

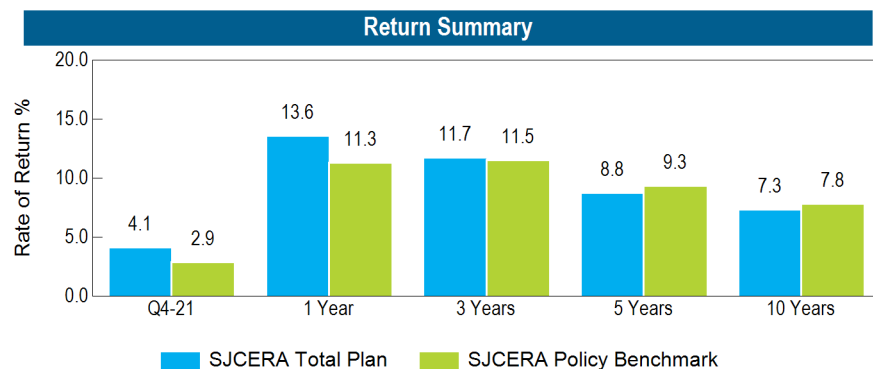
# San Joaquin County Employees' Retirement Association (SJCERA)

Q4 2021

Quarterly Report

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2. Portfolio Review
3. Real Estate Program
4. Capital Markets Outlook & Risk Metrics
5. The World Markets Fourth Quarter of 2021
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# Introduction



	Summary of Cash Flows	
	Fourth Quarter	One Year
Beginning Market Value	\$3,839,975,299	\$3,500,512,188
Net Cash Flow	\$61,633,117	\$77,277,781
Net Investment Change	\$160,813,756	\$484,632,203
Ending Market Value	\$4,062,422,172	\$4,062,422,172

### Introduction

The SJCERA Total Portfolio had an aggregate value of \$4.1 billion as of December 31, 2021. During the latest quarter, the Total Portfolio increased in value by \$222.4 million, and over the one-year period, the Total Portfolio increased by \$561.9 million. The increases over the quarter and one-year periods were primarily driven by positive investment returns. The IMF is forecasting U.S. growth in 2022 of 5.2% with a quarter-over-quarter (annualized) increase of 4.8% in the fourth quarter of 2021 (6.9% growth in 4Q vs. 2.1% in 3Q). The IMF also forecasts EU and Chinese GDP to increase by 4.3% and 5.6%, respectively, in 2022.

Returns for US stocks, as measured by the Russell 1000, and US Treasuries, as measured by the Barclays Long US Government bond index, for the fourth quarter of 2021 were 9.8% and 3.1%, respectively. Commodities were down (1.6%) for the quarter, as measured by the Bloomberg Commodity Index and global equity returns, as measured by the MSCI ACWI IMI, were up 6.1% for the quarter ended December 31, 2021.

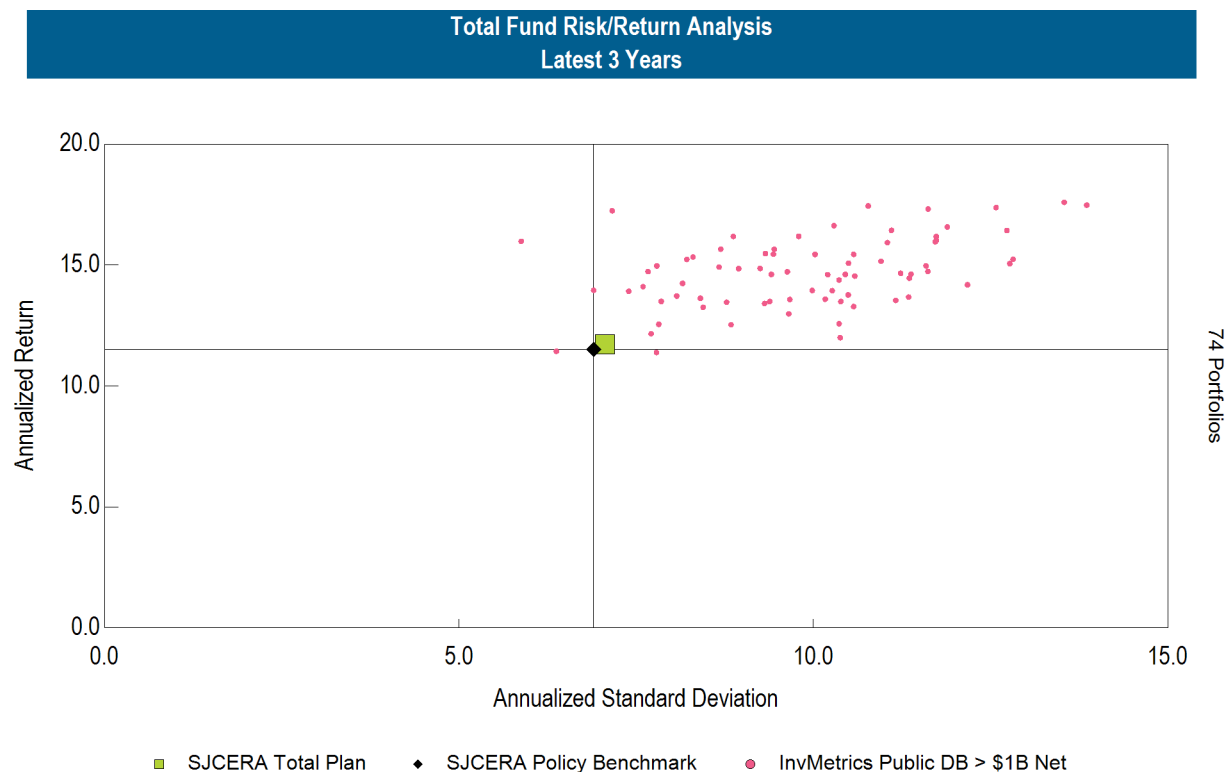
### Recent Investment Performance

The Total Portfolio outperformed the policy benchmark for the quarter, 1- and 3-year periods by 1.2%, 2.3% and 0.2%, respectively and the Median Public Fund for the quarter by 0.1%. Over the 5-, 10-, 15-, 20-, and 25-year periods, the portfolio trailed its benchmark by (0.5%), (1.0%), (0.5%) and (0.2%), respectively, and trailed the Median Public Fund by for the 1-, 3-, 5-, 10-, 15-, 20-, and 25-year periods by (1.3%), (3.0%), (2.1%), (2.4%), (2.3%), (2.4%), and (0.9%), respectively. However, the portfolio earned higher risk adjusted returns, as measured by the Sharpe Ratio, than the Median Public Fund over the 3-, 5- and 10-year time periods but trailed over the 1-year period.

	QTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	15 Yrs	20 Yrs	25 Yrs
<b>SJCERA Total Plan - Net</b>	<b>4.1</b>	<b>13.6</b>	<b>11.7</b>	<b>8.8</b>	<b>7.3</b>	<b>4.6</b>	<b>6.0</b>	<b>6.6</b>
<b>SJCERA Total Plan - Gross</b>	<b>4.3</b>	<b>14.2</b>	<b>12.4</b>	<b>9.5</b>	<b>8.2</b>	<b>5.3</b>	<b>6.6</b>	<b>7.1</b>
<i>SJCERA Policy Benchmark</i>	<u>2.9</u>	<u>11.3</u>	<u>11.5</u>	<u>9.3</u>	<u>7.8</u>	<u>5.6</u>	<u>6.5</u>	<u>6.8</u>
Over/Under (vs. Net)	1.2	2.3	0.2	-0.5	-0.5	-1.0	-0.5	-0.2
<i>InvMetrics Public DB &gt; \$1B Net Median</i>	4.0	14.9	14.7	10.9	9.7	6.9	7.4	7.5

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

Risk-Adjusted Return vs Peers				
	1 Yr	3 Yrs	5 Yrs	10 Yrs
<b>SJCERA Total Plan - Net</b>	<b>13.6</b>	<b>11.7</b>	<b>8.8</b>	<b>7.3</b>
Risk Adjusted Median	14.0	10.3	7.2	6.6
Excess Return	-0.4	1.4	1.6	0.7

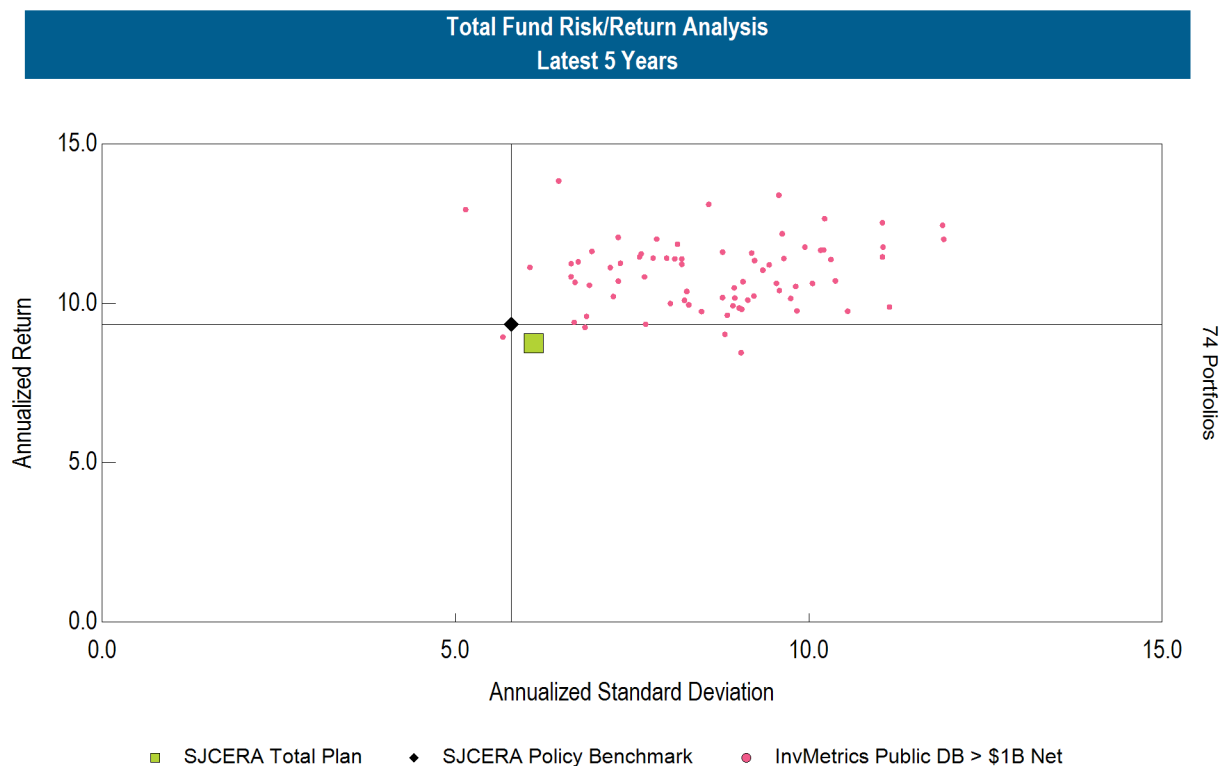


	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
SJCERA Total Plan	11.73%	7.06%	1.54
SJCERA Policy Benchmark	11.50%	6.90%	1.54
InvMetrics Public DB > \$1B Net Median	14.69%	10.09%	1.35

Returns are net of fees.

Computed as annualized return less the risk free rate, divided by the annualized standard deviation.

Investment Metrics Total Fund Public Universe >\$1 Billion, net of fees.

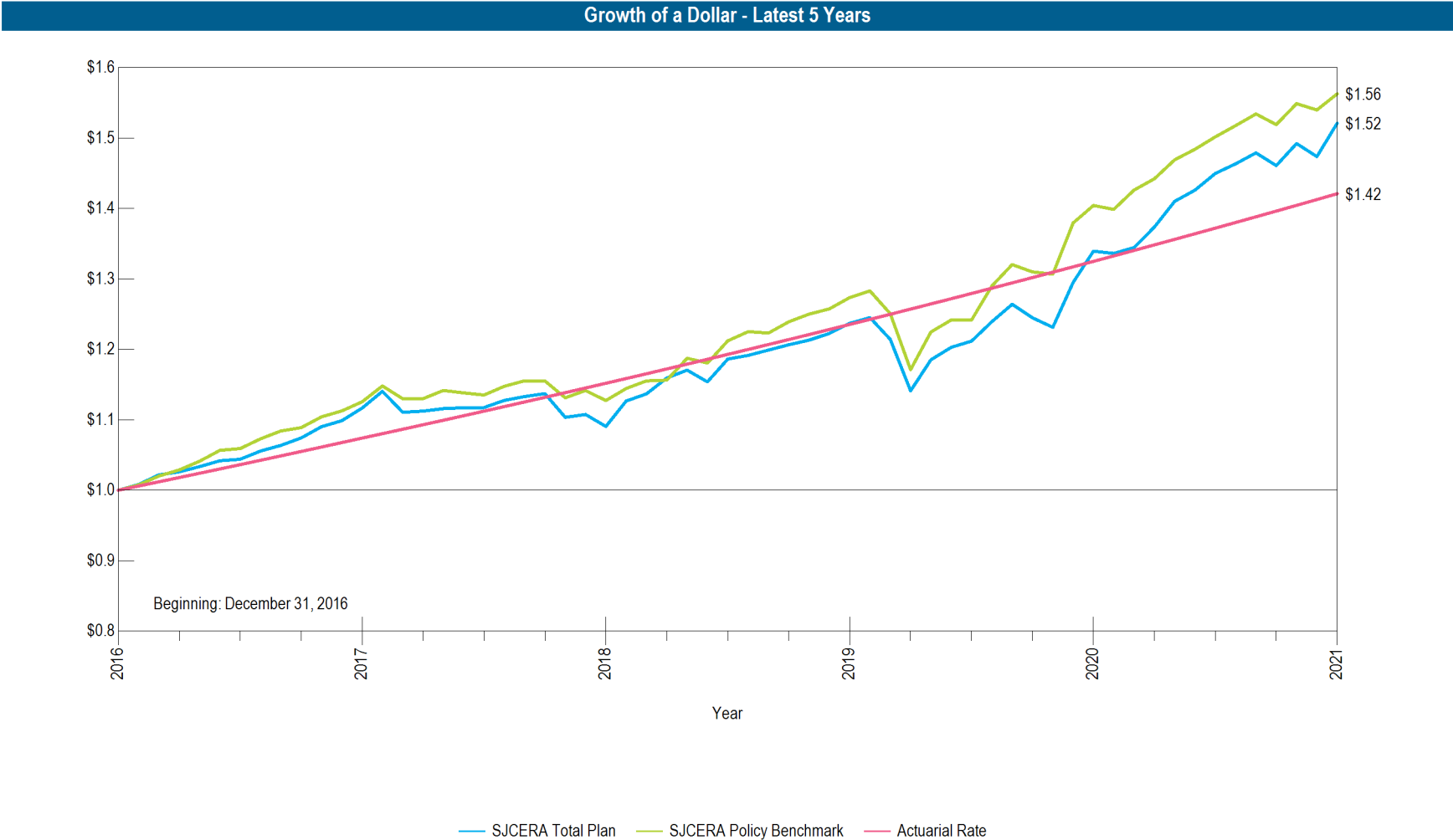


	Anlzd Return	Anlzd Standard Deviation	Sharpe Ratio
SJCERA Total Plan	8.75%	6.10%	1.26
SJCERA Policy Benchmark	9.34%	5.79%	1.43
InvMetrics Public DB > \$1B Net Median	10.94%	8.80%	1.10

Returns are net of fees.

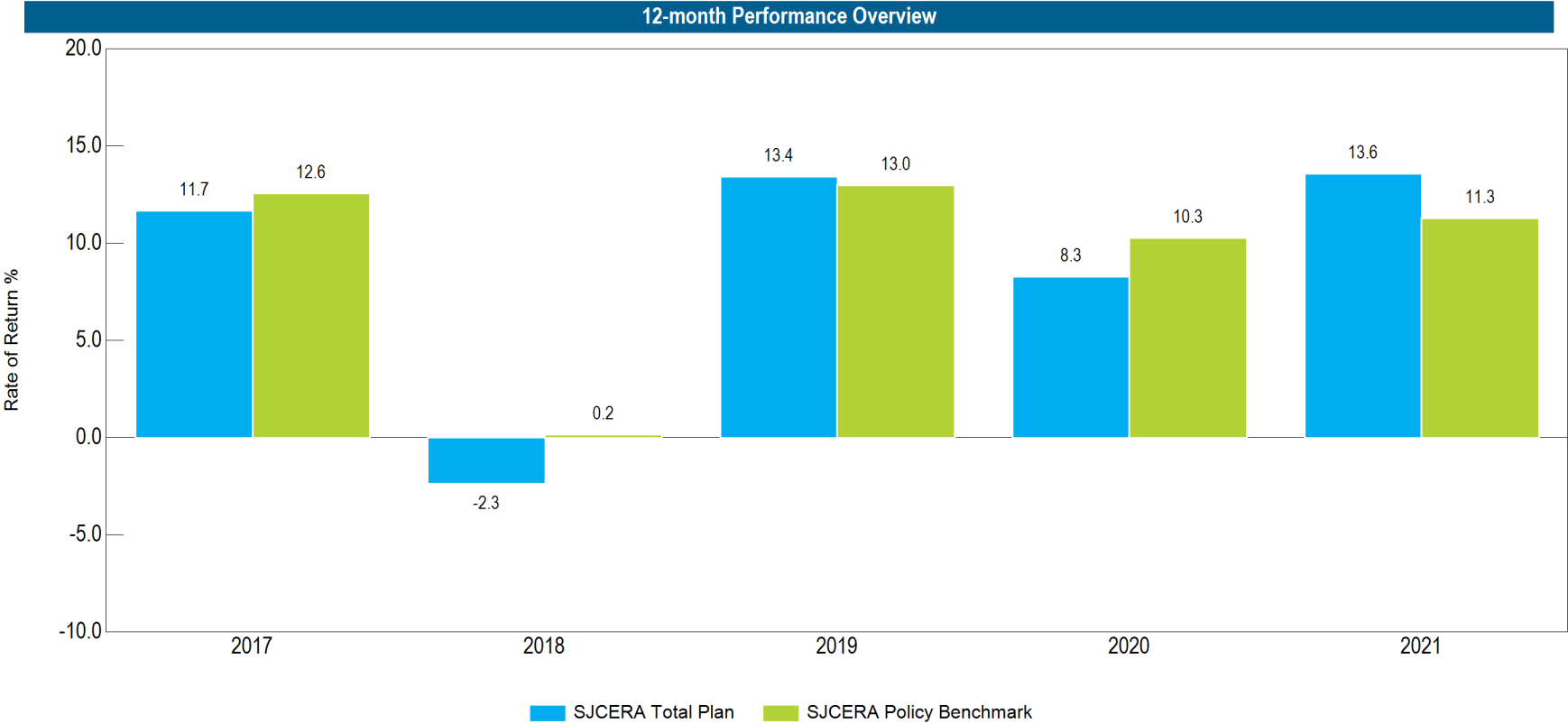
Computed as annualized return less the risk free rate, divided by the annualized standard deviation.

Investment Metrics Total Fund Public Universe >\$1 Billion, net of fees.



7.0% Actuarial Rate from 1/1/2020 to present. 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%



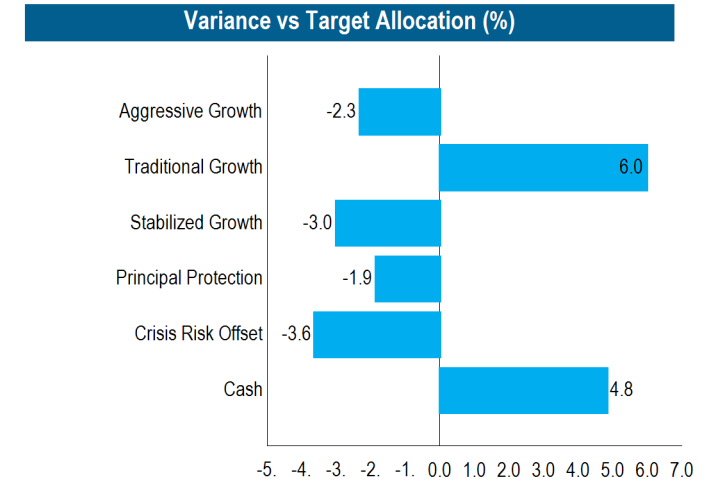


12-month absolute results have been positive over four of the last five calendar year periods, net of fees. The SJCERA Total Portfolio outperformed the policy target benchmark during two of these five periods, net of fees.

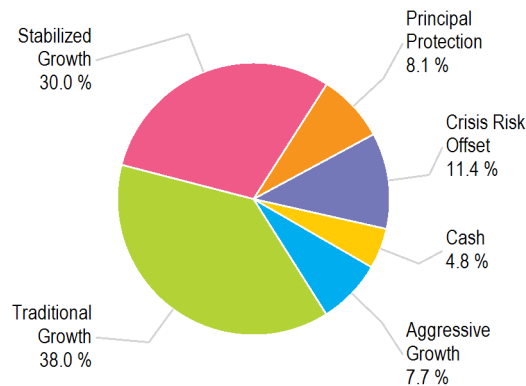
### Asset Allocation | As of December 31, 2021

Asset Allocation vs. Target				
	Current	Current	Policy	Difference*
<b>Broad Growth</b>	<b>\$3,073,260,491</b>	<b>75.7%</b>	<b>75.0%</b>	<b>0.7%</b>
Aggressive Growth	\$311,786,826	7.7%	10.0%	-2.3%
Traditional Growth	\$1,542,824,270	38.0%	32.0%	6.0%
Stabilized Growth	\$1,218,649,395	30.0%	33.0%	-3.0%
<b>Diversified Growth</b>	<b>\$792,761,997</b>	<b>19.5%</b>	<b>25.0%</b>	<b>-5.5%</b>
Principal Protection	\$330,858,456	8.1%	10.0%	-1.9%
Crisis Risk Offset	\$461,903,542	11.4%	15.0%	-3.6%
<b>Cash</b>	<b>\$196,399,684</b>	<b>4.8%</b>	<b>0.0%</b>	<b>4.8%</b>
Cash	\$196,399,684	4.8%	0.0%	4.8%
<b>Total</b>	<b>\$4,062,422,172</b>	<b>100.0%</b>	<b>100.0%</b>	

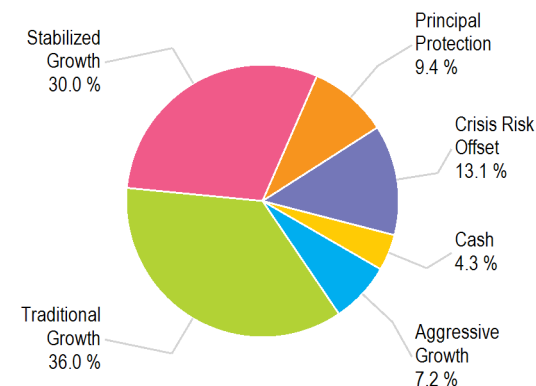
\*Difference between Policy and Current Allocation



As of December 31, 2021



As of December 31, 2020



Market values may not add up due to rounding.  
Cash asset allocation includes Parametric Overlay.

