MEKETA

INVESTMENT GROUP

San Joaquin County Employees' Retirement Association (SJCERA)

Q3 2022

Quarterly Report

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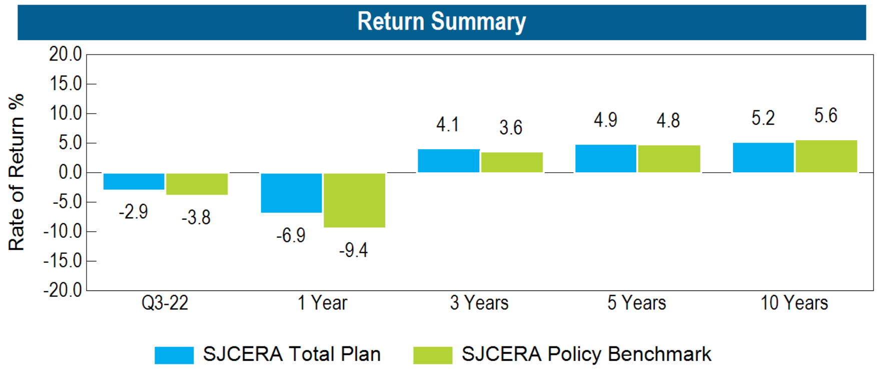
Introduction



Summary of Cash Flows	Third Quarter	One Year
Beginning Market Value	$3,767,288,432	$3,846,903,836
Net Cash Flow	$8,330,707	$86,668,468
Net Investment Change	-$109,162,207	-$267,115,373
Ending Market Value	$3,666,456,931	$3,666,456,931

	QTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs	25 Yrs
SJCERA Total Plan - Net	**-2.9**	**-6.9**	**4.1**	**4.9**	**5.2**	**3.3**	**5.9**	**5.4**
SJCERA Total Plan - Gross	**-2.8**	**-6.3**	**4.7**	**5.5**	**6.0**	**4.1**	**6.6**	**5.9**
SJCERA Policy Benchmark[2]	*-3.8*	*-9.4*	*3.6*	*4.8*	*5.6*	*4.2*	*6.5*	*5.7*
Over/Under (vs. Net)	0.9	2.5	0.5	0.1	-0.4	-0.9	-0.6	-0.3
InvMetrics Public DB > $1B Net Median[1]	*-4.0*	*-10.7*	*4.7*	*5.1*	*7.0*	*5.2*	*7.2*	*6.2*

[1] Investment Metrics Total Fund Public Universe >$1 Billion, net of fees.
[2] Policy Benchmark composition is listed in the Appendix.

Introduction

The SJCERA Total Portfolio had an aggregate value of $3.66 billion as of September 30, 2022. During the latest quarter, the Total Portfolio decreased in value by $100.8 million, and over the one-year period, the Total Portfolio decreased by $180.4 million. The movements over the quarter and one-year periods were primarily driven by investment returns. In October 2022 the IMF revised yet again its growth expectations lower due to the ongoing war in Ukraine, tighter financial conditions globally, and weaker conditions in China. The 3.2% global number is consistent with the July estimate, but still above the long-term average (3.0%) with the dynamic of emerging economy growth being higher than developed markets. The US experienced a notable downgrade (1.6% versus 2.3%) given the Fed becoming increasingly hawkish. The euro area forecast, however, was revised upward (3.1% versus 2.6%) on fiscal stimulus expectations. China received a downgrade (3.2% versus 3.4%) given the lingering impact from tight COVID-19 restrictions and local real estate risks.

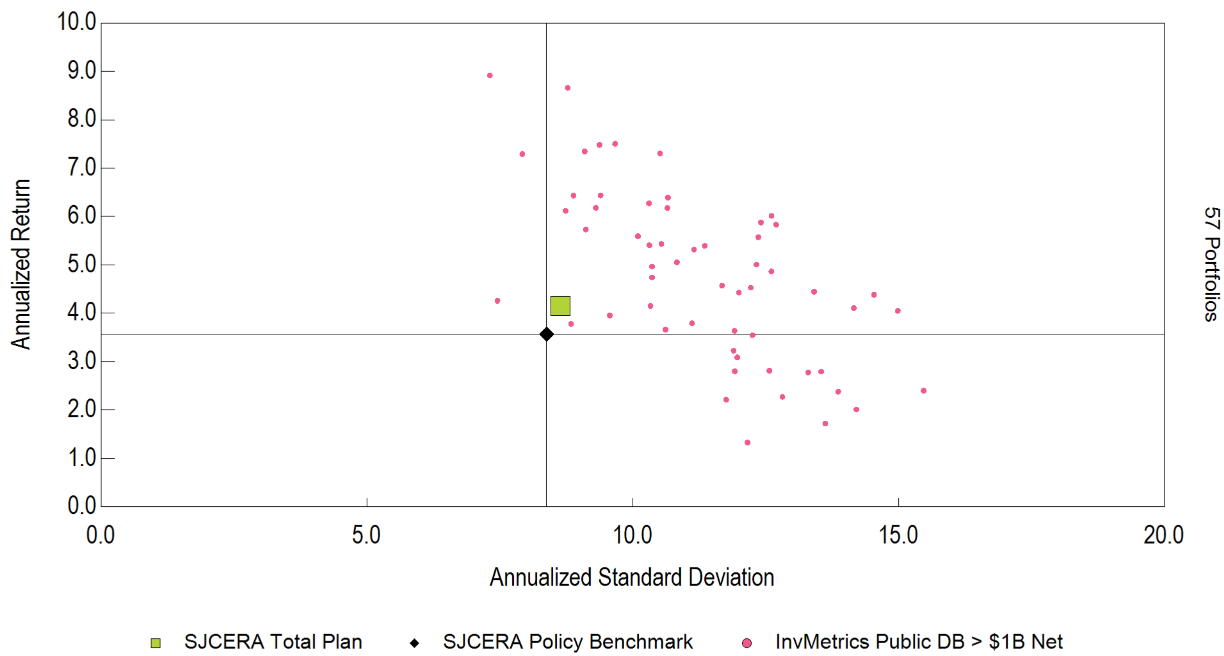
Recent Investment Performance

The Total Portfolio outperformed the policy benchmark for the quarter, 1-, 3- and 5-year periods by 0.9%. 2.5%, 0.5% and 0.1% respectively, and the Median Public Fund for the quarter and 1-year periods by 1.1% and 3.8%, respectively. Over the 10-, 15-, 20- and 25-year periods, the portfolio trailed its benchmark by (0.4%), (0.9%), (0.6%), and (0.3%), respectively, and trailed the Median Public Fund by for the 3-, 5-, 10-, 15-, 20-, and 25-year periods by (0.6%), (0.2%), (1.8%), (1.9%), (1.3%), and (0.8%), respectively. The portfolio earned higher risk adjusted returns, as measured by the Sharpe Ratio, than the Median Public Fund over the 1-, 3- and 5-year periods but fell short of the median by (0.1%) over the 10-year period.

Risk-Adjusted Return vs Peers

	1 Yr	3 Yrs	5 Yrs	10 Yrs
SJCERA Total Plan - Net	**-6.9**	**4.1**	**4.9**	**5.2**
Risk Adjusted Median	-9.9	3.6	3.8	5.3
Excess Return	3.0	0.5	1.1	-0.1

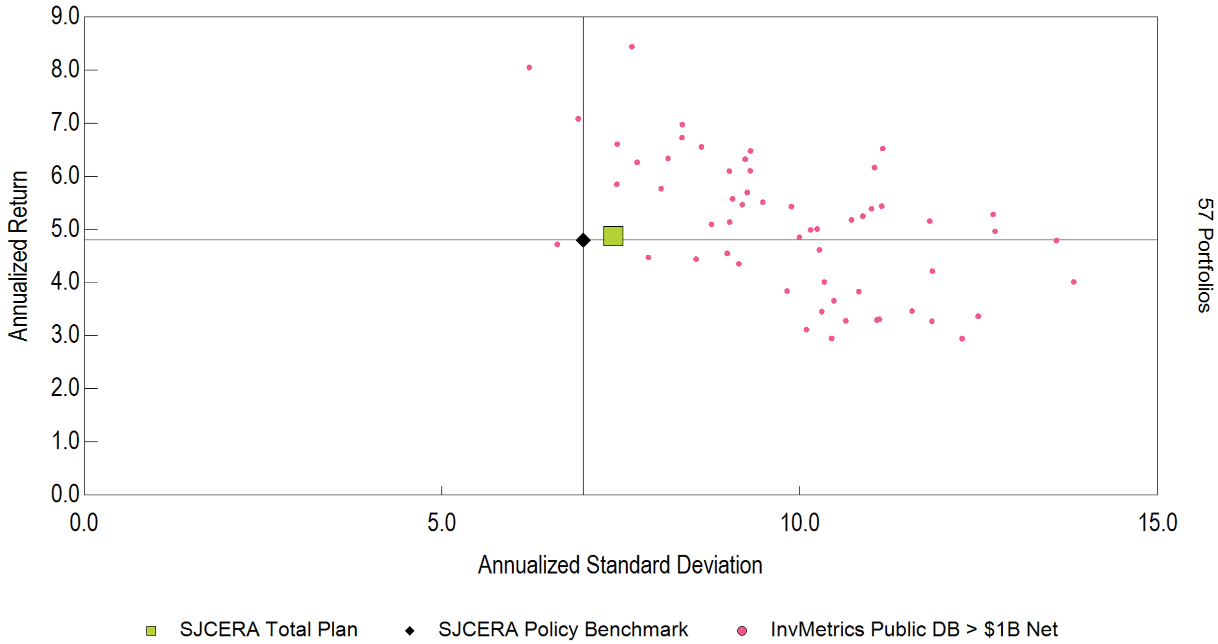
Total Fund Risk/Return Analysis
Latest 3 Years



	Anlzd Return[1]	Anlzd Standard Deviation	Sharpe Ratio[2]
SJCERA Total Plan	4.15%	8.64%	0.42
SJCERA Policy Benchmark	3.57%	8.38%	0.37
InvMetrics Public DB > $1B Net Median[3]	4.74%	11.36%	0.37

[1] Returns are net of fees.
[2] Computed as annualized return less the risk free rate, divided by the annualized standard deviation.
[3] Investment Metrics Total Fund Public Universe >$1 Billion, net of fees.

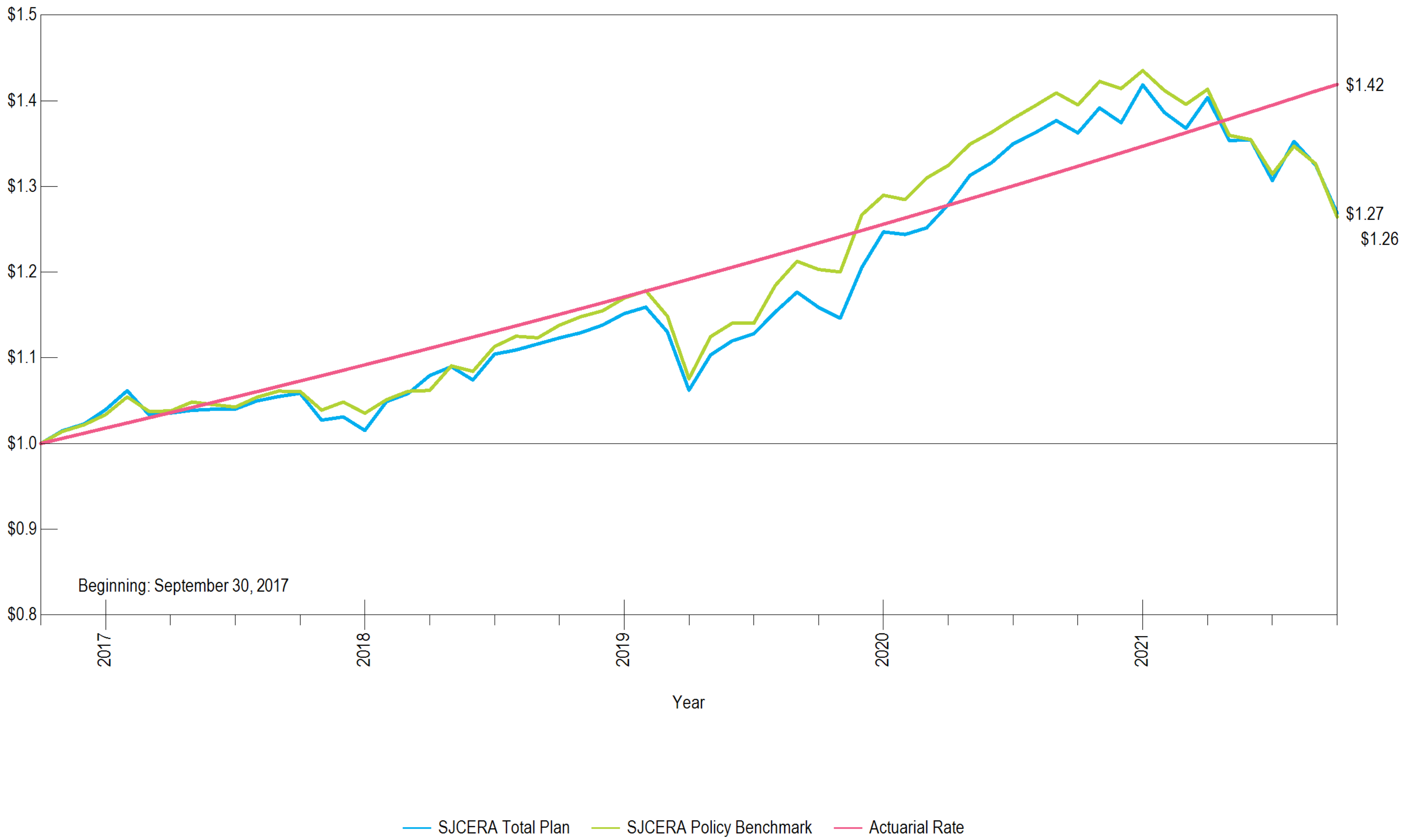
Total Fund Risk/Return Analysis
Latest 5 Years



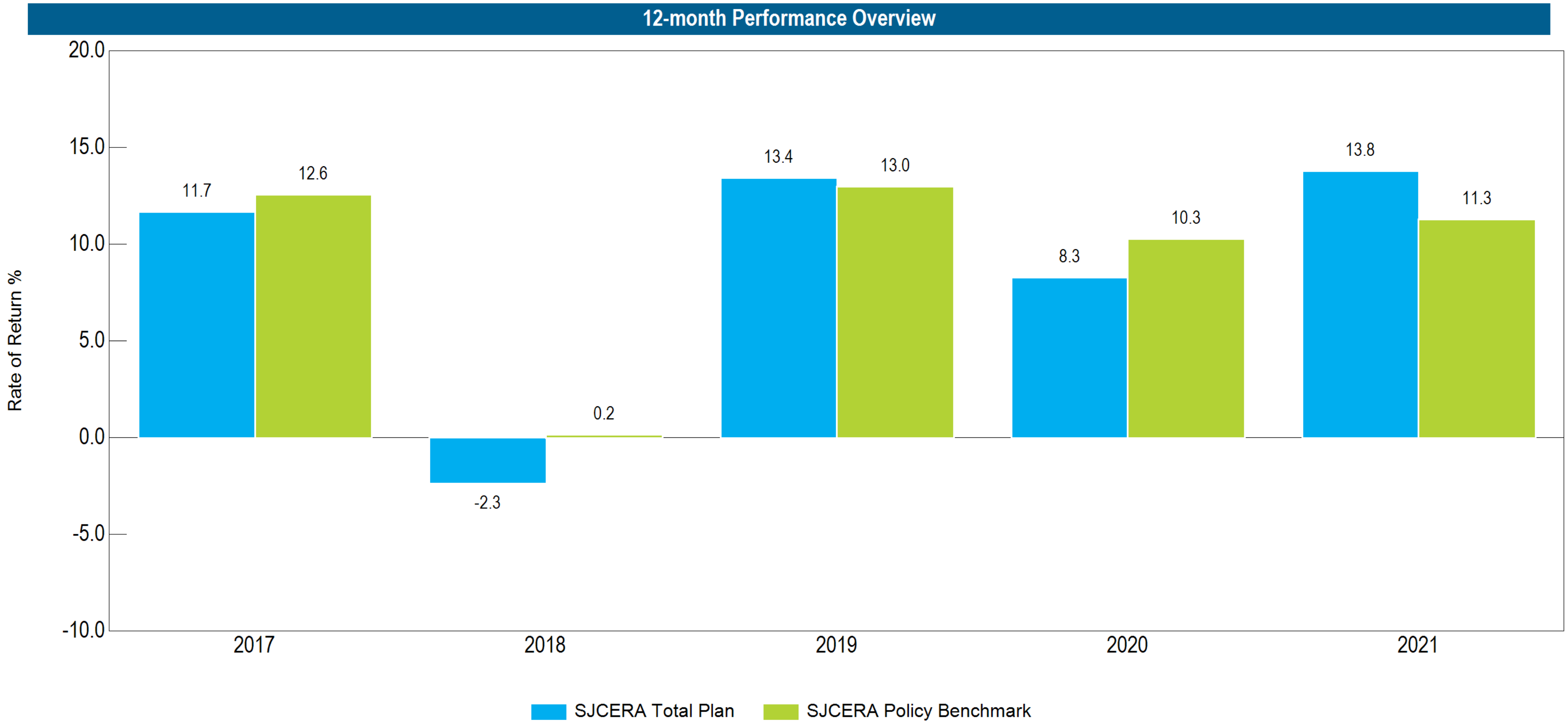
	Anlzd Return[1]	Anlzd Standard Deviation	Sharpe Ratio[2]
SJCERA Total Plan	4.88%	7.40%	0.51
SJCERA Policy Benchmark	4.80%	6.97%	0.53
InvMetrics Public DB > $1B Net Median[3]	5.14%	9.99%	0.39

[1] Returns are net of fees.
[2] Computed as annualized return less the risk free rate, divided by the annualized standard deviation.
[3] Investment Metrics Total Fund Public Universe >$1 Billion, net of fees.

Growth of a Dollar - Latest 5 Years



[1] 6.75% Acturial Rate from 9/1/2022 to present. 7.0% Actuarial Rate from 1/1/2020 to 8/31/2022. 7.25% Actuarial Rate from 1/1/2018 to 12/31/2019. 7.4% Actuarial Rate from 8/1/2016-12/31/2017. 7.5% Actuarial Rate from 1/1/2012-7/31/2016; previously 8.0%



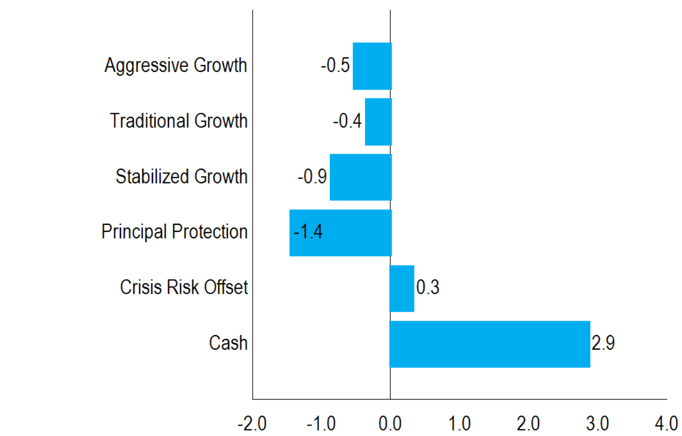
12-month absolute results have been positive over four of the last five calendar year periods, net of fees. The SJCERA Total Portfolio outperformed the policy target benchmark during two of these five periods, net of fees.

Portfolio Review

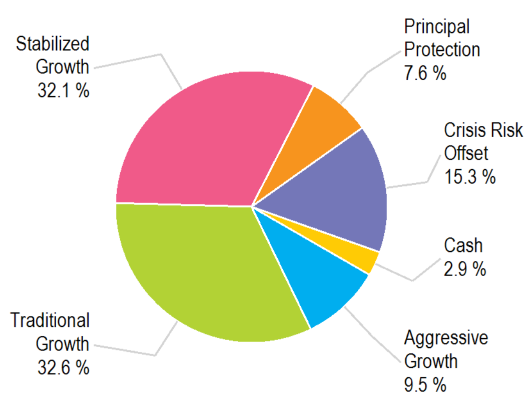
Asset Allocation vs. Target	Current	Current	Policy	Difference*
Broad Growth	**$2,722,443,453**	**74.3%**	**76.0%**	**-1.7%**
Aggressive Growth	$347,216,882	9.5%	10.0%	-0.5%
Traditional Growth	$1,196,949,520	32.6%	33.0%	-0.4%
Stabilized Growth	$1,178,277,051	32.1%	33.0%	-0.9%
Diversified Growth	**$838,850,418**	**22.9%**	**24.0%**	**-1.1%**
Principal Protection	$276,994,820	7.6%	9.0%	-1.4%
Crisis Risk Offset	$561,855,599	15.3%	15.0%	0.3%
Cash[2]	**$105,163,061**	**2.9%**	**0.0%**	**2.9%**
Cash	$105,163,061	2.9%	0.0%	2.9%
Total[1]	**$3,666,456,931**	**100.0%**	**100.0%**	

*Difference between Policy and Current Allocation

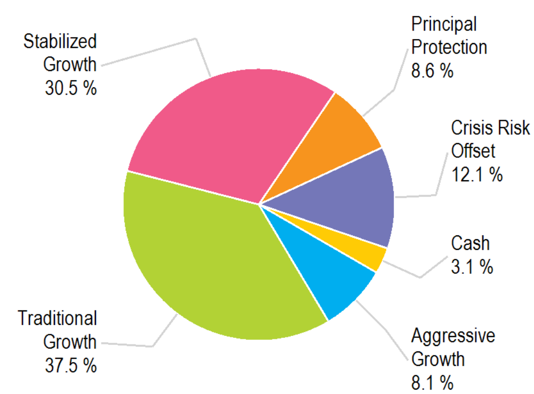
Variance vs Target Allocation (%)



As of September 30, 2022



As of September 30, 2021



[1] Market values may not add up due to rounding.

[2] Cash asset allocation includes Parametric Overlay.

Asset Class Performance Net-of-Fees | As of September 30, 2022

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
SJCERA Total Plan	**3,666,456,931**	**100.0**	**-2.9**	**-6.9**	**4.1**	**4.9**	**5.2**
SJCERA Policy Benchmark[2]			*-3.8*	*-9.4*	*3.6*	*4.8*	*5.6*
Broad Growth	**2,722,443,453**	**74.3**	**-3.6**	**-8.7**	**4.9**	**5.5**	**6.2**
Aggressive Growth Lag	**347,216,882**	**9.5**	**2.0**	**28.1**	**20.3**	**17.5**	**13.2**
Aggressive Growth Blend			*-5.4*	*6.4*	*13.0*	*10.7*	*9.8*
Traditional Growth	**1,196,949,520**	**32.6**	**-6.4**	**-20.1**	**2.0**	**3.2**	**6.7**
MSCI ACWI IMI Net			*-6.6*	*-21.2*	*4.2*	*4.9*	*7.8*
Stabilized Growth	**1,178,277,051**	**32.1**	**-2.1**	**-3.3**	**4.3**	**5.0**	**3.5**
SJCERA Stabilized Growth Benchmark[4]			*1.6*	*1.7*	*4.3*	*4.7*	*5.4*
Diversifying Strategies	**838,850,418**	**22.9**	**-0.1**	**2.5**	**2.0**	**3.4**	**3.5**
Principal Protection	**276,994,820**	**7.6**	**-4.1**	**-12.4**	**-3.0**	**0.0**	**2.1**
Bloomberg US Aggregate TR			*-4.8*	*-14.6*	*-3.3*	*-0.3*	*0.9*
Crisis Risk Offset Asset Class	**561,855,599**	**15.3**	**2.0**	**13.9**	**5.4**	**5.6**	**5.5**
CRO Benchmark[3]			*-2.0*	*-1.8*	*2.3*	*3.9*	*3.7*
Cash and Misc Asset Class	**89,189,078**	**2.4**	**0.5**	**0.6**	**0.5**	**0.9**	**0.6**
ICE BofA 91 Days T-Bills TR			*0.5*	*0.6*	*0.6*	*1.1*	*0.7*

[1] Market values may not add up due to rounding.
[2] Policy Benchmark composition is listed in the Appendix.
[3] 30% ICE BofAML 3 month US T-Bill + 4%, 52% 50% BB High Yield/50% S&P Leverage Loans, 18% NCREIF ODCE + 1% Lag.
[4] (1/3) BB Long Duration Treasuries, (1/3) BTOP50 Index, (1/3) 5% Annual.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Aggressive Growth Lag[2]	**347,216,882**	**100.0**	**2.0**	**28.1**	**20.3**	**17.5**	**13.2**
Aggressive Growth Blend			*-5.4*	*6.4*	*13.0*	*10.7*	*9.8*
Blackrock Global Energy and Power Lag[2]	26,940,131	7.8	0.4	9.3	15.1	--	--
MSCI ACWI +2% Blend			*-15.1*	*-13.6*	*8.8*	--	--
Lightspeed Venture Ptnrs Select V Lag[2]	6,298,385	1.8	-4.4	--	--	--	--
MSCI ACWI +2% Blend			*-15.1*	--	--	--	--
Morgan Creek III Lag[2]	4,420,354	1.3	-13.5	-36.3	-21.2	-8.7	--
MSCI ACWI +2% Blend			*-15.1*	*-13.6*	*8.8*	*8.2*	--
Morgan Creek V Lag[2]	7,951,657	2.3	1.0	16.6	13.9	13.7	--
MSCI ACWI +2% Blend			*-15.1*	*-13.6*	*8.8*	*8.2*	--
Morgan Creek VI Lag[2]	26,572,205	7.7	-5.3	19.0	19.9	20.1	--
MSCI ACWI +2% Blend			*-15.1*	*-13.6*	*8.8*	*8.2*	--
Ocean Avenue II Lag[2]	38,945,844	11.2	4.8	40.5	37.4	34.7	--
MSCI ACWI +2% Blend			*-15.1*	*-13.6*	*8.8*	*8.2*	--
Ocean Avenue III Lag[2]	57,563,388	16.6	6.1	52.6	29.7	37.4	--
MSCI ACWI +2% Blend			*-15.1*	*-13.6*	*8.8*	*8.2*	--
Ocean Avenue IV Lag[2]	49,980,563	14.4	4.2	33.6	--	--	--
MSCI ACWI +2% Lag[2]			*-15.1*	*-13.6*	--	--	--
Non-Core Real Assets Lag[2,3]	109,656,117	31.6	0.4	24.0	15.7	10.2	9.8
NCREIF ODCE +1% lag (blend)[2]			*4.8*	*29.6*	*12.8*	*10.6*	*11.2*
Stellex Capital Partners II Lag[2]	18,888,238	5.4	9.9	14.2	--	--	--
MSCI ACWI +2% Lag[2]			*-15.1*	*-13.6*	--	--	--

[1] Market values may not add up due to rounding.
[2] Lagged 1 quarter.
[3] Trailing Non-Core real estate performance includes returns provided by prior real estate consultant from inception through Q419.

Aggressive Growth

During the latest three-month period ending September 30, 2022, all nine of SJCERA's aggressive growth portfolios with returns outperformed their MSCI ACWI +2% Blended benchmark. Non-core real assets trailed by 3.4%. Please note that returns data for this asset class is lagged one quarter and the benchmark returned 4.8% for the trailing quarter.

BlackRock Global Energy and Power, a recently added fund with a focus on infrastructure, outperformed its target benchmark over the quarter, 1- and 3-year periods by 15.5%, 22.9% and 6.3%, respectively.

Lightspeed Venture Partners Select V, the newest manager in the asset class, outperformed its target benchmark over the quarter by 10.7%.

Morgan Creek III outperformed its benchmark by 1.6% for the quarter. The manager lagged its benchmark over the 1-, 3- and 5-year periods by (22.7%), (30.0%) and (16.9%), respectively.

Morgan Creek V outperformed its benchmark over the quarter, 1-, 3- and 5-year periods by 16.1%, 30.2%, 5.1% and 5.5%, respectively.

Morgan Creek VI produced a quarterly return of negative (5.3%), outperforming its benchmark by 9.8%. It also led for the 1-, 3- and 5-year periods by 32.6%, 11.1% and 11.9%, respectively.

Ocean Avenue II, outperformed its benchmark for the quarter, 1-, 3- and 5-year periods by 19.9%, 54.1%, 28.6% and 26.5%, respectively.

Ocean Avenue III, outperformed its benchmark for the quarter, 1-, 3- and 5-year periods by 21.2%, 66.2%, 20.9% and 29.2%, respectively.

Ocean Avenue IV, outperformed its benchmark for the quarter and 1-year periods by 19.3% and 47.2%, respectively.

Non-Core Private Real Assets underperformed its NCREIF ODCE +1% benchmark over the quarter, 1-, 5- and 10-year periods by (4.4%), (5.6%), (0.4%) and (1.4%), respectively. However, the sub-asset class outperformed its benchmark over the 3-year time period by 2.9%.

