	(6.9)	7.3	8.4	12.3	Bloomberg US Agg Bond	(0.5)	1.9	(13.0)	(13.0)	(2.7)	0.0	1.1
Russell Top 200	(6.0)	6.6	(19.8)	(19.8)	7.9	9.9	12.9	Bloomberg US Universal	(0.3)	2.2	(13.0)	(13.0)	(2.5)	0.2	1.3
Russell 1000	(5.8)	7.2	(19.1)	(19.1)	7.3	9.1	12.4	Duration							
Russell 2000	(6.5)	6.2	(20.4)	(20.4)	3.1	4.1	9.0	Bloomberg US Treasury 1-3 Yr	0.2	0.7	(3.8)	(3.8)	(0.5)	0.7	0.7
Russell 3000	(5.9)	7.2	(19.2)	(19.2)	7.1	8.8	12.1	Bloomberg US Treasury Long	(1.7)	(0.6)	(29.3)	(29.3)	(7.4)	(2.2)	0.6
Russell Mid Cap	(5.4)	9.2	(17.3)	(17.3)	5.9	7.1	11.0	Bloomberg US Treasury	(0.5)	0.7	(12.5)	(12.5)	(2.6)	(0.1)	0.6
Style Index								Issuer							
Russell 1000 Growth	(7.7)	2.2	(29.1)	(29.1)	7.8	11.0	14.1	Bloomberg US MBS	(0.4)	2.1	(11.8)	(11.8)	(3.2)	(0.5)	0.7
Russell 1000 Value	(4.0)	12.4	(7.5)	(7.5)	6.0	6.7	10.3	Bloomberg US Corp. High Yield	(0.6)	4.2	(11.2)	(11.2)	0.0	2.3	4.0
Russell 2000 Growth	(6.4)	4.1	(26.4)	(26.4)	0.6	3.5	9.2	Bloomberg US Agency Interm	0.0	0.8	(6.5)	(6.5)	(1.3)	0.4	0.7
Russell 2000 Value	(6.6)	8.4	(14.5)	(14.5)	4.7	4.1	8.5	Bloomberg US Credit	(0.4)	3.4	(15.3)	(15.3)	(2.9)	0.4	1.8
INTERNATIONAL EQUITY								OTHER							
Broad Index								Index							
MSCI ACWI	(3.9)	9.8	(18.4)	(18.4)	4.0	5.2	8.0	Bloomberg Commodity	(2.4)	2.2	16.1	16.1	12.7	6.4	(1.3)
MSCI ACWI ex US	(0.7)	14.3	(16.0)	(16.0)	0.1	0.9	3.8	Wilshire US REIT	(5.6)	4.0	(26.8)	(26.8)	(0.5)	3.4	6.3
MSCI EAFE	0.1	17.3	(14.5)	(14.5)	0.9	1.5	4.7	CS Leveraged Loans	0.4	2.3	(1.1)	(1.1)	2.3	3.2	3.8
MSCI EM	(1.4)	9.7	(20.1)	(20.1)	(2.7)	(1.4)	1.4	S&P Global Infrastructure	(2.2)	11.0	(0.2)	(0.2)	1.7	3.9	6.5
MSCI EAFE Small Cap	1.1	15.8	(21.4)	(21.4)	(0.9)	(0.0)	6.2	Alerian MLP	(4.7)	10.5	31.4	31.4	8.3	3.6	2.1
Style Index								Regional Index							
MSCI EAFE Growth	(1.1)	15.0	(22.9)	(22.9)	0.5	2.5	5.6	JPM EMBI Global Div	0.3	8.1	(17.8)	(17.8)	(5.3)	(1.3)	1.6
MSCI EAFE Value	1.3	19.6	(5.6)	(5.6)	0.6	0.2	3.5	JPM GBI-EM Global Div	2.2	8.5	(11.7)	(11.7)	(6.1)	(2.5)	(2.0)
Regional Index								Hedge Funds							
MSCI UK	(0.4)	17.0	(4.8)	(4.8)	0.3	1.0	3.1	HFRI Composite	(0.4)	2.2	(4.3)	(4.3)	5.7	4.4	4.7
MSCI Japan	0.3	13.2	(16.6)	(16.6)	(1.0)	0.2	5.6	HFRI FOF Composite	0.9	2.4	(4.7)	(4.7)	3.9	3.2	3.6
MSCI Euro	(0.5)	23.0	(17.2)	(17.2)	0.5	0.8	4.3	Currency (Spot)							
MSCI EM Asia	(0.8)	10.8	(21.1)	(21.1)	(1.3)	(0.6)	3.6	Euro	3.7	8.9	(6.2)	(6.2)	(1.7)	(2.3)	(2.1)
MSCI EM Latin American	(4.0)	5.7	8.9	8.9	(4.8)	(1.1)	(2.1)	Pound Sterling	1.0	7.8	(11.2)	(11.2)	(3.2)	(2.3)	(3.0)
								Yen	5.8	9.7	(12.7)	(12.7)	(6.3)	(3.1)	(4.1)

Source: Morningstar, HFRI, as of 12/31/22.



Detailed private market returns

Comparison to public market index returns

Private Equity Pooled IRRs	1 Year	3 Year	5 Year	10 Year
Global Private Equity FoFs & Secondary Funds	7.9	22.5	18.7	14.3
Global Private Equity Direct Funds *	2.5	22.2	19.7	16.6
U.S. Private Equity Direct Funds *	5.5	24.9	21.9	18.2
Europe Private Equity Direct Funds *	(0.5)	19.4	18.2	14.9
Asia Private Equity Direct Funds *	(6.9)	13.9	13.3	13.7
Public Index Time-weighted Returns				
MSCI World	(14.3)	7.0	7.7	9.5
S&P 500	(10.6)	10.6	11.3	13.0
MSCI Europe	(17.6)	1.2	2.2	5.4
MSCI AC Asia Pacific	(22.2)	1.8	2.8	5.5

Private Real Estate Pooled IRRs	1 Year	3 Year	5 Year	10 Year
U.S. All Private Real Estate	25.7	14.0	12.2	13.4
Public Index Time-weighted Returns				
FTSE NAREIT Equity REIT	(6.3)	4.0	5.3	7.4

Private Credit Pooled IRRs	1 Year	3 Year	5 Year	10 Year
U.S. All Private Debt **	15.9	15.6	12.9	12.0
Public Index Time-weighted Returns				
S&P / LSTA U.S. Leveraged Loan 100 Index	(4.2)	1.4	2.4	3.3

Private Real Assets Pooled IRRs	1 Year	3 Year	5 Year	10 Year
Global Nature Resources ***	27.1	6.6	4.9	3.5
Global Infrastructure	12.7	11.4	11.4	11.1
Public Index Time-weighted Returns				
S&P Global Natural Resources	2.9	8.6	8.9	4.6
S&P Global Infrastructure	5.6	3.5	4.8	7.2

Source: Pooled IRRs are from Thompson Reuters C/A and Time-weighted Returns are from Investment Metrics, as of June 30th, 2022. All returns in U.S. dollars.

^{***} Includes Private Equity Energy, Timber and Upstream Energy & Royalties.



^{*} Includes Buyout, Growth Equity and Venture Capital.

^{**} Includes Control-Oriented Distressed, Credit Opportunities, Senior Debt and Subordinated Capital.

Notices & disclosures

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