**Asset Class Performance Net-of-Fees | As of December 31, 2021**

	Market Value (\$)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>SJCERA Total Plan</b>	<b>4,062,422,172</b>	<b>100.0</b>	<b>4.1</b>	<b>13.6</b>	<b>11.7</b>	<b>8.8</b>	<b>7.3</b>
<i>SJCERA Policy Benchmark</i>			<i>2.9</i>	<i>11.3</i>	<i>11.5</i>	<i>9.3</i>	<i>7.8</i>
<b>Broad Growth</b>	<b>3,073,260,491</b>	<b>75.7</b>	<b>5.4</b>	<b>17.7</b>	<b>14.3</b>	<b>10.8</b>	<b>8.9</b>
<b>Aggressive Growth Lag</b>	<b>311,786,826</b>	<b>7.7</b>	<b>8.2</b>	<b>39.4</b>	<b>16.7</b>	<b>15.3</b>	<b>12.4</b>
<i>Aggressive Growth Blend</i>			<i>3.2</i>	<i>22.8</i>	<i>13.1</i>	<i>11.4</i>	<i>10.2</i>
<b>Traditional Growth</b>	<b>1,542,824,270</b>	<b>38.0</b>	<b>6.8</b>	<b>20.6</b>	<b>17.9</b>	<b>12.6</b>	<b>11.2</b>
<i>MSCI ACWI IMI Net</i>			<i>6.1</i>	<i>18.2</i>	<i>21.1</i>	<i>15.1</i>	<i>12.5</i>
<b>Stabilized Growth</b>	<b>1,218,649,395</b>	<b>30.0</b>	<b>3.0</b>	<b>9.3</b>	<b>9.8</b>	<b>7.5</b>	<b>4.8</b>
<i>SJCERA Stabilized Growth Benchmark</i>			<i>0.6</i>	<i>2.1</i>	<i>2.2</i>	<i>1.9</i>	<i>2.0</i>
<b>Diversifying Strategies</b>	<b>792,761,997</b>	<b>19.5</b>	<b>-0.6</b>	<b>0.7</b>	<b>3.5</b>	<b>2.7</b>	<b>3.9</b>
<b>Principal Protection</b>	<b>330,858,456</b>	<b>8.1</b>	<b>-0.2</b>	<b>0.1</b>	<b>3.6</b>	<b>3.3</b>	<b>4.2</b>
<i>Bloomberg US Aggregate TR</i>			<i>0.0</i>	<i>-1.5</i>	<i>4.8</i>	<i>3.6</i>	<i>2.9</i>
<b>Crisis Risk Offset Asset Class</b>	<b>461,903,542</b>	<b>11.4</b>	<b>-0.9</b>	<b>1.1</b>	<b>3.3</b>	<b>2.3</b>	<b>4.2</b>
<i>CRO Benchmark</i>			<i>2.1</i>	<i>3.5</i>	<i>7.3</i>	<i>5.1</i>	<i>4.5</i>
<b>Cash and Misc Asset Class</b>	<b>140,418,193</b>	<b>3.5</b>	<b>0.0</b>	<b>0.1</b>	<b>0.7</b>	<b>0.8</b>	<b>0.5</b>
<i>ICE BofA 91 Days T-Bills TR</i>			<i>0.0</i>	<i>0.0</i>	<i>1.0</i>	<i>1.1</i>	<i>0.6</i>

Market values may not add up due to rounding.

Policy Benchmark composition is listed in the Appendix.

10% ICE BofAML 3 month US T-Bill + 4%, 17% 50% BB High Yield/50% S&P Leverage Loans.

(1/3) BB Long Duration Treasuries, (1/3) BTOP50 Index, (1/3) 5% Annual.

**Asset Class Performance Net-of-Fees | As of December 31, 2021**

	Market Value (\$)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Aggressive Growth Lag</b>	<b>311,786,826</b>	<b>100.0</b>	<b>8.2</b>	<b>39.4</b>	<b>16.7</b>	<b>15.3</b>	<b>12.4</b>
<i>Aggressive Growth Blend</i>			3.2	22.8	13.1	11.4	10.2
Blackrock Global Energy and Power Lag	22,706,488	7.3	3.4	8.0	--	--	--
<i>MSCI ACWI +2% Blend</i>			-0.5	30.5	--	--	--
Morgan Creek III Lag	6,571,365	2.1	-13.5	-4.0	-10.4	-0.3	--
<i>MSCI ACWI +2% Blend</i>			-0.5	30.5	15.4	12.8	--
Morgan Creek V Lag	9,473,506	3.0	8.5	26.8	15.1	13.6	--
<i>MSCI ACWI +2% Blend</i>			-0.5	30.5	15.4	12.8	--
Morgan Creek VI Lag	26,828,214	8.6	8.6	45.1	23.6	20.4	--
<i>MSCI ACWI +2% Blend</i>			-0.5	30.5	15.4	12.8	--
Ocean Avenue II Lag	38,704,604	12.4	10.6	84.6	33.2	31.8	--
<i>MSCI ACWI +2% Blend</i>			-0.5	30.5	15.4	12.8	--
Ocean Avenue III Lag	51,341,899	16.5	16.4	56.0	28.5	29.6	--
<i>MSCI ACWI +2% Blend</i>			-0.5	30.5	15.4	12.8	--
Ocean Avenue IV Lag	36,893,083	11.8	3.6	42.1	--	--	--
<i>MSCI ACWI +2% Lag</i>			-0.5	30.5	--	--	--
Non-Core Real Assets Lag	114,578,388	36.7	8.6	29.6	10.0	8.6	9.4
<i>NCREIF ODCE +1% lag (blend)</i>			6.7	14.8	7.2	7.6	9.9
Stellax Capital Partners II Lag	4,689,279	1.5	-4.4	--	--	--	--
<i>MSCI ACWI +2% Lag</i>			-0.5	--	--	--	--

Market values may not add up due to rounding.

Lagged 1 quarter.

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 December 31, 2021, six of SJCERA's eight aggressive growth portfolios outperformed their MSCI ACWI +2% Blended benchmark. Non-core real assets also outperformed. Please note that returns data for this asset class are lagged one quarter and the benchmark returned 22.8% for the trailing 1-year period.

**BlackRock Global Energy and Power**, a recently added fund with a focus on infrastructure, outperformed its target benchmark over the quarter by 3.9% but underperformed for the 1-year period by (21.5%), respectively.

**Morgan Creek III** produced a negative quarterly return of (13.5%), underperforming its benchmark by (13.0%). The manager also lagged the benchmark over the 1-, 3- and 5-year periods by (34.5%), (25.8%) and (13.1%), respectively.

**Morgan Creek V** outperformed its benchmark over the trailing quarter and 5-year periods by 9.0% and 0.8%, respectively, but underperformed for the trailing 1- and 3-year periods by (3.7%) and (0.3%), respectively.

**Morgan Creek VI** outperformed for the quarter, 1-, 3- and 5-year periods by 9.1%, 14.6%, 8.2% and 8.6%, respectively.

**Ocean Avenue II**, a Private Equity Buyout fund-of-funds manager, outperformed its benchmark for the quarter, 1-, 3- and 5-year periods by 11.1%, 54.1%, 17.8% and 19.0%, respectively.

**Ocean Avenue III**, a Private Equity Buyout fund-of-funds manager, led its benchmark for the quarter, 1-, 3- and 5-year periods by 16.9%, 25.5%, 13.1% and 16.8%, respectively.

**Ocean Avenue IV** outperformed its benchmark for the quarter and 1-year time periods by 4.1% and 11.6%, respectively.

**Non-Core Private Real Assets** underperformed its NCREIF ODCE +1% benchmark over the 10-year period by (0.5%). The sub-asset class outperformed its benchmark over the quarter, 1-, 3- and 5-year time periods by 1.9%, 14.8%, 2.8% and 1.0%, respectively.

**Stellex II**, the newest manager in the asset class, underperformed its benchmark during the quarter by (3.9%).

**Asset Class Performance Net-of-Fees | As of December 31, 2021**

	Market Value (\$)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Traditional Growth</b>	<b>1,542,824,270</b>	<b>100.0</b>	<b>6.8</b>	<b>20.6</b>	<b>17.9</b>	<b>12.6</b>	<b>11.2</b>
<i>MSCI ACWI IMI Net</i>			6.1	18.2	21.1	15.1	12.5
SJCERA Transition	3,262	0.0					
Northern Trust MSCI World	1,343,292,580	87.1	7.3	21.4	--	--	--
<i>MSCI World IMI Net USD</i>			7.1	21.0	--	--	--
PIMCO RAE Emerging Markets	79,063,012	5.1	0.4	16.5	10.5	8.8	5.8
<i>MSCI Emerging Markets Gross</i>			-1.2	-2.2	11.3	10.3	5.9
GQG Active Emerging Markets	65,051,537	4.2	-0.2	-1.5	--	--	--
<i>MSCI Emerging Markets</i>			-1.3	-2.5	--	--	--
Invesco REIT	55,413,880	3.6	15.6	42.0	17.9	11.2	11.1
<i>FTSE NAREIT Equity REIT</i>			16.3	43.2	18.4	10.8	11.4

Market values may not add up due to rounding.

### Traditional Growth

During the latest three-month period ending December 31, 2021, the traditional growth asset class outperformed its MSCI ACWI IMI benchmark by 0.7% with three of the four managers outperforming their benchmarks.

**Northern Trust MSCI World**, the Plan's new Passive Global Equity manager, outperformed its benchmark over the past quarter and 1-year periods by 0.2% and 0.4%, respectively.

**PIMCO RAE Fundamental - Emerging**, one of SJCERA's Active Emerging Markets Equity manager, outperformed its MSCI Emerging Markets Index benchmark over the quarter and 1-year time periods by 1.6% and 18.7%, respectively, and underperformed its benchmark over the 3-, 5- and 10-year periods by (0.8%), (1.5%) and (0.1%), 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 1.1% and 1.0% for the quarter and 1-year periods, respectively.

**Invesco**, the Plan's Core US REIT manager, underperformed the FTSE NAREIT Equity REIT Index for the quarter, 1-, 3- and 10-year periods by (0.7%), (1.2%), (0.5%) and (0.3%), respectively. The fund outperformed its benchmark over the 5-year period by 0.4%.

**Asset Class Performance Net-of-Fees | As of December 31, 2021**

	Market Value (\$)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Stabilized Growth</b>	<b>1,218,649,395</b>	<b>100.0</b>	<b>3.0</b>	<b>9.3</b>	<b>9.8</b>	<b>7.5</b>	<b>4.8</b>
<i>SJCERA Stabilized Growth Benchmark</i>			0.6	2.1	2.2	1.9	2.0
<b>Risk Parity Asset Class</b>	<b>449,917,115</b>	<b>36.9</b>	<b>3.4</b>	<b>9.9</b>	<b>13.6</b>	<b>9.1</b>	<b>3.8</b>
<i>ICE BofAML 3mo US TBill+4%</i>			1.0	4.1	5.0	5.2	4.7
Bridgewater All Weather	222,437,674	18.3	4.3	11.7	12.6	8.7	--
<i>Bridgewater All Weather (blend)</i>			1.0	4.1	5.0	5.2	--
PanAgora Diversified Risk Multi Asset	227,479,441	18.7	2.6	8.3	14.5	9.6	--
<i>ICE BofAML 3mo US TBill+4%</i>			1.0	4.1	5.0	5.2	--
<b>Liquid Credit</b>	<b>237,288,542</b>	<b>19.5</b>	<b>0.0</b>	<b>2.4</b>	<b>5.1</b>	<b>3.8</b>	<b>3.8</b>
<i>50% BB US HY/50% S&amp;P LSTA Lev Loan</i>			0.7	5.2	7.2	5.3	5.8
Neuberger Berman	106,585,329	8.7	0.0	2.3	--	--	--
<i>33% ICEBofAMLUSHY /33%JPMEMBI Global Div /33% S&amp;P LSTA LevLoan</i>			0.3	2.9	--	--	--
Stone Harbor Absolute Return	130,703,213	10.7	0.0	2.4	4.4	3.3	3.5
<i>ICE BofA-ML LIBOR</i>			0.0	0.2	1.3	1.4	0.9
<b>Private Credit Lag</b>	<b>341,870,687</b>	<b>28.1</b>	<b>1.6</b>	<b>8.0</b>	<b>3.6</b>	<b>2.9</b>	<b>4.7</b>
<i>Custom Credit Benchmark</i>			1.0	9.8	5.5	5.6	6.2
Blackrock Direct Lending Lag	51,001,686	4.2	2.4	8.8	--	--	--
<i>CPI + 6% BLK Blend</i>			2.4	11.7	--	--	--
Crestline Opportunity II Lag	18,787,084	1.5	0.4	14.1	1.1	3.8	--
<i>Credit Blend CPI +6%</i>			2.4	11.7	9.0	8.9	--
Davidson Kempner Long-Term Distressed Opportunities Fund V, L.P. Lag	34,480,593	2.8	1.6	25.5	--	--	--
<i>Credit Blend CPI +6%</i>			2.4	11.7	--	--	--

Market values may not add up due to rounding.

10% ICE BofAML 3 month US T-Bill + 4%, 17% 50% BB High Yield/50% S&P Leverage Loans.



**Asset Class Performance Net-of-Fees | As of December 31, 2021**

	Market Value (\$)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
HPS European Asset Value II, LP Lag	20,406,329	1.7	1.8	8.2	--	--	--
<i>Credit Blend CPI +6%</i>			2.4	11.7	--	--	--
Medley Opportunity II Lag	9,904,617	0.8	-3.2	8.3	-9.3	-7.6	--
<i>Credit Blend CPI +6%</i>			2.4	11.7	9.0	8.9	--
Mesa West III Lag	31,041	0.0	-14.9	-21.5	-6.6	-0.4	--
<i>Credit Blend CPI +6%</i>			2.4	11.7	9.0	8.9	--
Mesa West IV Lag	29,459,557	2.4	2.6	7.9	7.7	--	--
<i>Credit Blend CPI +6%</i>			2.4	11.7	9.0	--	--
Oaktree Middle-Market Direct Lending Lag	32,102,053	2.6	3.5	15.7	15.0	--	--
<i>CPI + 6% Oaktree Blend</i>			2.4	11.7	9.5	--	--
Raven Opportunity II Lag	10,414,168	0.9	11.6	7.6	-2.5	-2.5	--
<i>Credit Blend CPI +6%</i>			2.4	11.7	9.0	8.9	--
Raven Opportunity III Lag	50,211,888	4.1	4.3	11.1	7.6	5.1	--
<i>Credit Blend CPI +6%</i>			2.4	11.7	9.0	8.9	--
White Oak Summit Peer Lag	36,744,876	3.0	-4.4	-0.5	3.4	5.6	--
<i>Credit Blend CPI +6%</i>			2.4	11.7	9.0	8.9	--
White Oak Yield Spectrum Master V Lag	48,326,795	4.0	0.4	1.7	--	--	--
<i>Credit Blend CPI +6%</i>			2.4	11.7	--	--	--
Private Core Real Assets Lag	189,573,050	15.6	8.9	20.8	11.6	11.8	13.4
<i>NCREIF ODCE +1% lag (blend)</i>			6.7	14.8	7.2	7.6	9.9

Market values may not add up due to rounding.

NCREIF ODCE Net + 1% 10/1/2012-present. NCREIF Property Index previously.

### Stabilized Growth

During the latest three-month period ending December 31, 2021, eight of SJCERA's sixteen Stabilized Growth managers matched or outperformed their benchmarks while the other eight 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). Also, private core real assets outperformed its benchmark for the quarter.

**Bridgewater All Weather**, one of the Plan's Risk Parity managers, outperformed its benchmark over the quarter, 1-, 3- and 5-year periods by 3.3%, 7.6%, 7.6% and 3.5%, respectively.

**PanAgora DRMA**, one of the Plan's Risk Parity managers, outperformed its T-Bill +4% benchmark over the quarter, 1-, 3- and 5-year periods by 1.6%, 4.2%, 9.5% and 4.4%, respectively.

**Neuberger Berman**, one of the Plan's Liquid Credit managers, underperformed its benchmark for the quarter and 1-year periods by (0.3%) and (0.6%), respectively.

**Stone Harbor**, the Plan's Absolute Return Fixed Income manager, matched its ICE BofAML LIBOR index over the quarter and outperformed it for the 1-, 3-, 5- and 10-year periods by 2.2%, 3.1%, 1.9% and 2.6%, respectively.

**BlackRock Direct Lending**, one of the Plan's newer Private Credit manager, matched its CPI +6% benchmark for the quarter and underperformed over the 1-year period (2.9%).

**Crestline Opportunity II**, the Plan's Credit, Niche Alternatives and Hedge Fund Secondaries manager, trailed its benchmark over the quarter, 3- and 5-year periods by (2.0%), (7.9%) and (6.1%), respectively. It outperformed its Credit Blend CPI +6% benchmark for the 1-year period by 2.4%.

**Davidson Kempner**, the Plan's newest Private Credit manager, was opened during the fourth quarter of 2020 and underperformed its CPI +6% annual benchmark by (0.8%) for the quarter. It outperformed its benchmark for the trailing 1-year period by 13.8%.

**HPS EU**, one of the Plan's newer Direct Lending manager, was opened during the third quarter of 2020 and underperformed its CPI +6% benchmark for the quarter and 1-year periods by (0.6%) and (3.5%), respectively.

### Stabilized Growth (Continued)

**Medley Opportunity II**, one of the Plan's Direct Lending managers, underperformed its CPI +6% annual return target over the quarter, 1-, 3- and 5-year time periods by (5.6%), (3.4%), (18.3%) and (16.5%), respectively.

**Mesa West RE Income III**, one of the Plan's Commercial Mortgage managers, underperformed its CPI +6% annual benchmark by (17.3%), (33.2%), (15.6%) and (9.3%) over the quarter, 1-, 3- and 5-year periods, respectively.

**Mesa West RE Income IV**, one of the Plan's Commercial Mortgage managers, produced a quarterly return of 2.6%, outperforming its CPI +6% annual benchmark by 0.2%. Over the 1- and 3-year periods, the fund underperformed its benchmark by (3.8%) and (1.3%), respectively.

**Oaktree**, a Middle-Market Direct Lending manager, outperformed its MSCI ACWI +2% Blended benchmark for the quarter, 1- and 3-year trailing time periods by 1.1%, 4.0% and 5.5%, respectively.

**Raven Capital II**, one of the Plan's Direct Lending managers, produced a quarterly return of 11.6%, outperforming its benchmark by 9.2%. It trailed its target over the 1-, 3- and 5-year periods by (4.1%), (11.5%) and (11.4%), respectively.

**Raven Capital III** outperformed its CPI +6% annual target for the quarter by 1.9% but underperformed over 1-, 3- and 5-year trailing periods by (0.6%), (1.4%) and (3.8%), respectively.

**White Oak Summit Peer**, one of the Plan's Direct Lending managers, underperformed its CPI +6% index over the quarter, 1-, 3- and 5-year periods by (6.8%), (12.2%), (5.6%) and (3.3%), respectively.

**White Oak Yield Spectrum Master V** trailed its CPI +6% benchmark over both the quarter and 1-year periods by (2.0%) and (10.0%), respectively.

**Private Core Private Real Estate**, investing in Core Real Assets, outperformed its NCREIF ODCE +1% benchmark over the trailing quarter, 1-, 3-, 5- and 10-year time periods by 2.2%, 6.0%, 4.4%, 4.2% and 3.5%, respectively.

**Asset Class Performance Net-of-Fees | As of December 31, 2021**

	Market Value (\$)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Principal Protection</b>	<b>330,858,456</b>	<b>100.0</b>	<b>-0.2</b>	<b>0.1</b>	<b>3.6</b>	<b>3.3</b>	<b>4.2</b>
<i>Bloomberg US Aggregate TR</i>			<i>0.0</i>	<i>-1.5</i>	<i>4.8</i>	<i>3.6</i>	<i>2.9</i>
Dodge & Cox Fixed Income	216,782,099	65.5	-0.3	-0.8	6.0	4.6	4.5
<i>Bloomberg US Aggregate TR</i>			<i>0.0</i>	<i>-1.5</i>	<i>4.8</i>	<i>3.6</i>	<i>2.9</i>
DoubleLine	114,076,357	34.5	0.1	2.0	4.1	3.8	--
<i>Bloomberg US Aggregate TR</i>			<i>0.0</i>	<i>-1.5</i>	<i>4.8</i>	<i>3.6</i>	<i>--</i>

Market values may not add up due to rounding.

### Principal Protection

During the latest three-month period ending December 31, 2021, one of SJCERA's Principal Protection managers underperformed the Bloomberg US Aggregate Index benchmark while the other outperformed it.

**Dodge & Cox**, the Plan's Core Fixed Income manager, earned a negative quarterly return of (0.3%). It trailed its benchmark by (0.3%) for this period but outperformed over the 1-, 3-, 5- and 10-year periods by 0.7%, 1.2%, 1.0% and 1.6%, respectively.

**DoubleLine**, the Plan's Mortgage-Backed Securities manager, provided a quarterly return of 0.1%, outperforming its benchmark by 0.1%. The manager also outperformed its benchmark over the 1- and 5-year time periods by 3.5% and 0.2%, respectively, but underperformed its benchmark over the 3-year period by (0.7%).

## Asset Class Performance Net-of-Fees | As of December 31, 2021

	Market Value (\$)	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
<b>Crisis Risk Offset Asset Class</b>	<b>461,903,542</b>	<b>100.0</b>	<b>-0.9</b>	<b>1.1</b>	<b>3.3</b>	<b>2.3</b>	<b>4.2</b>
<i>CRO Benchmark</i>			<i>2.1</i>	<i>3.5</i>	<i>7.3</i>	<i>5.1</i>	<i>4.5</i>
<b>Long Duration</b>	<b>155,475,526</b>	<b>33.7</b>	<b>2.3</b>	<b>-4.7</b>	<b>8.0</b>	<b>6.0</b>	<b>--</b>
<i>Bloomberg US Treasury Long TR</i>			<i>3.1</i>	<i>-4.6</i>	<i>8.8</i>	<i>6.5</i>	<i>--</i>
Dodge & Cox Long Duration	155,475,526	33.7	2.3	-4.7	8.0	6.0	--
<i>Bloomberg US Treasury Long TR</i>			<i>3.1</i>	<i>-4.6</i>	<i>8.8</i>	<i>6.5</i>	<i>--</i>
<b>Systematic Trend Following</b>	<b>183,317,395</b>	<b>39.7</b>	<b>-3.1</b>	<b>7.3</b>	<b>5.6</b>	<b>1.3</b>	<b>5.0</b>
<i>BTOP 50 (blend)</i>			<i>1.8</i>	<i>10.2</i>	<i>7.3</i>	<i>3.2</i>	<i>3.5</i>
Graham Tactical Trend	88,930,888	19.3	-1.3	2.7	7.3	2.2	--
<i>SG Trend</i>			<i>-1.3</i>	<i>9.1</i>	<i>8.2</i>	<i>3.8</i>	<i>--</i>
Mount Lucas	94,386,507	20.4	-4.8	12.0	3.9	0.2	4.2
<i>BTOP 50 (blend)</i>			<i>1.8</i>	<i>10.2</i>	<i>7.3</i>	<i>3.2</i>	<i>3.5</i>
<b>Alternative Risk Premium</b>	<b>123,110,621</b>	<b>26.7</b>	<b>-1.4</b>	<b>0.0</b>	<b>-5.0</b>	<b>-1.6</b>	<b>1.1</b>
<i>5% Annual (blend)</i>			<i>1.2</i>	<i>5.0</i>	<i>5.0</i>	<i>5.0</i>	<i>7.5</i>
AQR Style Premia	30,222,118	6.5	3.0	24.0	-6.3	-4.7	--
<i>5% Annual</i>			<i>1.2</i>	<i>5.0</i>	<i>5.0</i>	<i>5.0</i>	<i>--</i>
Lombard Odier	59,423,753	12.9	-0.9	-3.3	--	--	--
<i>5% Annual</i>			<i>1.2</i>	<i>5.0</i>	<i>--</i>	<i>--</i>	<i>--</i>
P/E Diversified Global Macro	33,464,750	7.2	-5.9	-10.3	-10.4	-5.5	--
<i>5% Annual</i>			<i>1.2</i>	<i>5.0</i>	<i>5.0</i>	<i>5.0</i>	<i>--</i>

Market values may not add up due to rounding.