Stellex II, outperformed its benchmark during the quarter and 1-year period by 25% and 27.8%, respectively.

Asset Class Performance Net-of-Fees | As of September 30, 2022

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Traditional Growth	**1,196,949,520**	**100.0**	**-6.4**	**-20.1**	**2.0**	**3.2**	**6.7**
MSCI ACWI IMI Net			*-6.6*	*-21.2*	*4.2*	*4.9*	*7.8*
SJCERA Transition	2,812	0.0					
Northern Trust MSCI World	1,035,933,442	86.5	-6.2	-20.0	--	--	--
MSCI World IMI Net USD			*-6.1*	*-20.3*	--	--	--
PIMCO RAE Emerging Markets	66,177,393	5.5	-6.4	-21.4	0.9	-0.3	1.9
MSCI Emerging Markets			*-11.6*	*-28.1*	*-2.1*	*-1.8*	*1.0*
GQG Active Emerging Markets	54,078,139	4.5	-6.6	-23.8	--	--	--
MSCI Emerging Markets			*-11.6*	*-28.1*	--	--	--
Invesco REIT	40,757,734	3.4	-10.7	-15.3	-2.2	3.4	6.2
FTSE NAREIT Equity REIT			*-9.9*	*-16.4*	*-2.0*	*2.9*	*6.3*

[1] Market values may not add up due to rounding.

Traditional Growth

During the latest three-month period ending September 30, 2022, the traditional growth asset class outperformed its MSCI ACWI IMI benchmark by 0.2% and with two of the four managers outperforming their benchmarks.

Northern Trust MSCI World, the Plan's new Passive Global Equity manager, underperformed its benchmark over the past quarter by (0.1%) but outperformed over the 1-year period by 0.3%.

PIMCO RAE Fundamental - Emerging, one of SJCERA's Active Emerging Markets Equity managers, outperformed its MSCI Emerging Markets Index benchmark for the quarter, 1-, 3-, 5- and 10-year trailing time periods by 5.2%, 6.7%, 3.0%, 1.5% and 0.9%, respectively.

GQG, the Plan's new Active Emerging Markets Equity manager was opened during the third quarter of 2020 and outperformed its MSCI Emerging Markets benchmark by 5% for the quarter and 4.3% for the 1-year period.

Invesco, the Plan's Core US REIT manager, underperformed the FTSE NAREIT Equity REIT Index for the quarter, 3- and 10-year periods by (0.8%), (0.2%) and (0.1%), respectively; however, it outperformed its benchmark's performance for the trailing 1- and 5-year periods by 1.1% and 0.5% respectively.

Asset Class Performance Net-of-Fees | As of September 30, 2022

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Stabilized Growth	**1,178,277,051**	**100.0**	**-2.1**	**-3.3**	**4.3**	**5.0**	**3.5**
SJCERA Stabilized Growth Benchmark[2]			*1.6*	*1.7*	*4.3*	*4.7*	*5.4*
Risk Parity Asset Class	**339,507,264**	**28.8**	**-10.7**	**-25.6**	**-3.7**	**0.6**	**-0.4**
ICE BofAML 3mo US TBill+4%			*1.5*	*4.6*	*4.6*	*5.2*	*4.7*
Bridgewater All Weather	170,112,510	14.4	-10.5	-24.0	-2.9	0.5	1.7
Bridgewater All Weather (blend)			*1.5*	*4.6*	*4.6*	*5.2*	*5.4*
PanAgora Diversified Risk Multi Asset	169,394,754	14.4	-10.9	-27.2	-4.5	0.6	--
ICE BofAML 3mo US TBill+4%			*1.5*	*4.6*	*4.6*	*5.2*	--
Liquid Credit	**215,321,844**	**18.3**	**0.0**	**-9.4**	**-0.5**	**1.1**	**2.0**
50% BB US HY/50% S&P LSTA Lev Loan			*0.4*	*-8.4*	*0.9*	*2.3*	*3.8*
Neuberger Berman	91,531,303	7.8	-1.7	-14.3	-1.8	--	--
33% ICEBofAMLUSHY /33%JPMEMBI Global Div /33% S&P LSTALevLoan			*-1.3*	*-13.8*	*-1.9*	--	--
Stone Harbor Absolute Return	123,790,540	10.5	1.2	-5.4	0.5	1.4	2.2
ICE BofA-ML LIBOR			*0.4*	*0.4*	*0.7*	*1.3*	*0.9*
Private Credit Lag	**371,469,315**	**31.5**	**0.5**	**7.6**	**4.8**	**3.6**	**4.8**
Custom Credit Benchmark			*-7.1*	*-7.9*	*1.2*	*2.5*	*4.1*
Blackrock Direct Lending Lag	84,095,995	7.1	1.6	5.5	--	--	--
CPI + 6% BLK Blend			*-3.7*	*2.3*	--	--	--
Crestline Opportunity II Lag	17,514,360	1.5	-1.3	0.4	2.2	1.8	--
Credit Blend S&P/LSTA Lev Loan +3%			*-3.7*	*2.3*	*6.8*	*7.5*	--
Davidson Kempner Long-Term Distressed Opportunities Fund V, L.P. Lag	47,921,839	4.1	-2.2	6.0	--	--	--
Credit Blend S&P/LSTA Lev Loan +3%			*-3.7*	*2.3*	--	--	--

[1]Market values may not add up due to rounding.
[2]30% ICE BofAML 3 month US T-Bill + 4%, 52% 50% BB High Yield/50% S&P Leverage Loans, 18% NCREIF ODCE +1% Lag.

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
HPS European Asset Value II, LP Lag	34,342,706	2.9	1.8	8.3	--	--	--
Credit Blend S&P/LSTA Lev Loan +3%			*-3.7*	*2.3*	*--*	*--*	*--*
Medley Opportunity II Lag	4,378,784	0.4	0.0	-12.8	-9.9	-10.4	--
Credit Blend S&P/LSTA Lev Loan +3%			*-3.7*	*2.3*	*6.8*	*7.5*	*--*
Mesa West IV Lag	21,063,965	1.8	-2.3	3.6	6.2	7.1	--
Credit Blend S&P/LSTA Lev Loan +3%			*-3.7*	*2.3*	*6.8*	*7.5*	*--*
Oaktree Middle-Market Direct Lending Lag	32,376,435	2.7	2.9	16.9	19.0	--	--
Credit Oaktree Blend			*-3.7*	*2.3*	*8.3*	*--*	*--*
Raven Opportunity III Lag	57,419,823	4.9	5.8	19.3	9.9	10.1	--
Credit Blend S&P/LSTA Lev Loan +3%			*-3.7*	*2.3*	*6.8*	*7.5*	*--*
White Oak Summit Peer Lag	27,705,821	2.4	-7.5	-8.9	0.2	3.0	--
Credit Blend S&P/LSTA Lev Loan +3%			*-3.7*	*2.3*	*6.8*	*7.5*	*--*
White Oak Yield Spectrum Master V Lag	44,649,587	3.8	0.2	2.8	--	--	--
Credit Blend S&P/LSTA Lev Loan +3%			*-3.7*	*2.3*	*--*	*--*	*--*
Private Core Real Assets Lag	251,978,629	21.4	5.6	40.0	20.2	16.6	15.5
NCREIF ODCE +1% lag (blend)[2]			*4.8*	*29.6*	*12.8*	*10.6*	*11.2*

[1] Market values may not add up due to rounding.
[2] NCREIF ODCE Net + 1% 10/1/2012-present. NCREIF Property Index previously.

Stabilized Growth

During the latest three-month period ending September 30, 2022, eleven of SJCERA's fifteen Stabilized Growth managers outperformed their benchmarks while the other four underperformed. Several managers in this asset class are in the process of investing capital and may underperform as assets are invested (typically known as the J-curve effect). Included in this group is private core real assets, which also outperformed its benchmark for the quarter.

Bridgewater All Weather, one of the Plan's Risk Parity managers, underperformed its benchmark over all time periods shown. For the quarter, 1-, 3-, 5- and 10-year periods it lagged by (12.0%), (28.6%), (7.5%), (4.7%) and (3.7%), respectively.

PanAgora DRMA, one of the Plan's Risk Parity managers, underperformed its T-Bill +4% benchmark over the quarter, 1-, 3- and 5-year time periods by (12.4%), (31.8%), (9.1%) and (4.6%), respectively.

Neuberger Berman, one of the Plan's Liquid Credit managers, outperformed its benchmark for the 3-year time period by 0.1%, but underperformed for the quarter and trailing 1-year periods by (0.4%) and (0.5%), respectively.

Stone Harbor, the Plan's Absolute Return Fixed Income manager, underperformed its ICE BofAML LIBOR index over the 1- and 3-year periods by (5.8%) and (0.2%), respectively, but outperformed over the quarter, 5- and 10-year periods by 0.8%, 0.1% and 1.3%, respectively.

BlackRock Direct Lending, one of the Plan's newer Private Credit managers, outperformed its CPI +6% BLK Blend benchmark over the quarter and 1-year periods by 5.3% and 3.2%, respectively.

Crestline Opportunity II, the Plan's Credit, Niche Alternatives and Hedge Fund Secondaries manager, outperformed its benchmark over the quarter by 2.4%; however, it trailed its benchmark over the 1-, 3- and 5-year periods by (1.9%), (4.6%) and (5.7%), respectively.

Davidson Kempner, the Plan's newest Private Credit manager, was opened during the fourth quarter of 2020 and outperformed its benchmark by 1.5% and 3.7% for the trailing quarter and 1-year periods, respectively.

Stabilized Growth (Continued)

HPS EU, one of the Plan’s newer Direct Lending managers, was opened during the third quarter of 2020 and outperformed its benchmark for the quarter and 1-year periods by 5.5% and 6.0%, respectively.

Medley Opportunity II, one of the Plan’s Direct Lending managers, produced a flat estimated quarterly return, outperforming its benchmark by 3.7%. That said, it lagged its benchmark over the 1-, 3- and 5-year time periods by (15.1%), (16.7%) and (17.9%), respectively.

Mesa West RE Income IV, one of the Plan’s Commercial Mortgage managers, outperformed its benchmark over the quarter and 1-year periods by 1.4% and 1.3%, respectively but lagged by (0.6%) and (0.4%) over the 3-year and 5-year periods, respectively.

Oaktree, a Middle-Market Direct Lending manager, outperformed its benchmark for the quarter, 1- and 3-year trailing time periods by 6.6%, 14.6% and 10.7%, respectively.

Raven Capital II, one of the Plan’s Direct Lending managers, has been liquidated.

Raven Capital III outperformed its annual target for the quarter, 1-,3- and 5-year periods by 9.5%, 17%, 3.1% and 2.6%, respectively.

White Oak Summit Peer, one of the Plan's Direct Lending managers, underperformed its index over the trailing quarter, 1-, 3- and 5-year time periods by (3.8%), (11.2%), (6.6%) and (4.5%), respectively.

White Oak Yield Spectrum Master V led its benchmark over the quarter and 1-year periods by 3.9% and 0.5% respectively.

Private Core Real Assets, outperformed its NCREIF ODCE +1% benchmark over the trailing quarter, 1-, 3-, 5- and 10-year time periods by 0.8%, 10.4%, 7.4%, 6.0% and 4.3%, respectively.

Asset Class Performance Net-of-Fees | As of September 30, 2022

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Principal Protection	**276,994,820**	**100.0**	**-4.1**	**-12.4**	**-3.0**	**0.0**	**2.1**
Bloomberg US Aggregate TR			*-4.8*	*-14.6*	*-3.3*	*-0.3*	*0.9*
Dodge & Cox Fixed Income	188,236,226	68.0	-3.9	-13.5	-1.7	0.8	2.2
Bloomberg US Aggregate TR			*-4.8*	*-14.6*	*-3.3*	*-0.3*	*0.9*
DoubleLine	6,018	0.0	-76.1	-76.7	-37.4	-23.2	-10.3
Bloomberg US Aggregate TR			*-4.8*	*-14.6*	*-3.3*	*-0.3*	*0.9*
Loomis Sayles	88,752,576	32.0	-4.6	--	--	--	--
Bloomberg US Aggregate TR			*-4.8*	--	--	--	--

[1] Market values may not add up due to rounding.

Principal Protection

During the latest three-month period ending September 30, 2022, two of SJCERA's Principal Protection managers outperformed the Bloomberg US Aggregate Index benchmark and the third underperformed the Bloomberg US Agg for the quarter.

Dodge & Cox, the Plan's Core Fixed Income manager, earned a negative quarterly return of (3.9%), outperforming the US Agg by 0.9%. It led its benchmark by 1.1%, 1.6%, 1.1% and 1.3% for the trailing 1-, 3-, 5- and 10-year periods, respectively.

DoubleLine, the Plan's Mortgage-Backed Securities manager, provided a negative quarterly return of (76.1%), underperforming its benchmark by (71.3%). The manager also underperformed its benchmark over the trailing 1-, 3-, 5- and 10-year time periods by (62.1%), (34.1%), (22.9%) and (9.4), respectively.

Loomis Sayles, the Plan's newest Principal Protection manager, was funded in Q1 2022 and outperformed the US Agg during Q3 by 0.2%.

Asset Class Performance Net-of-Fees | As of September 30, 2022

	Market Value ($)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Crisis Risk Offset Asset Class	**561,855,599**	**100.0**	**2.0**	**13.9**	**5.4**	**5.6**	**5.5**
CRO Benchmark[2]			*-2.0*	*-1.8*	*2.3*	*3.9*	*3.7*
Long Duration	**112,506,053**	**20.0**	**-9.2**	**-26.0**	**-8.3**	**-1.7**	**--**
Bloomberg US Treasury Long TR			*-9.6*	*-26.6*	*-8.5*	*-1.6*	*--*
Dodge & Cox Long Duration	112,506,053	20.0	-9.2	-26.0	-8.3	-1.7	--
Bloomberg US Treasury Long TR			*-9.6*	*-26.6*	*-8.5*	*-1.6*	*--*
Systematic Trend Following	**259,858,746**	**46.3**	**4.3**	**37.3**	**16.8**	**10.5**	**9.0**
BTOP 50 (blend)			*2.3*	*21.0*	*10.4*	*7.8*	*4.9*
Graham Tactical Trend	124,862,473	22.2	2.2	38.6	13.4	10.3	--
SG Trend			*5.1*	*33.8*	*14.7*	*11.5*	*--*
Mount Lucas	134,996,273	24.0	6.4	36.1	20.1	10.5	8.3
BTOP 50 (blend)			*2.3*	*21.0*	*10.4*	*7.8*	*4.9*
Alternative Risk Premium	**189,490,799**	**33.7**	**6.6**	**25.2**	**2.2**	**3.8**	**3.3**
5% Annual (blend)			*1.2*	*5.0*	*5.0*	*5.0*	*7.2*
AQR Style Premia	49,016,187	8.7	-7.4	19.5	0.4	-3.1	--
5% Annual			*1.2*	*5.0*	*5.0*	*5.0*	*--*
Lombard Odier	58,168,912	10.4	0.1	-3.0	-4.2	--	--
5% Annual			*1.2*	*5.0*	*5.0*	*--*	*--*
P/E Diversified Global Macro	82,305,700	14.6	23.3	75.5	7.6	8.8	--
5% Annual			*1.2*	*5.0*	*5.0*	*5.0*	*--*

[1] Market values may not add up due to rounding.
[2] (1/3) BB Long Duration Treasuries, (1/3) BTOP50 Index, (1/3) 5% Annual.

Crisis Risk Offset

During the latest three-month period ending September 30, 2022, three out of six of SJCERA's Crisis Risk Offset managers outperformed their respective benchmarks. Collectively, the six managers outperformed the Crisis Risk Offset benchmark by 4% for the quarter.

Dodge & Cox Long Duration produced a negative quarterly return of (9.2%), outperforming the Bloomberg US Long Duration Treasuries by 0.4%. The manager also outperformed its benchmark over the 1- and 3-year periods by 0.6% and 0.2% respectively. It lagged its benchmark for the 5-year period by (0.1%).

Graham Tactical Trend, one of the Plan's Systematic Trend Following managers, underperformed the SG Trend Index for the quarter, 3- and 5-year periods by (2.9%), (1.3%) and (1.2%), respectively, but outperformed for the trailing 1-year period by 4.8%.

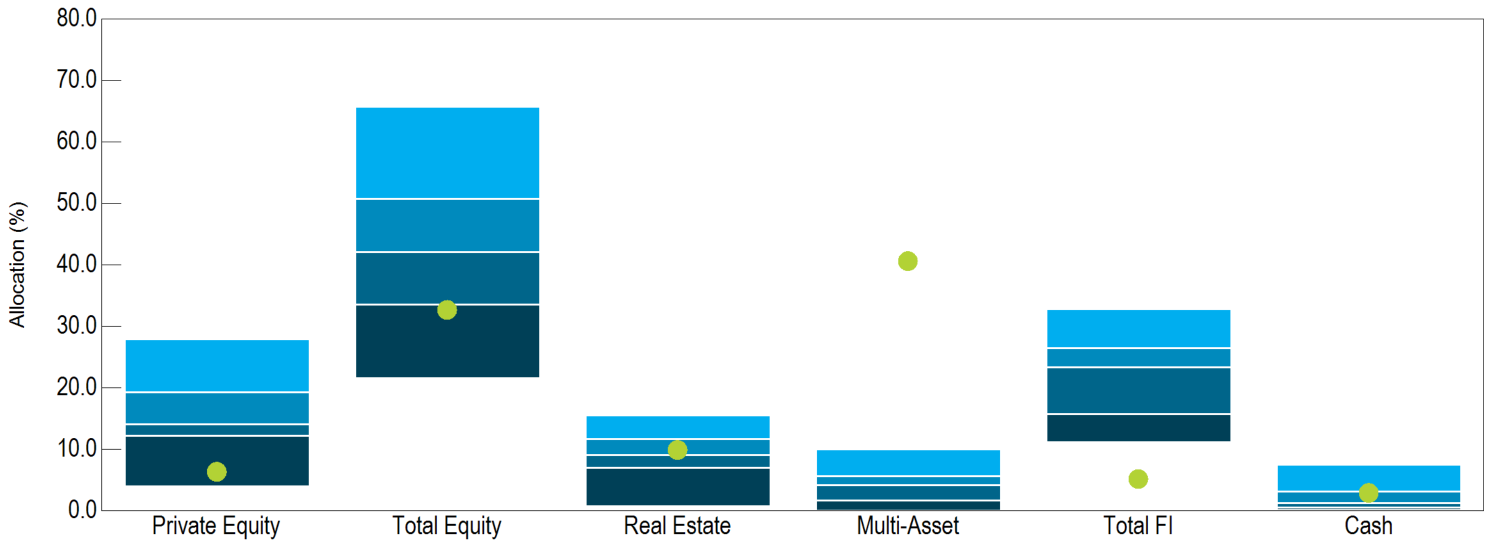
Mount Lucas, one of the Plan's Systematic Trend Following managers, outperformed the Barclays BTOP 50 Index for the quarter, 1-, 3-, 5- and 10-year periods by 4.1%, 15.1%, 9.7%, 2.7% and 3.4%, respectively.

AQR, one of the Plan's Alternative Risk Premium managers, underperformed its 5% Annual target for the quarter, 3- and 5-year periods by (8.6%), (4.6%) and (8.1%), respectively. It outperformed its benchmark for the trailing 1-year and period by 14.5%.

Lombard Odier, an Alternative Risk Premium manager, underperformed its 5% Annual benchmark over the quarter, 1- and 3-year periods by (1.1%), (8.0%) and (9.2%), respectively.

P/E Diversified, one of the Plan's Alternative Risk Premium managers, outperformed its 5% Annual target for the quarter, 1-, 3-, and 5-year periods by 22.1%, 70.5%, 2.6% and 3.8%, respectively.

Total Plan Allocation vs. InvMetrics Public DB > $1B Net
As of September 30, 2022



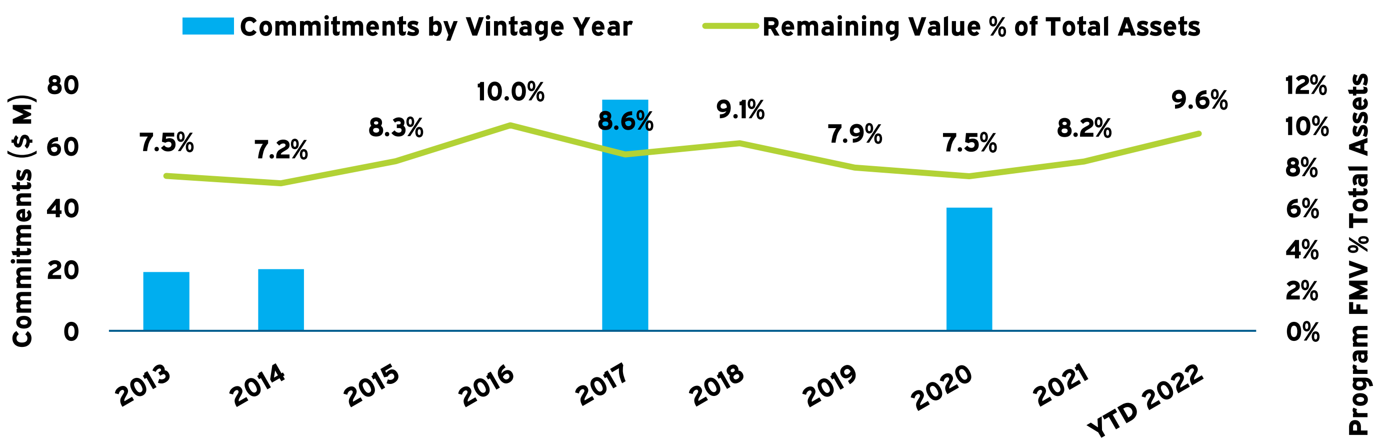
	Private Equity		Total Equity		Real Estate		Multi-Asset		Total FI		Cash	
Allocation (Rank)												
5th Percentile	27.9		65.8		15.5		10.0		32.8		7.5	
25th Percentile	19.4		50.8		11.7		5.7		26.6		3.2	
Median	14.1		42.2		9.2		4.2		23.4		1.3	
75th Percentile	12.3		33.6		7.1		1.7		15.8		0.6	
95th Percentile	4.0		21.6		0.8		0.0		11.2		0.1	
# of Portfolios	44		58		51		20		58		56	
SJCERA Total Plan	6.3	(92)	32.6	(80)	9.9	(37)	40.6	(1)	5.1	(99)	2.9	(29)

Real Estate Program

September 30, 2022

Introduction

The Retirement Association's target allocation towards real estate assets is 10-12%. As of June 30, 2022, the Retirement Association had invested with eighteen real estate managers (three private open-end and fifteen private closed-end). The aggregate reported value of the Retirement Association's real estate investments was $361.6 million at quarter-end.



Program Status

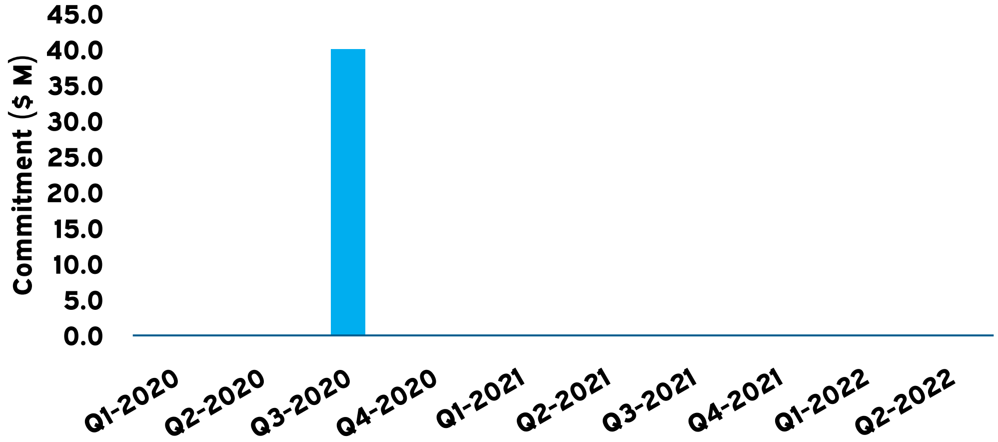
No. of Investments	18
Committed ($ M)	501.6
Contributed ($ M)	449.0
Distributed ($ M)	370.1
Remaining Value ($ M)	361.6

Performance Since Inception

	Program
DPI	0.82x
TVPI	1.63x
IRR	8.3%

Commitments

Recent Quarterly Commitments

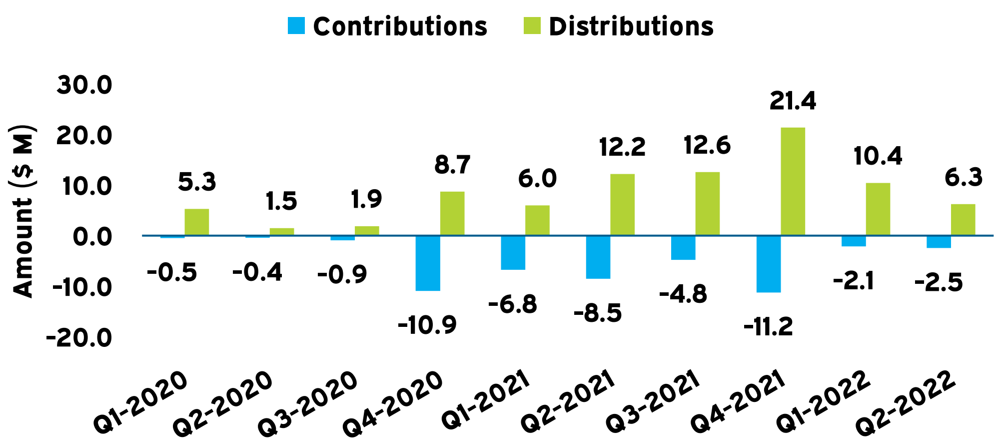


Commitments This Quarter

Fund	Strategy	Region	Amount (MM)
None to report.			

Cash Flows

Recent Quarterly Cash Flows



Largest Contributions This Quarter

Fund	Vintage	Strategy	Region	Amount ($M)
Greenfield VIII	2017	Opportunistic	North America	2.05
Berkeley V	2020	Value-Added	North America	0.30
Prologis Logistics	1970	Core	North America	0.12

Largest Distributions This Quarter

Fund	Vintage	Strategy	Region	Amount ($M)
AG Core Plus IV	2014	Value-Added	North America	1.45
Berkeley V	2020	Value-Added	North America	1.37
Greenfield VII	2013	Opportunistic	North America	1.31

Significant Events

→ In April 2022, AG Core Plus Realty Fund IV closed on the sale of two assets, including Villas at Bunker Hill, a 398-unit garden style apartment community in Houston, Texas, which generated a 19% gross IRR and a 1.9x gross multiple for the fund. The second disposition represented the remaining class A multifamily property in Forth Worth, Texas of the Brazos and Watervue Apartments portfolio, resulting in a 30% gross IRR and 2.0x gross multiple for the fund.

→ Greenfield Acquisition Partners VII sold two Dallas office assets in the second quarter, including TriWest Plaza, which generated a -15% gross IRR and a 0.5x gross multiple, and Greystone, which generated a 2.8% gross IRR and 1.1x gross multiple. Fund VII's debt position in Sandman Motel was also fully realized in the second quarter resulting in a 26.9% gross IRR and 2.0x gross multiple.

→ During the second quarter, Prologis Targeted US Logistics Fund's net asset value per unit increased to $3,514.9, representing appreciation of 5.7% from the prior quarter. The valuation increase was largely driven by unrealized gains from the fund's real estate investments, as there continues to be increased demand and low vacancy rates in the industrial market.

→ During the second quarter, Berkeley Partners Value Industrial Fund V closed on six acquisitions, totaling $33.1 million of equity commitments. The new investments comprise three Massachusetts assets, including one development project, in addition to three other properties in Dallas, Philadelphia, and Atlanta.

→ RREEF America REIT II earned a total gross return of 6.4% for the second quarter, comprised of 0.9% income and 5.5% appreciation. This significant appreciation was primarily attributed to the fund's strategic overweight in the industrial sector, which was written up approximately $492 million in aggregate, as well as similar success in the residential sector, which was written up approximately $308 million. All assets were externally appraised during the second quarter.

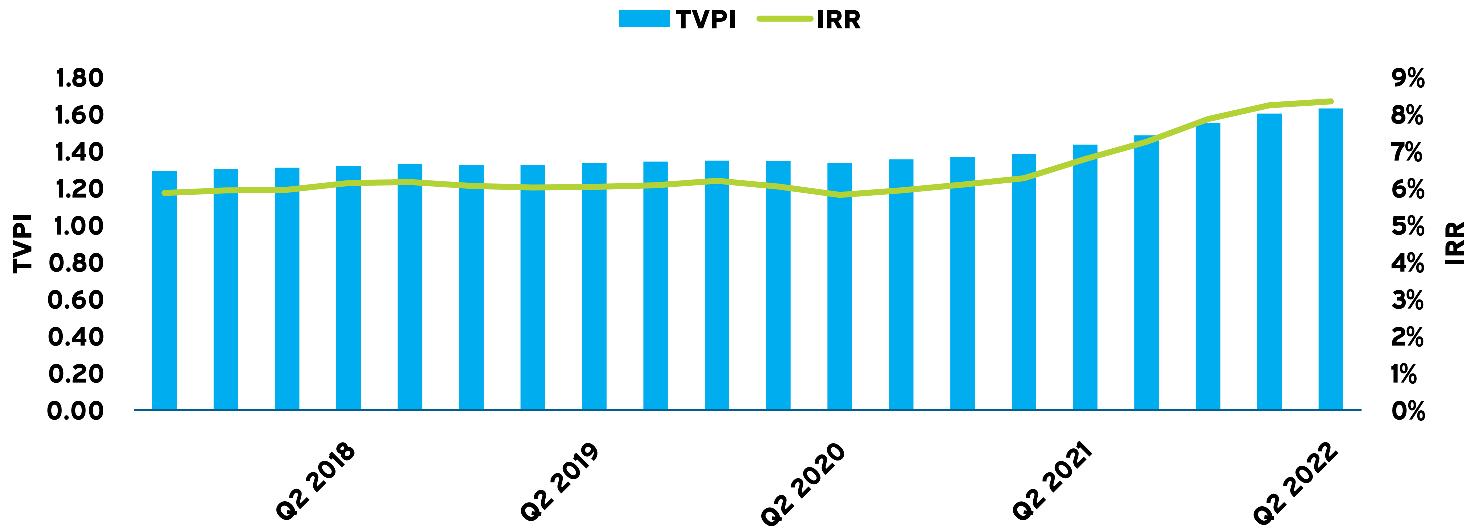
By Strategy

Group	Number	Committed ($ M)	Contributed ($ M)	Unfunded ($ M)	Distributed ($ M)	Remaining Value ($ M)	Exposure ($ M)	DPI (X)	TVPI (X)	IRR (%)
Core	3	120.5	125.4	0.0	31.2	252.0	252.0	0.25	2.26	9.9
Opportunistic	9	204.1	182.3	23.2	215.9	32.7	56.0	1.18	1.36	5.9
Value-Added	6	177.0	141.3	38.6	123.0	76.9	115.5	0.87	1.42	10.4
Total	18	501.6	449.0	61.8	370.1	361.6	423.5	0.82	1.63	8.3

By Vintage

Group	Number	Committed ($ M)	Contributed ($ M)	Unfunded ($ M)	Distributed ($ M)	Remaining Value ($ M)	Exposure ($ M)	DPI (X)	TVPI (X)	IRR (%)
Open-end	3	120.5	125.4	0.0	31.2	252.0	252.0	0.25	2.26	9.9
2005	1	15.0	14.5	0.5	17.6	0.0	0.5	1.21	1.21	3.4
2006	1	30.0	30.0	0.0	20.4	1.3	1.3	0.68	0.73	-3.5
2007	4	96.0	84.0	12.0	115.8	6.3	18.3	1.38	1.45	7.4
2011	2	50.0	38.3	11.7	47.2	4.0	15.8	1.23	1.34	9.5
2012	2	36.0	33.9	2.9	48.9	0.1	3.0	1.45	1.45	12.5
2013	1	19.1	18.3	0.8	27.7	4.2	5.1	1.52	1.75	13.6
2014	1	20.0	19.0	1.8	14.3	12.2	13.9	0.75	1.39	8.7
2017	2	75.0	63.4	13.1	45.0	53.9	67.0	0.71	1.56	20.9
2020	1	40.0	22.3	19.0	2.0	27.6	46.7	0.09	1.32	NM
Total	18	501.6	449.0	61.8	370.1	361.6	423.5	0.82	1.63	8.3

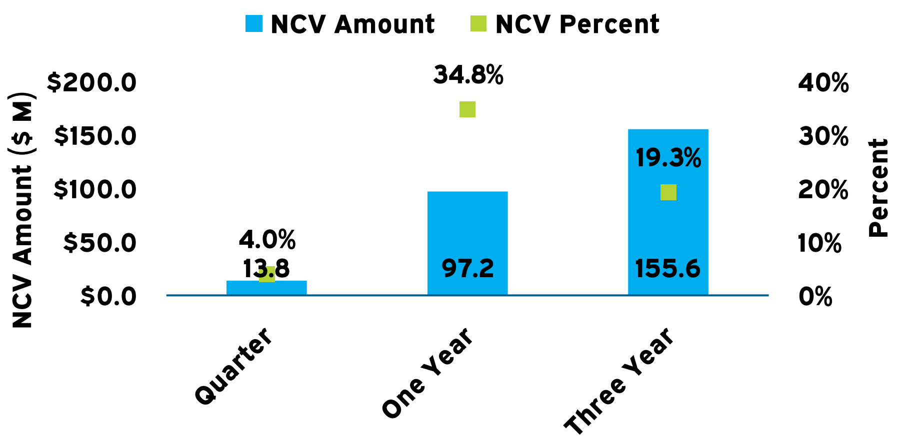
Since Inception Performance Over Time



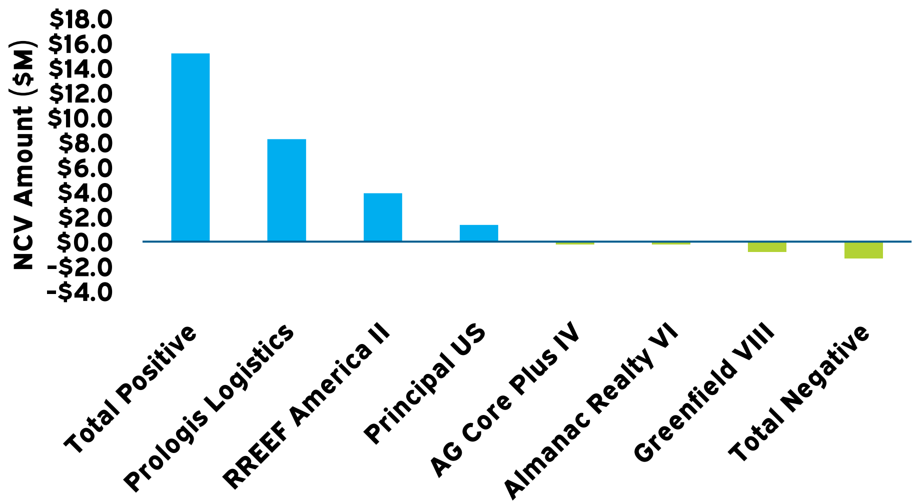
Horizon IRRs

	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)	Since Inception (%)
Aggregate Portfolio	34.4	18.4	13.6	12.6	8.3
Public Market Equivalent	-13.0	-1.4	0.5	2.3	2.9

Periodic NCV



1 Quarter Drivers Of NCV

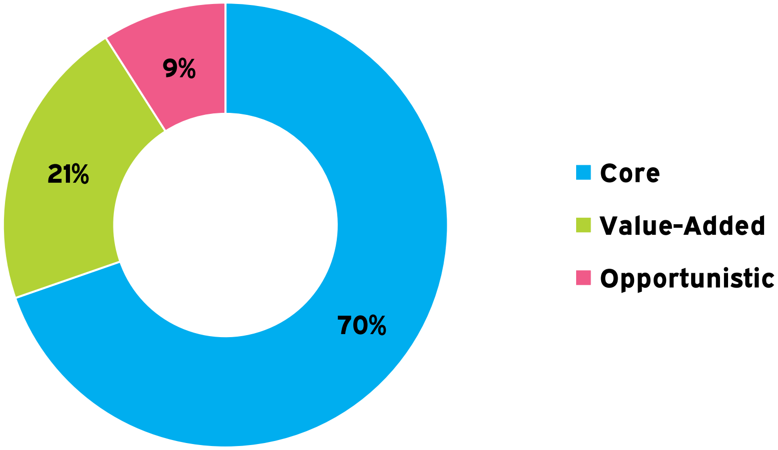


Fund Performance: Sorted By Vintage And Strategy

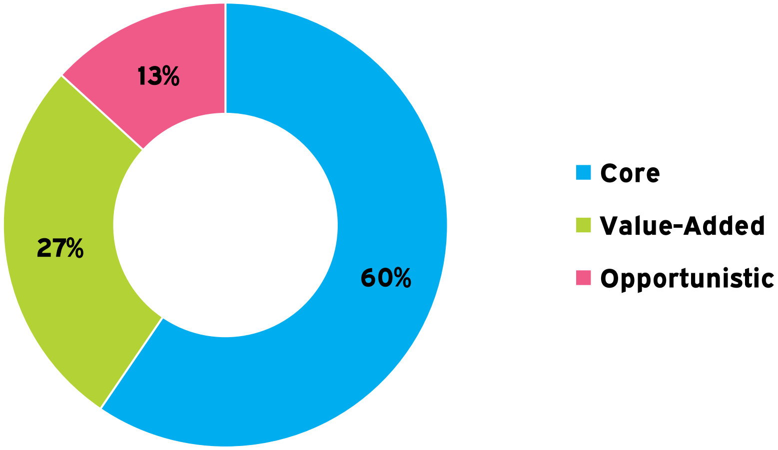
By Investment	Vintage	Strategy	Committed ($ M)	Contributed ($ M)	Unfunded ($ M)	Distributed ($ M)	Remaining Value ($ M)	TVPI (X)	IRR (%)
Principal US	Open-end	Core	25.0	25.0	0.0	0.0	46.5	1.86	9.4
Prologis Logistics	Open-end	Core	50.5	55.4	0.0	21.6	138.2	2.88	9.9
RREEF America II	Open-end	Core	45.0	45.0	0.0	9.6	67.3	1.71	10.0
Miller GLobal Fund V	2005	Opportunistic	15.0	14.5	0.5	17.6	0.0	1.21	3.4
Walton Street V	2006	Opportunistic	30.0	30.0	0.0	20.4	1.3	0.73	-3.5
Greenfield V	2007	Opportunistic	30.0	29.6	0.4	40.4	0.2	1.37	8.3
Miller Global VI	2007	Opportunistic	30.0	21.1	8.9	33.3	0.1	1.58	7.8
Walton Street VI	2007	Opportunistic	15.0	13.3	1.7	15.2	5.9	1.59	8.2
Colony Realty III	2007	Value-Added	21.0	20.0	1.0	26.9	0.0	1.35	5.3
Greenfield VI	2011	Opportunistic	20.0	19.2	0.8	26.2	0.0	1.37	9.6
Almanac Realty VI	2011	Value-Added	30.0	19.1	10.9	21.0	4.0	1.31	9.2
Miller Global VII	2012	Opportunistic	15.0	12.1	2.9	16.0	0.1	1.33	14.4
Colony Realty IV	2012	Value-Added	21.0	21.7	0.0	32.9	0.0	1.51	11.9
Greenfield VII	2013	Opportunistic	19.1	18.3	0.8	27.7	4.2	1.75	13.6
AG Core Plus IV	2014	Value-Added	20.0	19.0	1.8	14.3	12.2	1.39	8.7
Greenfield VIII	2017	Opportunistic	30.0	24.3	7.2	19.1	20.8	1.64	25.3
Stockbridge RE III	2017	Value-Added	45.0	39.1	5.9	25.9	33.1	1.51	18.3
Berkeley V	2020	Value-Added	40.0	22.3	19.0	2.0	27.6	1.32	NM
Total			501.6	449.0	61.8	370.1	361.6	1.63	8.3

By Strategy

Percent of FMV

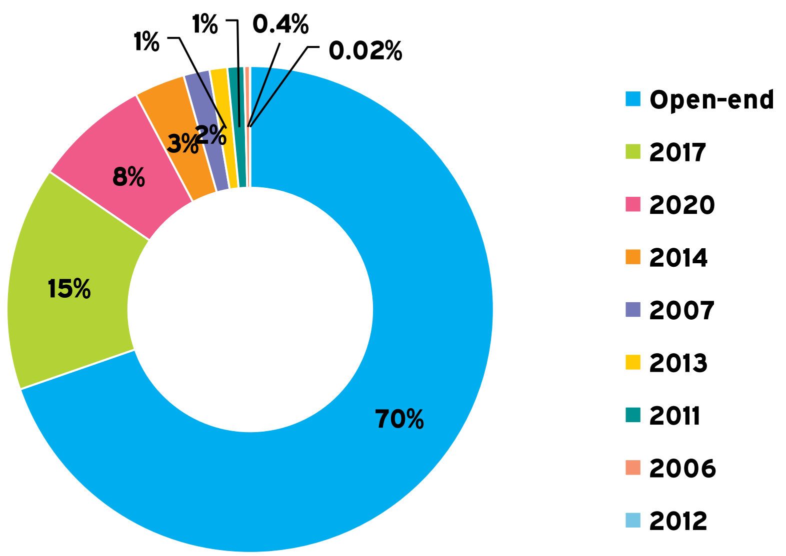


Percent of Exposure

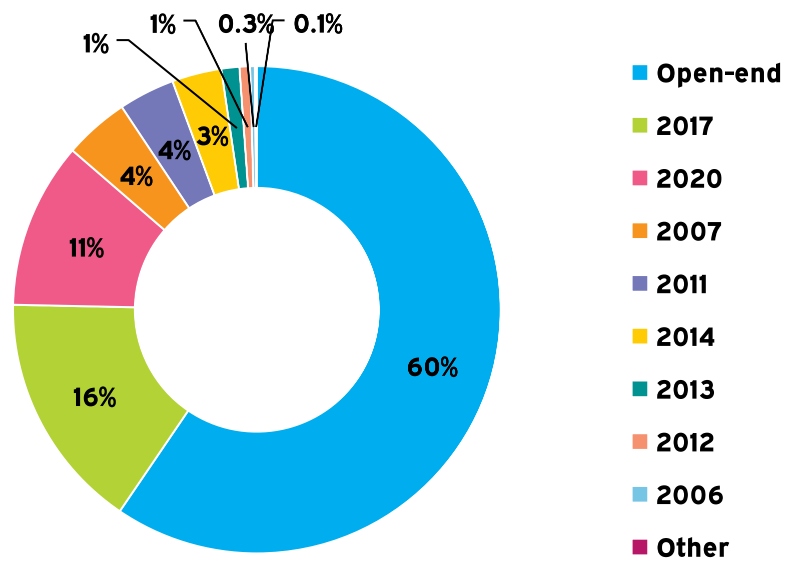


By Vintage

Percent of FMV

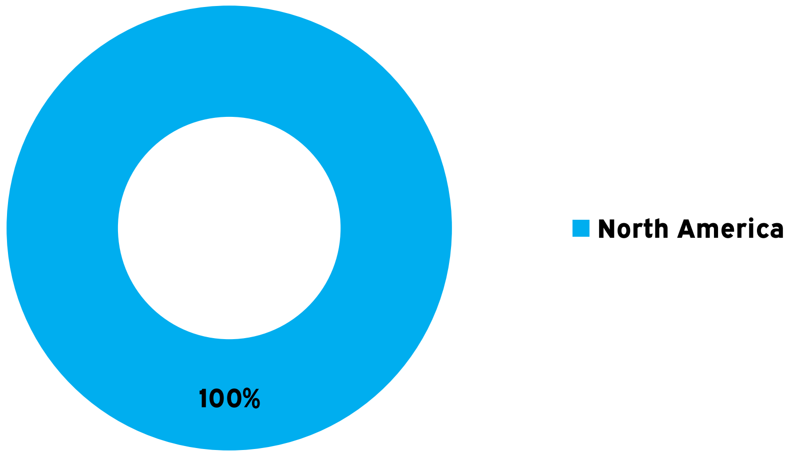


Percent of Exposure

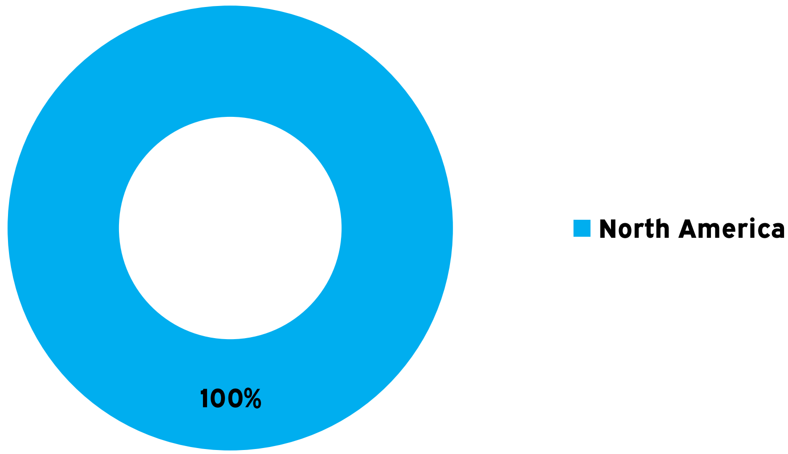


By Geographic Focus

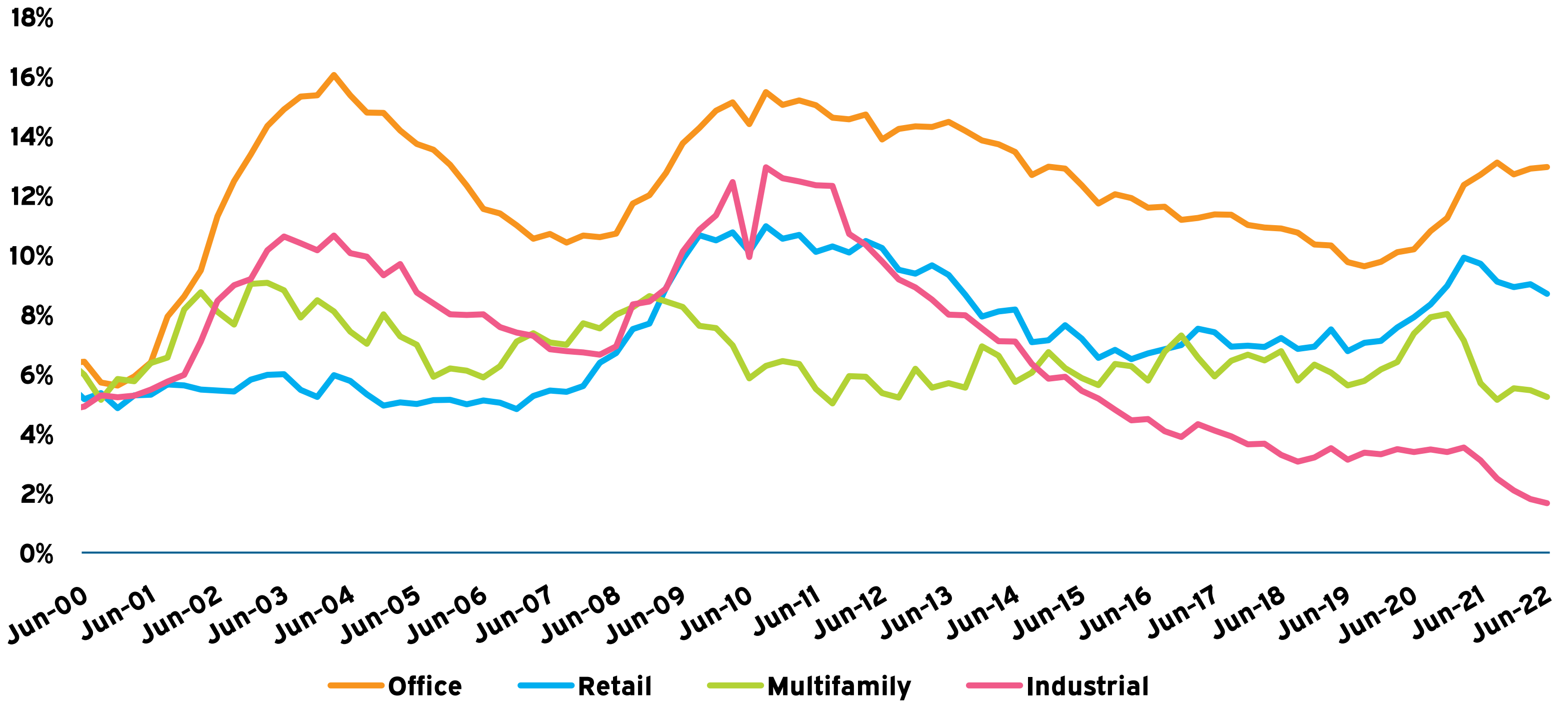
Percent of FMV



Percent of Exposure



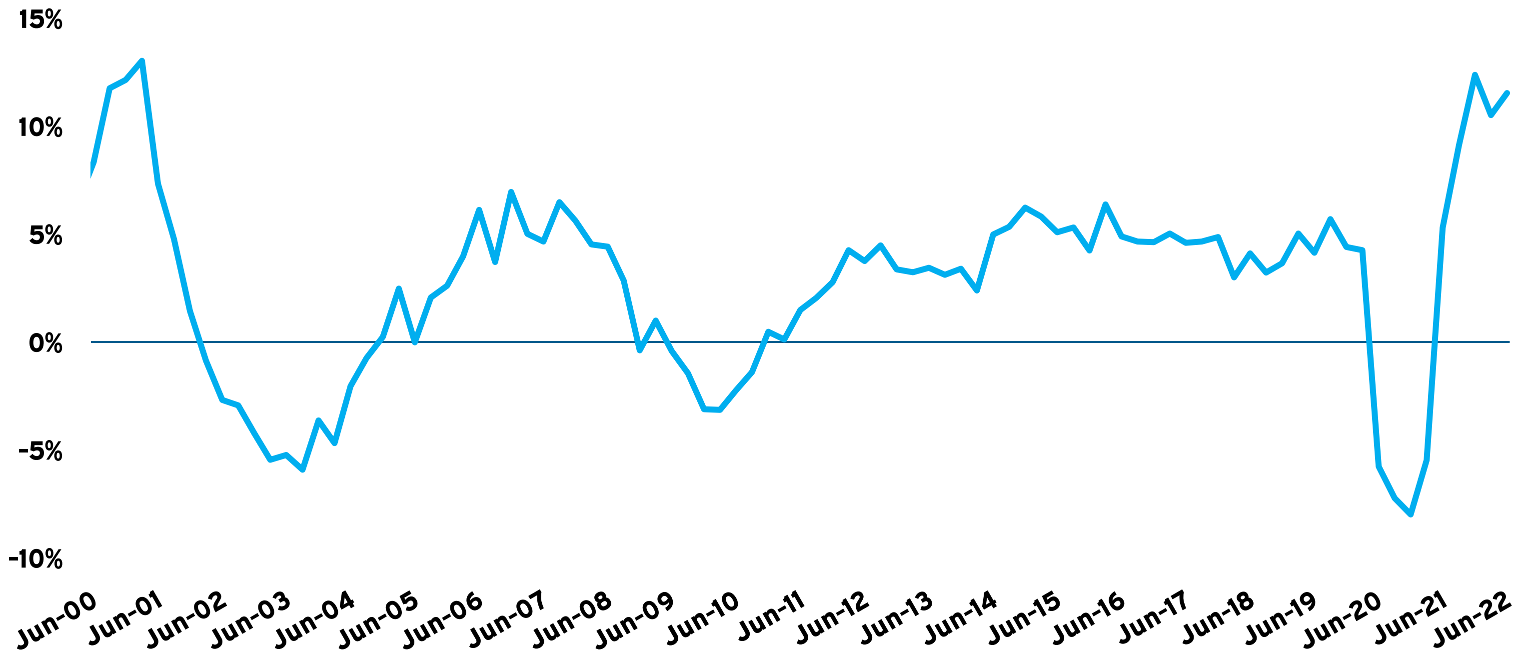
Real Estate Fundamentals
Vacancy by Property Type[1]



In the second quarter of 2022, vacancy rates increased for office, while vacancy rates for multifamily, industrial and retail decreased. Retail saw the largest decrease in vacancy rates, moving down 32 basis points. Multifamily vacancies decreased 22 basis points in Q2 2022, and industrial vacancies fell another 14 basis points to set a new all-time low at 1.7%. Office vacancies increased slightly by 6 basis points in Q2 2022 to 13.0%. Compared to one year ago, vacancy rates in industrial decreased 144 basis points, retail decreased 101 basis points, multifamily decreased 46 basis points., and office increased 26 basis points. Overall, the vacancy rate across all property types decreased 110 basis point from Q2 2021.

[1] Source: NCREIF

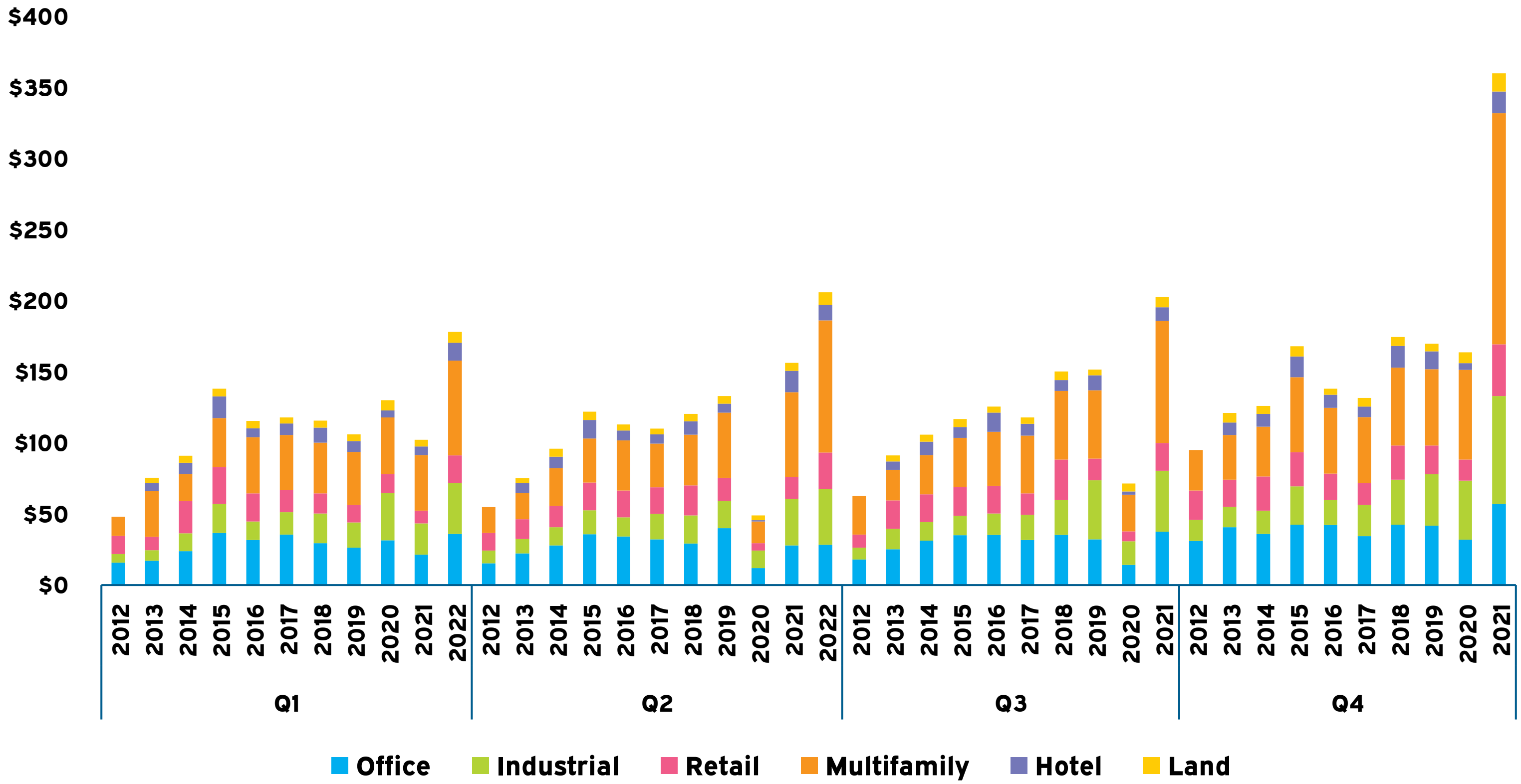
NOI Growth[1]



The trailing twelve-month rate of NOI growth increased slightly in Q2 2022 to 11.5%. Resilient demand and near immediate take-up of new supply in both the industrial and multifamily sectors underpinned the continued NOI growth. Industrial NOI growth is trending at 12.6% for the trailing year ending Q2 2022. Office NOI growth has moved out of negative territory to a positive 2.7% year-over-year, and Apartment NOI (a sector with "gross" rents, compared to "net" rents in other property types) experienced positive NOI growth at 22.3% year-over-year as occupancy levels and rental rate growth improved. Retail NOI growth continues to improve from pandemic lows, now at 13.6% year-over-year.