(1/3) BB Long Duration Treasuries, (1/3) BTOP50 Index, (1/3) 5% Annual.

### Crisis Risk Offset

During the latest three-month period ending December 31, 2021, two of SJCERA's six Crisis Risk Offset managers matched or outperformed their respective benchmarks.

**Dodge & Cox Long Duration** produced a quarterly return of 2.3%, underperforming the Bloomberg US Long Duration Treasuries by (0.8%). The manager also underperformed its benchmark over the 1-, 3- and 5-year time periods by (0.1%), (0.8%) and (0.5%), respectively.

**Graham**, one of the Plan's Systematic Trend Following managers, had a negative quarterly return of (2.3%), matching the SG Trend Index. The fund underperformed its benchmark over the trailing 1-, 3- and 5-year periods by (6.4%), (0.9%) and (1.6%), respectively.

**Mount Lucas**, one of the Plan's Systematic Trend Following managers, underperformed the Barclays BTOP 50 Index for the quarter, 3- and 5-year periods by (6.6%), (3.4%) and (3.0%), respectively. The fund led its benchmark over the 1- and 10-year periods by 1.8% and 0.7%, respectively.

**AQR**, one of the Plan's Alternative Risk Premium managers, posted positive returns and outperformed its 5% Annual target for the quarter and 1-year periods by 1.8% and 19.0%, respectively. It posted negative returns for the trailing 3- and 5-year periods and underperformed its benchmark for these periods by (11.3%) and (9.7%), respectively.

**Lombard Odier**, an Alternative Risk Premium manager, earned a negative quarterly return of (0.9%), underperforming its 5% Annual target by (2.1%). The manager also underperformed its benchmark for the 1-year period by (8.3%).

**P/E Diversified**, one of the Plan's Alternative Risk Premium managers, underperformed its 5% Annual target for the quarter, 1-, 3- and 5-year periods by (7.1%), (15.3%), (15.4%) and (10.5%), respectively.

## **Portfolio Review**



San Joaquin County Employees' Retirement Association: Manager Value-Added (Dollar-Impact)  
As of December 31, 2021

Manager/Mandate	12/31/2021	Manager Return	Benchmark Return	Dollar Impact 3,703,114,044	Benchmark Added Value	Manager BNAV 3,703,114,044	Dollar Impact 4Q 2021 (\$000)			
<b>SJCERA Total</b>		<b>2.5%</b>	<b>2.7%</b>				(20,000,000)	20,000,000	60,000,000	100,000,000
Policy Benchmark										
<b>NT MSCI World</b>		7.3%	7.1%	97,818,566		1,343,292,580				
MSCI World IMI										
<b>Private Core Real Estate</b>		8.9%	6.7%	16,824,608		189,573,050				
Private Real Estate Benchmark										
<b>Bridgewater All Weather</b>		4.3%	10%	9,584,839		222,437,674				
T-bill + 4%										
<b>Invesco REIT</b>		15.6%	16.3%	8,646,782		55,413,880				
FTSE NAREIT Index										
<b>Ocean Avenue III</b>		16.4%	-0.5%	8,429,826		51,341,899				
MSCI ACWI +2% Blend										
<b>PanAgora Diversified Risk Multi Asset</b>		2.6%	10%	5,857,596		227,479,441				
T-bill + 4%										
<b>Ocean Avenue II</b>		10.6%	-0.5%	4,091,464		38,704,604				
MSCI ACWI +2% Blend										
<b>Dodge &amp; Cox Long Duration</b>		2.3%	0.0%	3,563,499		155,475,526				
BB US Long Duration Treasuries										
<b>Morgan Creek VI</b>		8.6%	-0.5%	2,307,763		26,828,214				
MSCI ACWI +2% Blend										
<b>Raven III</b>		4.3%	2.4%	2,169,154		50,211,888				
CPI + 6% Annual										
<b>Ocean Avenue IV</b>		3.6%	-0.5%	1,321,510		36,893,083				
MSCI ACWI +2% Blend										
<b>BlackRock Direct Lending</b>		2.4%	2.4%	1,242,401		51,001,686				
CPI + 6% Annual										
<b>Raven II</b>		11.6%	2.4%	1,207,939		10,414,168				
CPI + 6% Annual										
<b>Oaktree</b>		3.5%	-0.5%	1,110,731		32,102,053				
MSCI ACWI +2% Blend										
<b>AQR</b>		3.0%	1.2%	918,450		30,222,118				
5% Annual										
<b>BlackRock Global Energy &amp; Power</b>		3.4%	-0.5%	776,108		22,706,488				
MSCI ACWI +2% Blend										
<b>Mesa West IV</b>		2.6%	-0.5%	762,708		29,459,557				
CPI + 6% Annual										
<b>Davidson Kempner</b>		1.6%	2.4%	567,895		34,480,593				
CPI + 6% Annual										
<b>HPS European</b>		1.8%	2.4%	372,620		20,406,329				
CPI + 6% Annual										
<b>PIMCO RAE Emerging Markets</b>		0.4%	-1.2%	297,277		79,063,012				
MSCI Emerging Markets										
<b>DoubleLine</b>		0.1%	0.0%	159,707		114,076,357				
BB Aggregate										
<b>Crestline Opportunity II</b>		0.4%	2.4%	73,833		18,787,084				
CPI + 6% Annual										
<b>Morgan Creek V</b>		0.0%	-0.5%	947		9,473,506				
MSCI ACWI +2% Blend										
<b>Mesa West III</b>		-14.9%	2.4%	(4,625)		31,041				
CPI + 6% Annual										
<b>Neuberger Berman</b>		0.0%	0.3%	(11,724)		106,585,329				
Global Credit Hybrid										
<b>Stone Harbor Absolute Return</b>		0.0%	0.0%	(18,298)		130,703,213				
3-Month Libor TR USD										
<b>GQG Emerging Markets</b>		-0.2%	-1.3%	(149,619)		65,051,537				
MSCI Emerging Markets										
<b>Stellax II</b>		-4.4%	-0.5%	(207,313)		4,689,279				
MSCI ACWI +2% Blend										
<b>Medley Opportunity II</b>		-3.2%	2.4%	(314,967)		9,904,617				
CPI + 6% Annual										
<b>Lombard Odier</b>		-0.9%	1.2%	(563,931)		59,423,753				
5% Annual										
<b>Dodge &amp; Cox Fixed Income</b>		-0.3%	0.0%	(693,703)		216,782,099				
BB Aggregate										
<b>Morgan Creek III</b>		-13.5%	-0.5%	(886,609)		6,571,365				
MSCI ACWI +2% Blend										
<b>Graham Tactical Trend</b>		-1.3%	-1.3%	(1148,987)		88,930,888				
SG Trend Index										
<b>White Oak Summit Peer</b>		-4.4%	2.4%	(1,630,370)		36,744,876				
CPI + 6% Annual										
<b>P/E Diversified Global Macro</b>		-5.9%	1.2%	(1,967,393)		33,464,750				
5% Annual										
<b>Mount Lucas</b>		-4.8%	1.8%	(4,558,868)		94,386,507				
BTOP 50										
<b>Total Portfolio MV as of 12/31/21</b>				<b>4,062,422,172</b>						

San Joaquin County Employees' Retirement Association: Manager Value-Added (Return)  
As of December 31, 2021

Manager/Mandate	12/31/2021	Manager Return	Benchmark Return	Dollar Impact	Benchmark Added Value	Manager BNAV	Manager Return 4Q 2021							
<div>SJCERA Total</div> <div>Policy Benchmark</div>		2.5%	2.7%	3,703,114,044		3,703,114,044	-15.0%	-10.0%	-5.0%	0.0%	5.0%	10.0%	15.0%	20.0%
Ocean Avenue III		16.4%	-0.5%	8,429,826		51,341,899								
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Invesco REIT		15.6%	16.3%	8,646,782		55,413,880								
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Total Portfolio MV as of 12/31/21				4,062,422,172										

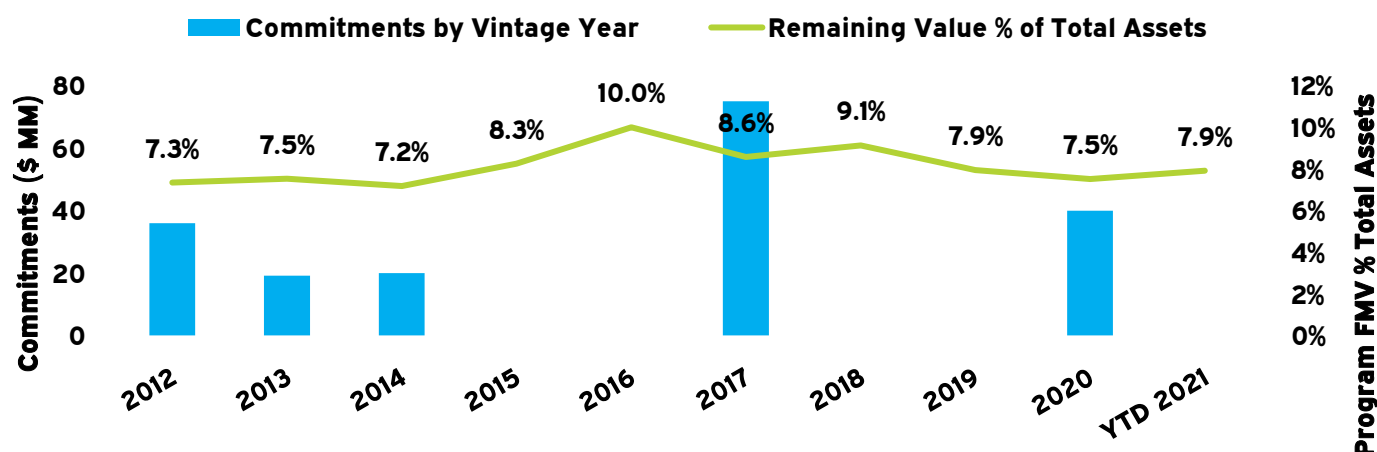
# **Real Estate Program**

## **December 31, 2021**

I	OVERVIEW
II	PROGRAM ACTIVITY
	Commitments
	Cash Flows
	Significant Events
III	PERFORMANCE ANALYSIS
	By Strategy and Vintage
	Across Time Periods
	Net Changes in Value
	Fund Performance: Sorted by Vintage and Strategy
IV	DIVERSIFICATION: FUND LEVEL
	Strategy
	Vintage
	Geographic Focus
V	Market Analysis
	END NOTES AND DISCLOSURES

### Introduction

The Retirement Association's target allocation towards real estate assets is 10-12%. As of September 30, 2021, 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 \$304.2 million at quarter-end.



### Program Status

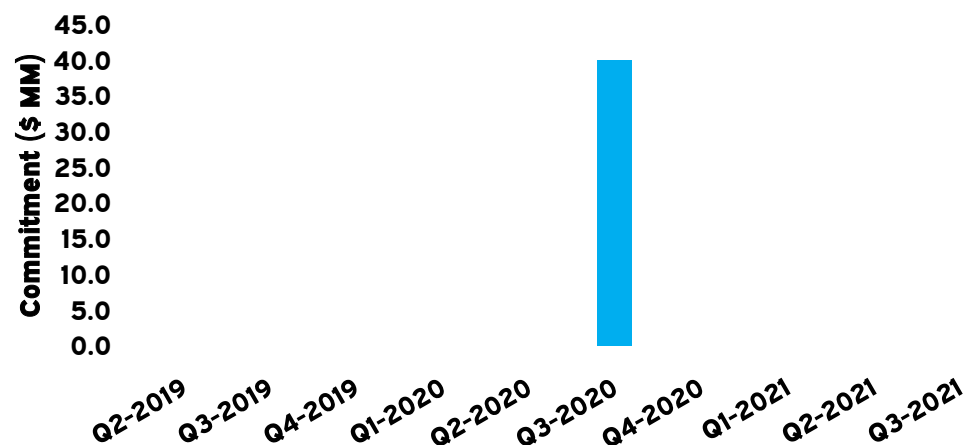
No. of Investments	18
Committed (\$ MM)	501.6
Contributed (\$ MM)	434.7
Distributed (\$ MM)	332.0
Remaining Value (\$ MM)	304.2

### Performance Since Inception

	Program
DPI	0.76x
TVPI	1.46x
IRR	7.0%

### Commitments

#### Recent Quarterly Commitments



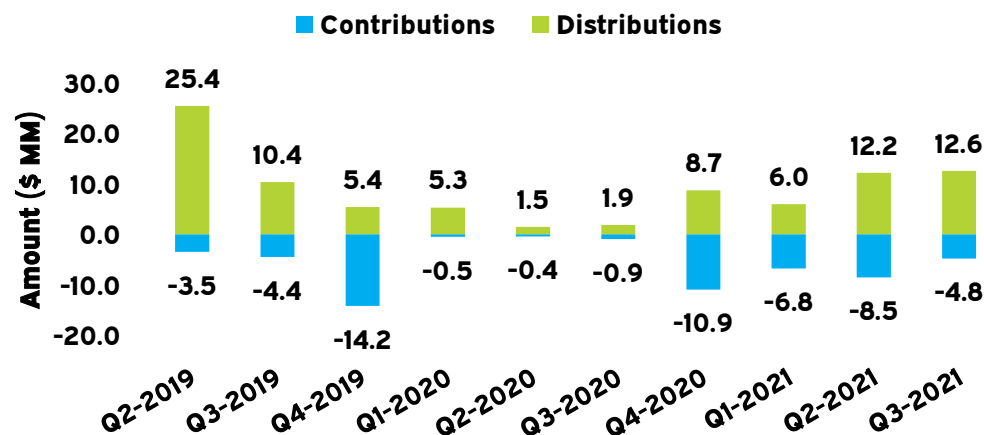
#### Commitments This Quarter

Fund	Strategy	Region	Amount (MM)
------	----------	--------	-------------

None to report.

### Cash Flows

#### Recent Quarterly Cash Flows



#### Largest Contributions This Quarter

Fund	Vintage	Strategy	Region	Amount (\$MM)
Stockbridge RE III	2017	Value-Added	North America	3.08
Berkeley V	2020	Value-Added	North America	1.08
Prologis Logistics	1970	Core	North America	0.60

#### Largest Distributions This Quarter

Fund	Vintage	Strategy	Region	Amount (\$MM)
Stockbridge RE III	2017	Value-Added	North America	10.13
AG Core Plus IV	2014	Value-Added	North America	1.30
Prologis Logistics	1970	Core	North America	0.60

## Significant Events

- During the third quarter, Stockbridge Value Fund III made distributions totaling \$82.0 million, primarily funded from operating cash flows, as well as the sale of Port America, which closed on September 1, 2021 for a gross sales price of \$123.0 million. Stockbridge Fund III also called \$24.3 million from investors in the third quarter to pay down the outstanding balance on the Partnership's credit facility. Additionally, the Fund achieved an outsized appreciation return of 19.2%, resulting in a 17.0% net change in value percentage for the Retirement Association's investment.
- In the third quarter of 2021, Berkeley Partners Value Industrial Fund V made two new acquisitions: 1323 East 34th Avenue, a vacant building that represents the Firm's re-entry into the Seattle market, and 1 Puzzle Lane, a class A warehouse building in Newton, New Hampshire. Additionally, prior to quarter-end on September 27th, Berkeley V closed on the disposition of one of the buildings acquired in the Campus at Longmont portfolio for \$11.1 million.
- In August 2021, AG Core Plus Realty Fund IV closed on the sale of Silverstream Apartment, a 300-unit multifamily property located in greater Houston, Texas, after increasing occupancy from 80%-95% during the hold period.
- During the third quarter, Prologis Targeted US Logistics Fund's net asset value per unit increased to \$2,572.79, representing an increase of 12.4% from prior quarter. The valuation increase was largely driven by unrealized gains on the portfolio's real estate investments resulting from the strong customer demand, tight vacancy rates, and rapid rent growth in the market.
- During the third quarter, real estate valuation adjustments for RREEF America REIT II's portfolio resulted in an increase of approximately \$632 million from prior market values as a result of the Fund's strategic overweight to the industrial sector, which was written up by around \$440 million.



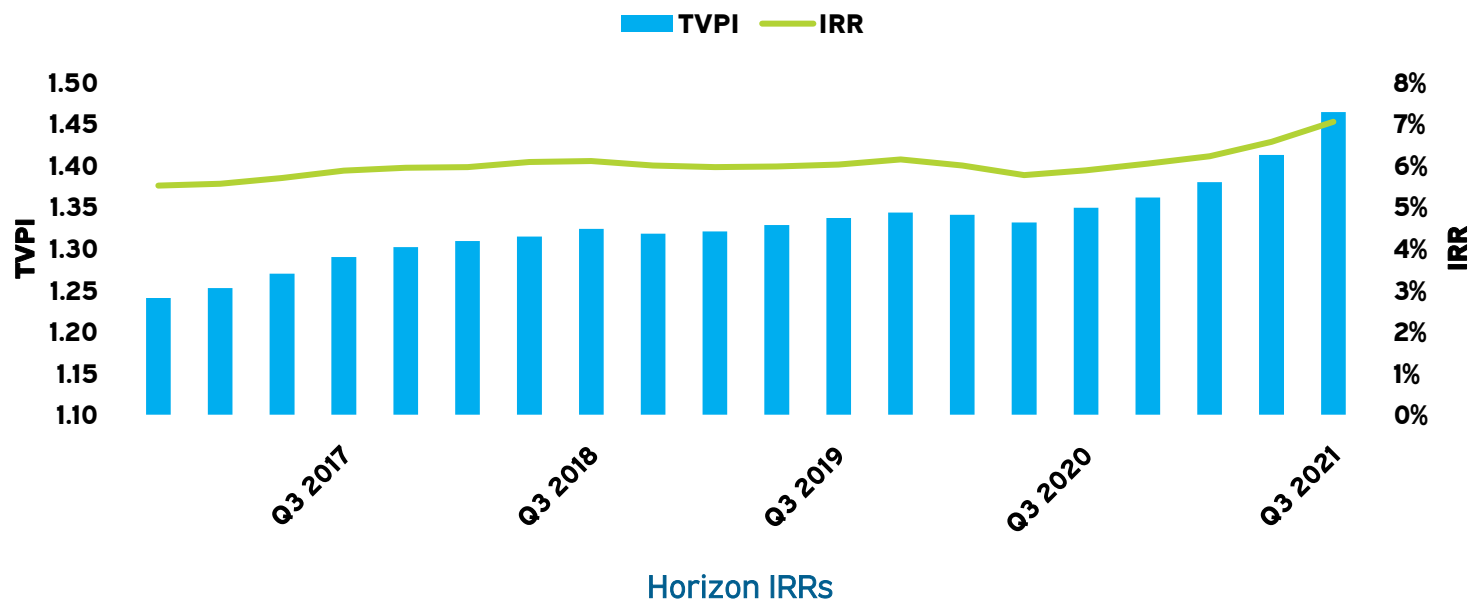
### By Strategy

Group	Number	Committed (\$ MM)	Contributed (\$ MM)	Unfunded (\$ MM)	Distributed (\$ MM)	Remaining Value (\$ MM)	Exposure (\$ MM)	DPI (X)	TVPI (X)	IRR (%)
Core	3	120.5	124.1	0.0	27.8	189.6	189.6	0.22	1.75	7.5
Opportunistic	9	204.1	180.4	25.1	198.5	40.9	66.1	1.10	1.33	5.5
Value-Added	6	177.0	130.2	48.5	105.7	73.6	122.1	0.81	1.38	9.9
<b>Total</b>	<b>18</b>	<b>501.6</b>	<b>434.7</b>	<b>73.6</b>	<b>332.0</b>	<b>304.2</b>	<b>377.8</b>	<b>0.76</b>	<b>1.46</b>	<b>7.0</b>

### By Vintage

Group	Number	Committed (\$ MM)	Contributed (\$ MM)	Unfunded (\$ MM)	Distributed (\$ MM)	Remaining Value (\$ MM)	Exposure (\$ MM)	DPI (X)	TVPI (X)	IRR (%)
Open-end	3	120.5	124.1	0.0	27.8	189.6	189.6	0.22	1.75	7.5
2005	2	45.0	44.5	0.5	37.6	2.1	2.6	0.85	0.89	-1.4
2007	4	96.0	84.0	12.0	114.9	6.3	18.3	1.37	1.44	7.3
2011	2	50.0	38.3	11.7	47.2	4.1	15.8	1.23	1.34	9.6
2012	2	36.0	33.9	2.9	48.8	0.0	2.9	1.44	1.44	12.4
2013	1	19.1	18.3	0.8	21.5	9.3	10.1	1.18	1.69	13.2
2014	1	20.0	19.0	1.8	7.9	18.1	19.8	0.41	1.36	8.8
2017	2	75.0	61.5	15.0	26.3	60.3	75.3	0.43	1.41	18.3
2020	1	40.0	11.3	28.9	0.1	14.5	43.4	0.01	1.29	NM
<b>Total</b>	<b>18</b>	<b>501.6</b>	<b>434.7</b>	<b>73.6</b>	<b>332.0</b>	<b>304.2</b>	<b>377.8</b>	<b>0.76</b>	<b>1.46</b>	<b>7.0</b>

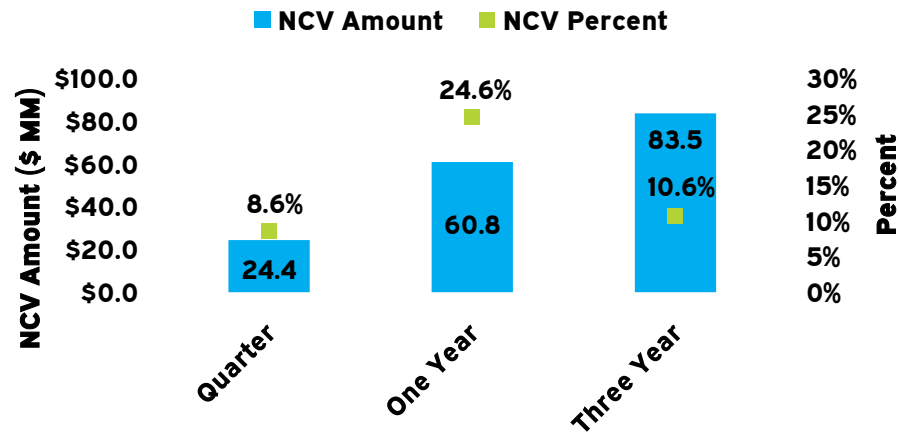
#### Since Inception Performance Over Time