[1] Source: NCREIF

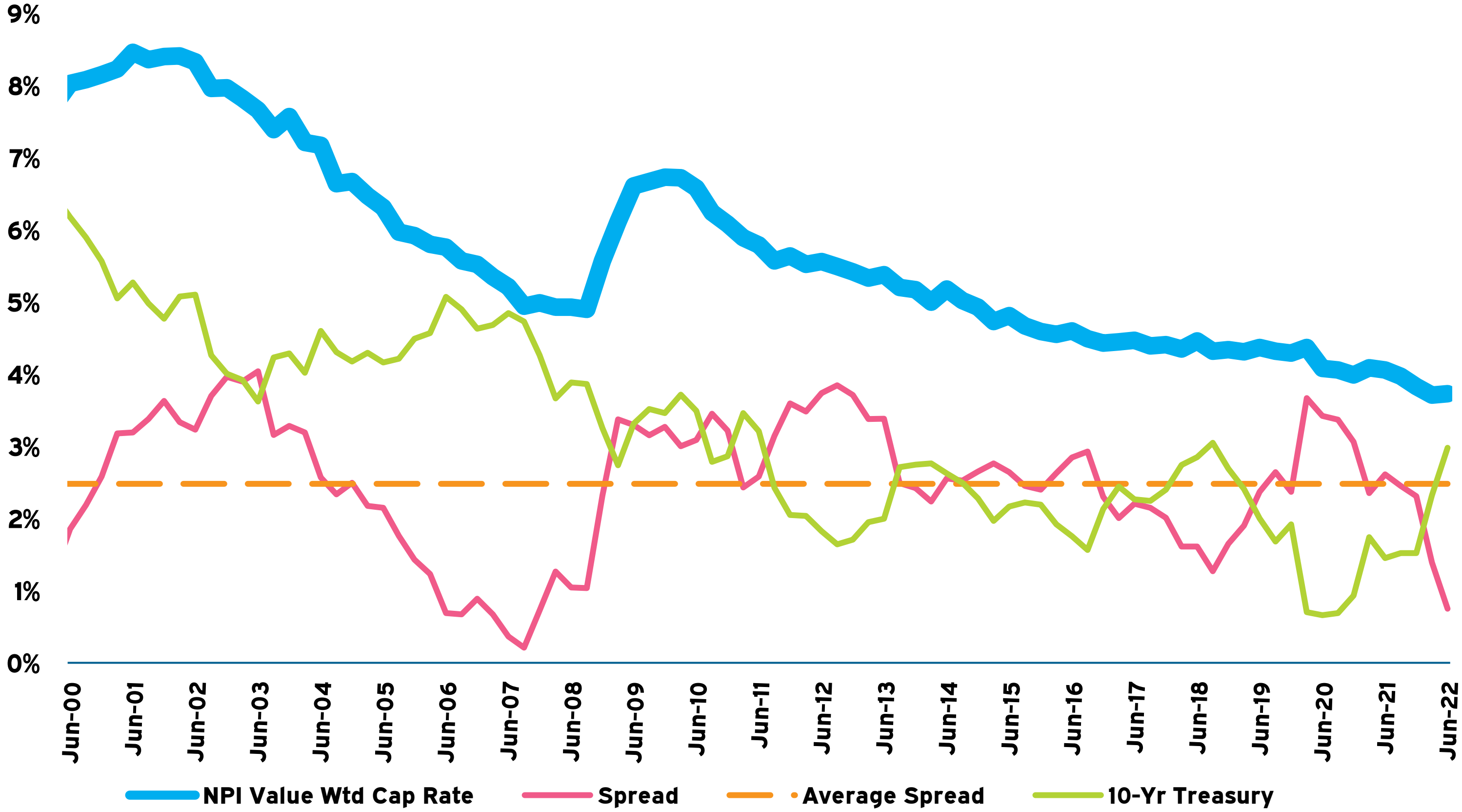
Transaction Volume ($bn)[1]



Private real estate transaction volume for properties valued over $2.5 million for Q2 2022 was up significantly from Q2 2021 to $206 billion. Compared to a year ago, most property types saw increases in transaction volume: retail (+68%), multifamily (+56%), land (+49%), and industrial (+19%). Office transaction volume was effectively flat, and hotel transaction volume was down 28%. Multifamily and industrial properties made up the largest percentages of total transaction volume during the quarter, at 45% and 19%, respectively.

[1] Source: PREA

Real Estate Capital Markets
Cap Rates vs. 10-Year Treasury[1]



The NPI Value Weighted Cap Rate was unchanged in Q2 2022 at 3.7%. The 10-year Treasury yield increased by 66 basis points in Q2 2022 to 3.0%. The spread between cap rates and treasury yields (75 basis points) is now well below the long-term average spread of 251 basis points.

[1] Source: NCREIF and US Department of the Treasury

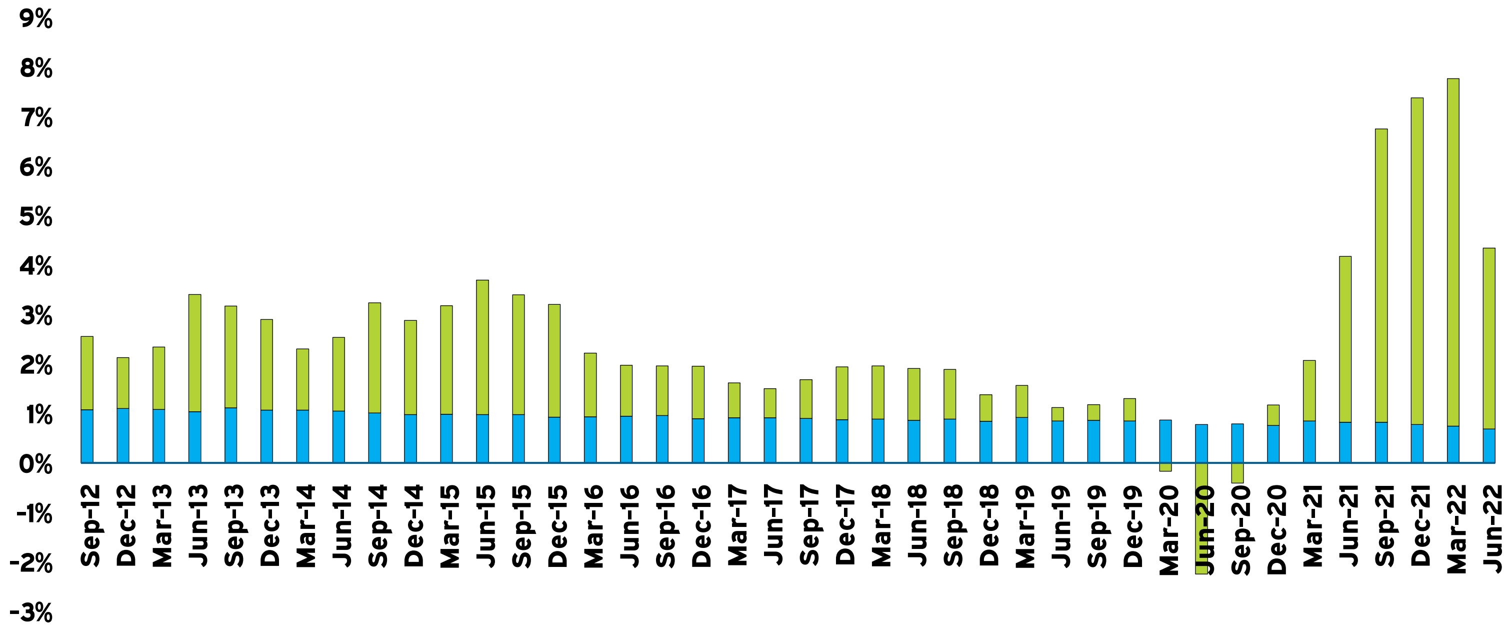
Trailing Period Returns[1]

As of June 30, 2022	1 Year	3 Years	5 Years	10 Years
NFI-ODCE (EW, net)	28.9%	12.3%	10.1%	10.5%
NFI-ODCE (VW, net)	28.3	11.7	9.6	10.2
NCREIF Property Index	21.5	10.2	8.9	9.7
NAREIT Equity REIT Index	-5.9	5.3	6.7	8.3

Private real estate indices were positive in Q2 2022 and continue to be positive over the 1-year, 3-year, 5-year, and 10-year time horizons. The NFI-ODCE Equal Weight Index posted another strong quarter in Q2 2022 and private core real estate vastly outperformed the public index over the trailing one-year period. Indeed, private core real estate has outperformed the public index for all periods presented. Public real estate performance continues to be volatile, returning -14.7% in Q2 2022, after posting a 12.0% return in the same quarter one year ago.

[1] Source: NCREIF

ODCE Return Components[1]
(Equal Weight, Net)



The NFI-ODCE Equal Weight return in Q2 2022, while quite strong at 4.4%, represented a significant decrease from the prior quarter's record setting return of 7.8%. Small upward adjustments to the discount rate, used in valuations to reflect increasing interest rates and the cost of debt financing, chipped away at the appreciation component of returns (+3.7% in Q2 versus 7.0% in Q1). The income component of the quarterly return has been fairly consistent around 0.7%.

[1] Source: NCREIF

Below are details on specific terminology and calculation methodologies used throughout this report:

Committed	The original commitment amount made to a given fund. Some funds may be denominated in non-USD currencies, and such commitment amounts represent the sum of fund contributions translated to USD at their daily conversion rates plus the unfunded balance translated at the rate as of the date of this report.
Contributed	The amount of capital called by a fund manager against the commitment amount. Contributions may be used for new or follow-on investments, fees, and expenses, as outlined in each fund's limited partnership agreement. Some capital distributions from funds may reduce contributed capital balances. Some funds may be denominated in non-USD currencies, and such aggregate contributions represent the sum of each fund contribution translated to USD at its daily conversion rate.
Distributed	The amount of capital returned from a fund manager for returns of invested capital, profits, interest, and other investment related income. Some distributions may be subject to re-investment, as outlined in each fund's limited partnership agreement. Some funds may be denominated in non-USD currencies, and such aggregate distributions represent the sum of each fund distribution translated to USD at its daily conversion rate.
DPI	Acronym for "Distributed-to-Paid-In", which is a performance measurement for Private Market investments. The performance calculation equals Distributed divided by Contributed. DPIs for funds and groupings of funds are net of all fund fees and expenses as reported to by fund managers to Meketa.
Exposure	Represents the sum of the investor's Unfunded and Remaining Value.
IRR	Acronym for "Internal Rate of Return", which is a performance measurement for Private Market investments. IRRs are calculated by Meketa based on daily cash flows and Remaining Values as of the date of this report. IRRs for funds and groupings of funds are net of all fund fees and expenses as reported by fund managers to Meketa.
NCV	Acronym for "Net Change in Value", which is a performance measurement for Private Market investments. The performance calculation equals the appreciation or depreciation over a time period neutralized for the impact of cash flows that occurred during the time period.
NM	Acronym for "Not Meaningful", which indicates that a performance calculation is based on data over too short a timeframe to yet be meaningful or not yet possible due to inadequate data. Meketa begins reporting IRR calculations for investments once they have reached more than two years since first capital call. NM is also used within this report in uncommon cases where the manager has reported a negative Remaining Value for an investment.

Public Market Equivalent ("PME")	A calculation methodology that seeks to compare the performance of a portfolio of private market investments with public market indices. The figures presented in this report are based on the PME+ framework, which represents a net IRR value based on the actual timing and size of the private market program's daily cash flows and the daily appreciation or depreciation of an equivalent public market index. Meketa utilizes the following indices for private market program PME+ calculations: Infrastructure: Dow Jones Brookfield Global Infrastructure Index Natural Resources: S&P Global Natural Resources Index Private Debt: Meryl Lynch High Yield Master II Bond Index Private Equity: MSCI ACWI Investable Market Index Real Assets (excluding Real Estate): Equal blend of Dow Jones Brookfield Global Infrastructure Index and S&P Global Natural Resources Index Real Assets (including Real Estate): Equal blend of Dow Jones Brookfield Global Infrastructure Index, S&P Global Natural Resources Index, and Dow Jones U.S. Select Real Estate Securities Index Real Estate: Dow Jones U.S. Select Real Estate Securities Index
Remaining Value	The investor's value as reported by a fund manager on the investor's capital account statement. All investor values in this report are as of the date of this report, unless otherwise noted. Some funds may be denominated in non-USD currencies, and such remaining values represent the fund's local currency value translated to USD at the rate as of the date of this report.
TVPI	Acronym for "Total Value-to-Paid-In", which is a performance measurement for Private Market investments. The performance calculations represents Distributed plus Remaining Value, then divided by Contributed. TVPIs for funds and groupings of funds are net of all fund fees and expenses as reported to by fund managers to Meketa.
Unfunded	The remaining balance of capital that a fund manager has yet to call against a commitment amount. Meketa updates unfunded balances for funds to reflect all information provided by fund managers provided in their cash flow notices. Some funds may be denominated in non-USD currencies, and such unfunded balances represent the fund's local currency unfunded balance translated to USD at the rate as of the date of this report.

Capital Markets Outlook & Risk Metrics

As of September 30, 2022

Capital Markets Outlook

Markets

→ Global equities and bonds sold-off in September reflecting the deteriorating economic outlook as major central banks hiked interest rates, effectively threatening to tip the global economy into recession in order to suppress inflationary pressures.

→ The Russian-Ukrainian war continued to drive natural gas prices higher, and incremental political escalation of hostilities between Russia and the west cumulated in considerable damage to the vital Nordstream 1 pipeline.

→ China stands out in its efforts to ease policy to support the floundering real estate sector and bolster domestic demand as it has been forced to slow the rapid depreciation of the renminbi against major trade partners. Despite these efforts, they have yet to boost domestic spending or resolve the real estate crisis.

→ US equities posted negative returns in September but outperformed developed non-US and emerging market indices, and value outperformed growth in most regions.

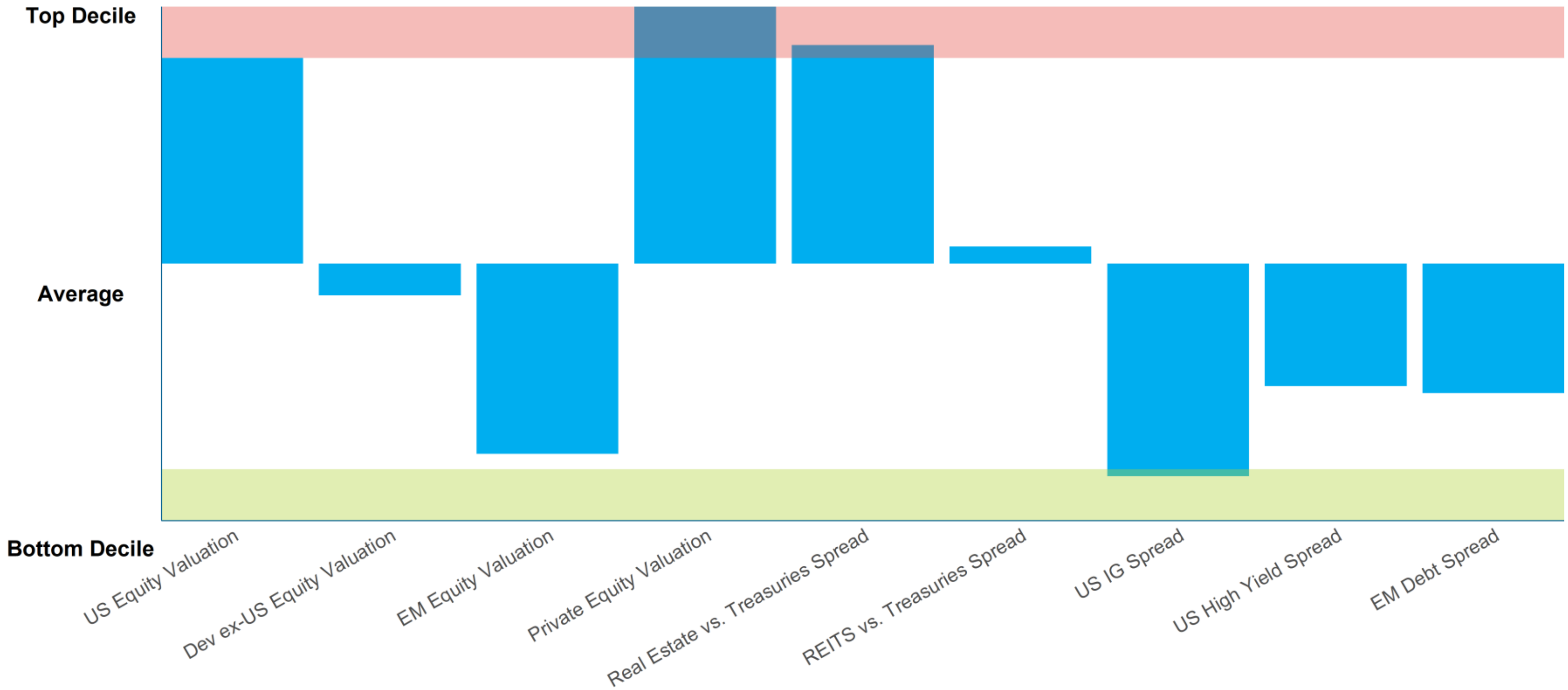
→ Broad emerging market equities outperformed Chinese equities. Buffeted by a strong US dollar, rising inflation, and falling global growth, investors repriced equities based on deteriorating fundamentals.

→ The UK suffered a brief but severe dislocation in its bond market requiring the new government to retreat from its fiscal reform package and for the Bank of England to intervene in the bond markets.

→ US fixed income markets posted losses, although high yield and short-duration TIPS fared better than the Bloomberg Aggregate.

→ After benefiting from higher commodity prices earlier in the year, commodities and public natural resources suffered negative returns as deteriorating economic growth outlook repriced estimates for future demand for energy, industrial metals, and lumber.

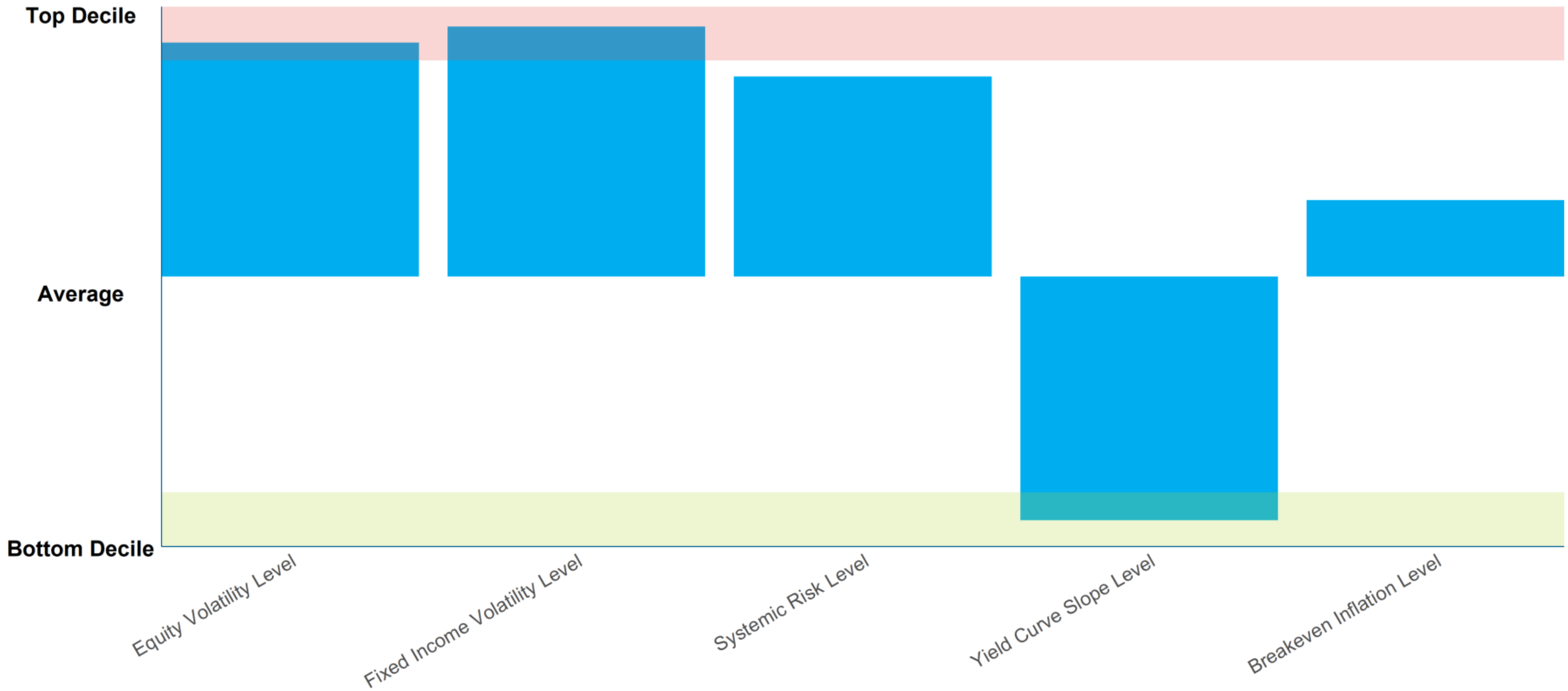
Risk Overview/Dashboard (1)
(As of September 30, 2022)[1]



→ Dashboard (1) summarizes the current state of the different valuation metrics per asset class relative to their own history.

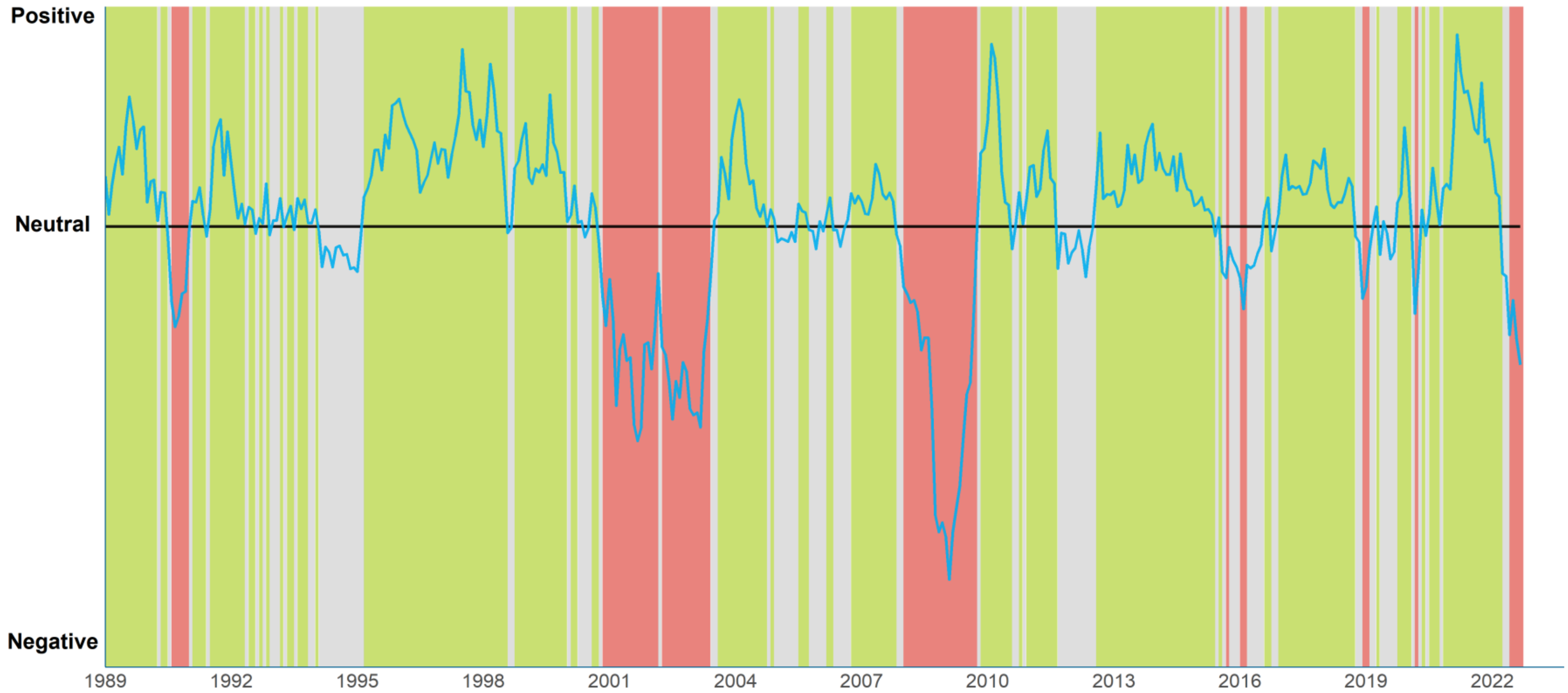
[1] With the exception of Private Equity Valuation, that is YTD as of December 31, 2021.

Risk Overview/Dashboard (2)
(As of September 30, 2022)

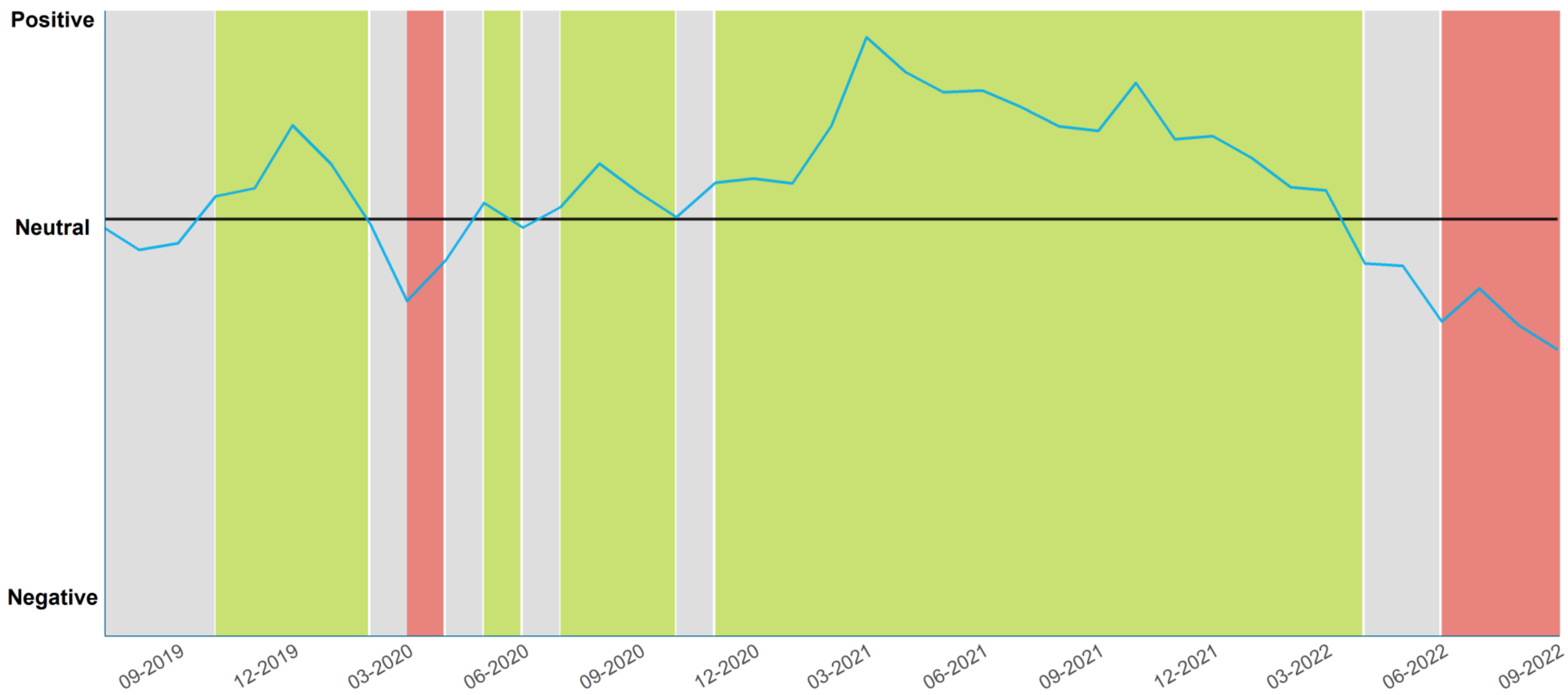


→ Dashboard (2) shows how the current level of each indicator compares to its respective history.