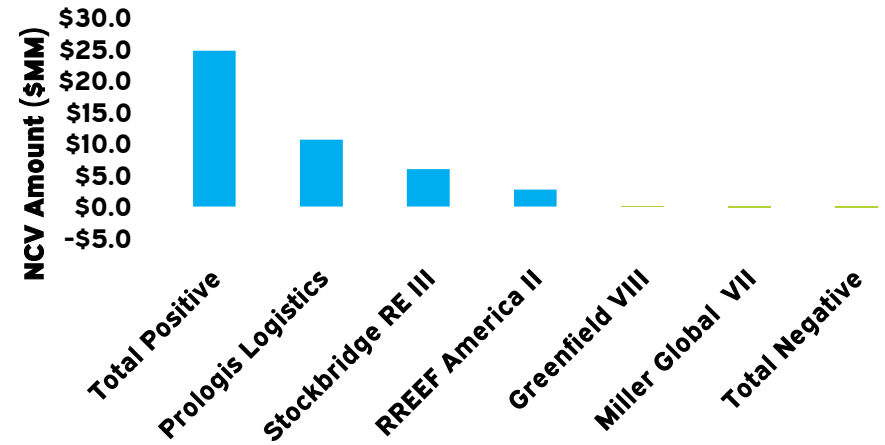
#### Horizon IRRs

	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)	Since Inception (%)
Aggregate Portfolio	24.0	10.6	10.0	11.0	7.0
Public Market Equivalent	40.6	8.9	6.1	10.5	8.7

Periodic NCV



1 Quarter Drivers Of NCV



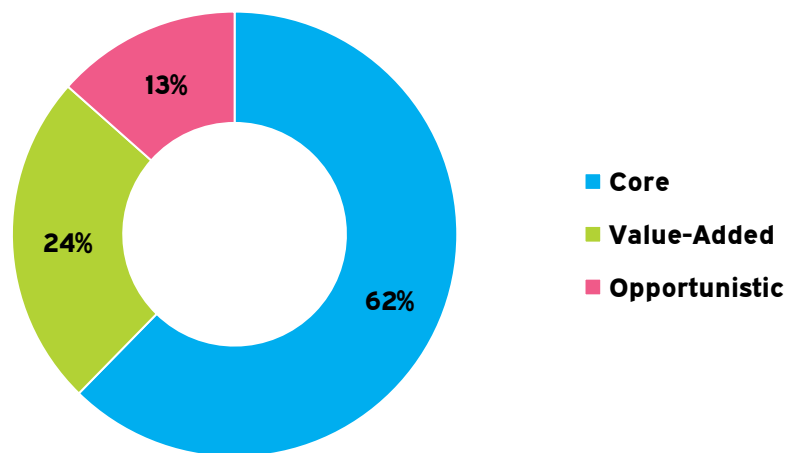
### Fund Performance: Sorted By Vintage And Strategy

By Investment	Vintage	Strategy	Committed (\$ MM)	Contributed (\$ MM)	Unfunded (\$ MM)	Distributed (\$ MM)	Remaining Value (\$ MM)	TVPI (X)	Peer TVPI (X)	IRR (%)	Peer IRR (%)
Principal US	Open-end	Core	25.0	25.0	0.0	0.0	38.3	1.53	NA	7.6	NA
Prologis Logistics	Open-end	Core	50.5	54.1	0.0	19.5	96.1	2.14	NA	7.6	NA
RREEF America II	Open-end	Core	45.0	45.0	0.0	8.3	55.2	1.41	NA	7.2	NA
Miller GLocal Fund V	2005	Opportunistic	15.0	14.5	0.5	17.6	0.0	1.21	1.20	3.4	4.5
Walton Street V	2005	Opportunistic	30.0	30.0	0.0	20.1	2.1	0.74	1.20	-3.3	4.5
Greenfield V	2007	Opportunistic	30.0	29.6	0.4	40.4	0.2	1.37	1.21	8.3	6.7
Miller Global VI	2007	Opportunistic	30.0	21.1	8.9	32.4	0.9	1.58	1.21	7.7	6.7
Walton Street VI	2007	Opportunistic	15.0	13.3	1.7	15.2	5.2	1.53	1.21	7.9	6.7
Colony Realty III	2007	Value-Added	21.0	20.0	1.0	26.9	0.0	1.35	1.21	5.3	6.7
Greenfield VI	2011	Opportunistic	20.0	19.2	0.8	26.2	0.1	1.37	1.60	9.6	18.3
Almanac Realty VI	2011	Value-Added	30.0	19.1	10.9	21.0	4.0	1.31	1.60	9.5	18.3
Miller Global VII	2012	Opportunistic	15.0	12.1	2.9	15.9	0.0	1.32	1.55	14.2	14.0
Colony Realty IV	2012	Value-Added	21.0	21.7	0.0	32.9	0.0	1.51	1.55	11.9	14.0
Greenfield VII	2013	Opportunistic	19.1	18.3	0.8	21.5	9.3	1.69	1.54	13.2	15.6
AG Core Plus IV	2014	Value-Added	20.0	19.0	1.8	7.9	18.1	1.36	1.57	8.8	14.1
Greenfield VIII	2017	Opportunistic	30.0	22.4	9.1	9.3	23.2	1.45	1.22	19.4	10.3
Stockbridge RE III	2017	Value-Added	45.0	39.1	5.9	16.9	37.1	1.38	1.22	17.6	10.3

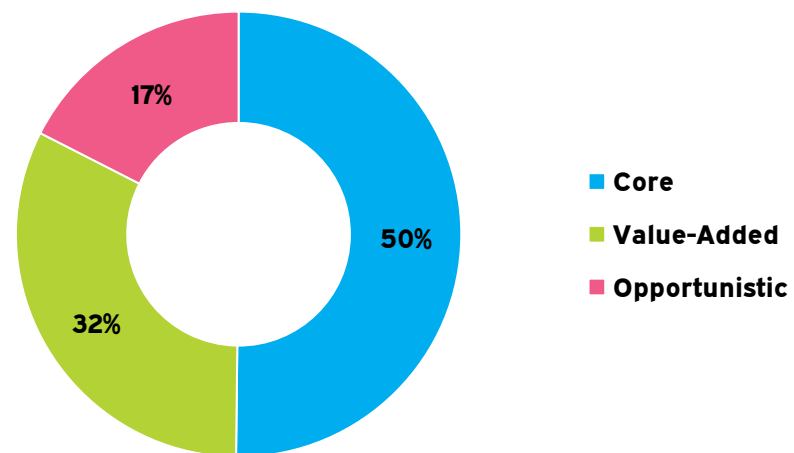
By Investment	Vintage	Strategy	Committed (\$ MM)	Contributed (\$ MM)	Unfunded (\$ MM)	Distributed (\$ MM)	Remaining Value (\$ MM)	TVPI (X)	Peer TVPI (X)	IRR (%)	Peer IRR (%)
Berkeley V	2020	Value-Added	40.0	11.3	28.9	0.1	14.5	1.29	1.04	NM	NM
<b>Total</b>			<b>501.6</b>	<b>434.7</b>	<b>73.6</b>	<b>332.0</b>	<b>304.2</b>	<b>1.46</b>	<b>NA</b>	<b>7.0</b>	<b>NA</b>

#### By Strategy

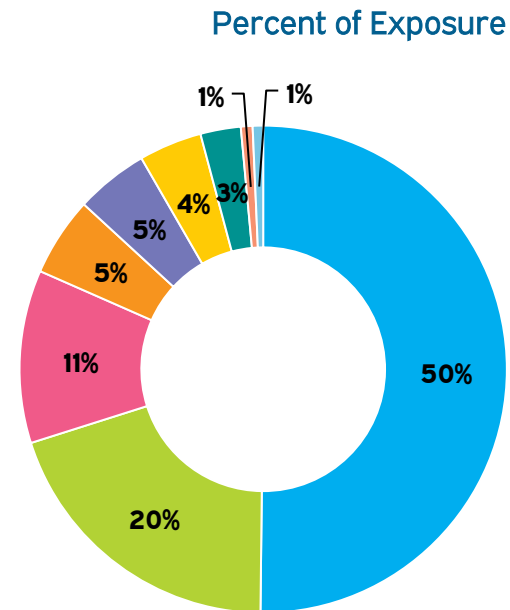
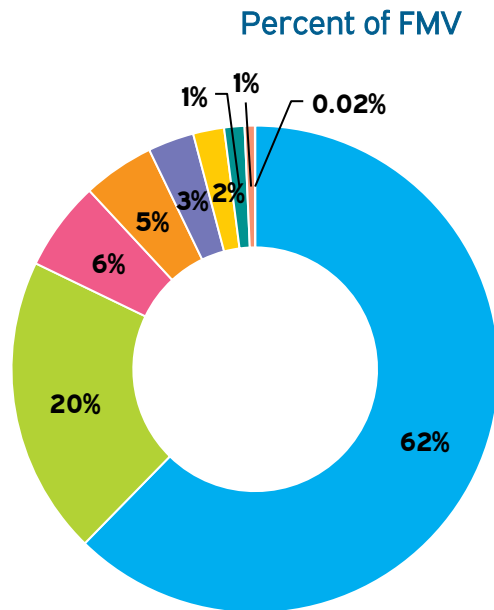
Percent of FMV



Percent of Exposure

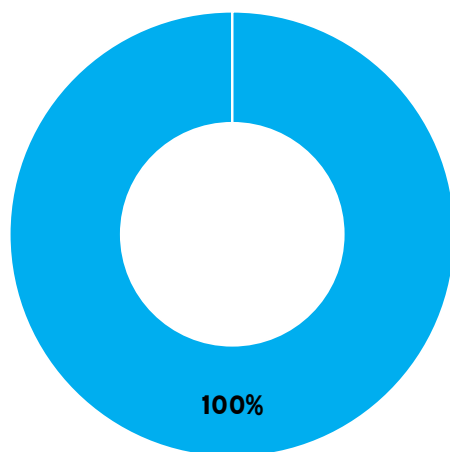


#### By Vintage



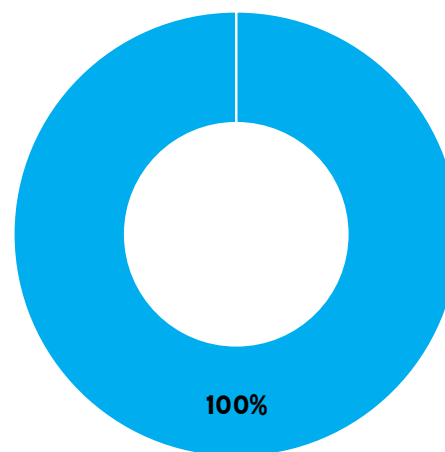
#### By Geographic Focus

Percent of FMV



■ North America

Percent of Exposure



■ North America



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

<b>Committed</b>	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.
<b>Contributed</b>	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.
<b>Distributed</b>	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.
<b>DPI</b>	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.
<b>Exposure</b>	Represents the sum of the investor's Unfunded and Remaining Value.
<b>IRR</b>	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.
<b>NCV</b>	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.
<b>NM</b>	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.

### Peer Universe

The performance for a set of comparable private market funds. The peer returns used in this report are provided by Preqin, based on data as of September 30, 2021. Fund-level peer performance represents the median return for a set of funds of the same vintage and the program's set of corresponding strategies across all regions globally. Data sets that include less than five funds display performance as "NM". Meketa utilizes the following Preqin strategies for peer universes:

Infrastructure: Infrastructure

Natural Resources: Natural Resources

Private Debt: Private Debt

Private Equity (including Private Debt): Private Equity, Private Debt

Private Equity (excluding Private Debt): Private Equity

Real Assets (excluding Real Estate): Infrastructure, Natural Resources

Real Assets (including Real Estate): Infrastructure, Natural Resources, Real Estate

Real Estate: Real Estate

### 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: Barclays Capital U.S. Corporate High Yield 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.

The material contained in this report is confidential and may not be reproduced, disclosed, or distributed, in whole or in part, to any person or entity other than the intended recipient. The data are provided for informational purposes only, may not be complete, and cannot be relied upon for any purpose other than for discussion.

Meketa Investment Group has prepared this report on the basis of sources believed to be reliable. The data are based on matters as they are known as of the date of preparation of the report, and not as of any future date, and will not be updated or otherwise revised to reflect information that subsequently becomes available.

If we manage your assets on a discretionary basis, please contact us if there are any changes in your financial situation or investment objectives, or if you want to impose any reasonable restrictions on our management of your account or reasonably modify existing restrictions.

In general, the valuation numbers presented in this report are prepared by the custodian bank for listed securities, and by the fund manager or appropriate General Partner in the case of unlisted securities. The data used in the market comparison sections of this report are sourced from various databases. These data are continuously updated and are subject to change.

This report does not contain all the information necessary to fully evaluate the potential risks of any of the investments described herein. Because of inherent uncertainties involved in the valuations of investments that are not publicly traded, any estimated fair values shown in this report may differ significantly from the values that would have been used had a ready market for the underlying securities existed, and the differences could be material.

This document may contain certain forward-looking statements, forecasts, estimates, projections, and opinions ("Forward Statements"). No representation is made or will be made that any Forward Statements will be achieved or will prove to be correct. A number of factors, in addition to any risk factors stated in this material, could cause actual future results to vary materially from the Forward Statements. No representation is given that the assumptions disclosed in this document upon which Forward Statements may be based are reasonable. There can be no assurance that the investment strategy or objective of any fund or investment will be achieved, or that the client will receive a return of the amount invested.

In some cases Meketa Investment Group assists the client in handling capital calls or asset transfers among investment managers. In these cases we do not make any representations as to the managers' use of the funds, but do confirm that the capital called or transferred is within the amounts authorized by the client.

Because there is no readily accessible market for private markets assets (companies and partnerships), the values placed on private markets assets are calculated by General Partners using conservative and industry standard pricing procedures. Annually, an independent auditor reviews the pricing procedures employed by the General Partner of each partnership.

The values of companies and partnerships are audited at year-end, and are not audited at other quarter-end periods. While financial information may be audited, there is some discretion as to the method employed to price private companies and, therefore, private markets partnerships. At all times, Meketa Investment Group expects General Partners to utilize conservative and industry standard pricing procedures, and requires the General Partners to disclose those procedures in their reports. However, because of the inherent uncertainty of valuation, these estimated values may differ from the values that would be used if a ready market for the investments existed, and the differences could be significant.

## Capital Markets Outlook & Risk Metrics

As of December 31, 2021

## Capital Markets Outlook

### Markets

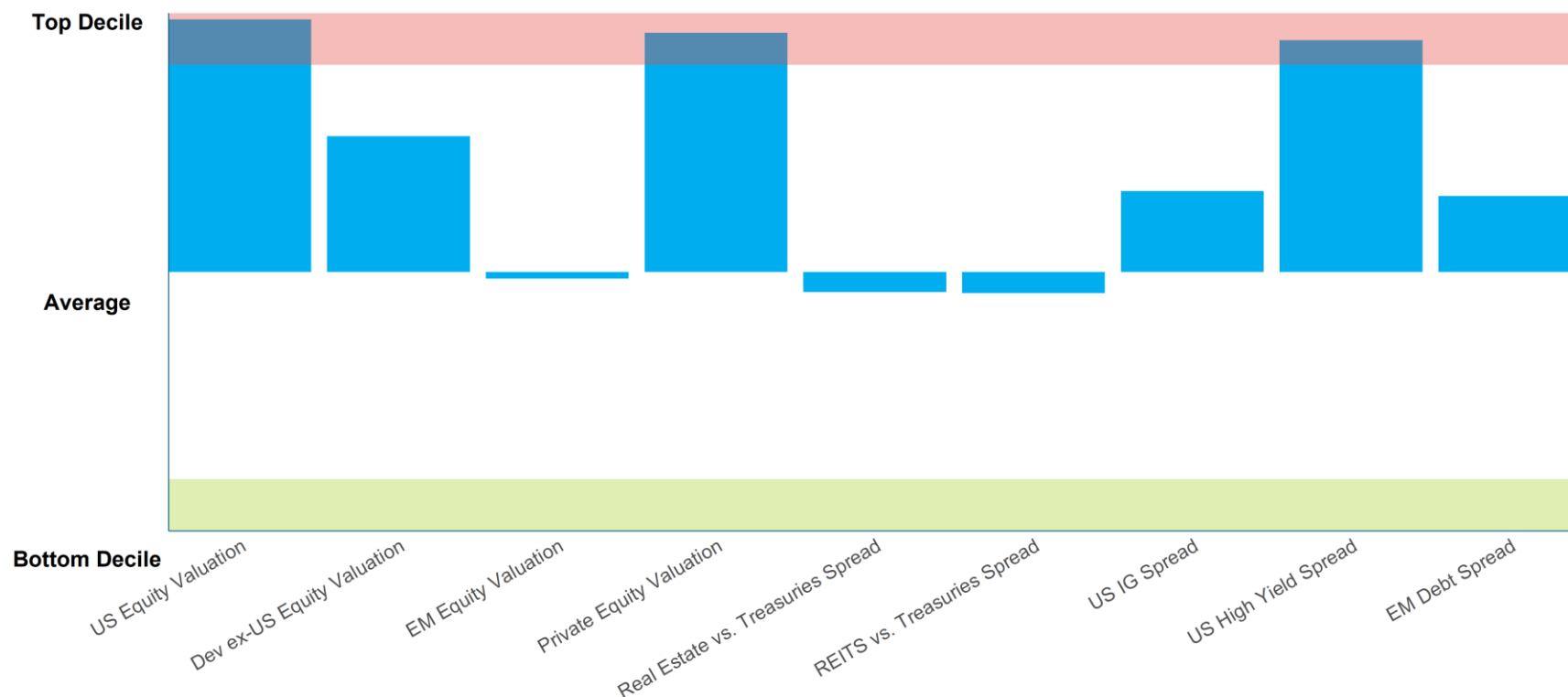
- Global markets generally posted positive returns in December, shaking-off Omicron variant and inflation concerns. In the US, the Fed indicated that tightening of policy may be brought forward with a more rapid reduction in asset purchases in 2022.
- China's equity market bucked the trend, posting negative returns due primarily to concerns about an economic slowdown linked to the real estate sector.
- In the US, large cap stocks outperformed midcap and small cap stocks, and value stocks beat growth stocks. While large cap value and growth stocks performed similarly in 2021, smaller cap value substantially outperformed small growth stocks for the year.
- Non-US developed markets rallied in December, with the EAFE modestly outperforming the S&P 500.
- In spite of negative returns in China, the broad emerging markets index posted gains. EM value stocks outperformed growth stocks in December and for the calendar year.
- The investment grade bond market produced negative returns in December, as inflation continued to weigh on nominal bond returns. However, TIPS and high yield bonds delivered positive returns.
- REITs and infrastructure stocks delivered very strong returns in December.
- After a difficult November, commodities returned to positive territory, offering support for natural resource stocks which posted strong returns.

## Capital Markets Outlook

### Markets

- US headline inflation climbed to a near 40-year high in November, as consumer prices rose 6.8% year-on-year, largely driven by higher energy costs, which rose 33%. Still, core inflation (ex-food and energy) rose 4.9% year-on-year.
- In China, Evergrande officially defaulted on \$300 billion in debt and its shares were suspended from trading in Hong Kong. Policy makers cut borrowing costs and urged local governments and state-owned companies to finish real estate projects started by Evergrande. Concerns regarding other real estate developers continue to mount as the government steps in to support growth.
- While COVID continues to spread in developed and emerging markets, the Omicron variant has thus far proved to be less severe than the Delta variant, giving investors hope that recent travel bans and lockdowns might soon be rolled back.

### Risk Overview/Dashboard (1) (As of December 31, 2021)<sup>1</sup>

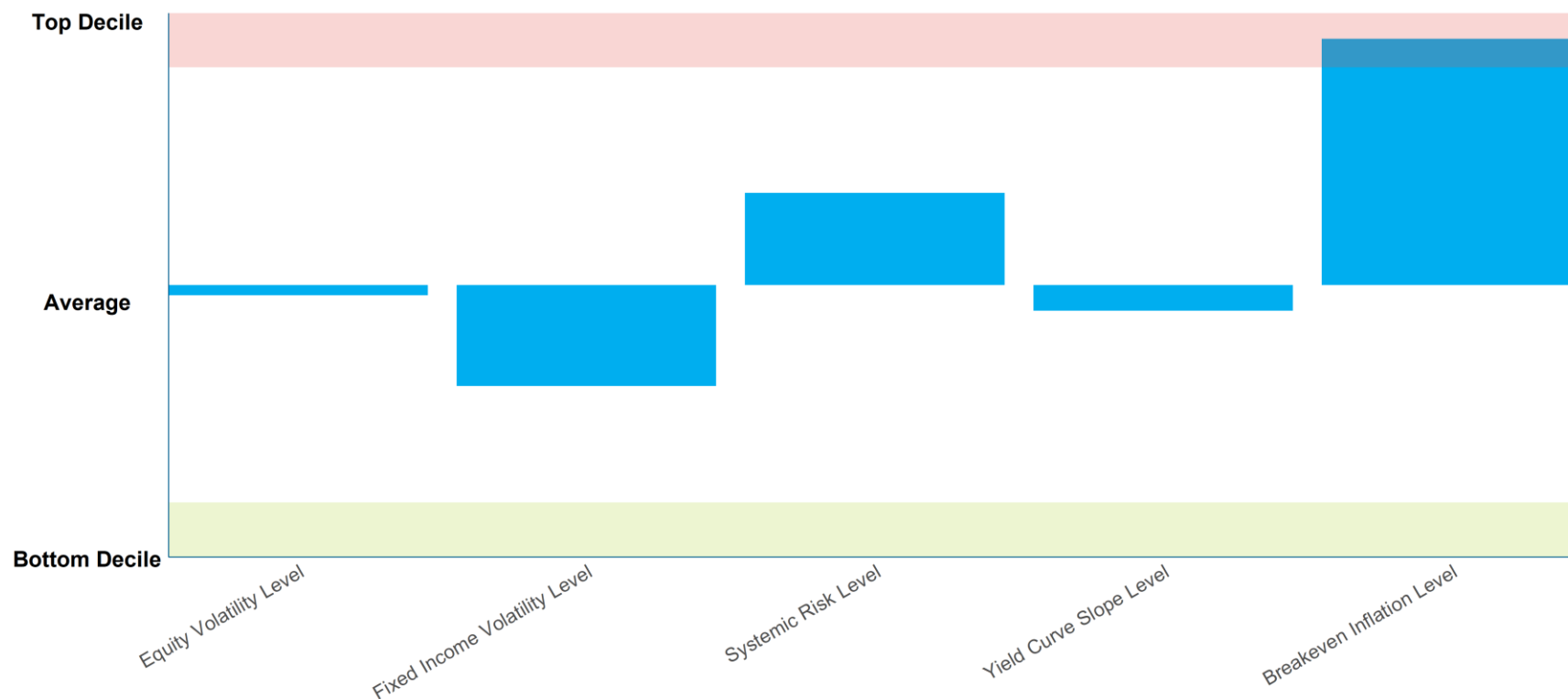


- Dashboard (1) summarizes the current state of the different valuation metrics per asset class relative to their own history.

<sup>1</sup> With the exception of Private Equity Valuation, that is YTD as of December 31, 2020.

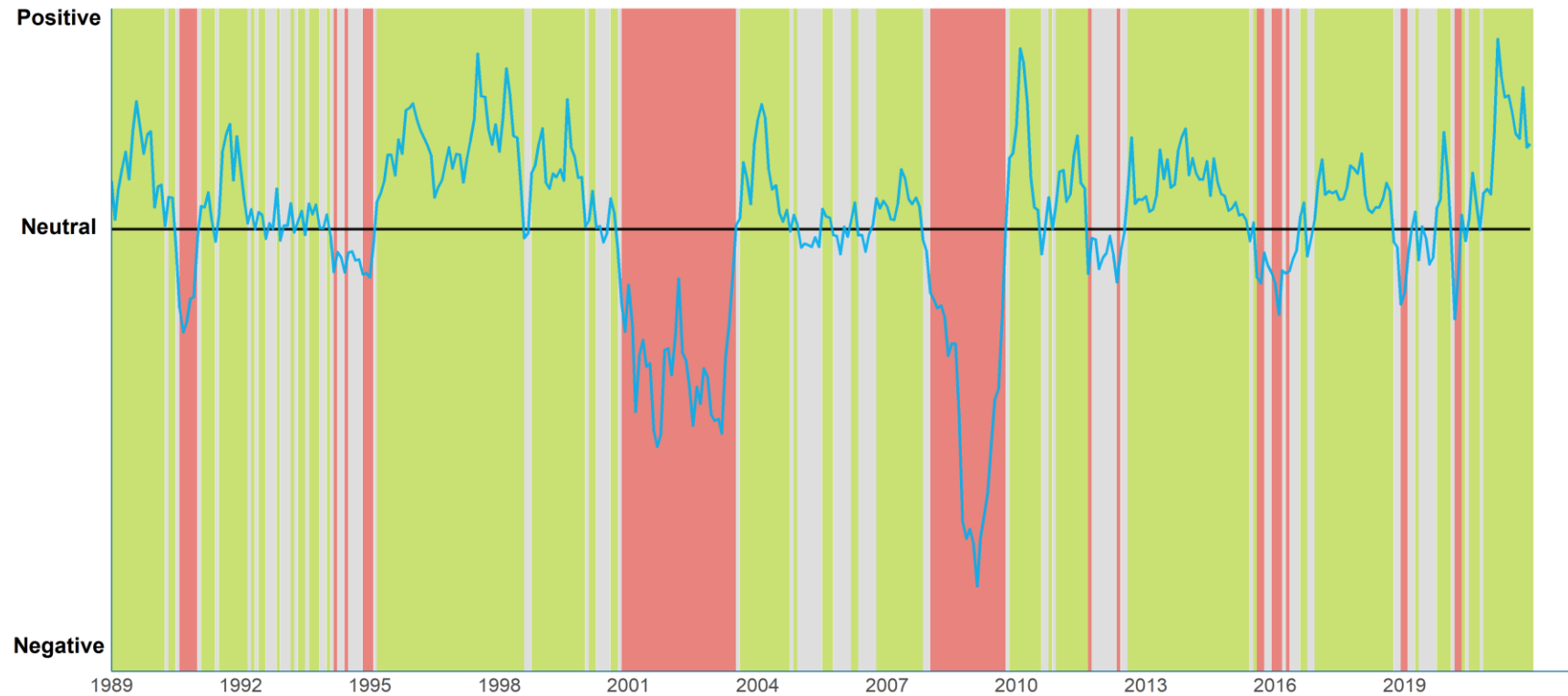


### Risk Overview/Dashboard (2) (As of December 31, 2021)

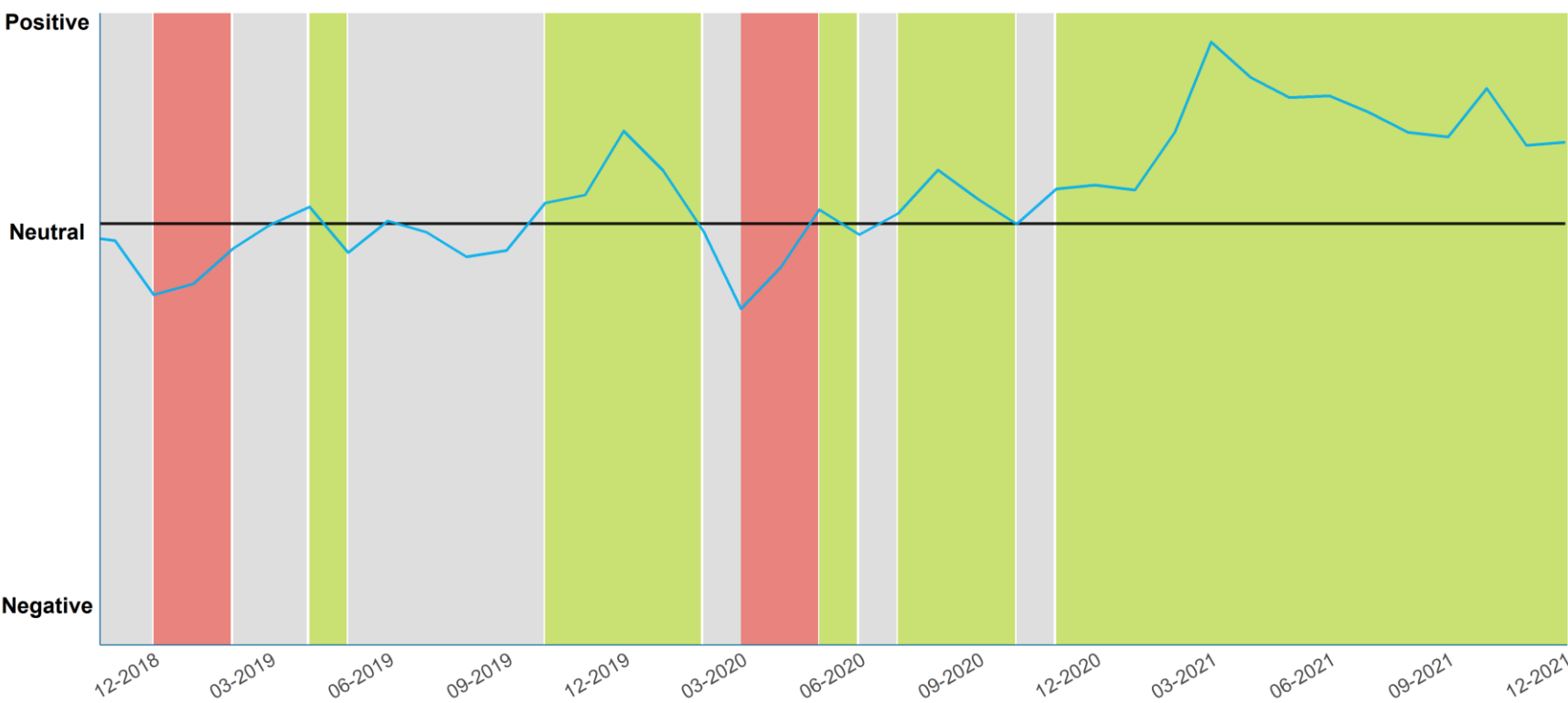


- Dashboard (2) shows how the current level of each indicator compares to its respective history.

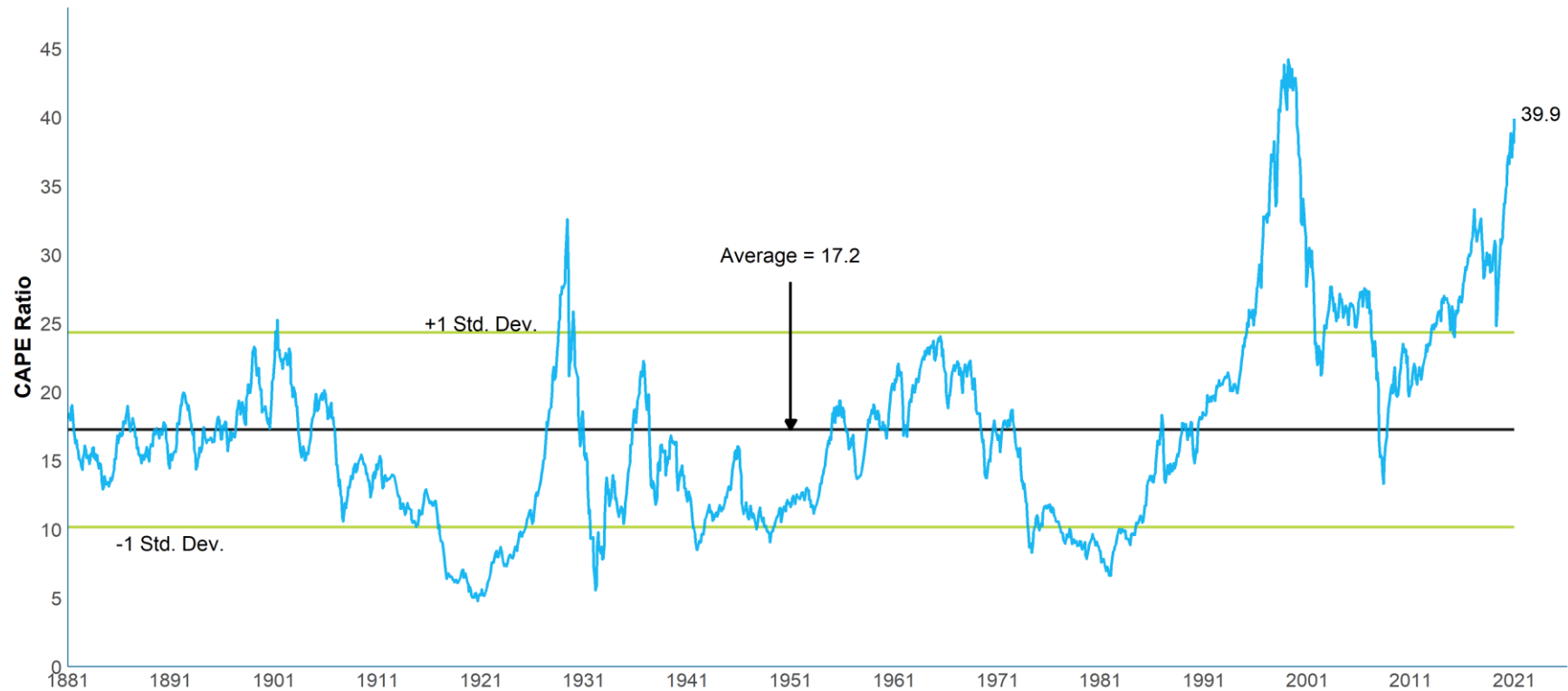
Market Sentiment Indicator (All History)  
(As of December 31, 2021)



Market Sentiment Indicator (Last Three Years)  
(As of December 31, 2021)



### US Equity Cyclically Adjusted P/E<sup>1</sup> (As of December 31, 2021)



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

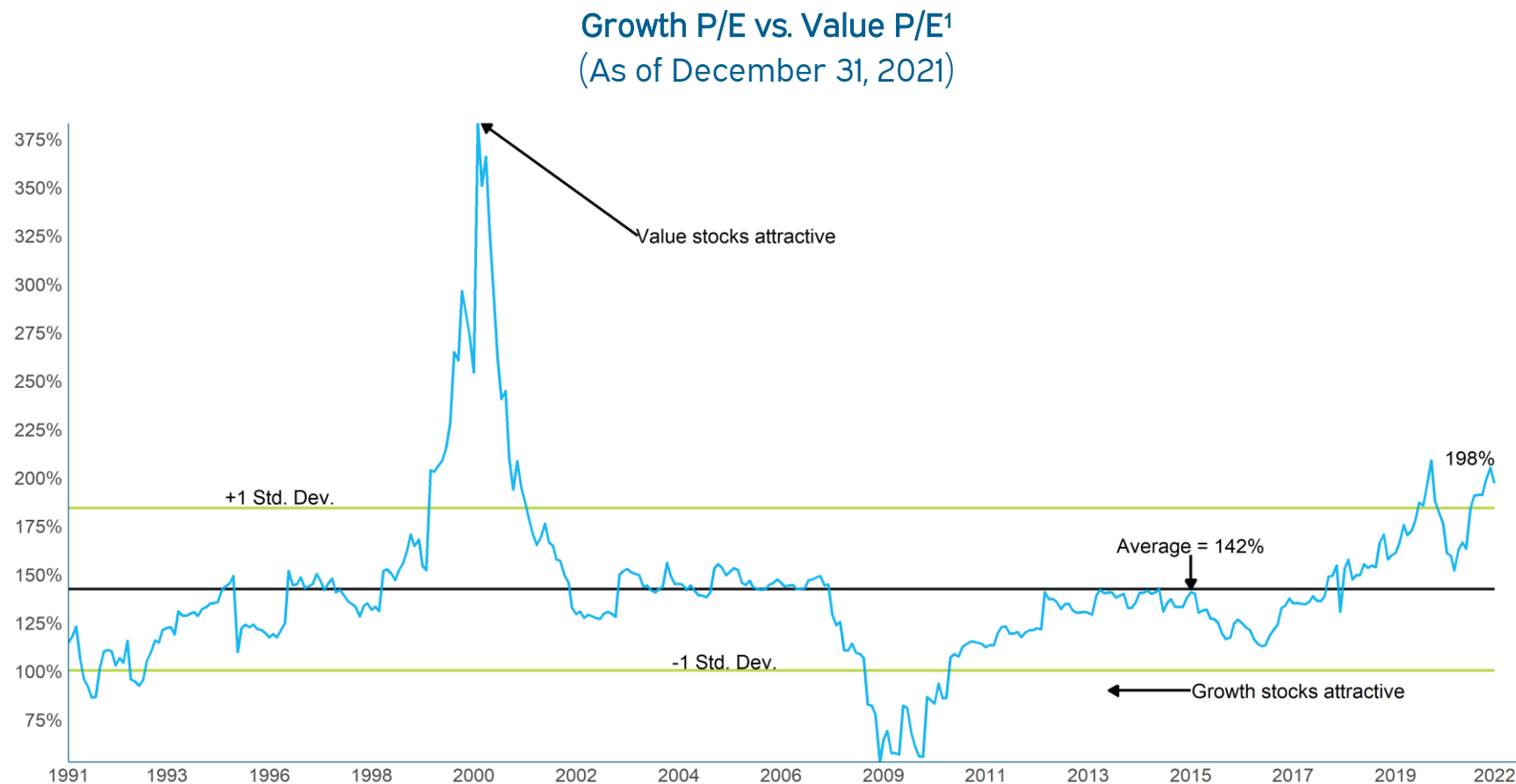
<sup>1</sup> US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group.

### Small Cap P/E vs. Large Cap P/E<sup>1</sup> (As of December 31, 2021)



- 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.

<sup>1</sup> 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.



- 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.

<sup>1</sup> 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.

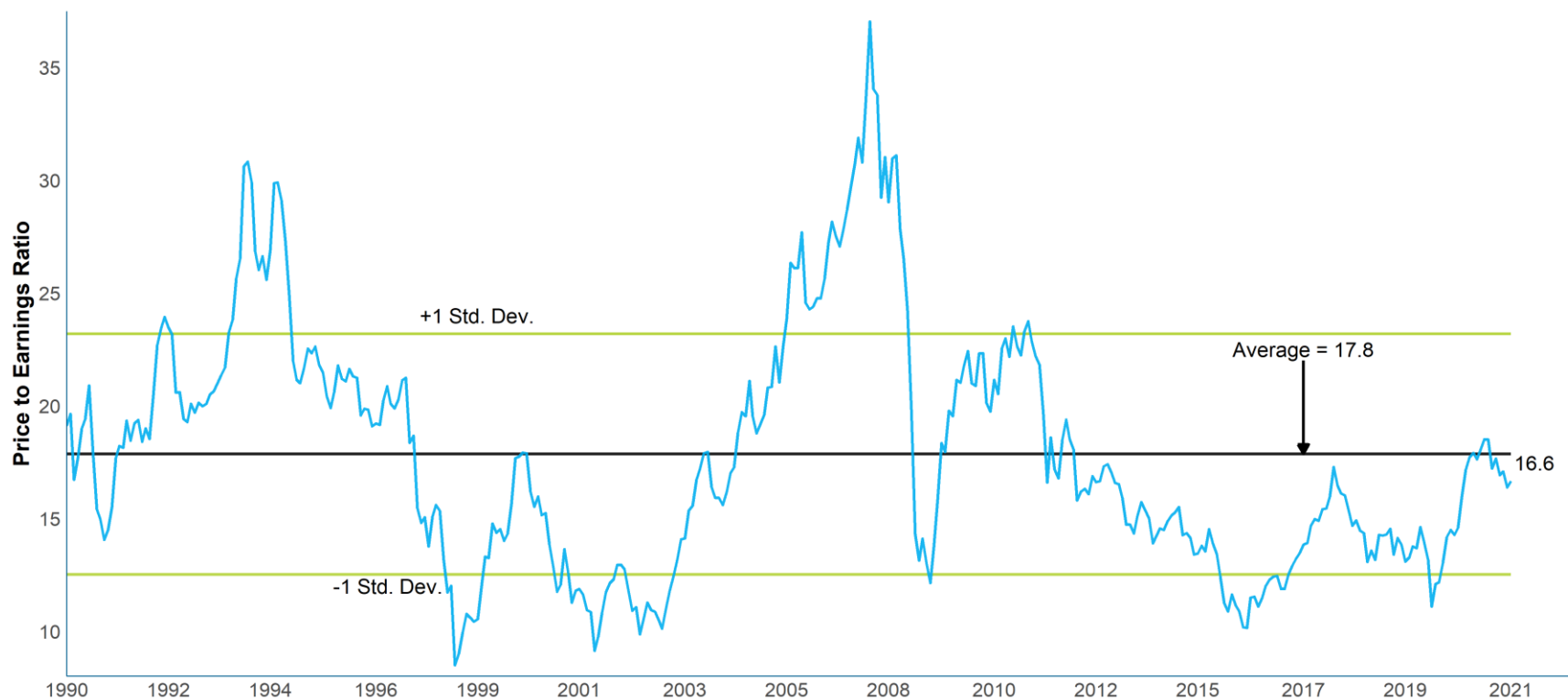
### Developed International Equity Cyclically Adjusted P/E<sup>1</sup> (As of December 31, 2021)



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

<sup>1</sup> 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<sup>1</sup> (As of December 31, 2021)

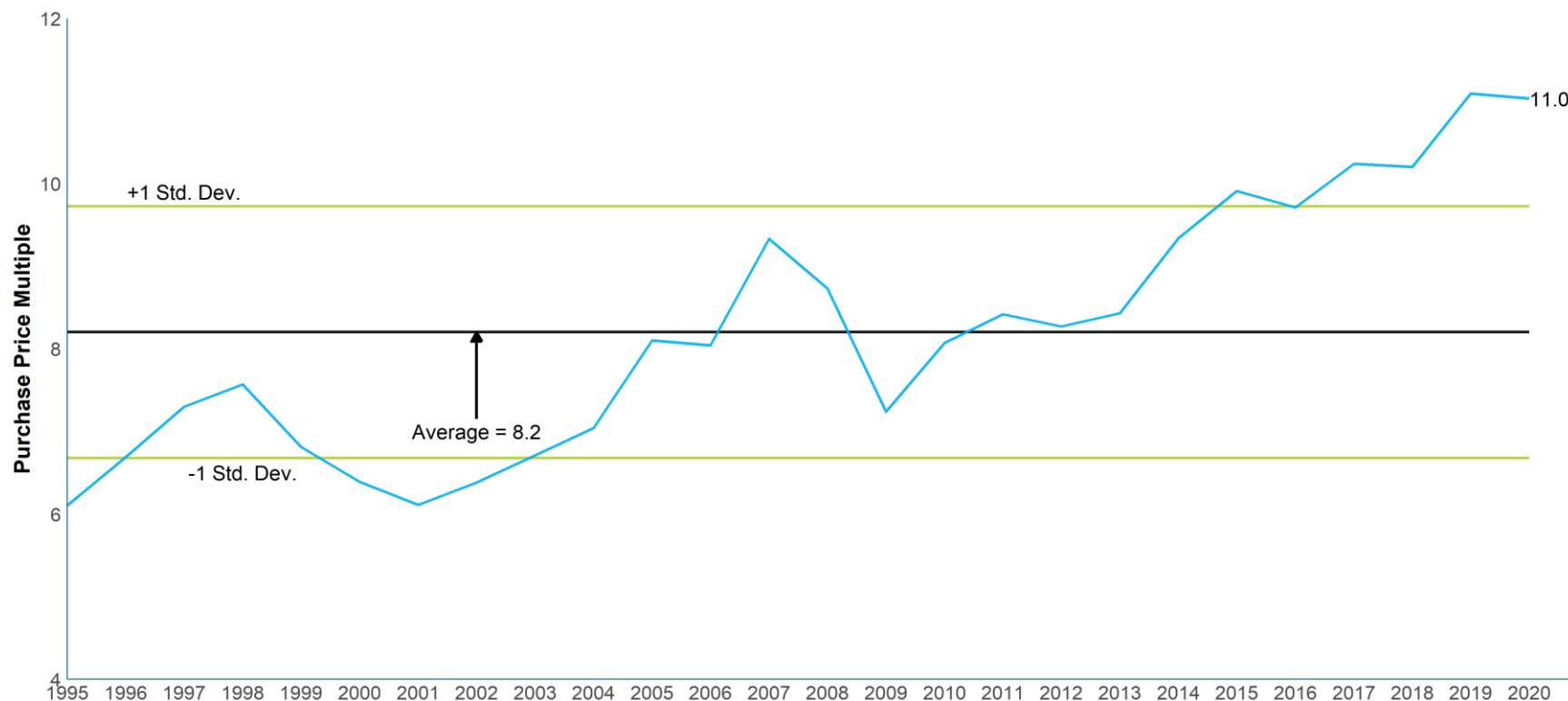


- This chart details one valuation metric for emerging markets equities. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

<sup>1</sup> 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<sup>1</sup> (As of February 28, 2021)<sup>2</sup>

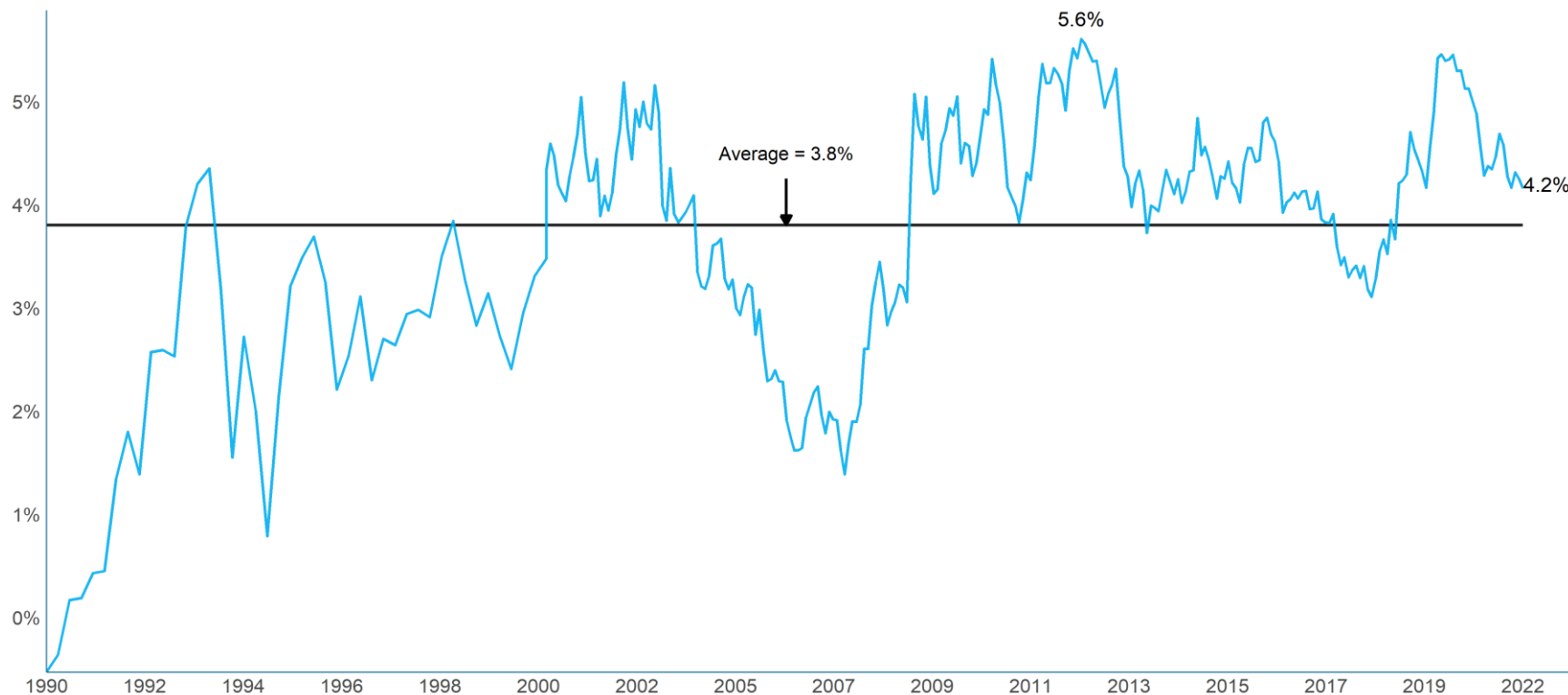


- This chart details one valuation metric for the private equity market. A higher (lower) figure indicates more expensive (cheaper) valuation relative to history.