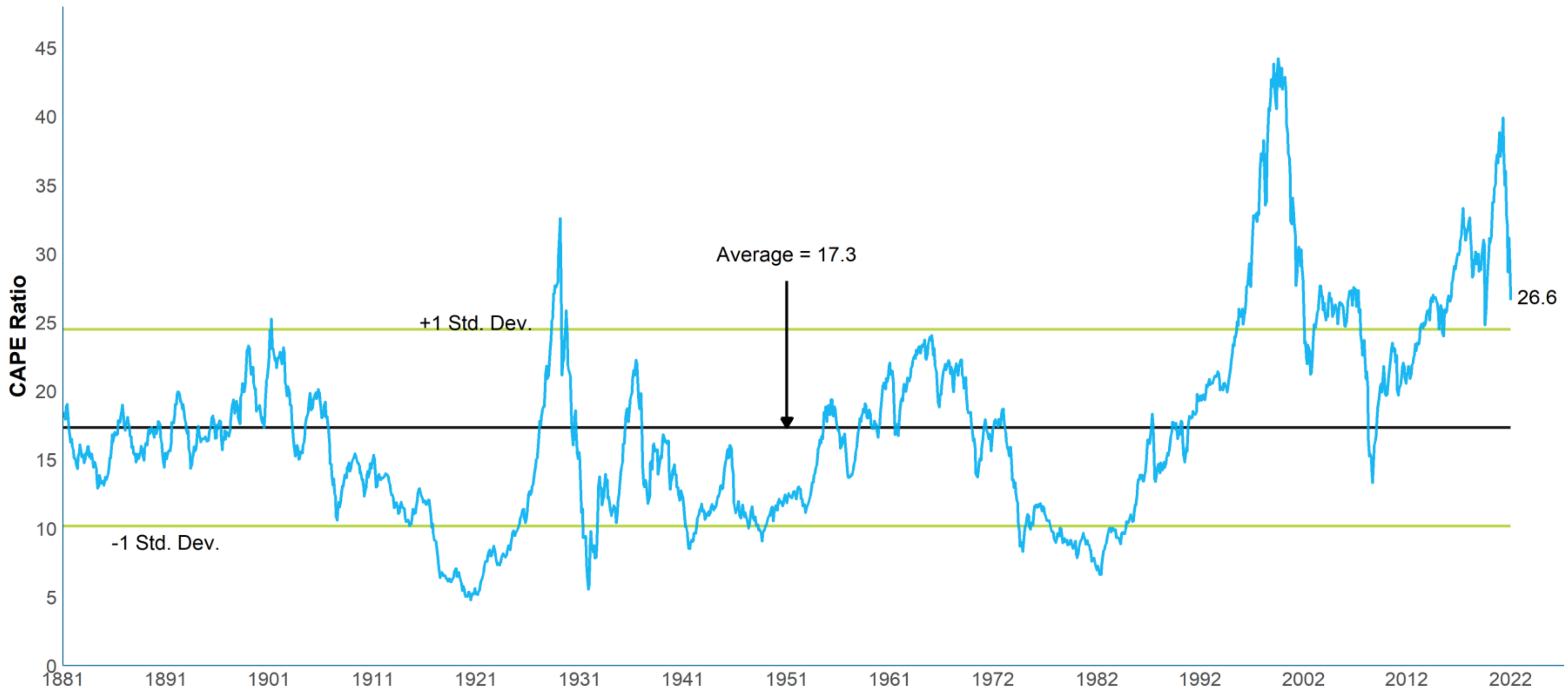
Market Sentiment Indicator (All History)
(As of September 30, 2022)



Market Sentiment Indicator (Last Three Years)
(As of September 30, 2022)



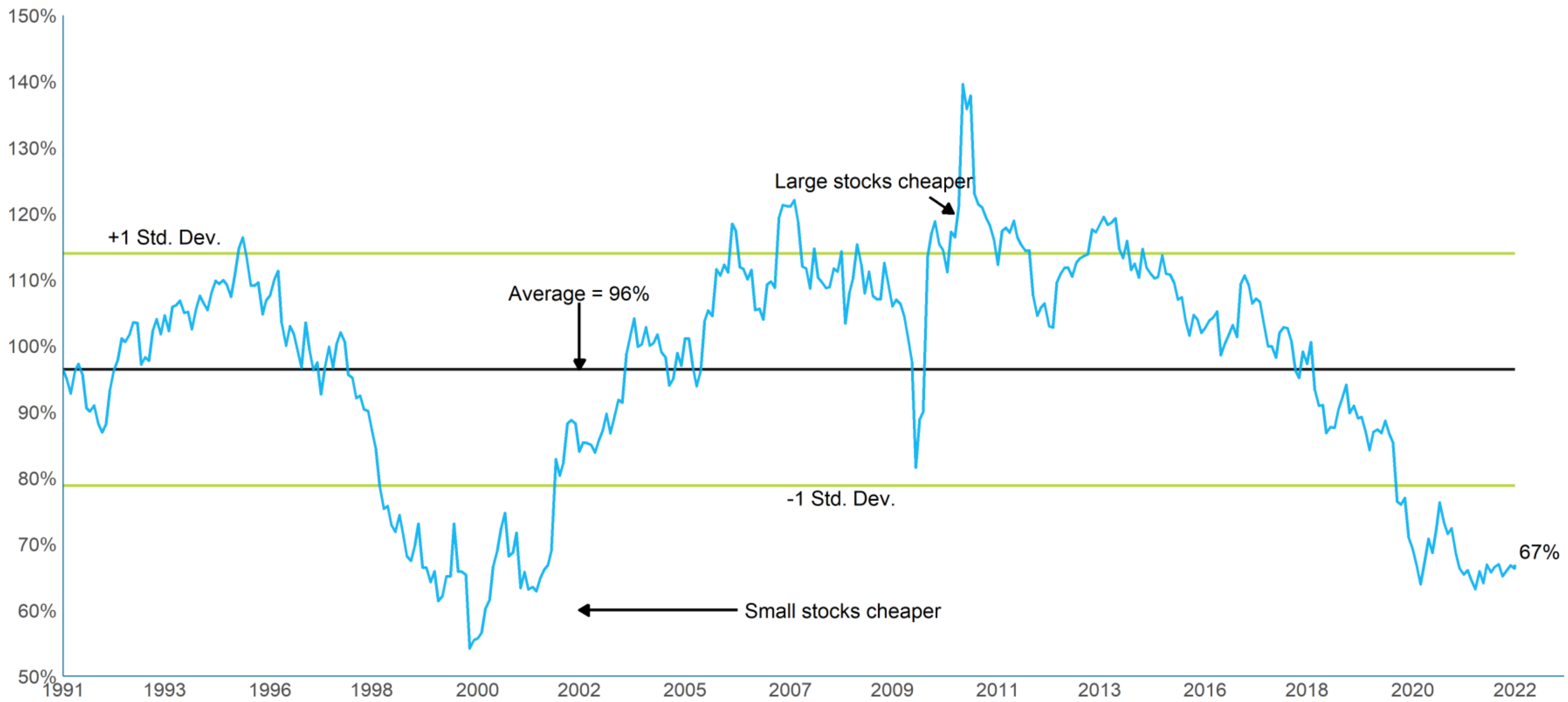
US Equity Cyclically Adjusted P/E[1]
(As of September 30, 2022)



→ This chart details one valuation metric for US equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group.

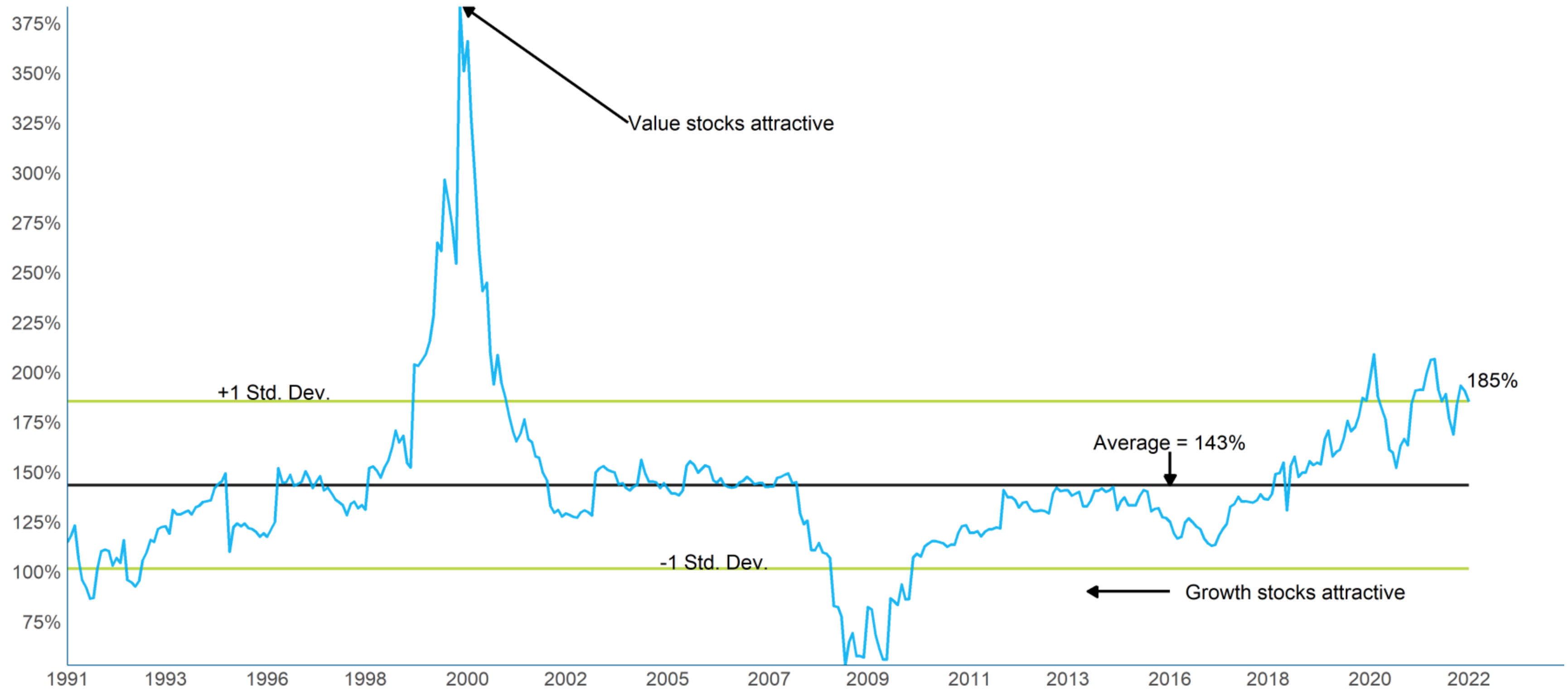
Small Cap P/E vs. Large Cap P/E[1]
(As of September 30, 2022)



→ This chart compares the relative attractiveness of small cap US equities vs. large cap US equities on a valuation basis. A higher (lower) figure indicates that large cap (small cap) is more attractive.

[1] Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings.

Growth P/E vs. Value P/E[1]
(As of September 30, 2022)



→ This chart compares the relative attractiveness of US growth equities vs. US value equities on a valuation basis. A higher (lower) figure indicates that value (growth) is more attractive.

[1] Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month "as reported" earnings.

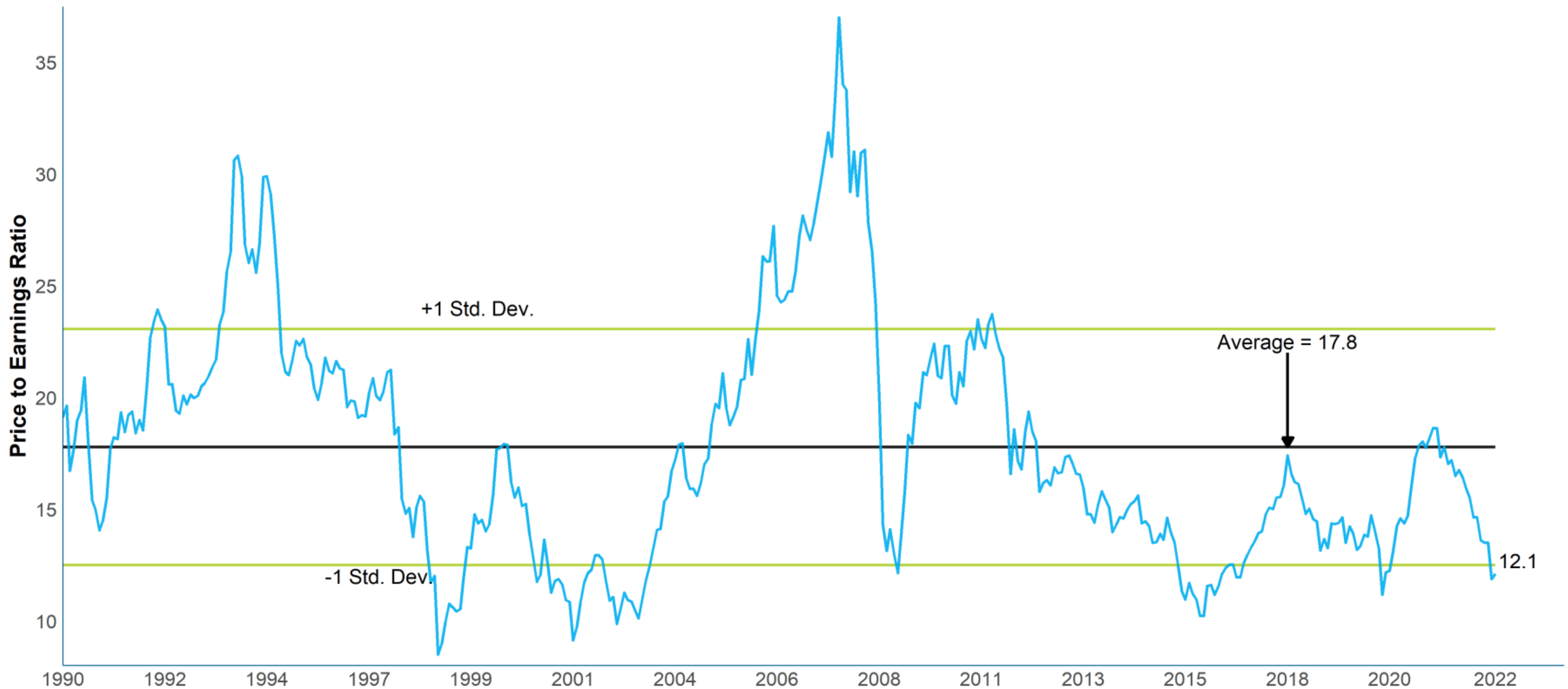
Developed International Equity Cyclically Adjusted P/E[1]

(As of September 30, 2022)

→ This chart details one valuation metric for developed international equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] Developed International Equity (MSCI EAFE Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.

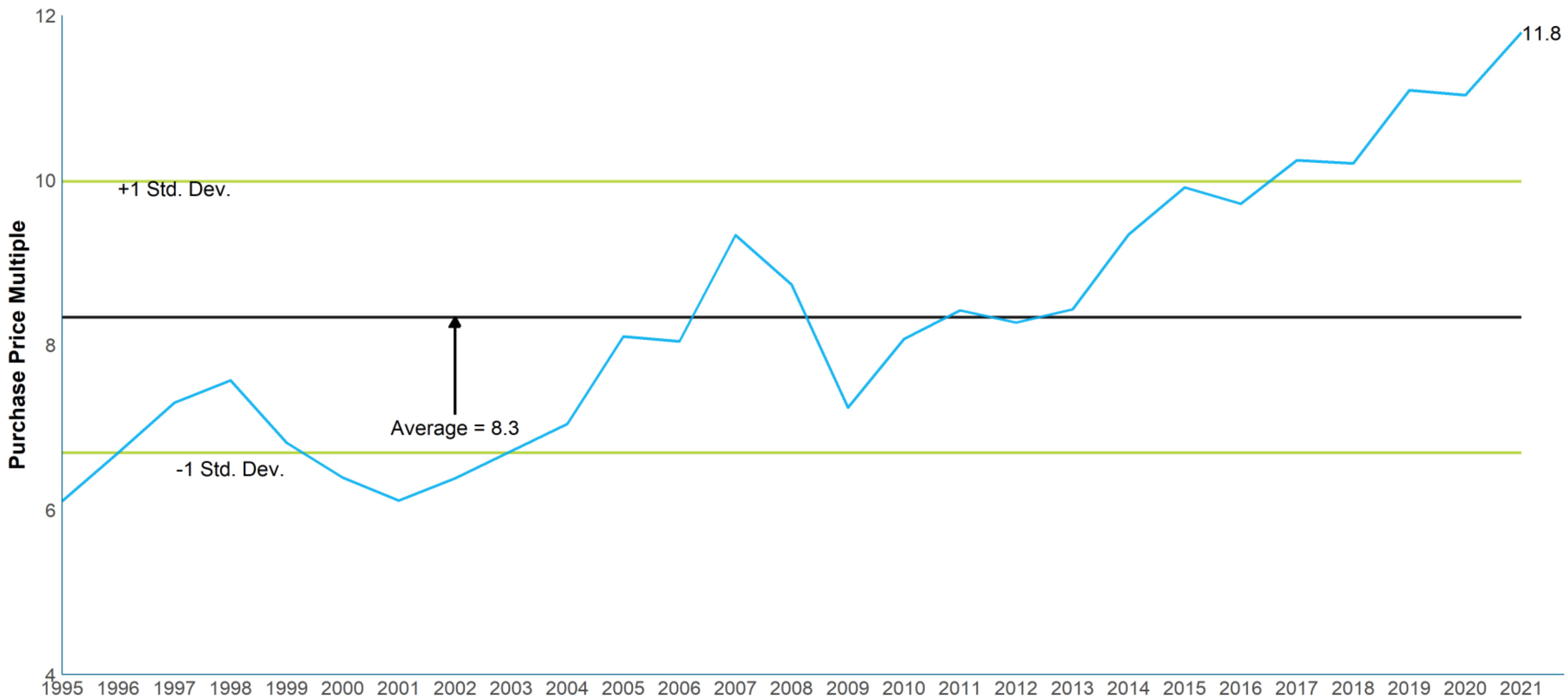
Emerging Market Equity Cyclically Adjusted P/E[1]
(As of September 30, 2022)



→ This chart details one valuation metric for emerging markets equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.

Private Equity Multiples[1]
(As of September 30, 2022)[2]

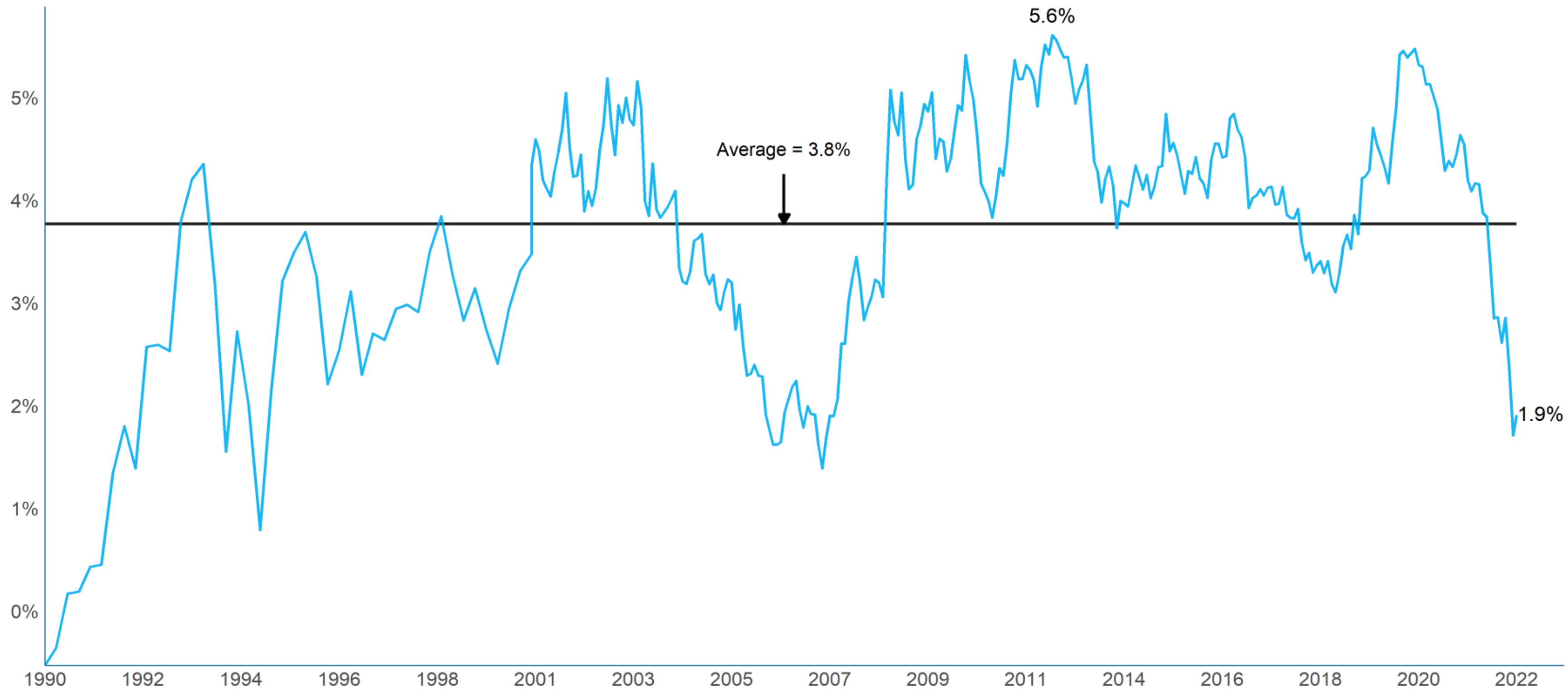


→ This chart details one valuation metric for the private equity market. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

[1] Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.
[2] Annual Data, as of December 31, 2021

Core Real Estate Spread vs. Ten-Year Treasury[1]

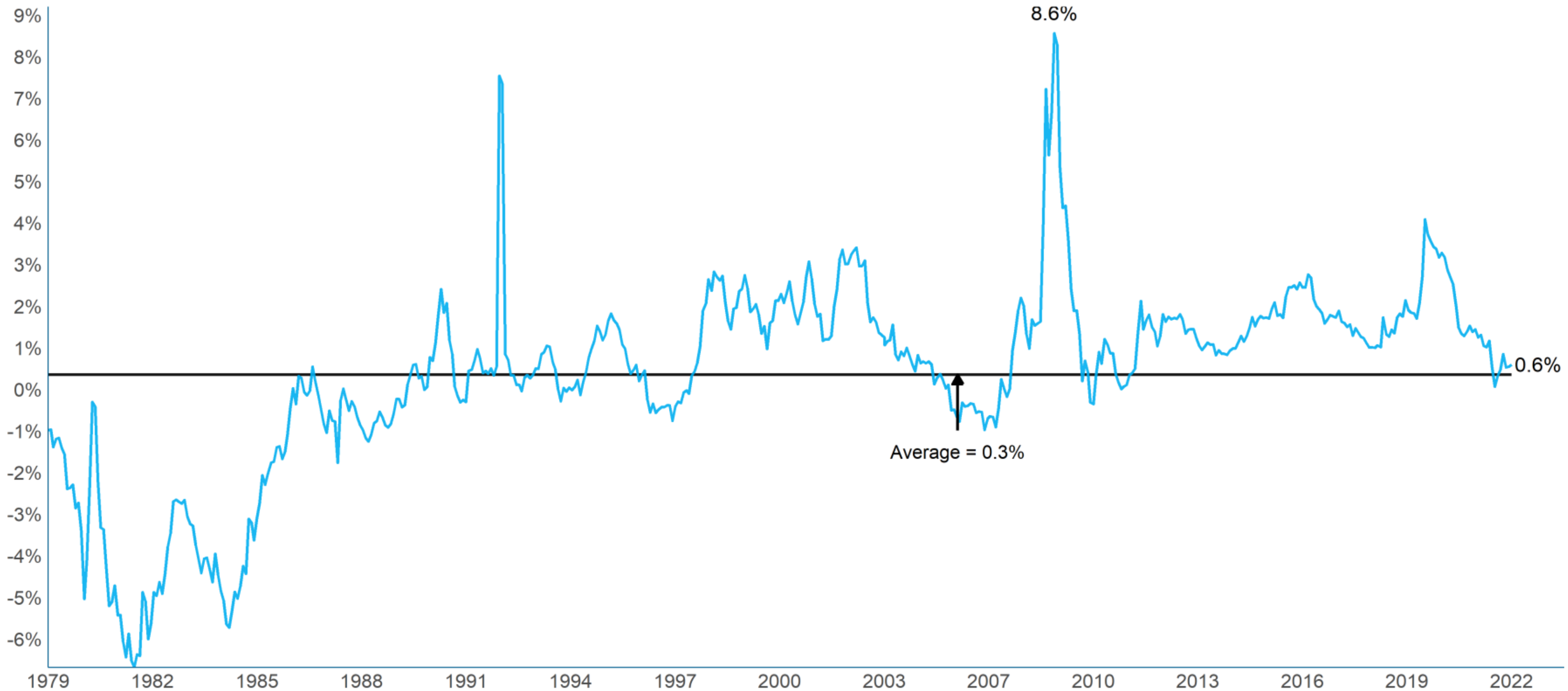
(As of September 30, 2022)



→ This chart details one valuation metric for the private core real estate market. A higher (lower) figure indicates cheaper (more expensive) valuation.

[1] Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, US Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction-based indices from Real Capital Analytics and Meketa Investment Group.

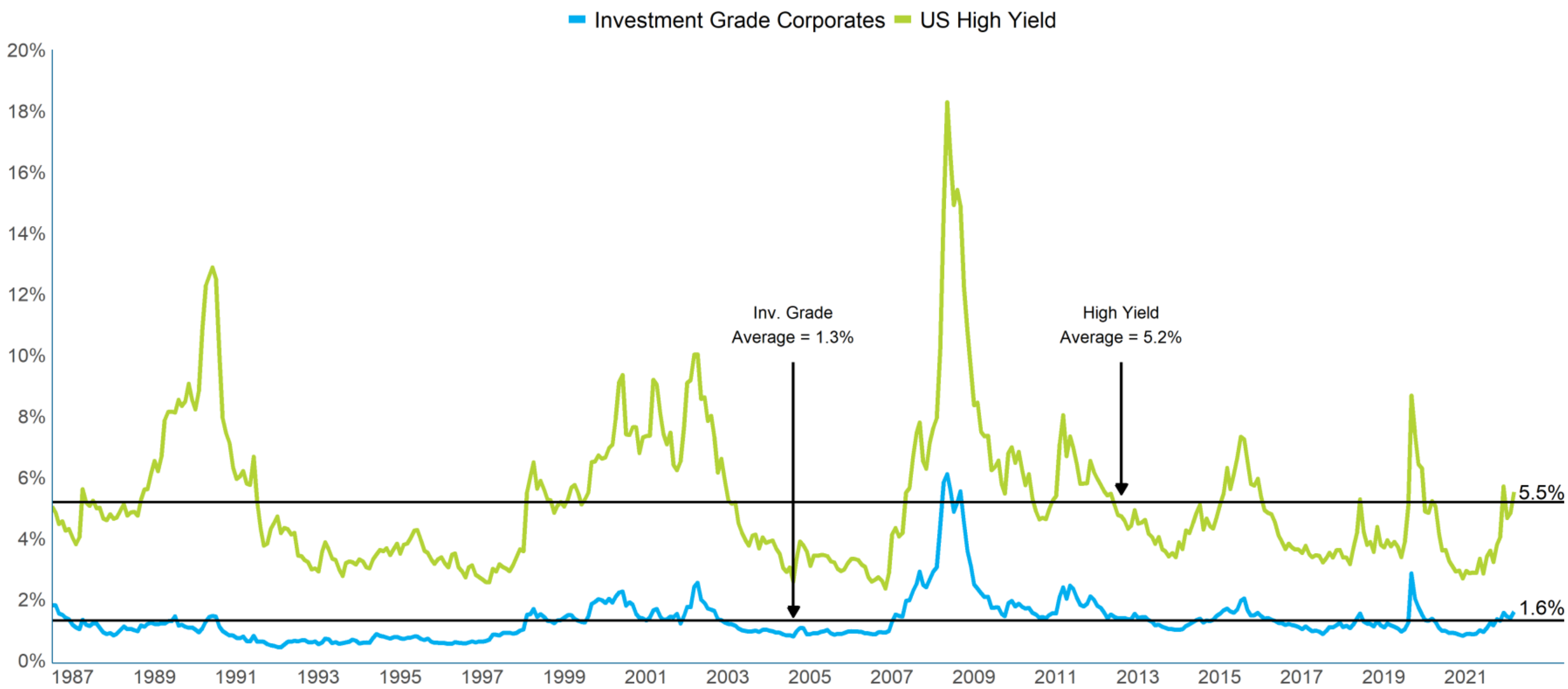
REITs Dividend Yield Spread vs. Ten-Year Treasury[1]
(As of September 30, 2022)



→ This chart details one valuation metric for the public REITs market. A higher (lower) figure indicates cheaper (more expensive) valuation.

[1] REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, US Treasury. REITs are proxied by the yield for the NAREIT Equity Index.

Credit Spreads[1]
(As of September 30, 2022)



→ This chart details one valuation metric for the US credit markets. A higher (lower) figure indicates cheaper (more expensive) valuation relative to history.