<sup>1</sup> Private Equity Multiples – Source: S&P LCD Average EBITDA Multiples Paid in All LBOs.

<sup>2</sup> Annual Data, as of December 31, 2020

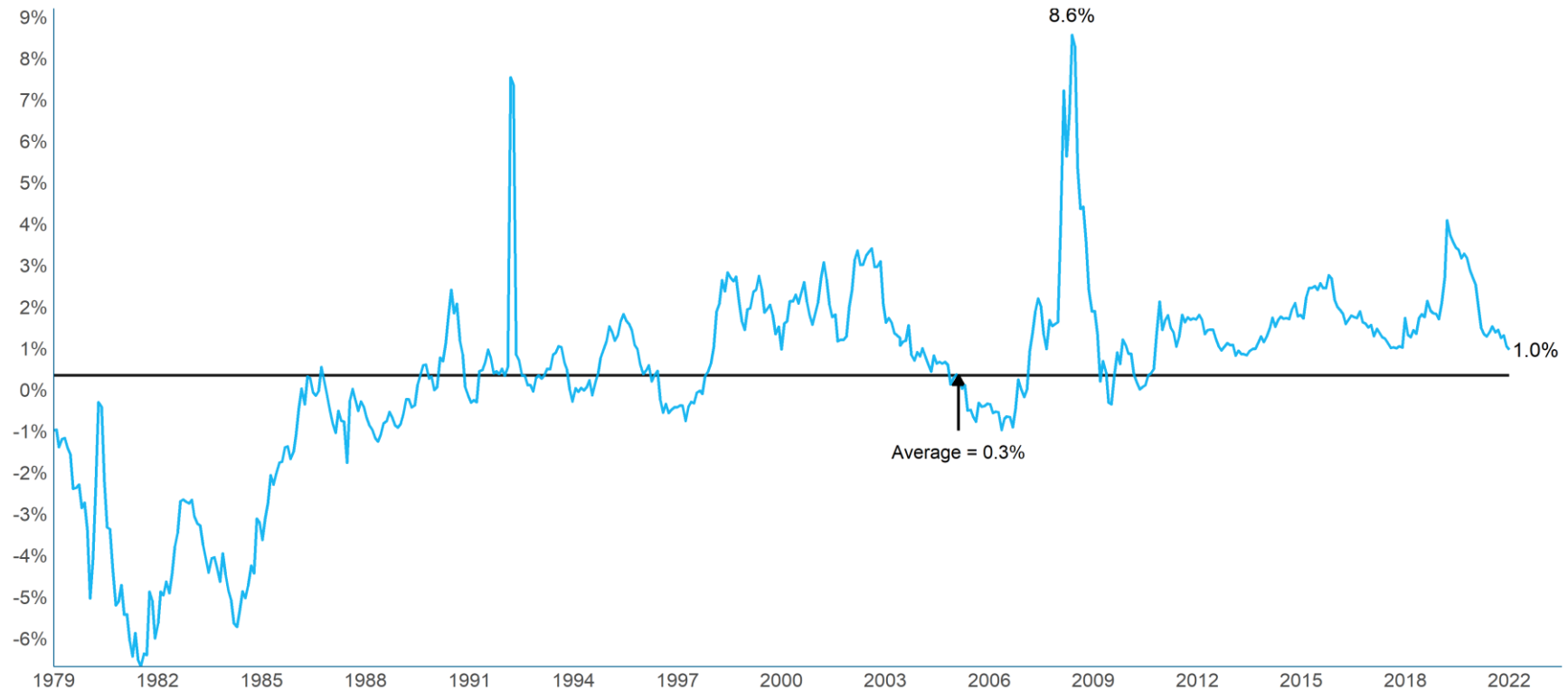
### Core Real Estate Spread vs. Ten-Year Treasury<sup>1</sup> (As of December 31, 2021)



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

<sup>1</sup> 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.

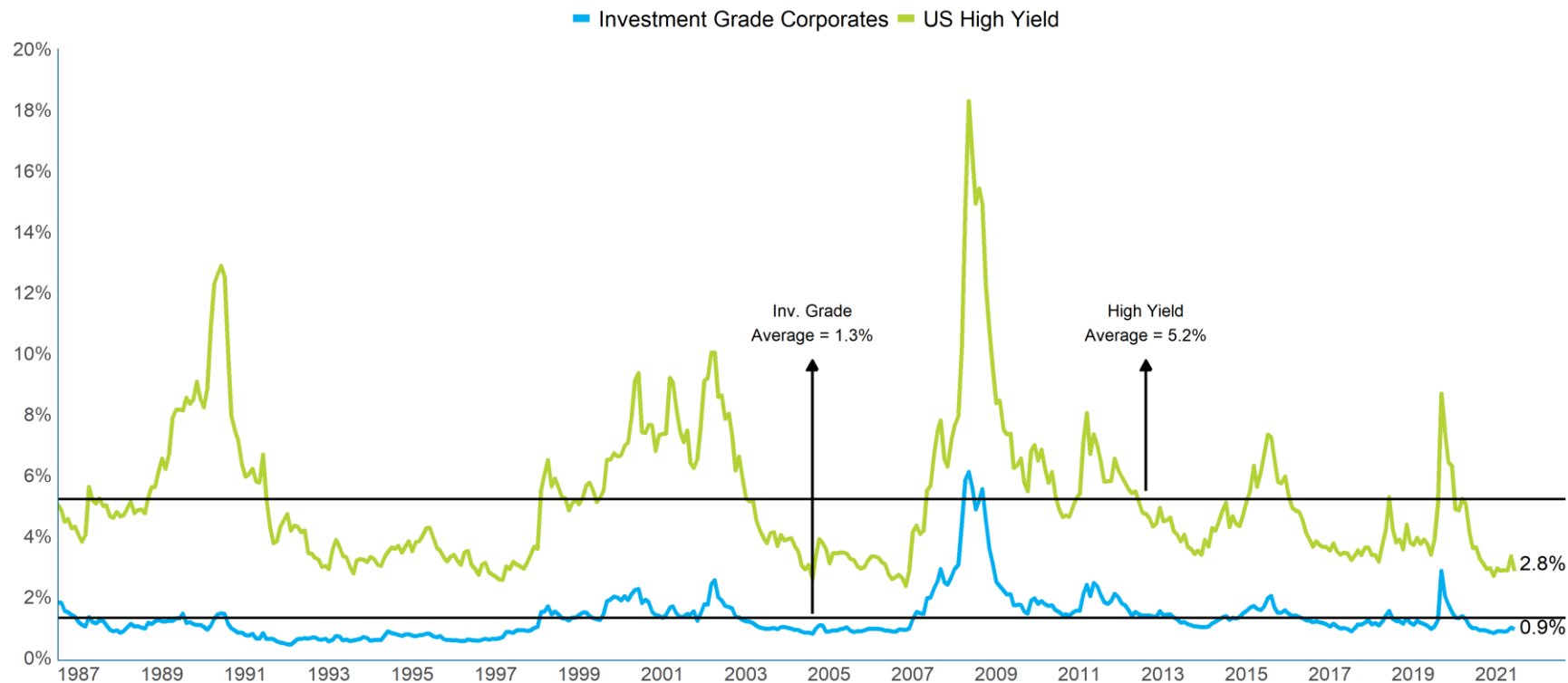
### REITs Dividend Yield Spread vs. Ten-Year Treasury<sup>1</sup> (As of December 31, 2021)



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

<sup>1</sup> 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<sup>1</sup> (As of December 31, 2021)



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

<sup>1</sup> 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.

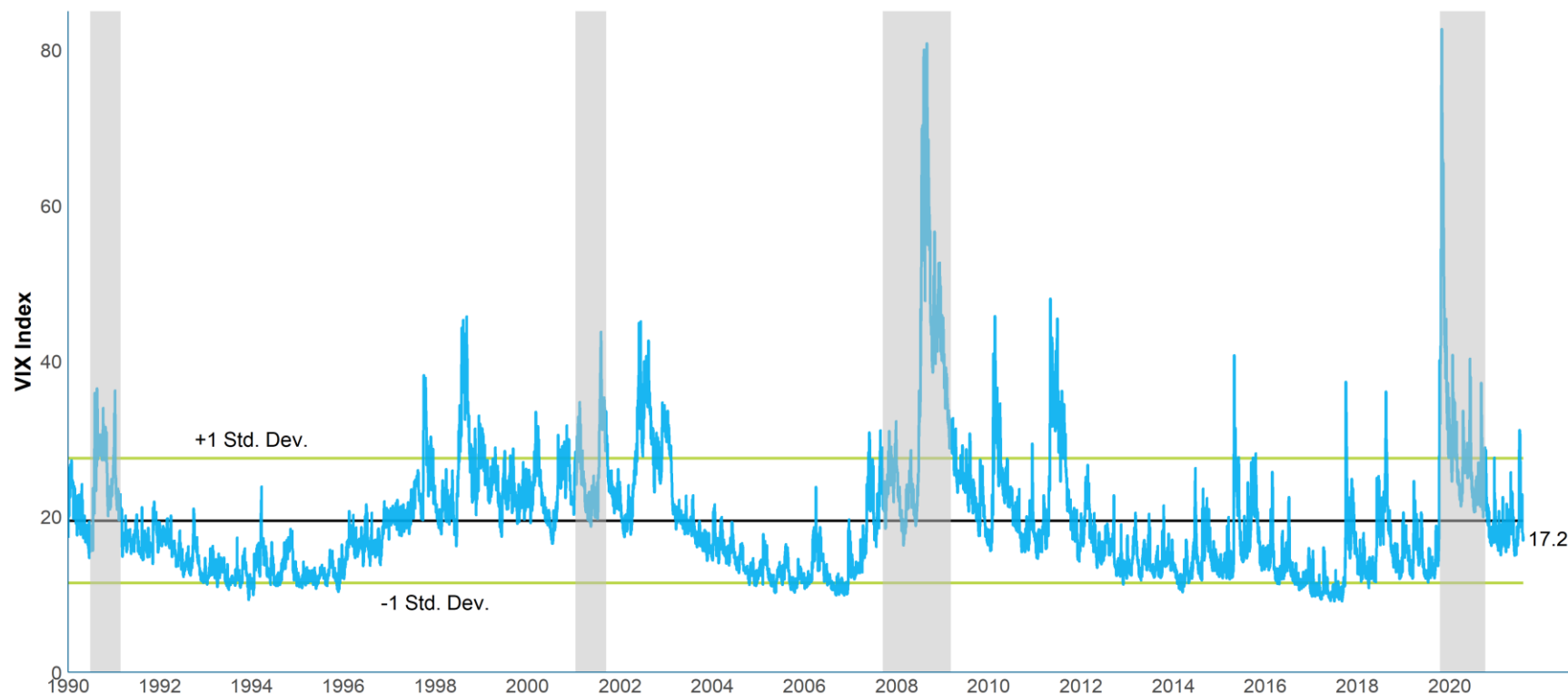
### Emerging Market Debt Spreads<sup>1</sup> (As of December 31, 2021)



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

<sup>1</sup> EM Spreads – Source: Bloomberg. Option Adjusted Spread (OAS) for the Bloomberg EM USD Aggregate Index.

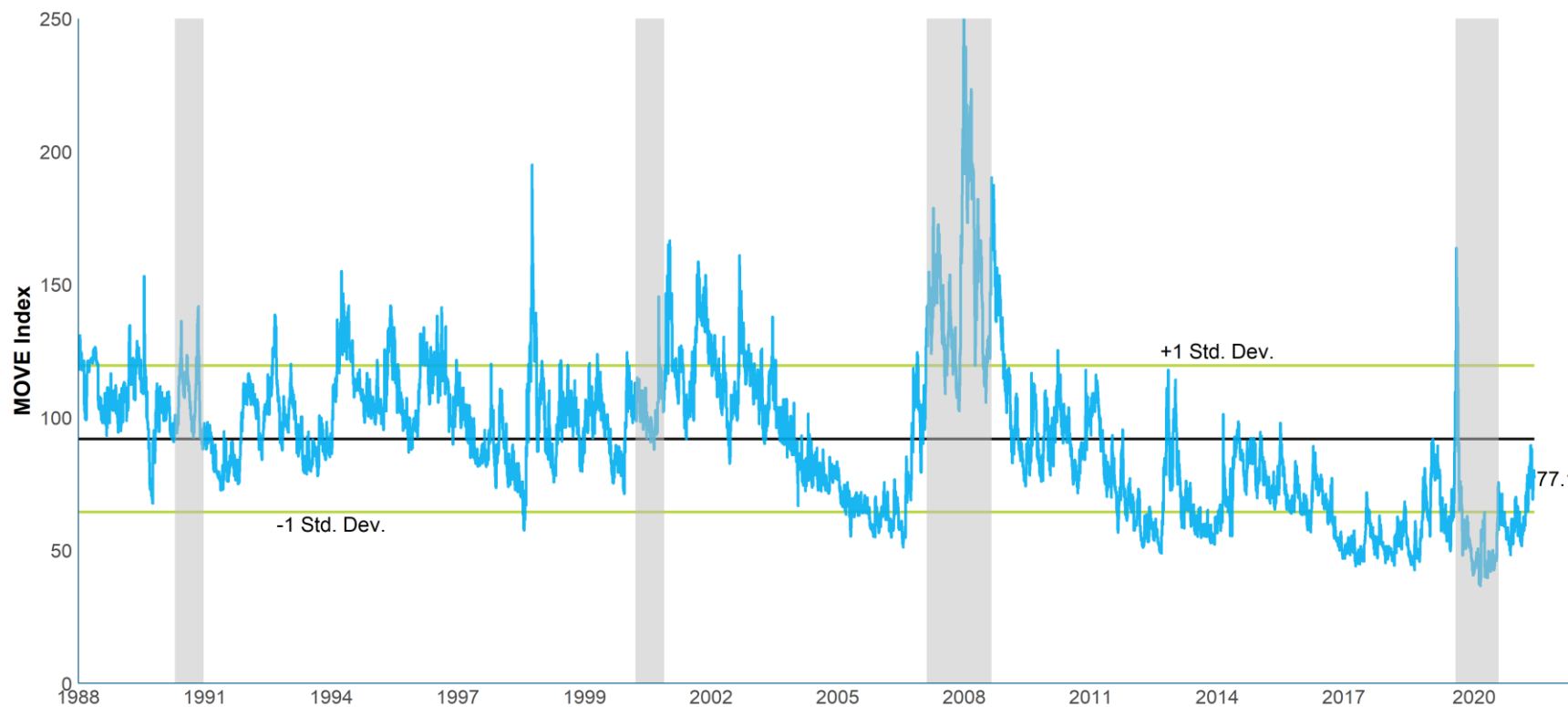
### Equity Volatility<sup>1</sup> (As of December 31, 2021)



- 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.

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

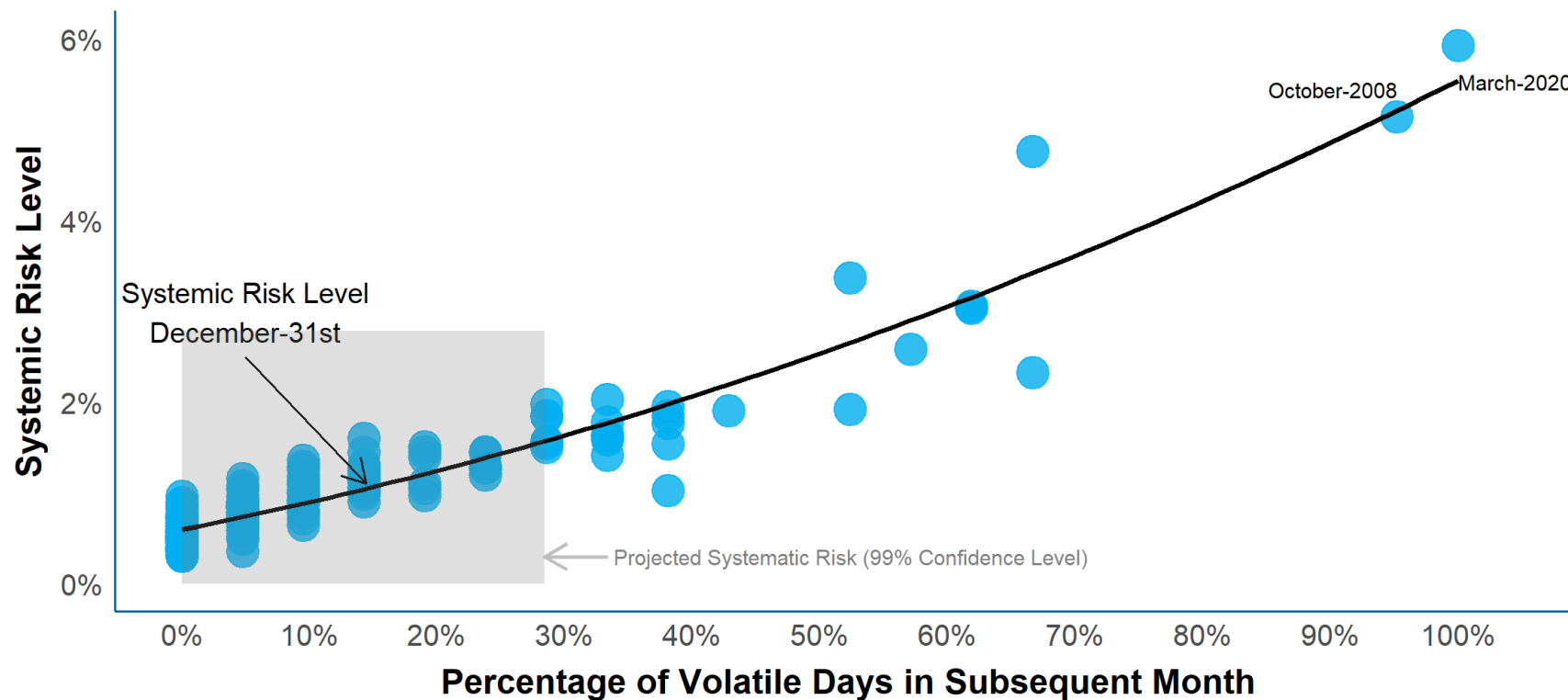
### Fixed Income Volatility<sup>1</sup> (As of December 31, 2021)



- 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.

<sup>1</sup> 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<sup>1</sup> (As of December 31, 2021)

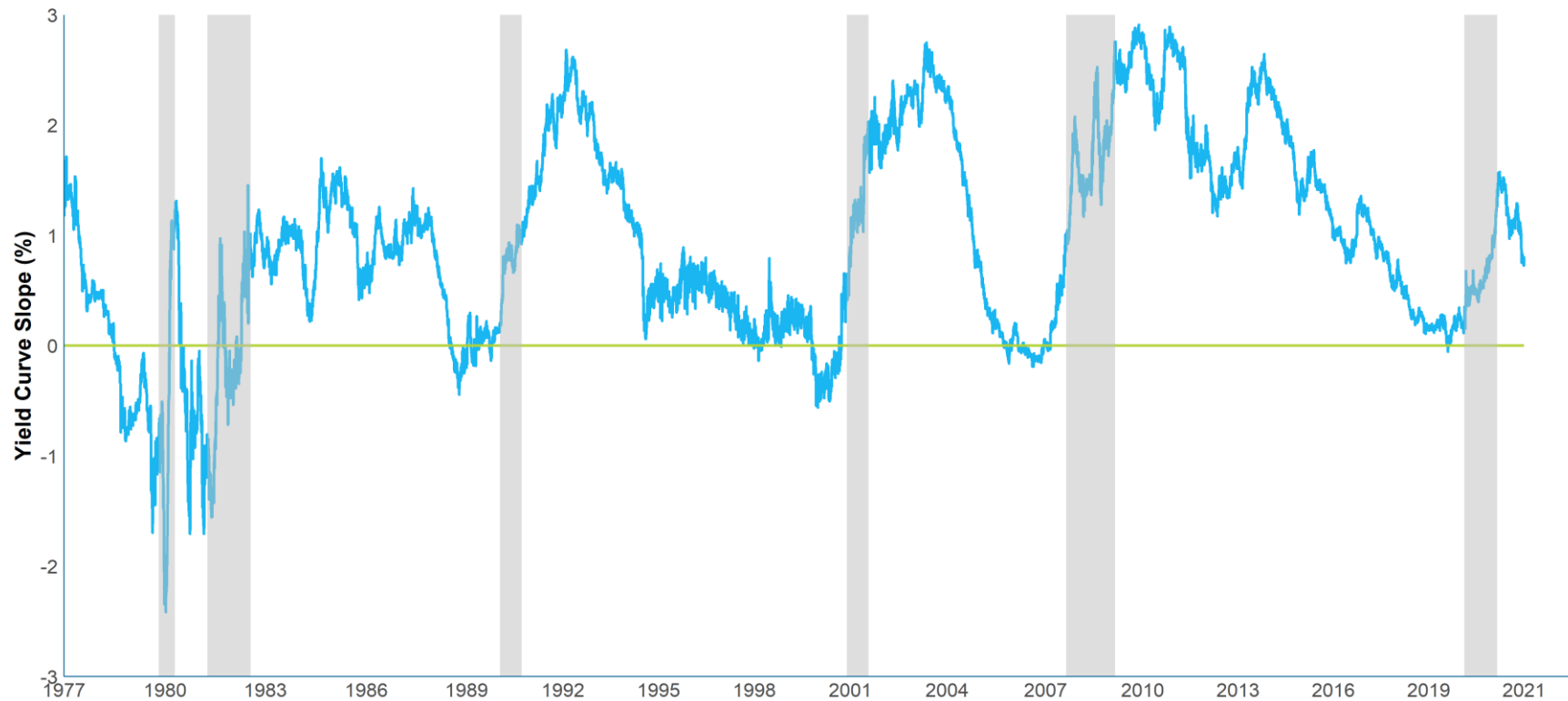


- Systemic Risk is a measure of 'System-wide' risk, which indicates herding type behavior.