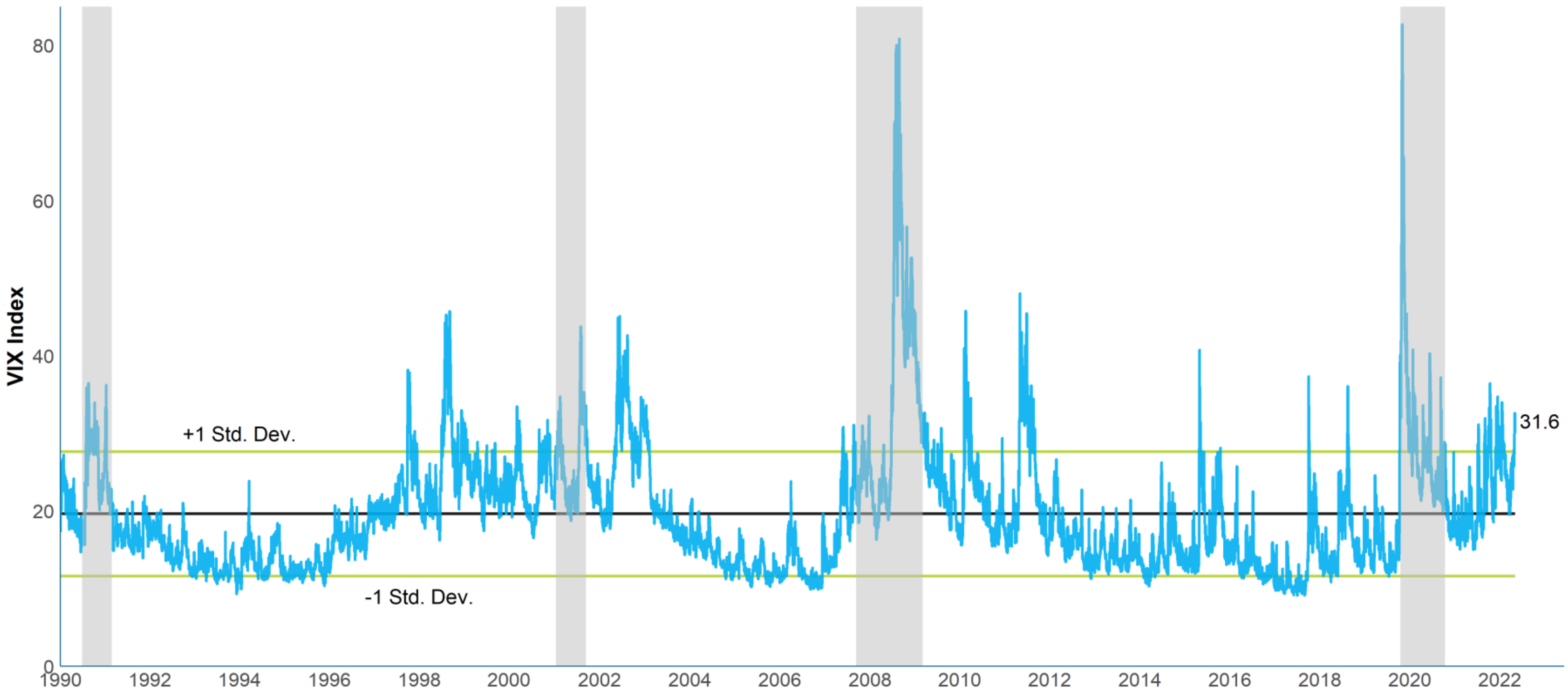
[1] Credit Spreads – Source: Bloomberg. High Yield is proxied by the Bloomberg High Yield Index and Investment Grade Corporates are proxied by the Bloomberg US Corporate Investment Grade Index. Spread is calculated as the difference between the Yield to Worst of the respective index and the 10-Year US Treasury yield.

Emerging Market Debt Spreads[1]
(As of September 30, 2022)

→ This chart details one valuation metric for the EM debt markets. A higher (lower) figure indicates cheaper (more expensive) valuation relative to history.

[1] EM Spreads – Source: Bloomberg. Option Adjusted Spread (OAS) for the Bloomberg EM USD Aggregate Index.

Equity Volatility[1]
(As of September 30, 2022)

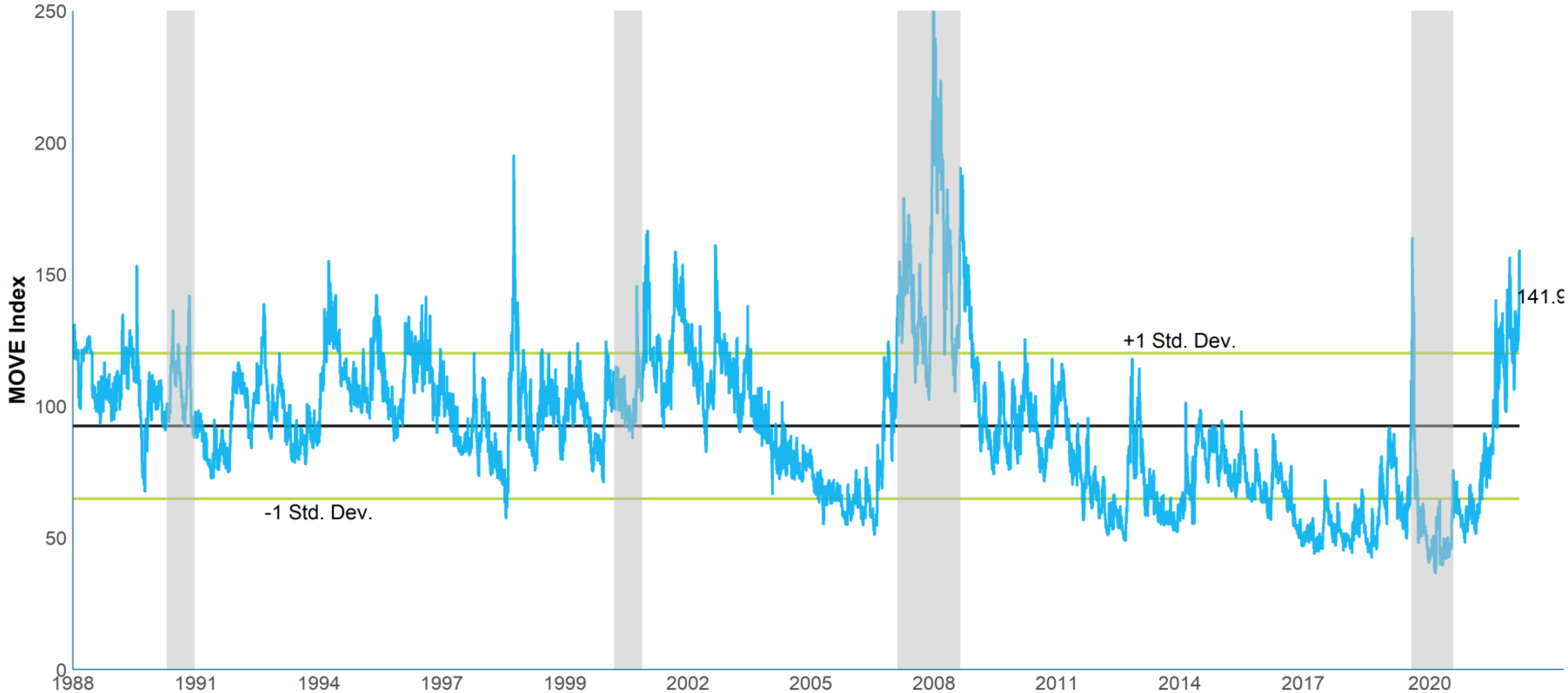


→ This chart details historical implied equity market volatility. This metric tends to increase during times of stress/fear and while declining during more benign periods.

[1] Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for US equity markets.

Fixed Income Volatility[1]

(As of September 30, 2022)

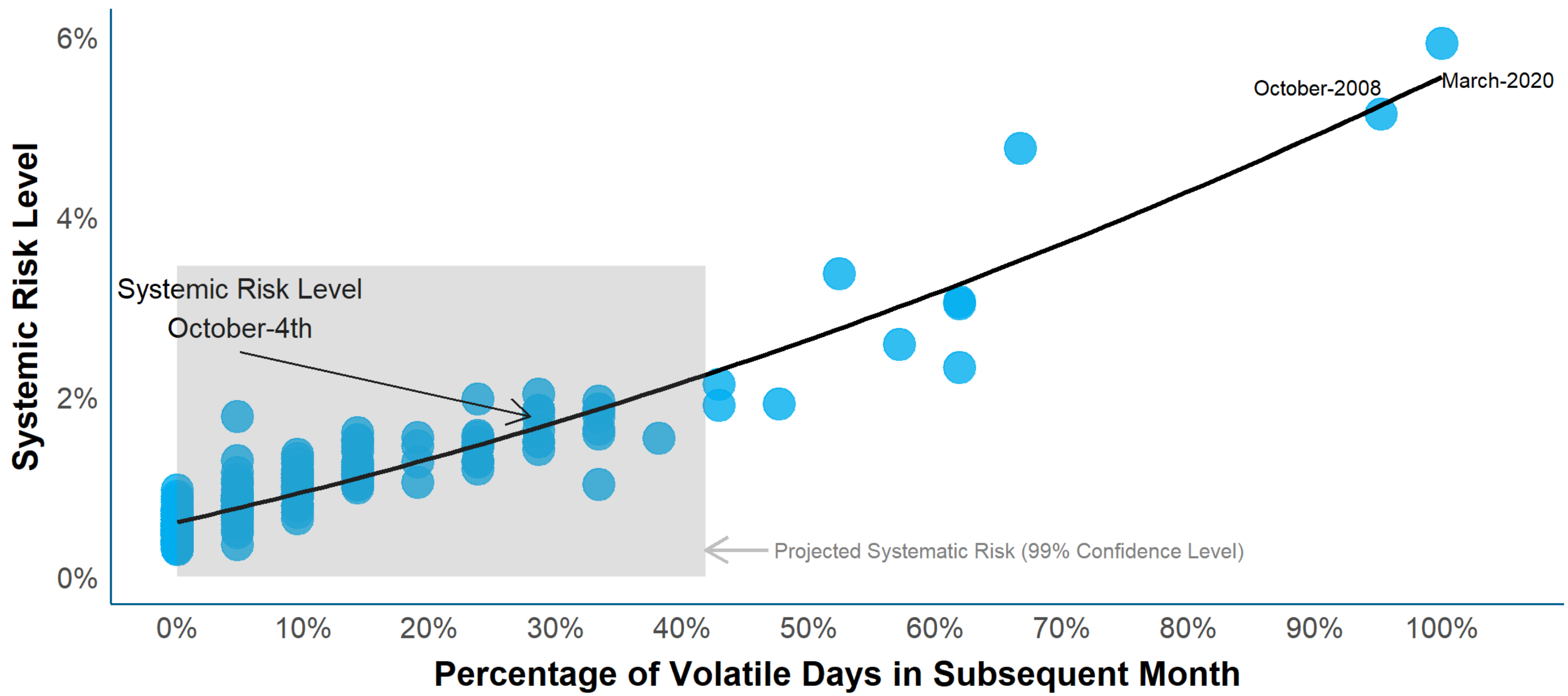


→ This chart details historical implied fixed income market volatility. This metric tends to increase during times of stress/fear and while declining during more benign periods.

[1] Fixed Income Volatility – Source: Bloomberg, and Meketa Investment Group. Fixed Income Volatility proxied by MOVE Index, a Measure of implied option volatility for US Treasury markets.

Systemic Risk and Volatile Market Days[1]

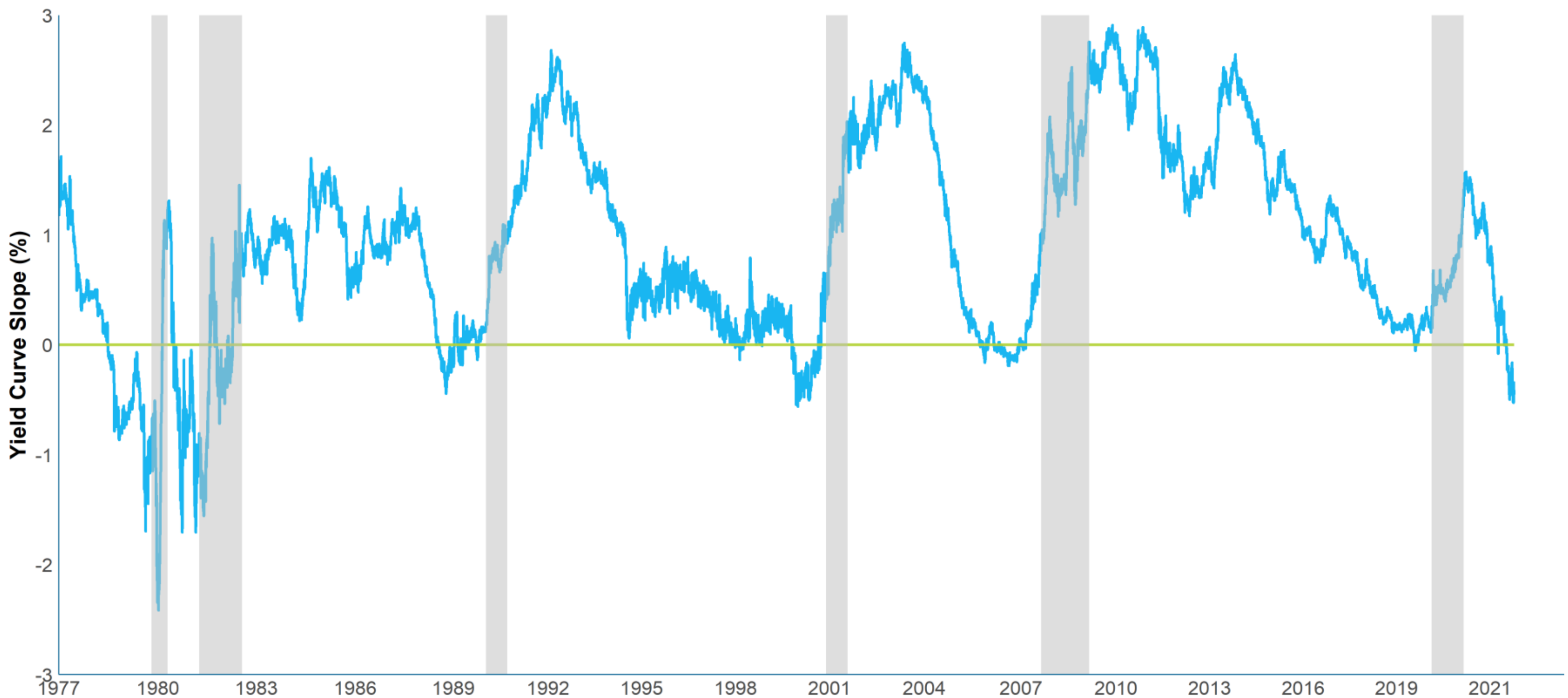
(As of September 30, 2022)



→ Systemic Risk is a measure of 'System-wide' risk, which indicates herding type behavior.

[1] Source: Meketa Investment Group. Volatile days are defined as the top 10 percent of realized turbulence, which is a multivariate distance between asset returns.

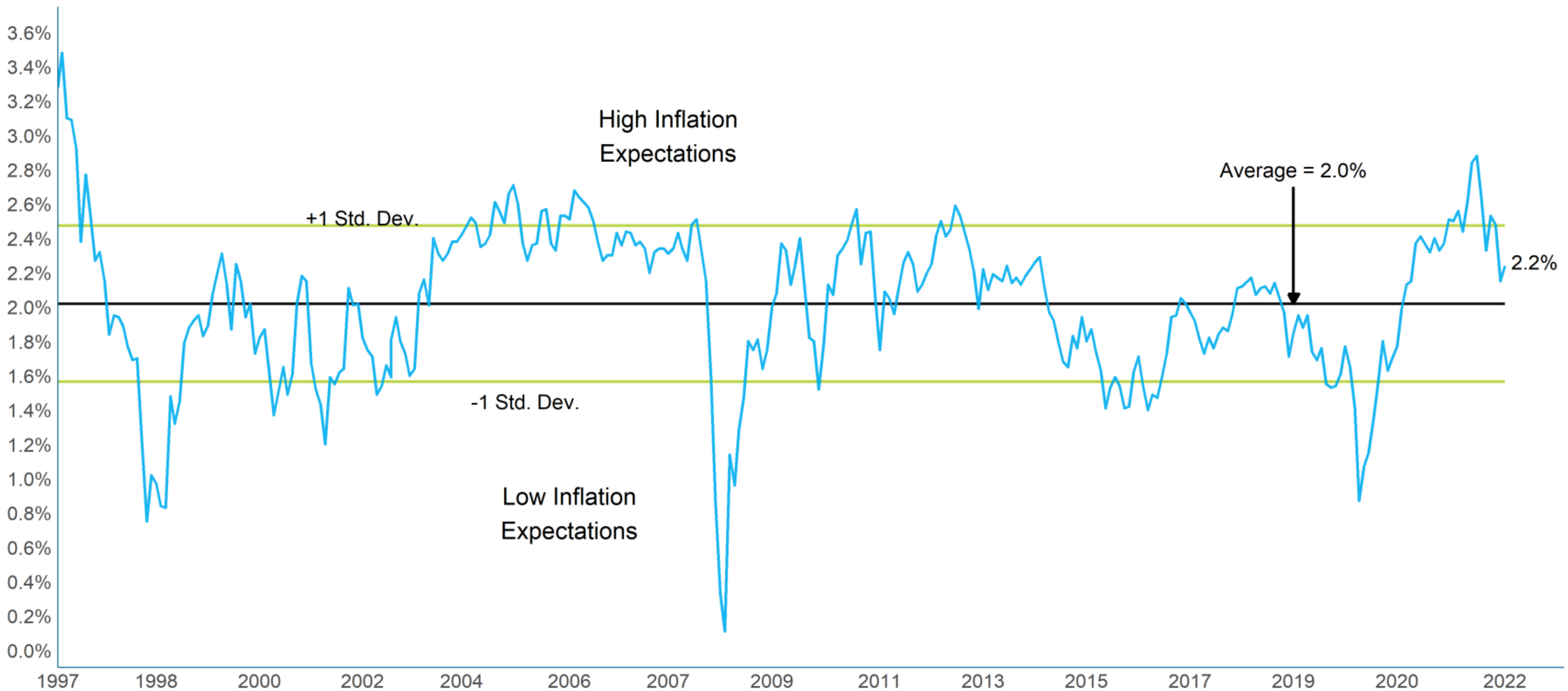
Yield Curve Slope (Ten Minus Two)[1]
(As of September 30, 2022)



→ This chart details the historical difference in yields between ten-year and two-year US Treasury bonds/notes. A higher (lower) figure indicates a steeper (flatter) yield curve slope.

[1] Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.

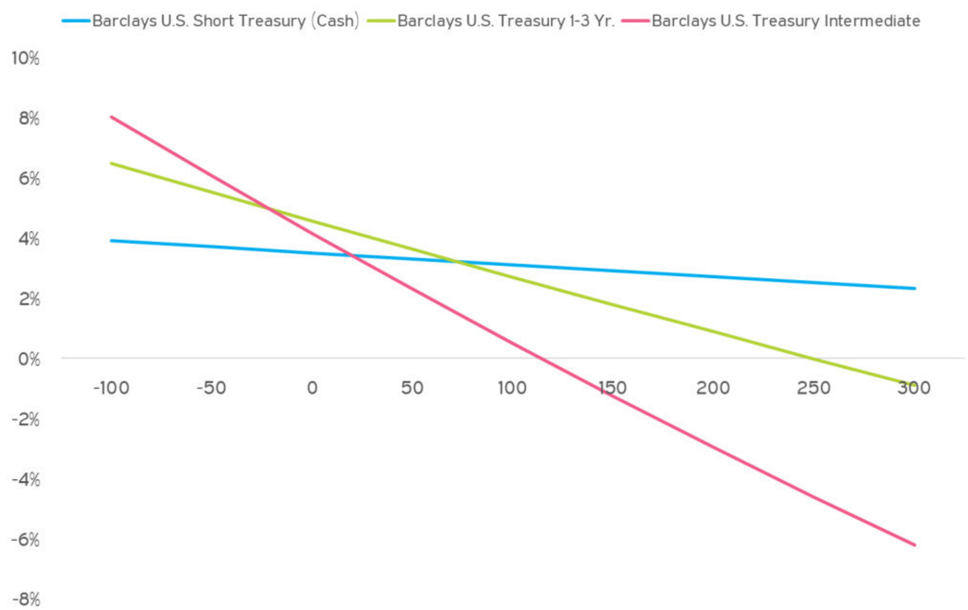
Ten-Year Breakeven Inflation[1]
(As of September 30, 2022)



→ This chart details the difference between nominal and inflation-adjusted US Treasury bonds. A higher (lower) figure indicates higher (lower) inflation expectations.

[1] Ten-Year Breakeven Inflation – Source: US Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA).

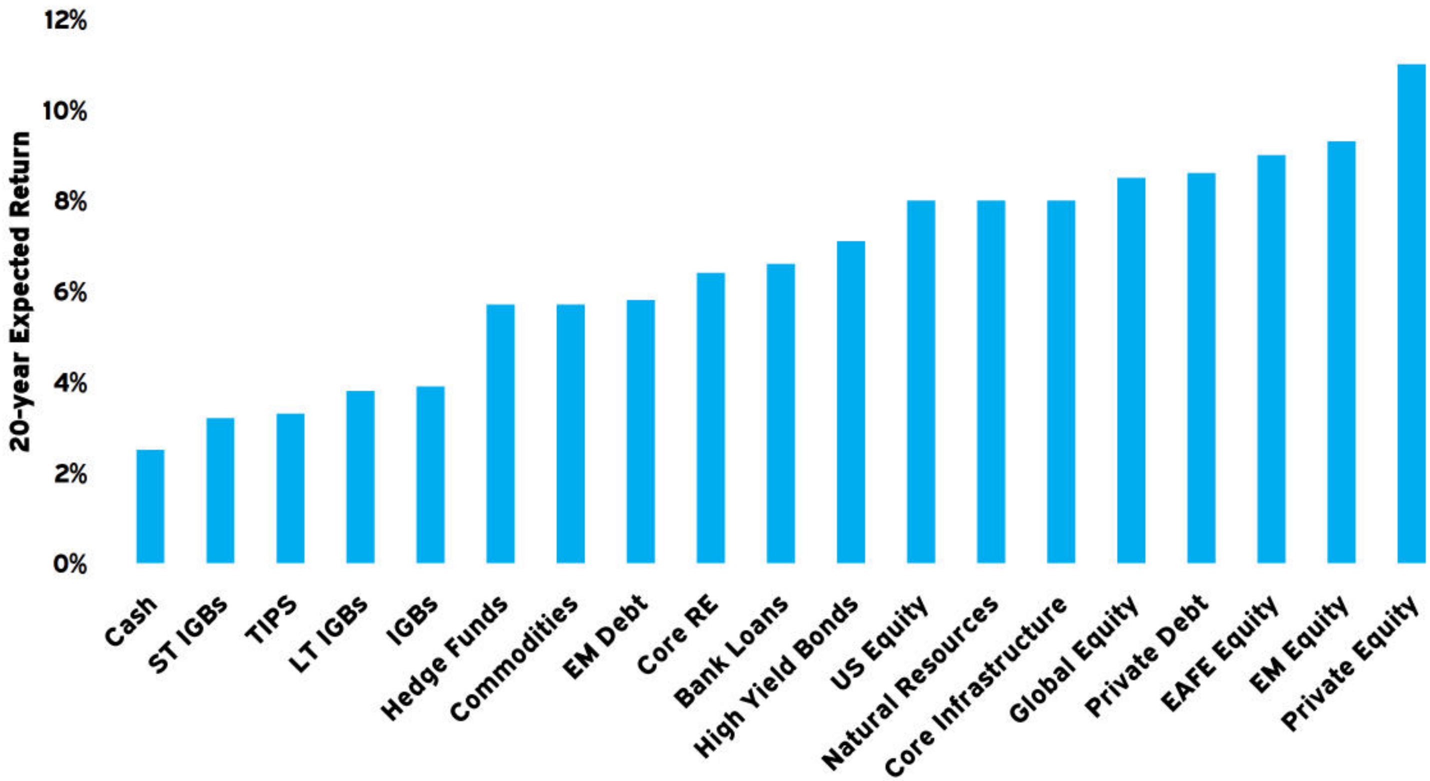
Total Return Given Changes in Interest Rates (bps)[1]
(As of September 30, 2022)



	Total Return for Given Changes in Interest Rates (bps)									Statistics	
	-100	-50	0	50	100	150	200	250	300	Duration	YTW
Barclays US Short Treasury (Cash)	3.9%	3.7%	3.5%	3.3%	3.1%	2.9%	2.7%	2.5%	2.3%	0.40	3.51%
Barclays US Treasury 1-3 Yr.	6.5%	5.5%	4.6%	3.6%	2.7%	1.8%	0.9%	0.0%	-0.9%	1.89	4.57%
Barclays US Treasury Intermediate	8.0%	6.1%	4.2%	2.3%	0.5%	-1.3%	-3.0%	-4.6%	-6.2%	3.77	4.16%
Barclays US Treasury Long	22.1%	12.6%	4.0%	-3.7%	-10.6%	-16.6%	-21.8%	-26.0%	-29.4%	16.35	4.00%

[1] Data represents the expected total return from a given change in interest rates (shown in basis points) over a 12-month period assuming a parallel shift in rates. Source: Bloomberg, and Meketa Investment Group.

Long-Term Outlook – 20-Year Annualized Expected Returns[1]



→ This chart details Meketa's long-term forward-looking expectations for total returns across asset classes.

[1] Source: Meketa Investment Group's 2022 Intrayear Asset Study.

Appendix

Data Sources and Explanations[1]

→ US Equity Cyclically Adjusted P/E on S&P 500 Index – Source: Robert Shiller and Yale University.

→ Small Cap P/E (Russell 2000 Index) vs. Large Cap P/E (Russell 1000 Index) - Source: Russell Investments. Earnings figures represent 12-month "as reported" earnings.

→ Growth P/E (Russell 3000 Growth Index) vs. Value (Russell 3000 Value Index) P/E - Source: Bloomberg, MSCI, and Meketa Investment Group. Earnings figures represent 12-month "as reported" earnings.

→ Developed International Equity (MSCI EAFE) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.

→ Emerging Market Equity (MSCI Emerging Markets Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years.

→ Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.

→ Core Real Estate Spread vs. Ten-Year Treasury – Source: Real Capital Analytics, US Treasury, Bloomberg, and Meketa Investment Group. Core Real Estate is proxied by weighted sector transaction-based indices from Real Capital Analytics and Meketa Investment Group.

[1] All Data as of September 30, 2022, unless otherwise noted.

Appendix

Data Sources and Explanations[1]

→ REITs Dividend Yield Spread vs. Ten-Year Treasury – Source: NAREIT, US Treasury. REITs are proxied by the yield for the NAREIT Equity Index.

→ Credit Spreads – Source: Bloomberg High Yield is proxied by the Bloomberg High Yield Index and Investment Grade Corporates are proxied by the Bloomberg US Corporate Investment Grade Index.

- Spread is calculated as the difference between the Yield to Worst of the respective index and the 10-Year Treasury Yield.

→ EM Debt Spreads – Source: Bloomberg, and Meketa Investment Group. Option Adjusted Spread (OAS) for the Bloomberg EM USD Aggregate Index.

→ Equity Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by VIX Index, a Measure of implied option volatility for US equity markets.

→ Fixed Income Volatility – Source: Bloomberg, and Meketa Investment Group. Equity Volatility proxied by MOVE Index, a Measure of implied option volatility for US Treasury markets.

→ Systemic Risk and Volatile Market Days – Source: Meketa Investment Group. Volatile days are defined as the top 10 percent of realized turbulence, which is a multivariate distance between asset returns.

→ Systemic Risk, which measures risk across markets, is important because the more contagion of risk that exists between assets, the more likely it is that markets will experience volatile periods.

[1] All Data as of September 30, 2022, unless otherwise noted.

Appendix

Data Sources and Explanations[1]

- → Yield Curve Slope (Ten Minus Two) – Source: Bloomberg, and Meketa Investment Group. Yield curve slope is calculated as the difference between the 10-Year US Treasury Yield and 2-Year US Treasury Yield.
- → Ten-Year Breakeven Inflation – Source: US Treasury and Federal Reserve. Inflation is measured by the Consumer Price Index (CPI-U NSA).

[1] All Data as of September 30, 2022, unless otherwise noted.

Meketa Market Sentiment Indicator

Explanation, Construction and Q&A

Meketa has created the MIG Market Sentiment Indicator (MIG-MSI) to complement our valuation-focused Risk Metrics. This measure of sentiment is meant to capture significant and persistent shifts in long-lived market trends of economic growth risk, either towards a risk-seeking trend or a risk-aversion trend.

This appendix explores:

→ What is the Meketa Market Sentiment Indicator?

→ How do I read the indicator graph?

→ How is the Meketa Market Sentiment Indicator constructed?

→ What do changes in the indicator mean?

Meketa has created a market sentiment indicator for monthly publication (the MIG-MSI – see below) to complement Meketa's Risk Metrics.