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



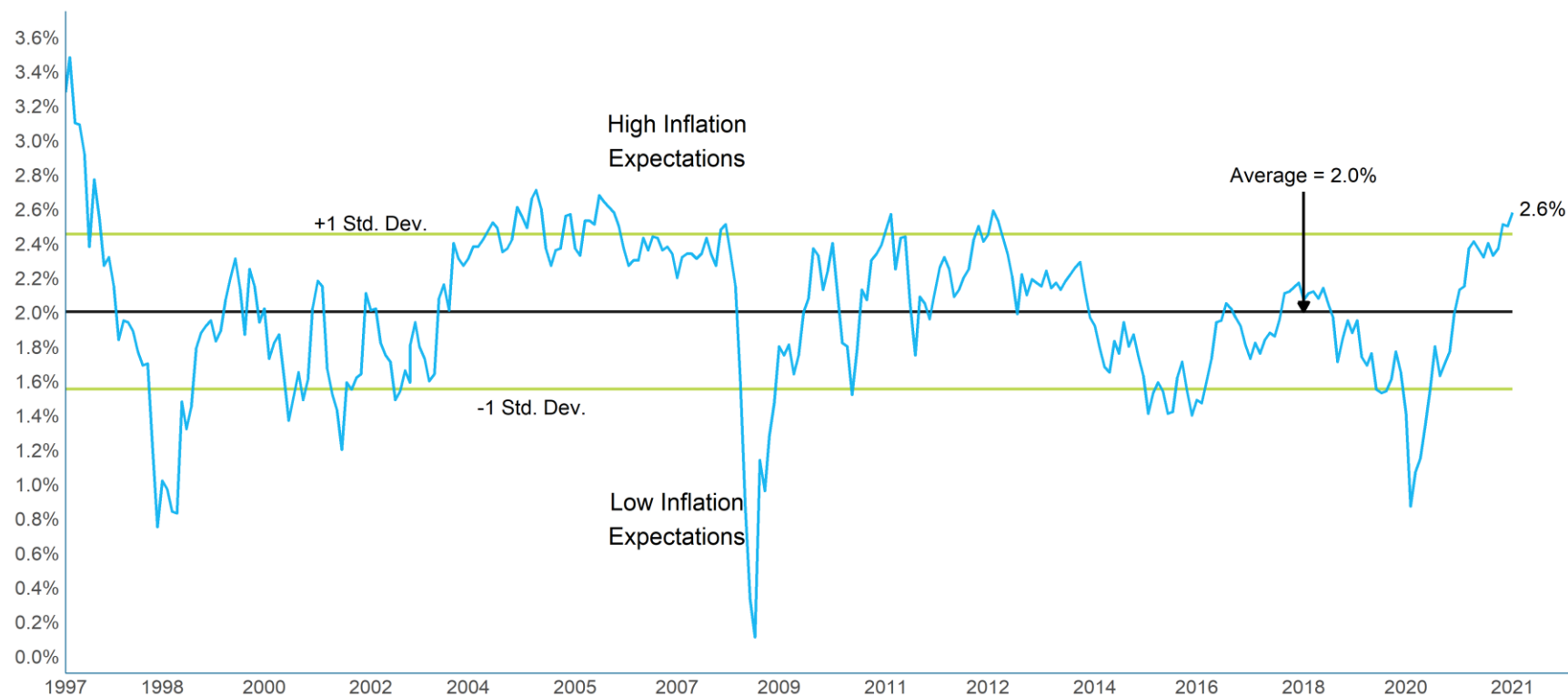
Yield Curve Slope (Ten Minus Two)<sup>1</sup>  
(As of December 31, 2021)



- 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.

<sup>1</sup> 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.

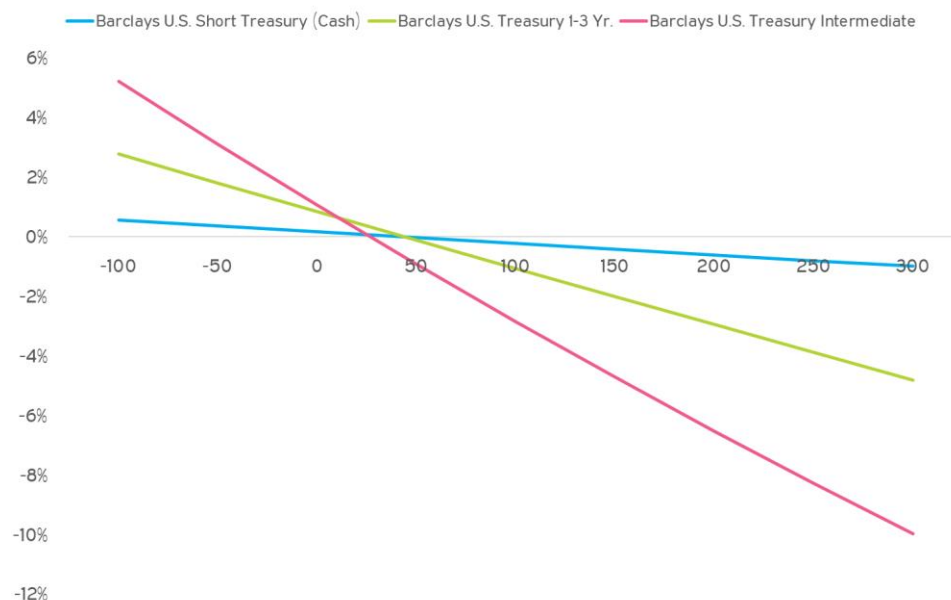
### Ten-Year Breakeven Inflation<sup>1</sup> (As of December 31, 2021)



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

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

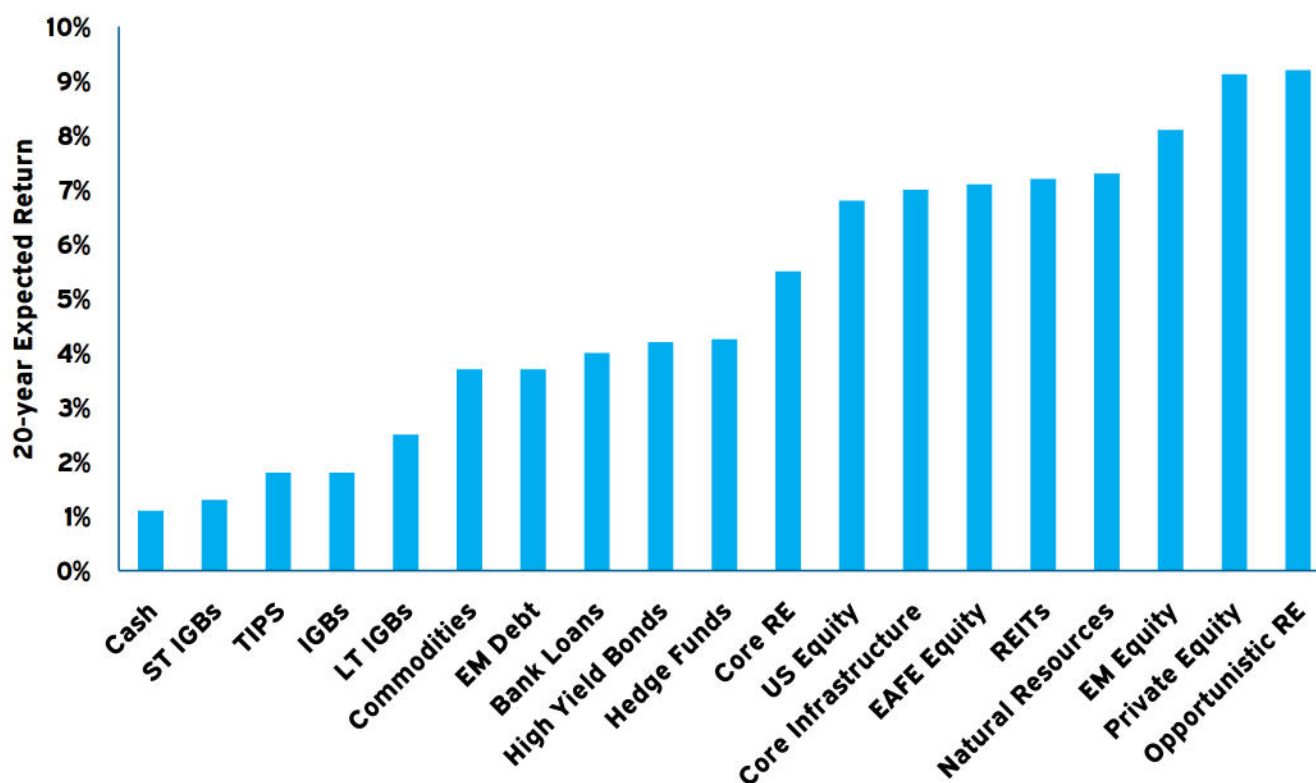
### Total Return Given Changes in Interest Rates (bps)<sup>1</sup> (As of December 31, 2021)



	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)	0.5%	0.3%	0.1%	0.0%	-0.2%	-0.4%	-0.6%	-0.8%	-1.0%	0.39	0.15%
Barclays US Treasury 1-3 Yr.	2.8%	1.8%	0.8%	-0.1%	-1.1%	-2.0%	-3.0%	-3.9%	-4.8%	1.92	0.83%
Barclays US Treasury Intermediate	5.2%	3.1%	1.1%	-0.9%	-2.9%	-4.7%	-6.5%	-8.3%	-10.0%	4.03	1.05%
Barclays US Treasury Long	22.6%	11.7%	1.9%	-6.9%	-14.6%	-21.2%	-26.8%	-31.3%	-34.8%	18.61	1.89%

<sup>1</sup> 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<sup>1</sup>



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

<sup>1</sup> Source: Meketa Investment Group's 2021 Annual Asset Study.

## Appendix

### Data Sources and Explanations<sup>1</sup>

- 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.

<sup>1</sup> All Data as of October 31, 2021 unless otherwise noted.

## Appendix

### Data Sources and Explanations<sup>1</sup>

- 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.

<sup>1</sup> All Data as of October 31, 2021 unless otherwise noted.

## Appendix

### Data Sources and Explanations<sup>1</sup>

- 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).

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<sup>1</sup> All Data as of October 31, 2021 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.

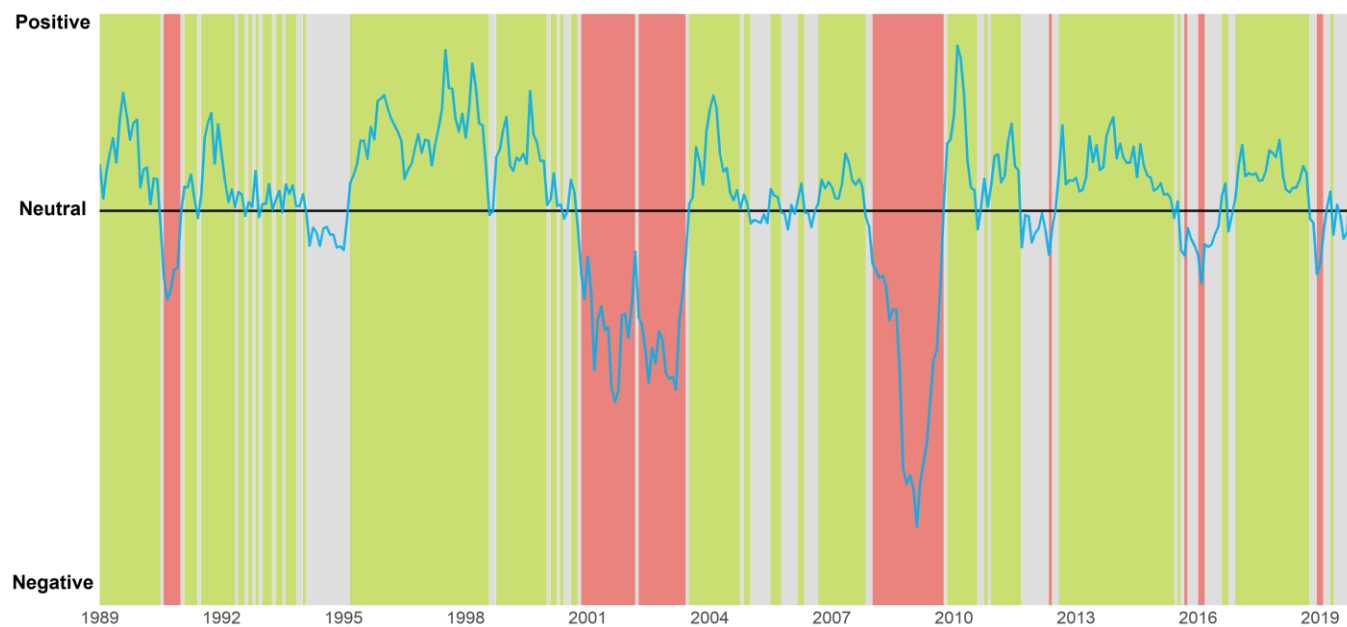
- Meketa's Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk concerns long before a market correction takes 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<sup>1</sup>. 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).

<sup>1</sup> 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/~lpedersen/papers/TimeSeriesMomentum.pdf>

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

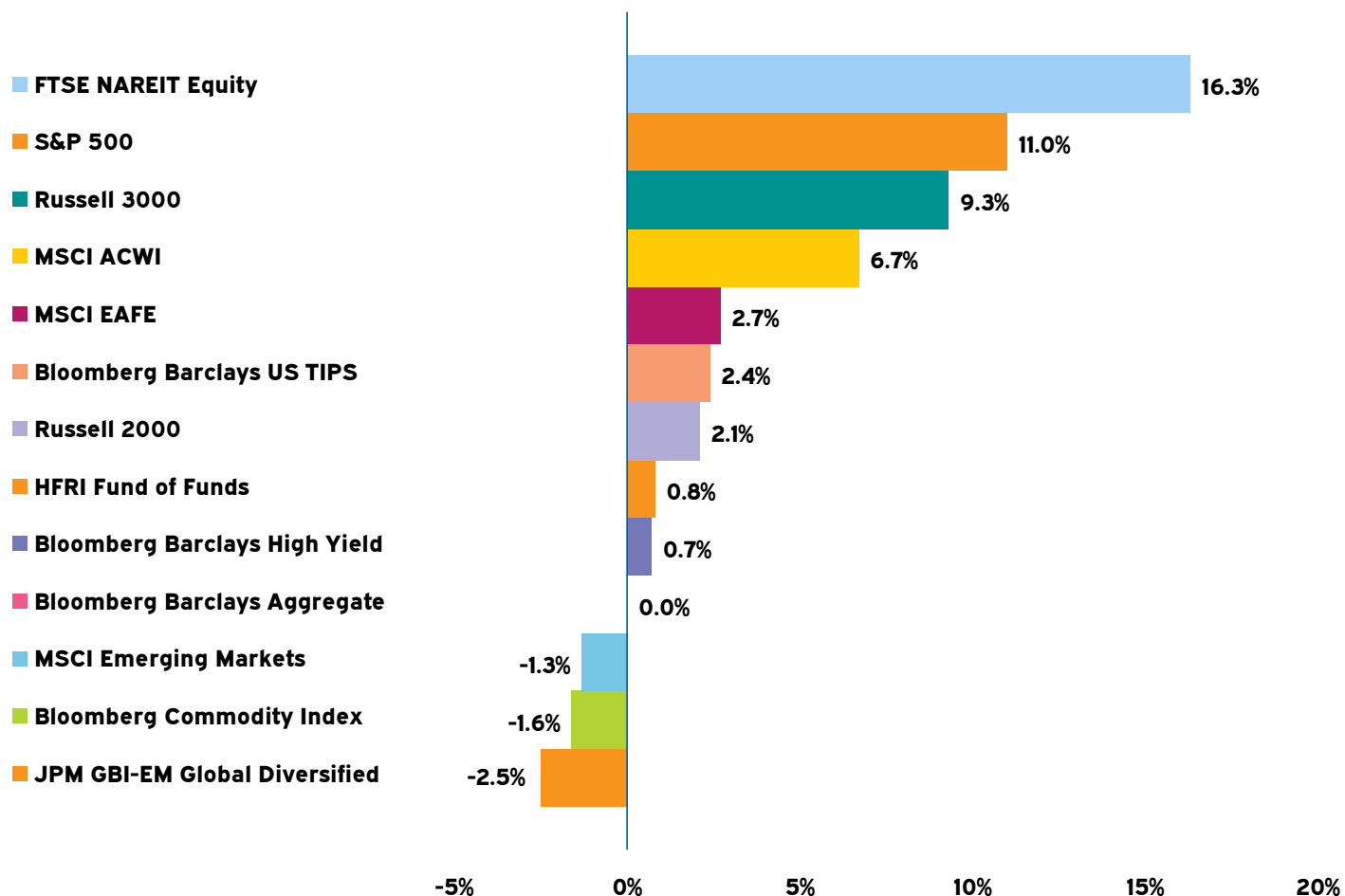
- There is strong evidence that time series momentum is significant and persistent. Across an extensive array of asset classes, the sign of the trailing 12-month return (positive or negative) is indicative of future returns (positive or negative) over the next 12-month period. The MIG-MSI is constructed 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.

### Disclaimer Information

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## **The World Markets Fourth Quarter of 2021**

### The World Markets<sup>1</sup> Fourth Quarter of 2021



<sup>1</sup> Source: InvestorForce.

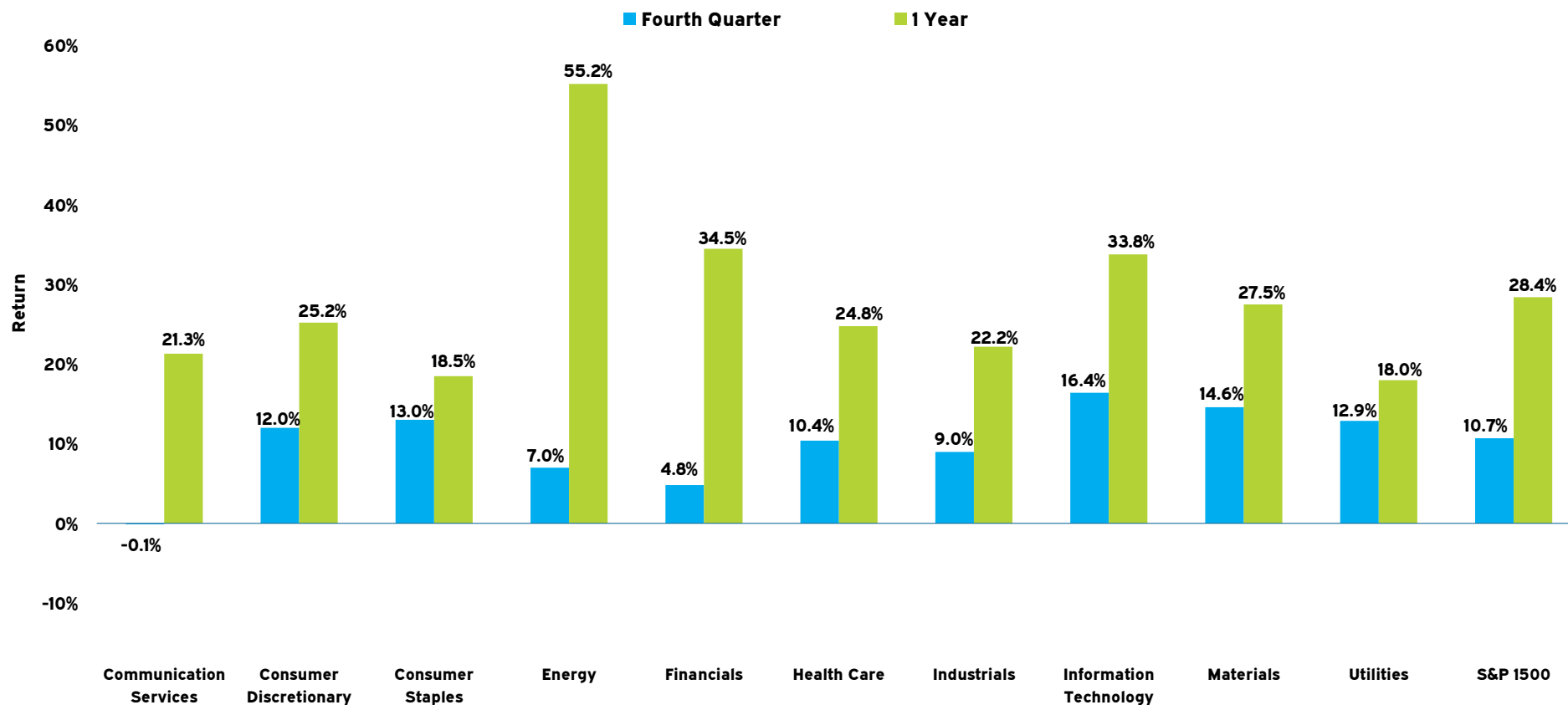


## Index Returns<sup>1</sup>

	4Q21 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
<b>Domestic Equity</b>					
S&P 500	11.0	28.7	26.1	18.5	16.6
Russell 3000	9.3	25.7	25.8	18.0	16.3
Russell 1000	9.8	26.5	26.2	18.4	16.5
Russell 1000 Growth	11.6	27.6	34.1	25.3	19.8
Russell 1000 Value	7.8	25.2	17.6	11.2	13.0
Russell MidCap	6.4	22.6	23.3	15.1	14.9
Russell MidCap Growth	2.8	12.7	27.5	19.8	16.6
Russell MidCap Value	8.5	28.3	19.6	11.2	13.4
Russell 2000	2.1	14.8	20.0	12.0	13.2
Russell 2000 Growth	0.0	2.8	21.2	14.5	14.1
Russell 2000 Value	4.4	28.3	18.0	9.1	12.0
<b>Foreign Equity</b>					
MSCI ACWI	6.7	18.5	20.4	14.4	11.9
MSCI ACWI (ex. US)	1.8	7.8	13.2	9.6	7.3
MSCI EAFE	2.7	11.3	13.5	9.5	8.0
MSCI EAFE (Local Currency)	3.9	18.7	13.4	8.4	10.1
MSCI EAFE Small Cap	0.1	10.1	15.6	11.0	10.8
MSCI Emerging Markets	-1.3	-2.5	10.9	9.9	5.5
MSCI Emerging Markets (Local Currency)	-0.9	-0.2	12.0	10.5	8.0
<b>Fixed Income</b>					
Bloomberg Barclays Universal	0.0	-1.1	5.2	3.8	3.3
Bloomberg Barclays Aggregate	0.0	-1.5	4.8	3.6	2.9
Bloomberg Barclays US TIPS	2.4	6.0	8.4	5.3	3.1
Bloomberg Barclays High Yield	0.7	5.3	8.8	6.3	6.8
JPM GBI-EM Global Diversified	-2.5	-8.7	2.1	2.8	0.7
<b>Other</b>					
FTSE NAREIT Equity	16.3	43.2	18.4	10.8	11.4
Bloomberg Commodity Index	-1.6	27.1	9.9	3.7	-2.9
HFRI Fund of Funds	0.8	6.5	8.6	5.8	4.6