→ Meketa's Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk concerns long before a market correction take place. The MIG-MSI helps to address this early-warning bias by measuring whether the markets are beginning to acknowledge key Risk Metrics trends, and / or indicating non-valuation-based concerns. Once the MIG-MSI indicates that the market sentiment has shifted, it is our belief that investors should consider significant action, particularly if confirmed by the Risk Metrics. Importantly, Meketa believes the Risk Metrics and MIG-MSI should always be used in conjunction with one another and never in isolation. The questions and answers below highlight and discuss the basic underpinnings of the Meketa MIG-MSI:

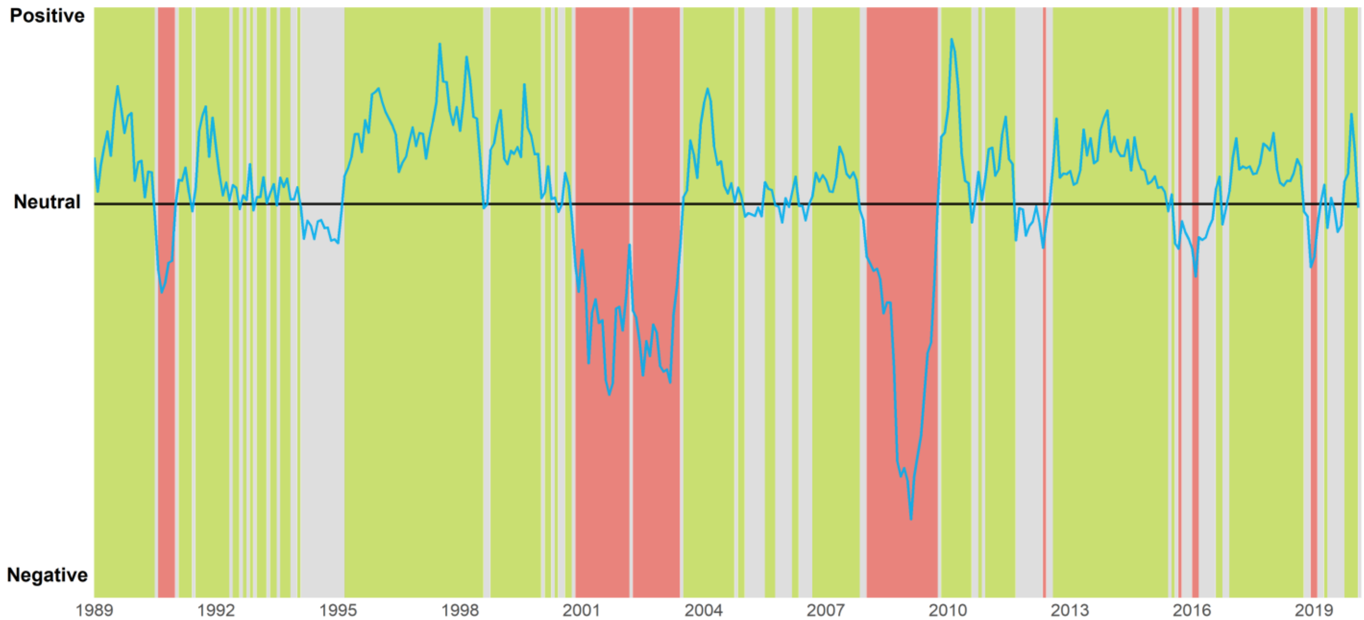
What is the Meketa Market Sentiment Indicator (MIG-MSI)?

→ The MIG-MSI is a measure meant to gauge the market's sentiment regarding economic growth risk. Growth risk cuts across most financial assets and is the largest risk exposure that most portfolios bear. The MIG-MSI takes into account the momentum (trend over time, positive or negative) of the economic growth risk exposure of publicly traded stocks and bonds, as a signal of the future direction of growth risk returns; either positive (risk seeking market sentiment), or negative (risk averse market sentiment).

How do I read the Meketa Market Sentiment Indicator graph?

→ Simply put, the MIG-MSI is a color-coded indicator that signals the market's sentiment regarding economic growth risk. It is read left to right chronologically. A green indicator on the MIG-MSI indicates that the market's sentiment towards growth risk is positive. A gray indicator indicates that the market's sentiment towards growth risk is neutral or inconclusive. A red indicator indicates that the market's sentiment towards growth risk is negative. The black line on the graph is the level of the MIG-MSI. The degree of the signal above or below the neutral reading is an indication the signal's current strength.

→ Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.



How is the Meketa Market Sentiment Indicator (MIG-MSI) Constructed?

→ The MIG-MSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:

- Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months).
- Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration US Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight).
- Both measures are converted to Z-scores and then combined to get an "apples to apples" comparison without the need of re-scaling.

→ The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure[1]. The color reading on the graph is determined as follows:

- If both stock return momentum and bond spread momentum are positive = GREEN (positive).
- If one of the momentum indicators is positive, and the other negative = GRAY (inconclusive).
- If both stock return momentum and bond spread momentum are negative = RED (negative).

[1] Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.
"Time Series Momentum" Moskowitz, Ooi, Pedersen, August 2010. *http://pages.stern.nyu.edu/~lpederse/papers/TimeSeriesMomentum.pdf*

What does the Meketa Market Sentiment Indicator (MIG-MSI) mean? Why might it be useful?

→ There is strong evidence that time series momentum is significant and persistent. Across an extensive array of asset classes, the sign of the trailing 12-month return (positive or negative) is indicative of future returns (positive or negative) over the next 12-month period. The MIG-MSI is constructed to measure this momentum in stocks and corporate bond spreads. A reading of green or red is agreement of both the equity and bond measures, indicating that it is likely that this trend (positive or negative) will continue over the next 12 months. When the measures disagree, the indicator turns gray. A gray reading does not necessarily mean a new trend is occurring, as the indicator may move back to green, or into the red from there. The level of the reading (black line) and the number of months at the red or green reading, gives the user additional information on which to form an opinion, and potentially take action.

Economic and Market Update

Data as of September 30, 2022

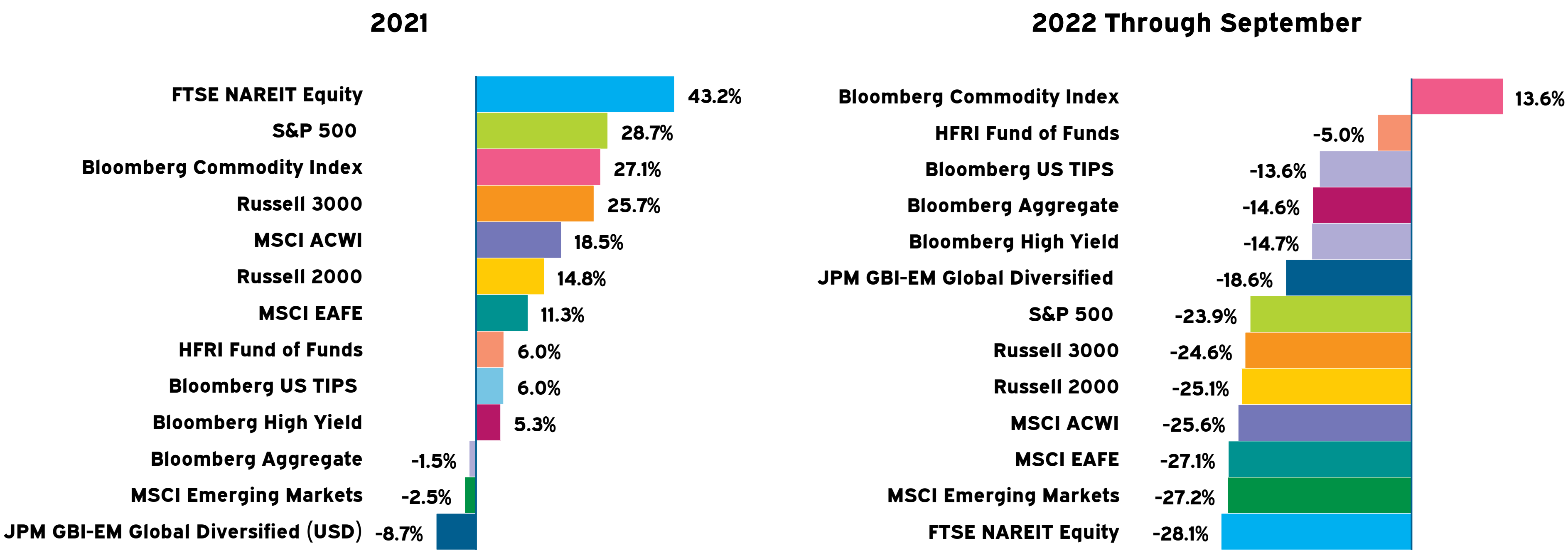
Commentary

→ After a strong July, global markets sold off in August and September, leading to quarterly declines as slower growth and higher inflation weighed on sentiment.

- The Federal Reserve maintained its aggressive tightening campaign with future hikes expected as US inflation continues to surprise to the upside and labor markets remain tight.
- In Europe, inflation hit a multi-decade high on energy prices. In the UK, Liz Truss became the new prime minister with her government quickly announcing a fiscal package in September. The proposal was poorly received by markets, as it undermined efforts of the central bank to lower inflation.
- Equity markets significantly declined for the month leading to quarterly losses with international markets declining the most. The war in Ukraine has elevated prices in Europe, while tight COVID-19 policies, slowing growth, and property market issues have weighed on China. Continued US dollar strength has been a further headwind.
- For the quarter, in a reversal of the prior trend, growth outpaced value across the capitalization spectrum but continued to trail year-to-date.
- Interest rates rose significantly across the US yield curve for the month and quarter with the curve remaining inverted (ten-year yield minus the two-year yield) by 44 basis points. This is by far the worst start to a calendar year for bond investors.

→ Persistently high inflation and the likely increased pace of the policy response, the war in Ukraine, lingering COVID-19 issues, and lockdowns in China will all have considerable consequences for the global economy.

Index Returns[1]



→ Except for emerging markets and the broad US investment grade bond market (Bloomberg Aggregate), most asset classes appreciated in 2021.

→ After a brief rally in July most asset classes declined significantly in August and September as it became clear further policy tightening would be taken to try to control inflation. Except for commodities, all major assets classes have experienced significant declines year-to-date.

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[1] Source: Bloomberg and FactSet. Data is as of September 30, 2022.

Domestic Equity Returns[1]

Domestic Equity	September (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	-9.2	-4.9	-23.9	-15.5	8.2	9.2	11.7
Russell 3000	-9.3	-4.5	-24.6	-17.6	7.7	8.6	11.4
Russell 1000	-9.3	-4.6	-24.6	-17.2	7.9	9.0	11.6
Russell 1000 Growth	-9.7	-3.6	-30.7	-22.6	10.7	12.2	13.7
Russell 1000 Value	-8.8	-5.6	-17.8	-11.4	4.4	5.3	9.2
Russell MidCap	-9.3	-3.4	-24.3	-19.4	5.2	6.5	10.3
Russell MidCap Growth	-8.5	-0.7	-31.5	-29.5	4.3	7.6	10.8
Russell MidCap Value	-9.7	-4.9	-20.4	-13.6	4.5	4.7	9.4
Russell 2000	-9.6	-2.2	-25.1	-23.5	4.3	3.6	8.5
Russell 2000 Growth	-9.0	0.2	-29.3	-29.3	2.9	3.6	8.8
Russell 2000 Value	-10.2	-4.6	-21.1	-17.7	4.7	2.9	7.9

US Equities: Russell 3000 Index fell 9.3% for September and 4.5% for the quarter.

→ US stocks fell sharply during September and finished down for the third quarter.

→ Each of the 11 sectors declined in September with six sectors (Real Estate, Communication Services, Technology, Utilities, Materials, and Industrials) falling by 10% or more. Health Care stocks fared best and declined 3.1%. For the quarter all sectors were down except for consumer discretionary and energy.

→ For the second straight month, value stocks outperformed growth stocks in the large cap segment of the market, while the reverse was true in the small cap segment. The underperformance of technology stocks, which account for 43% of the large cap growth market, drove this dynamic.

[1] Source: Bloomberg. Data is as of September 30, 2022.

Foreign Equity Returns[1]

Foreign Equity	September (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	-10.0	-9.9	-26.5	-25.2	-1.5	-0.8	3.0
MSCI EAFE	-9.4	-9.4	-27.1	-25.1	-1.8	-0.8	3.7
MSCI EAFE (Local Currency)	-6.2	-3.6	-14.5	-11.1	2.5	2.8	7.4
MSCI EAFE Small Cap	-11.5	-9.8	-32.1	-32.1	-2.2	-1.8	5.3
MSCI Emerging Markets	-11.7	-11.6	-27.2	-28.1	-2.1	-1.8	1.0
MSCI Emerging Markets (Local Currency)	-9.4	-8.2	-20.8	-21.5	1.1	1.1	4.5
MSCI China	-14.6	-22.5	-31.2	-35.4	-7.2	-5.5	2.4

International equities (MSCI EAFE) fell 9.4%, while emerging markets (MSCI EM) returned -11.7% in September leading to quarterly declines of similar amounts.

→ Non-US developed market stocks again broadly trailed the US for the month, leading to the steepest declines year-to-date. High inflation in Europe, particularly related to gas and electricity, the ongoing war in Ukraine, and relatively slower growth globally continue to weigh on sentiment.

→ Emerging market equities were deep in the red for the month, driven by China's (-14.6%) on-going property market issues and strict COVID-19 policies. The upcoming National Communist Party Congress in China in October is highly anticipated.

→ The strength of the US dollar continued as a headwind to international equities for the month and year-to-date, both in developed and emerging markets.

[1] Source: Bloomberg. Data is as of September 30, 2022.

Fixed Income Returns[1]

Fixed Income	September (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	-4.3	-4.5	-14.9	-14.9	-3.1	-0.2	1.2	5.2	6.2
Bloomberg Aggregate	-4.3	-4.8	-14.6	-14.6	-3.3	-0.3	0.9	4.8	6.4
Bloomberg US TIPS	-6.6	-5.1	-13.6	-11.6	0.8	1.9	1.0	4.3	6.9
Bloomberg High Yield	-4.0	-0.6	-14.7	-14.1	-0.5	1.6	3.9	9.7	4.6
JPM GBI-EM Global Diversified (USD)	-4.9	-4.7	-18.6	-20.6	-7.1	-3.9	-2.4	7.6	4.8

Fixed Income: The Bloomberg Universal declined 4.3% in September and 4.5% for the quarter.

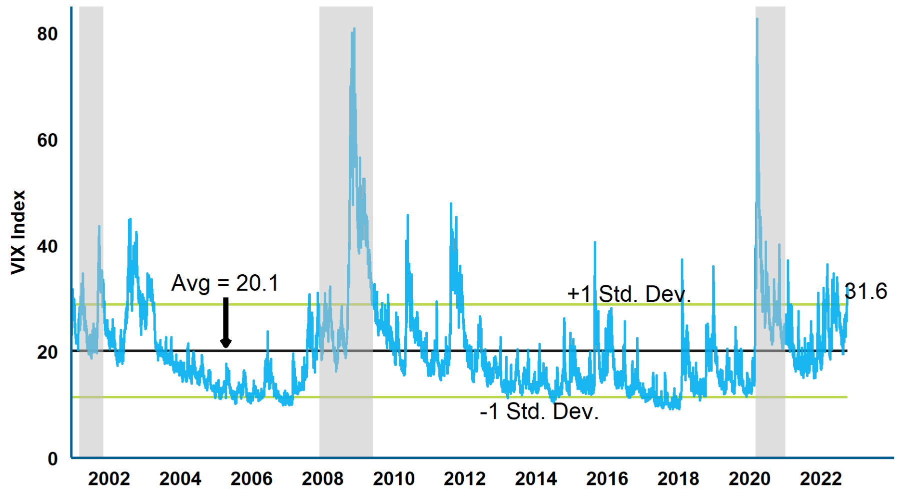
→ A sharp rise in bond yields driven by central banks confirming commitments to fight inflation weighed on fixed income in September leading to declines for the quarter as well. Year-to-date the US bond market is off by far to its worst calendar year start on record.

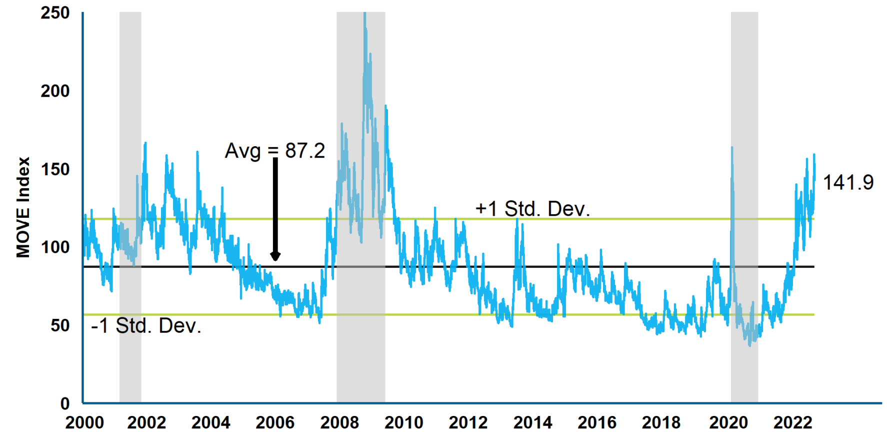
→ TIPS declined the most for the month and quarter as investors' confidence grew that tighter monetary policy would ultimately get inflation under control.

→ Riskier US bonds declined the least with the high yield index falling slightly less than the broad US bond market (-4.0% versus -4.3%). Emerging market bonds finished down close to 5% for the month with significant declines year-to-date.

[1] Source: Bloomberg. JPM GBI-EM is from InvestorForce. Data is as of September 30, 2022.

Equity and Fixed Income Volatility[1]



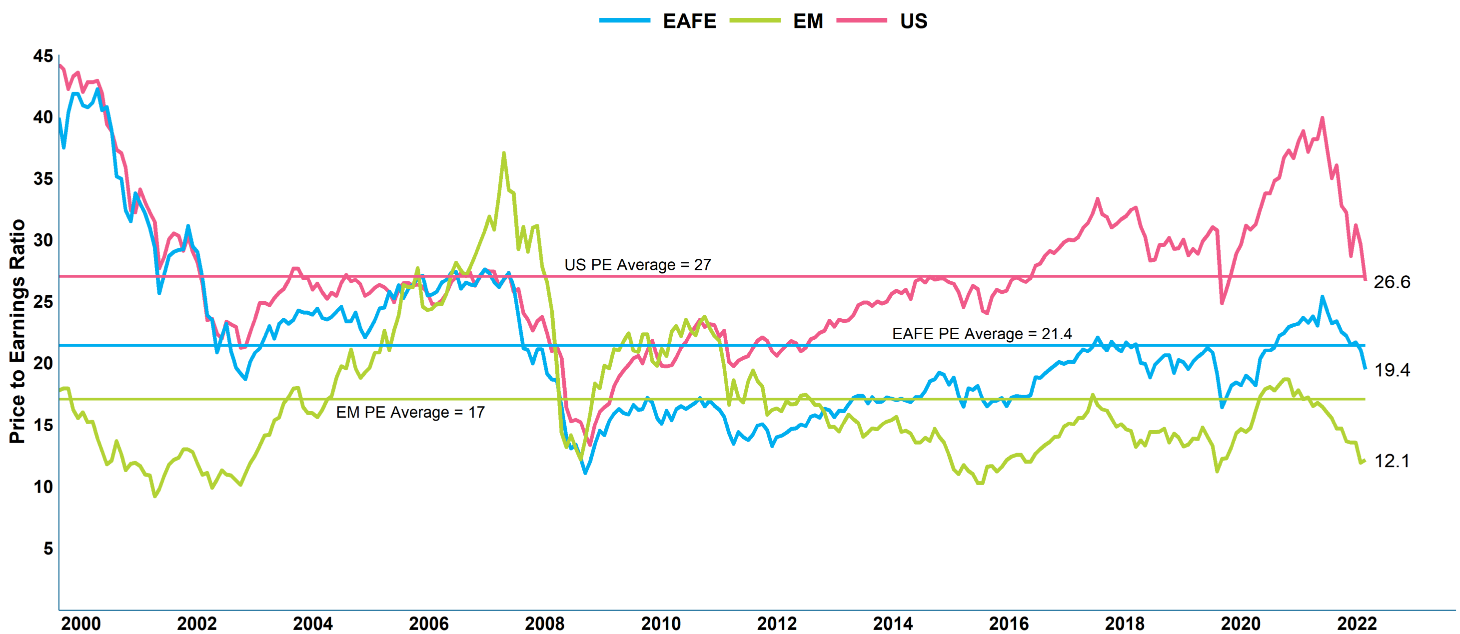


→ Volatility in equities (VIX) and fixed income (MOVE) rose in September and finished higher overall for the quarter as the Federal Reserve and other central banks made it clear that they were committed to aggressively tightening monetary policy to fight high inflation.

→ Fixed income volatility remains particularly high due to the uncertain path of short-term interest rates given stubbornly high inflation. Issues related to the UK's announcement to offer tax breaks despite the central bank's efforts to fight inflation also contributed to volatility in fixed income markets.

[1] Equity and Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of September 2022. The average line indicated is the average of the VIX and MOVE values between January 2000 and the recent month-end respectively.

Equity Cyclically Adjusted P/E Ratios[1]

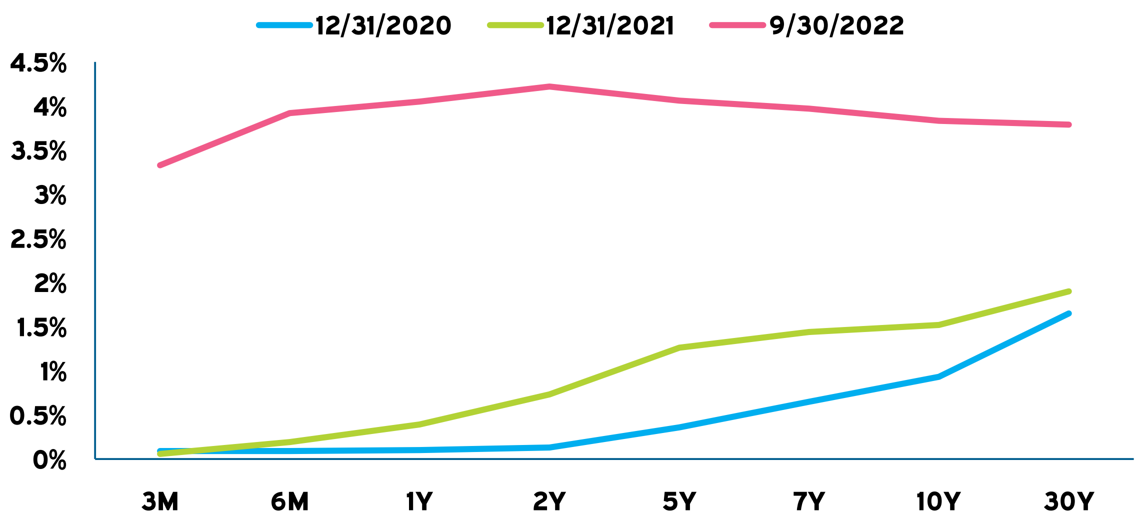


→ September price declines brought US equity price-to-earnings ratios slightly below the long-term (21st Century) average.

→ International developed market valuations remain below the US and are below their own long-term average, with those for emerging markets the lowest and well under the long-term average.

[1] US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of September 30, 2022. The average line is the long-term average of the US, EM, and EAFE PE values from December 1999 to the recent month-end respectively.

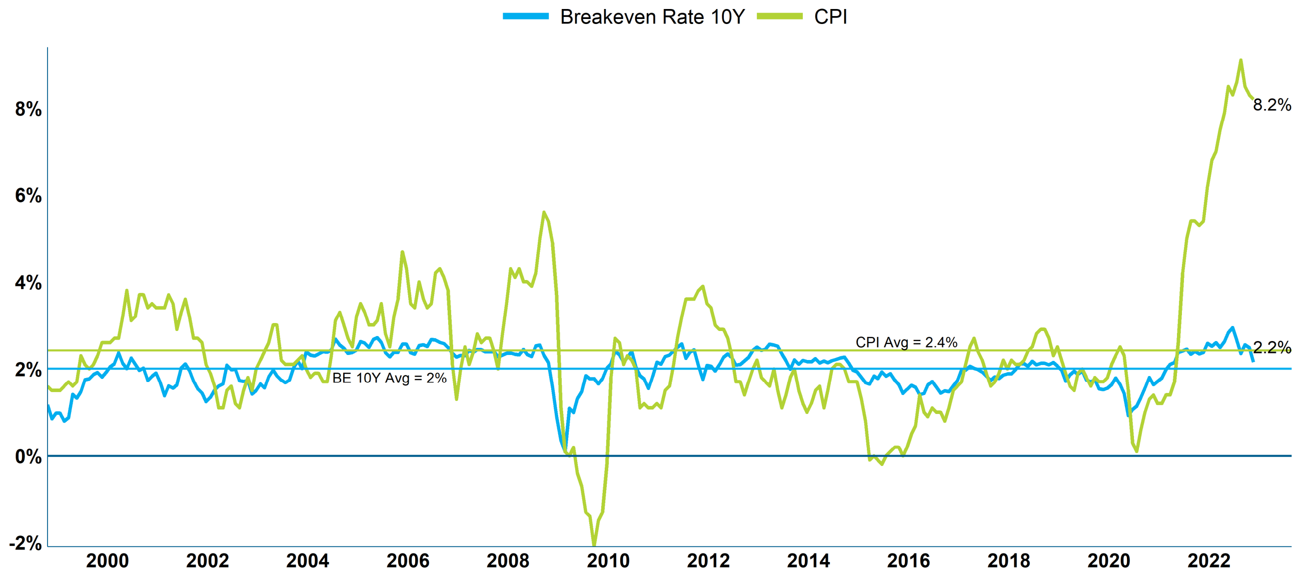
US Yield Curve[1]



- → Rates across the yield curve remain far higher than at the start of the year.
- → In September, rates rose across the yield curve, finishing the quarter significantly higher. Yields on two-year Treasuries increased 0.79% just in the month of September bring the quarterly increase to 1.32%, while ten-year Treasuries rose 0.64% for the month and 0.82% for the quarter.
- → The Fed remains strongly committed to fighting inflation, as it increased rates another 75 basis points to a range of 3.0% and 3.25%. This was the fifth increase this year and the third consecutive increase of this amount.
- → The yield spread between two-year and ten-year Treasuries remained negative, finishing September at -0.44%. Inversions in the yield curve have historically often preceded recessions.

[1] Source: Bloomberg. Data is as of September 30, 2022.

Ten-Year Breakeven Inflation and CPI[1]



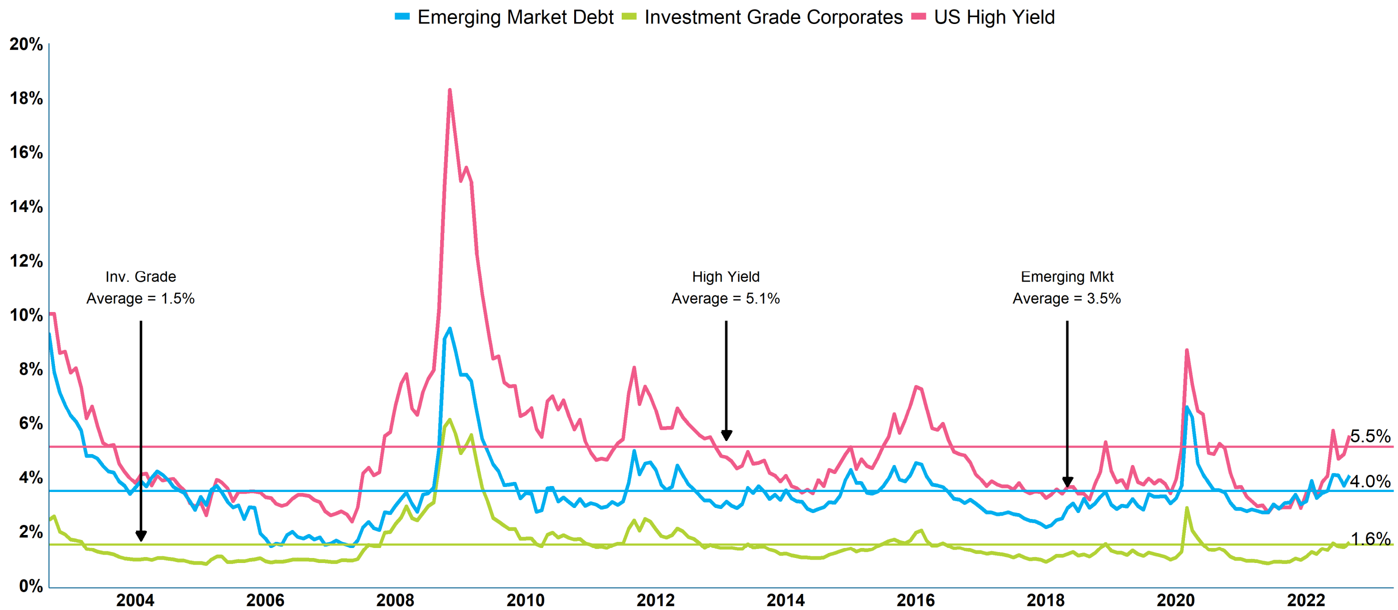
→ Inflation expectations (breakevens) declined for the month and finished the quarter slightly below the long-run average on the belief that tighter monetary policy would lower long-run inflation.

→ Trailing twelve-month CPI declined in September (8.2% versus 8.3%) but surprised markets by coming in above expectations.

→ Over the last year rising prices for energy (particularly oil), food, housing, and for new and used cars remain key drivers of inflation.

[1] Source: Bloomberg. Data is as of September 30, 2022. The CPI and 10 Year Breakeven average lines denote the average values from August 1998 to the present month-end respectively. Breakeven values represent month-end values for comparative purposes.

Credit Spreads vs. US Treasury Bonds[1]



→ Credit spreads (the spread above a comparable maturity Treasury) widened in September, finishing the quarter above long-term averages. Fears related to the impact of tighter monetary policy on economic growth was a key driver of wider spreads.

→ In the US, spreads for high yield increased sharply (5.5% versus 4.8%), with investment grade spreads rising more modestly (1.6% versus 1.4%). Emerging market spreads also increased (4.0% versus 3.6%).

[1] Sources: Bloomberg. Data is as of September 30, 2022. Average lines denote the average of the investment grade, high yield, and emerging market spread values from August 2000 to the recent month-end respectively.

Global Economic Outlook

In their October update, the IMF maintained lowered global growth forecasts, driven by the economic impacts of persistent inflation and corresponding tighter policy, as well as issues related to the war in Ukraine and the lingering pandemic.

→ The IMF forecasts global GDP growth to come in at 3.2% in 2022 (like the July estimate) and 2.7% in 2023 (0.2% below the prior estimate).

→ In advanced economies, GDP is projected to grow 2.4% in 2022 and 1.1% in 2023. The US saw another downgrade in the 2022 (1.6% versus 2.3%) forecast largely due to accelerated policy tightening, given persistently high inflation. The euro area saw an upgrade in expected growth (3.1% versus 2.6%) on substantial fiscal stimulus in 2022 but a downgrade in 2023 (0.5% versus 1.2%) as rising energy prices weigh on the region that is a net importer of energy. The Japanese economy is expected to grow 1.7% this year and 1.6% in 2023.

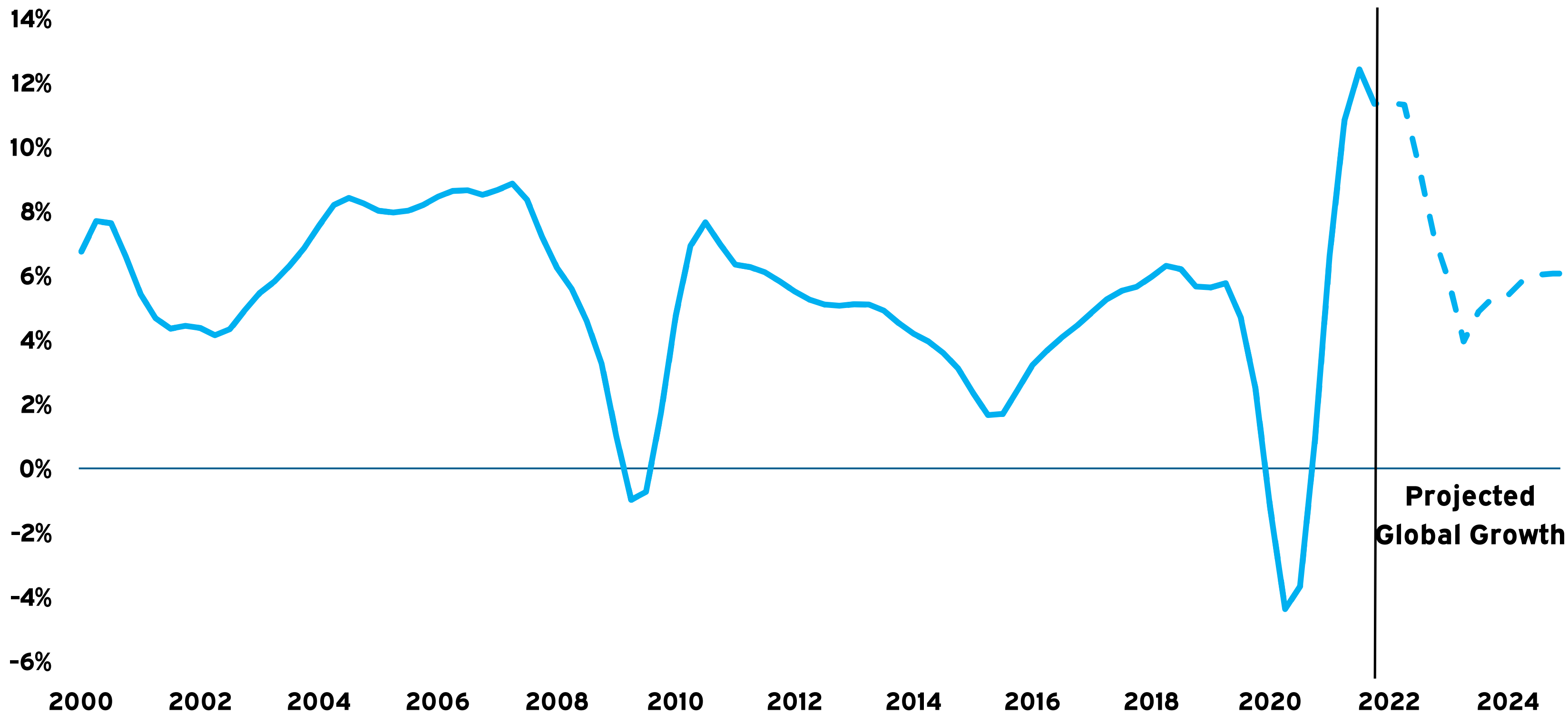
→ Growth projections for emerging markets are higher than developed markets, at 3.7% in 2022 and 2023. China's growth was downgraded for 2022 (3.2% versus 3.3%) and 2023 (4.4% versus 4.6%) given tight COVID-19 restrictions and continued property sector problems.

→ The global inflation forecast was significantly increased for 2022 (8.8% versus 7.4%).

	Real GDP (%)[1]			Inflation (%)[1]		
	IMF 2022 Forecast	IMF 2023 Forecast	Actual 10 Year Average	IMF 2022 Forecast	IMF 2023 Forecast	Actual 10 Year Average
World	3.2	2.7	3.2	8.8	6.5	3.6
Advanced Economies	2.4	1.1	1.6	7.2	4.3	1.6
US	1.6	1.0	2.1	8.1	3.5	2.0
Euro Area	3.1	0.5	1.0	8.3	5.7	1.3
Japan	1.7	1.6	0.8	2.0	1.4	0.4
Emerging Economies	3.7	3.7	4.4	9.9	8.1	5.3
China	3.2	4.4	7.3	2.2	2.2	2.4

[1] Source: IMF World Economic Outlook. Real GDP and Inflation forecasts from October 2022 Update. "Actual 10 Year Average" represents data from 2012 to 2021.

Global Nominal Gross Domestic Product (GDP) Growth[1]



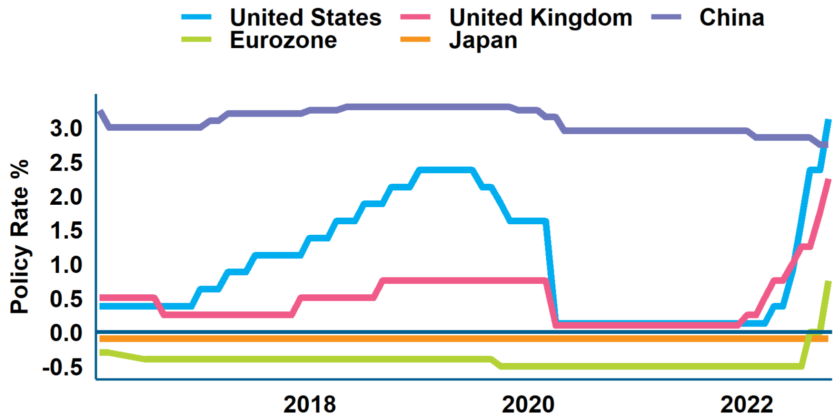
→ Global economies are expected to slow in 2022 compared to 2021, with risks of recession increasing given persistently high inflation and related tighter monetary policy.

→ The delicate balancing act of central banks trying to reduce inflation without dramatically impacting growth will remain key.

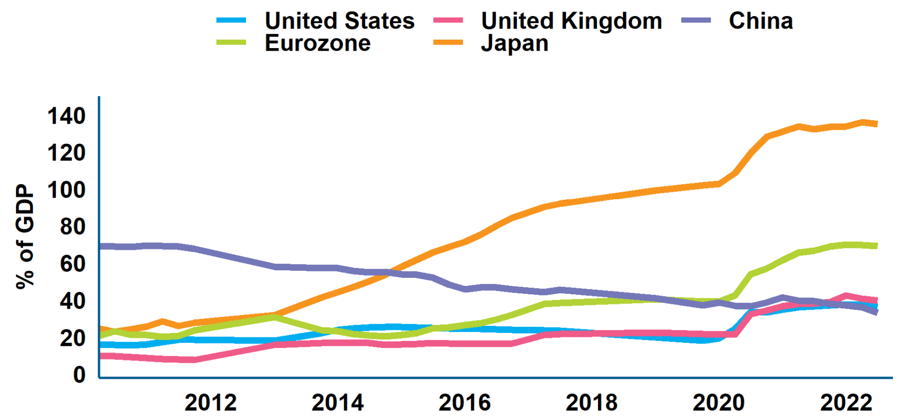
[1] Source: Oxford Economics (World GDP, US$ prices & PPP exchange rate, nominal, % change YoY). Updated September 2022. Nominal expectations for GDP remain much higher than real GDP expectations given the elevated inflation levels.

Central Bank Response[1]

Policy Rates



Balance Sheet as % of GDP



→ After global central banks took extraordinary action to support economies during the pandemic, including policy rate cuts and emergency stimulus through quantitative easing (QE), many are now aggressively reducing support in the face of high inflation.

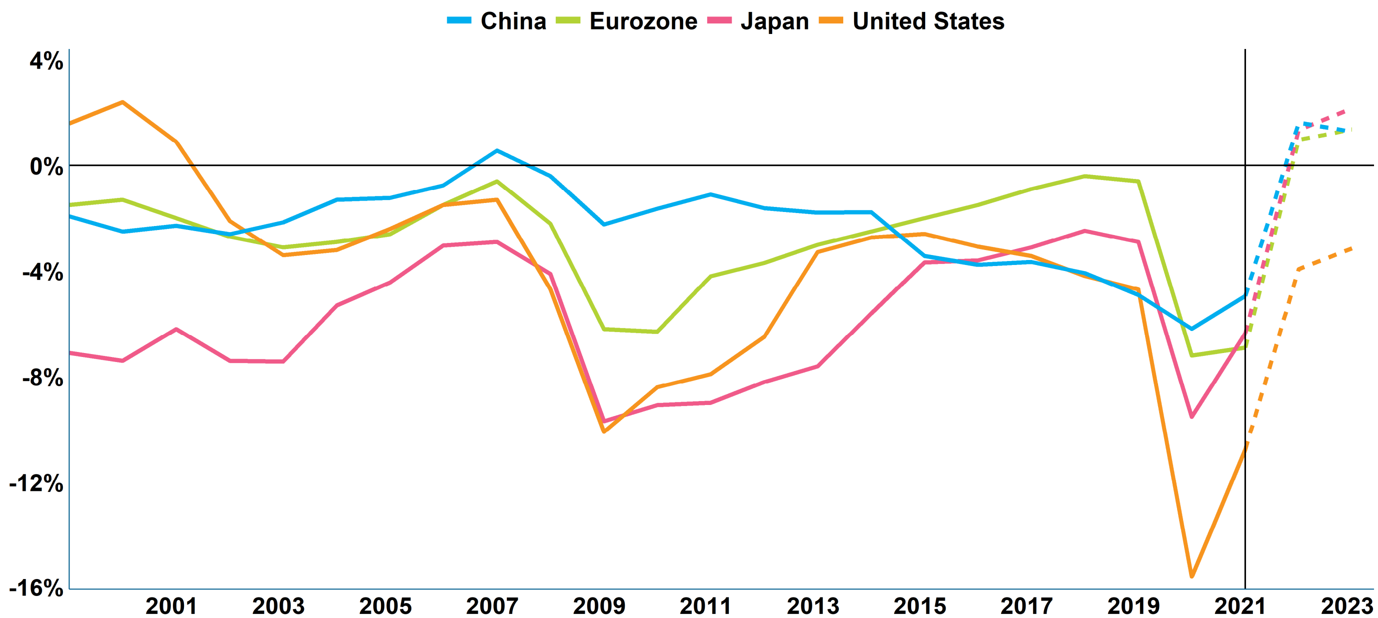
→ The pace of withdrawing support varies across central banks with the US taking a more aggressive approach. The UK is also aggressively increasing rates, but recent talks of easing fiscal policy (this ultimately did not happen) created significant volatility that spilled over into other markets.

→ The one notable central bank outlier is China, where the central bank has lowered rates and reserve requirements in response to slowing growth.

→ The risk remains for a policy error, particularly overtightening, as record inflation, the war in Ukraine, and a tough COVID-19 policy in China could suppress global growth.

[1] Source: Bloomberg. Policy rate data is as of September 30, 2022. China policy rate is defined as the medium-term lending facility 1 year interest rate. Balance sheet as % of GDP is based on quarterly data and is as of June 30, 2022.

Budget Surplus / Deficit as a Percentage of GDP[1]



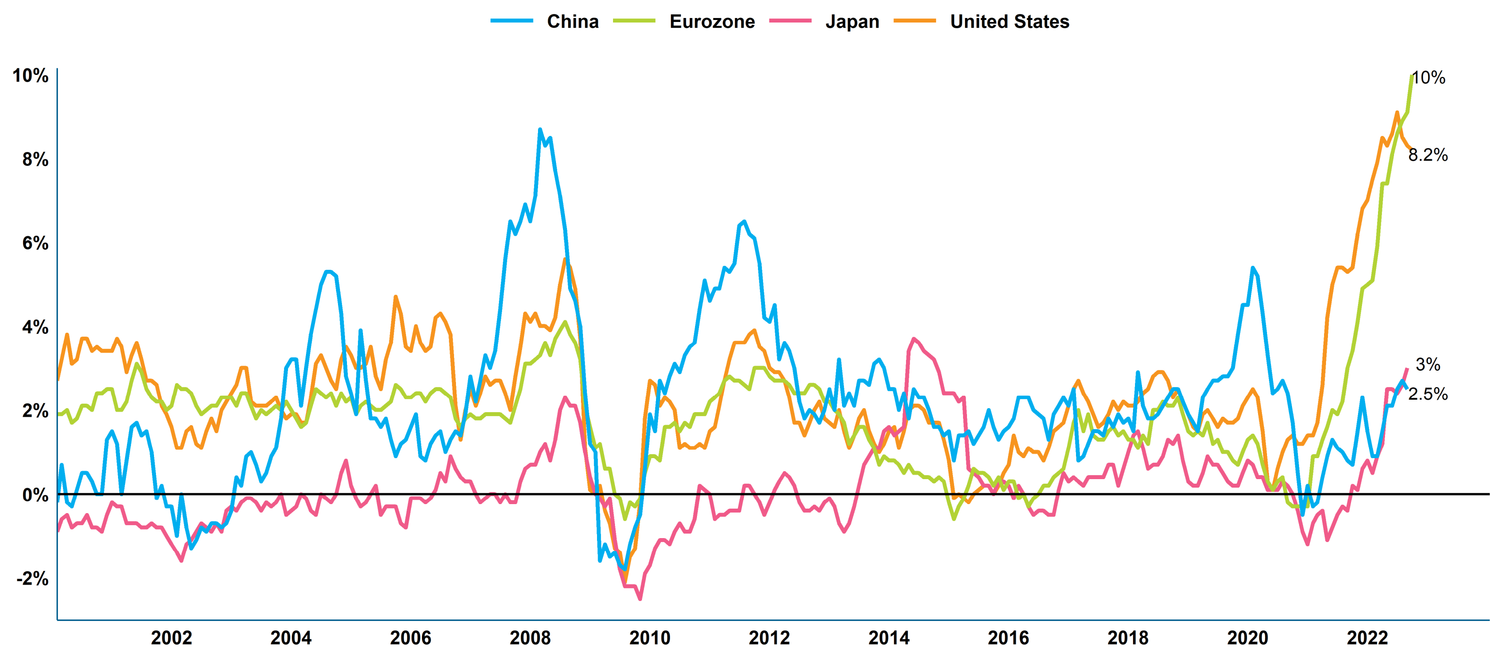
→ Budget deficits as a percentage of GDP drastically increased for major world economies, particularly the US, due to massive fiscal support and the severe economic contraction's effect on tax revenue in 2020 and 2021.

→ As fiscal stimulus programs end, and economic recoveries continue, deficits should improve.

→ Questions remain about how some countries will respond fiscally as inflation, particularly energy prices, weigh on consumers. Policies that undermine central banks' efforts to fight inflation could lead to additional market volatility like was seen in the UK.

[1] Source: Bloomberg. Data is as of September 30, 2022. Projections via IMF Forecasts from October 2022 Report. Dotted lines represent 2022 and 2023 forecasts.

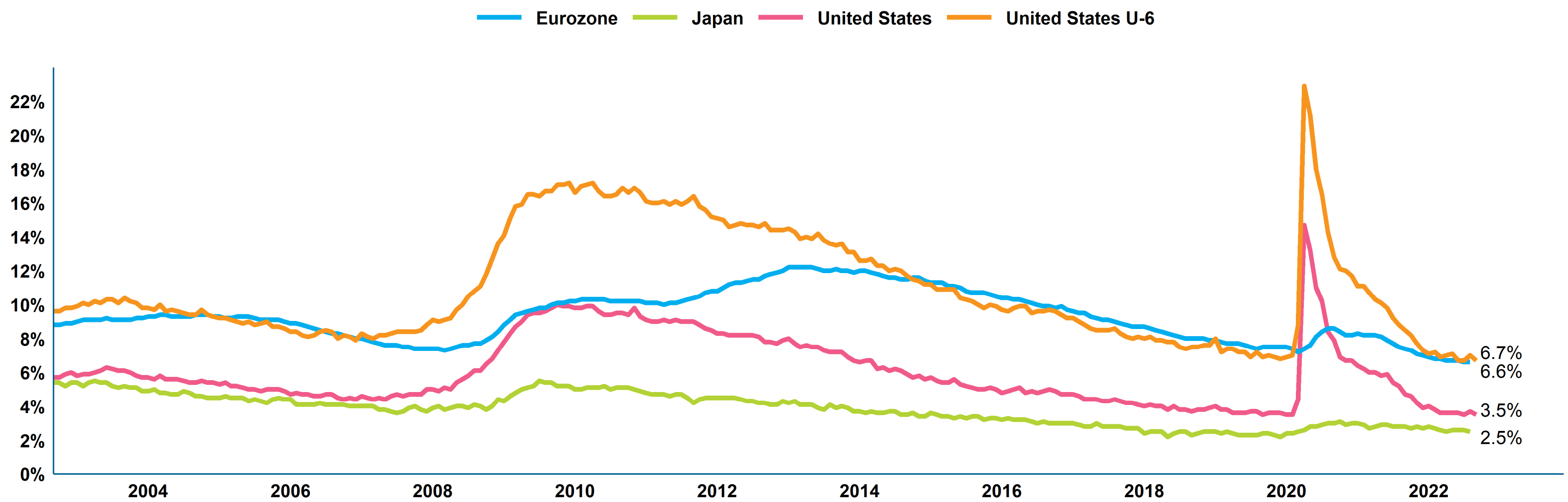
Inflation (CPI Trailing Twelve Months)[1]



- → Inflation increased dramatically from the lows of the pandemic, particularly in the US and Eurozone where it has reached levels not seen in many decades.
- → Supply issues related to the pandemic, record monetary and fiscal stimulus, strict COVID-19 restrictions in China, and higher prices in many commodities driven by the war in Ukraine have been key global drivers of inflation.

[1] Source: Bloomberg. Data is as of September 2022. The most recent data for Japan and China is as of August 31, 2022.

Unemployment[1]



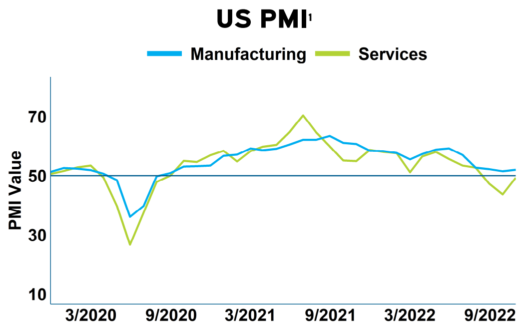
→ As economies have largely reopened, helped by vaccines for the virus, improvements have been seen in the labor market.

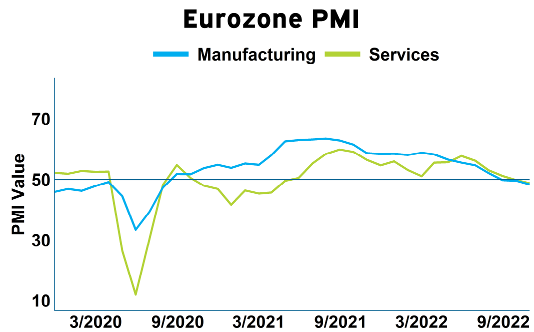
→ Despite slowing growth and high inflation the US labor market remains a bright spot. Unemployment in the US, which experienced the steepest rise from the pandemic, declined to pre-pandemic (3.5%) levels. The broader measure (U-6) that includes discouraged and underemployed workers declined but is much higher at 6.7%.

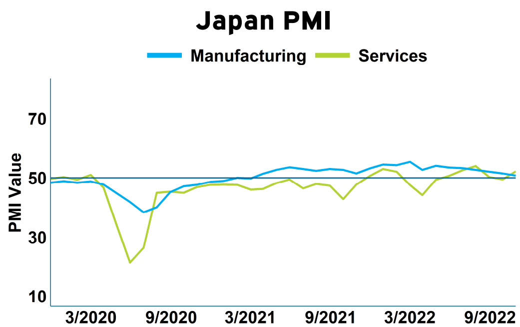
→ The strong labor market and higher wages, although beneficial for workers, motivates the Fed's efforts to fight inflation, likely leading to eventually higher unemployment.

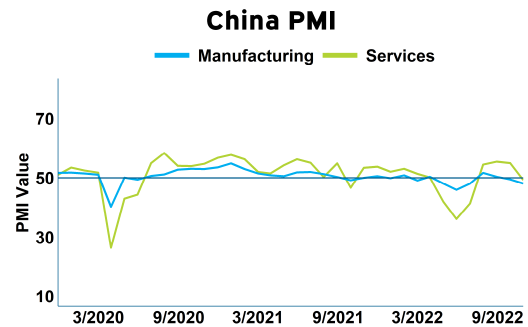
[1] Source: Bloomberg. Data is as of September 2022, for the US. The most recent data for Eurozone and Japanese unemployment is as of August 31, 2022.

Global PMIs









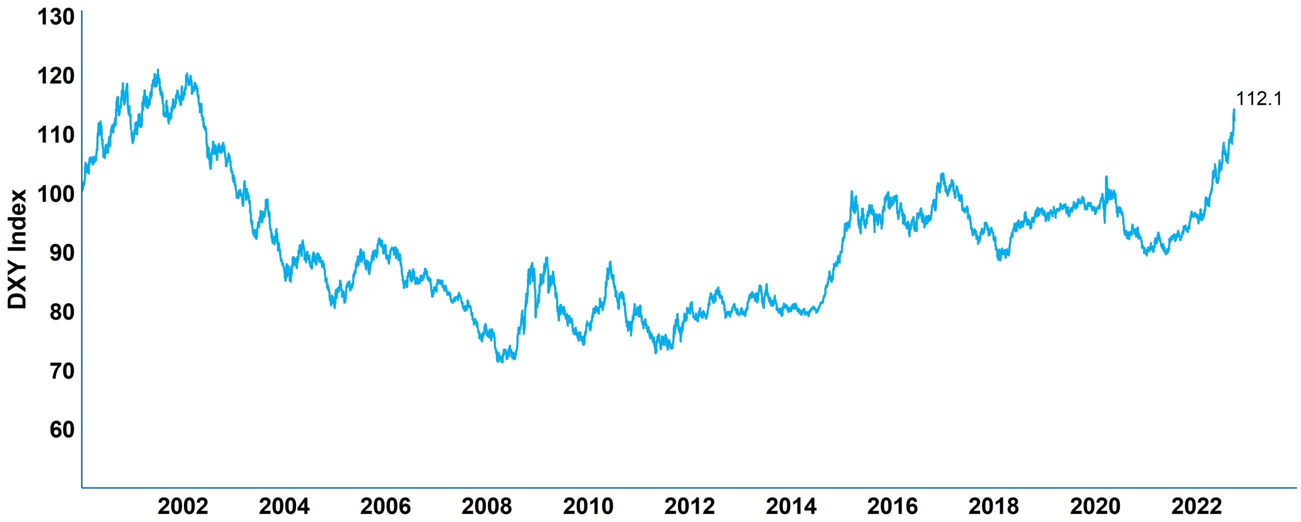
→ After improvements from the lows of the pandemic, Purchasing Managers Indices (PMI), based on surveys of private sector companies, have largely experienced downward pressure recently.

→ Service sector PMIs, except Japan, are all in contraction territory. The US service sector recovered somewhat but remains in negative territory due to weak demand, a sharp decline in new orders, and softening employment.

→ Manufacturing PMIs are also slowing across China and developed markets given declines in demand and inflationary pressures with the Eurozone and China in contraction territory.

[1] Source: Bloomberg. US Markit Services and Manufacturing PMI, Caixin Services and Manufacturing PMI, Eurozone Markit Services and Manufacturing PMI, Jibun Bank Services and Manufacturing PMI. Data is as of September 2022. Readings below 50 represent economic contractions.

US Dollar versus Broad Currencies[1]



- → The US dollar continued to strengthen in September, increasing 7.1% overall for the quarter and reaching levels not seen in two decades.
- → The increased pace of policy tightening, stronger relative growth, and safe-haven flows all contributed to the dollar's strength this year.
- → The euro, yen, pound, and yuan have all experienced significant declines versus the dollar this year, adding to inflation.

[1] Source: Bloomberg. Data as of September 30, 2022.

Summary

Key Trends in 2022:

→ The impacts of record high inflation will remain key, with market volatility likely to remain high.

→ The pace of monetary tightening globally will be faster than previously expected, with the risk of overtightening.

→ Expect growth to slow globally in 2022 and into 2023 to the long-term trend or below. Inflation, monetary policy, and the war will all be key.

→ In the US the end of many fiscal programs is expected to put the burden of continued growth on consumers. Higher energy and food prices will depress consumers' spending in other areas.

→ Valuations have significantly declined in the US to below long-term averages.

→ Outside the US, equity valuations remain lower in both emerging and developed markets, but major risks remain, including continued strength in the US dollar, higher inflation particularly weighing on Europe, and China maintaining its restrictive COVID-19 policies.

Disclaimer, Glossary, and Notes

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INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE “FORWARD - LOOKING STATEMENTS,” WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS “MAY,” “WILL,” “SHOULD,” “EXPECT,” “AIM”, “ANTICIPATE,” “TARGET,” “PROJECT,” “ESTIMATE,” “INTEND,” “CONTINUE” OR “BELIEVE,” OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD-LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

Credit Risk: Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security).

Duration: Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

Information Ratio: This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

Jensen's Alpha: A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk. Portfolio Return- [Risk Free Rate+Beta*(market return-Risk Free Rate)].

Market Capitalization: For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

Market Weighted: Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

Maturity: The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

Prepayment Risk: The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

Price-Book Value (P/B) Ratio: The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

Price-Earnings (P/E) Ratio: A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about is future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

Quality Rating: The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

Sharpe Ratio: A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

STIF Account: Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

Standard Deviation: A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

Style: The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

Tracking Error: A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.

Yield to Maturity: The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a "basis book." For example, a 5% bond pays $5 a year interest on each $100 par value. To figure its current yield, divide $5 by $95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay $100 for the bond that can be bought now for $95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

5% (discount) / 5 (yrs. to maturity)	=	1% pro rata, plus 5.26% (current yield)	=	6.26% (yield to maturity)

Yield to Worst: The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

NCREIF Property Index (NPI): Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE): Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999.
The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991

Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.