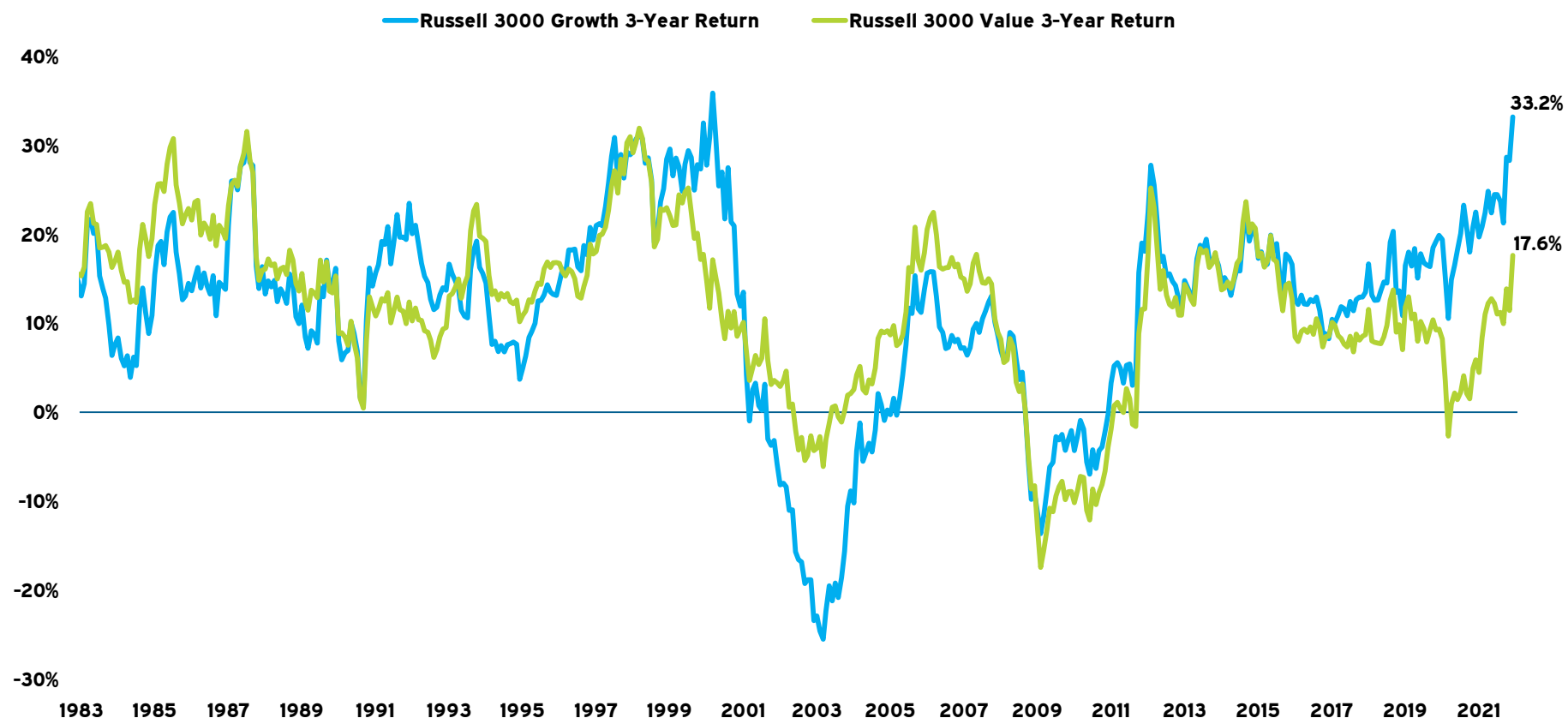
<sup>1</sup> Source: InvestorForce.

### S&P Sector Returns<sup>1</sup>



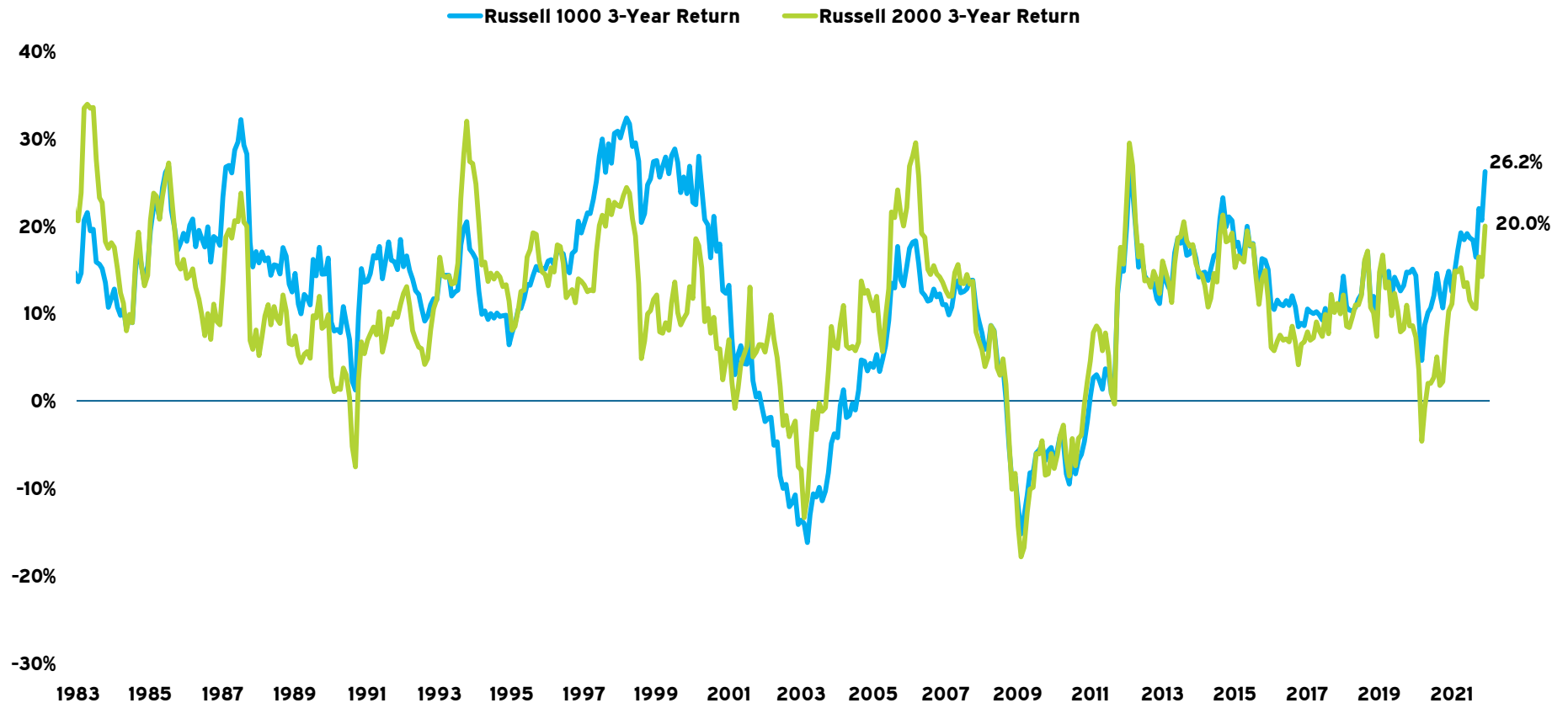
<sup>1</sup> Source: InvestorForce. Represents S&P 1500 (All Cap) data.

### Growth and Value Rolling Three Year Returns<sup>1</sup>



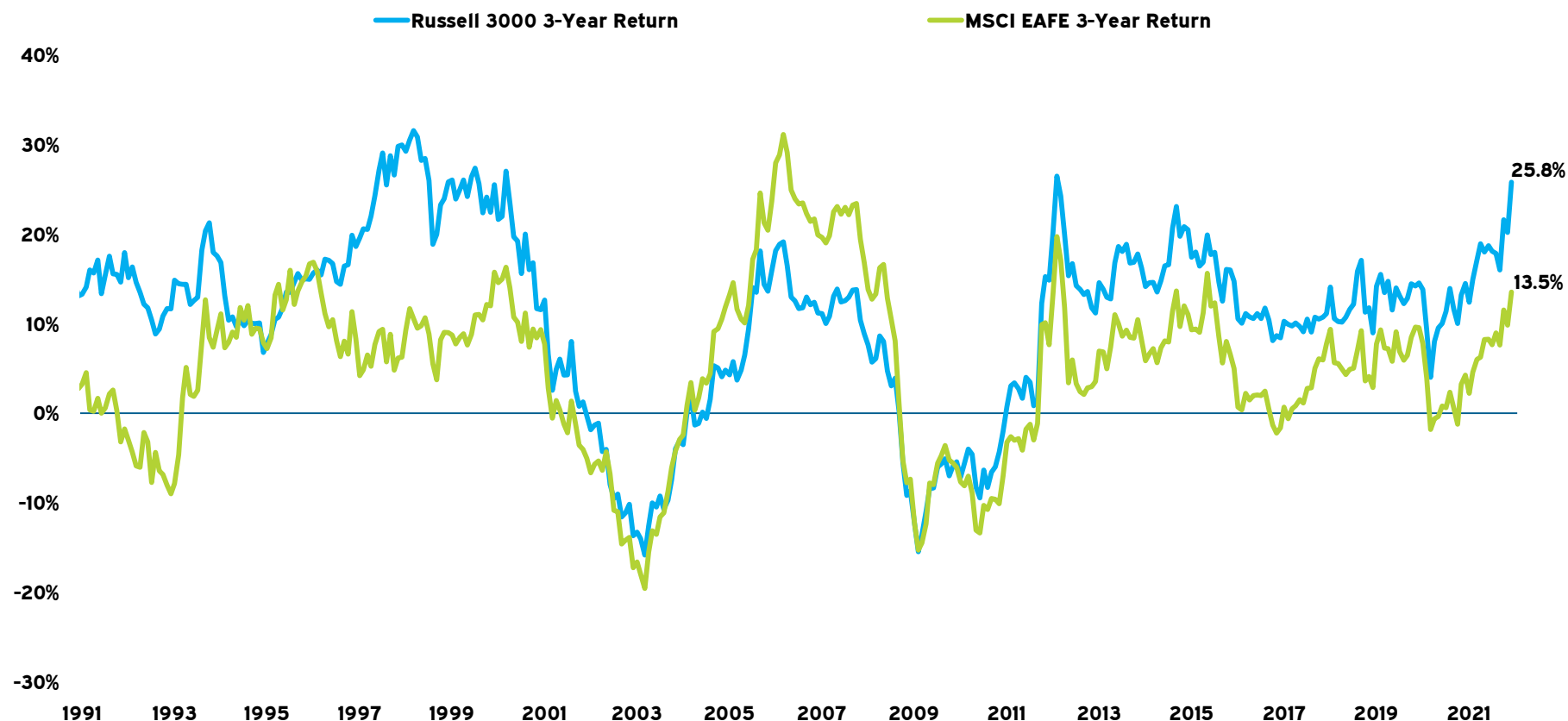
<sup>1</sup> Source: InvestorForce.

### Large Cap (Russell 1000) and Small Cap (Russell 2000) Rolling Three Year Returns<sup>1</sup>



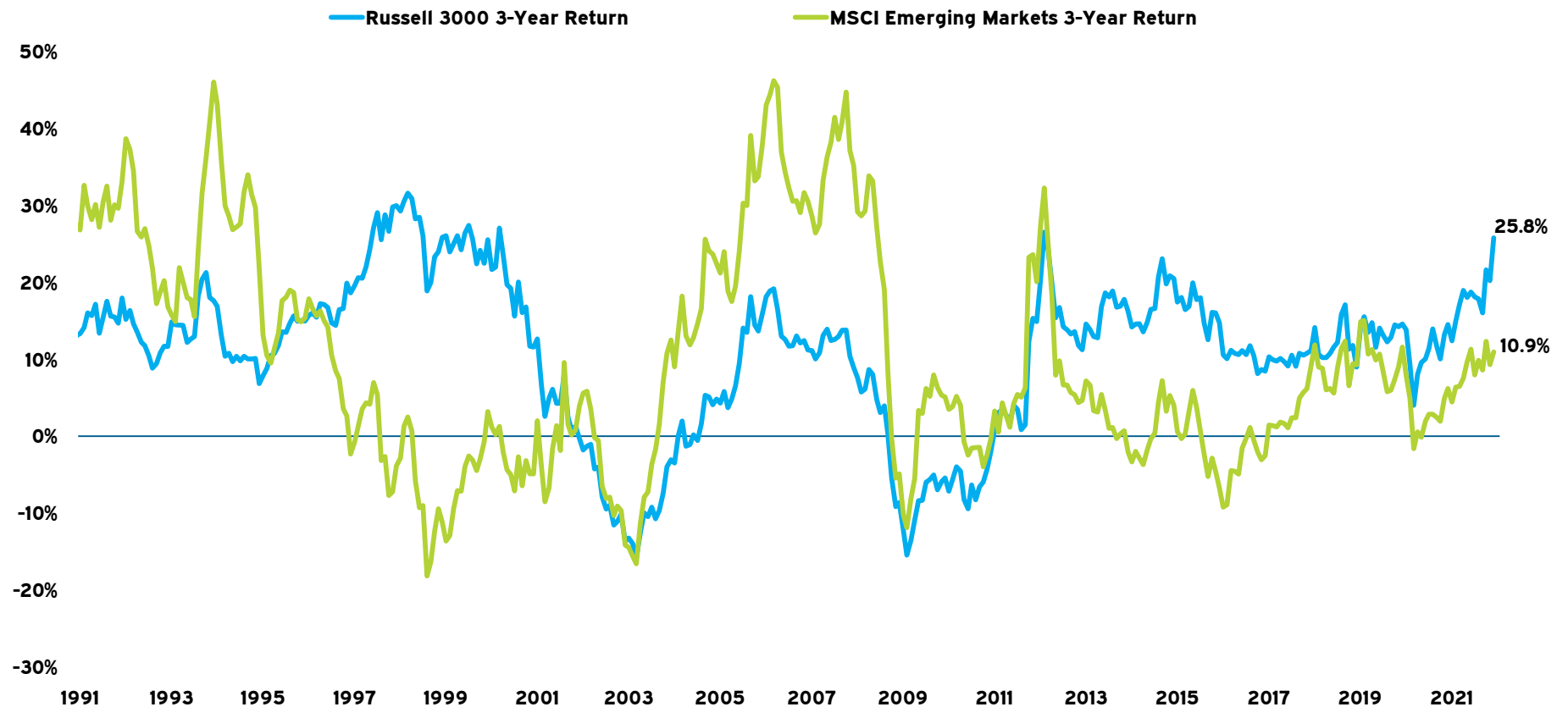
<sup>1</sup> Source: InvestorForce.

### US and Developed Market Foreign Equity Rolling Three-Year Returns<sup>1</sup>



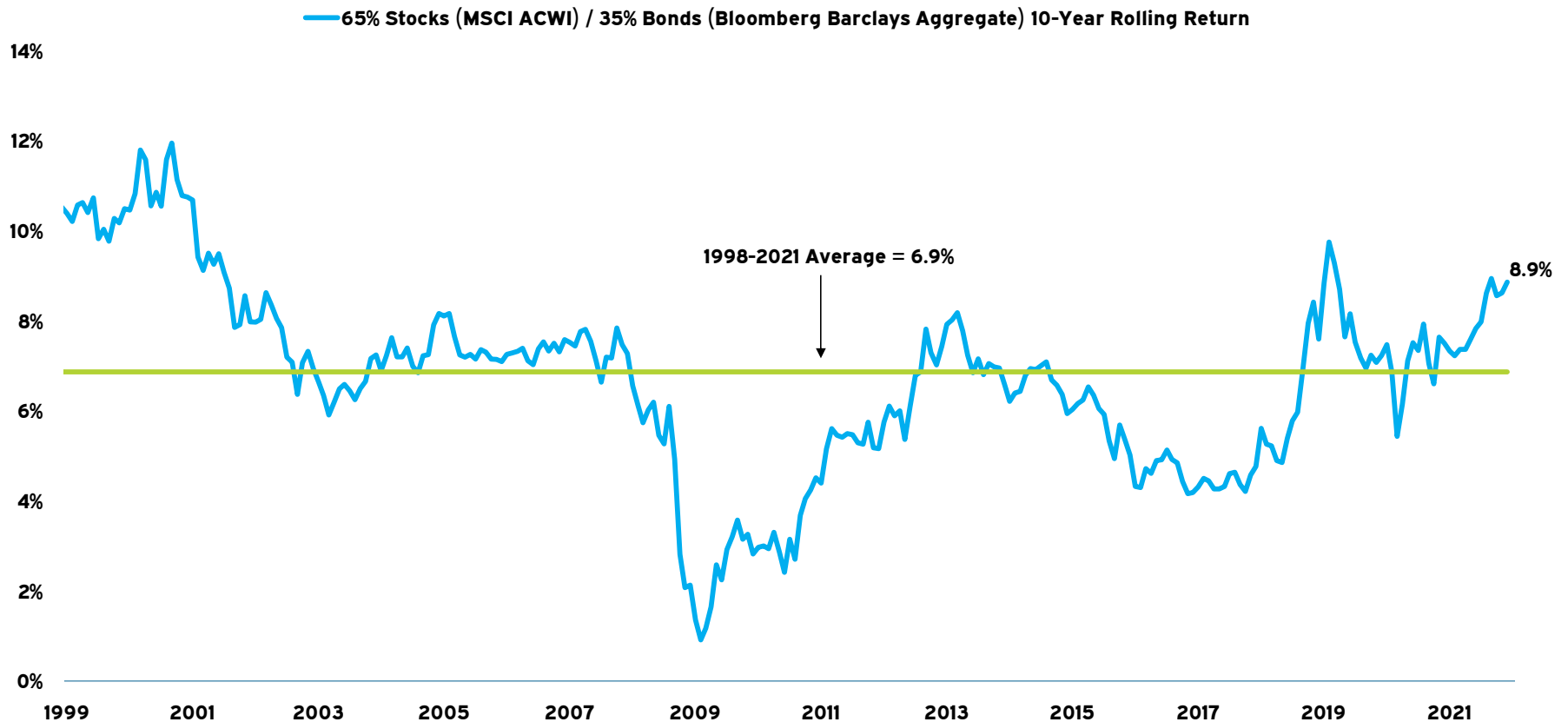
<sup>1</sup> Source: InvestorForce.

### US and Emerging Market Equity Rolling Three-Year Returns<sup>1</sup>



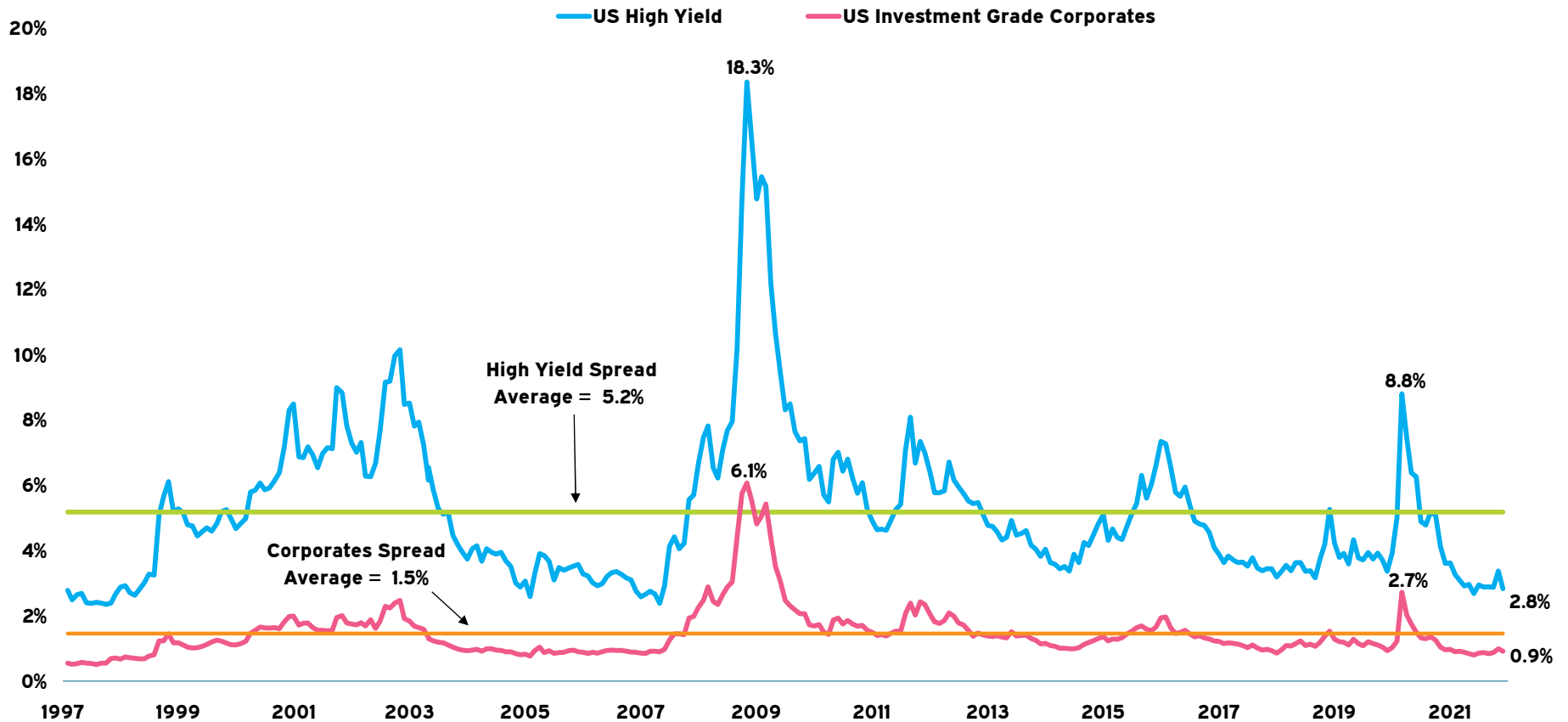
<sup>1</sup> Source: InvestorForce.

### Rolling Ten-Year Returns: 65% Stocks and 35% Bonds<sup>1</sup>



<sup>1</sup> Source: InvestorForce.

### Credit Spreads vs. US Treasury Bonds<sup>1,2</sup>

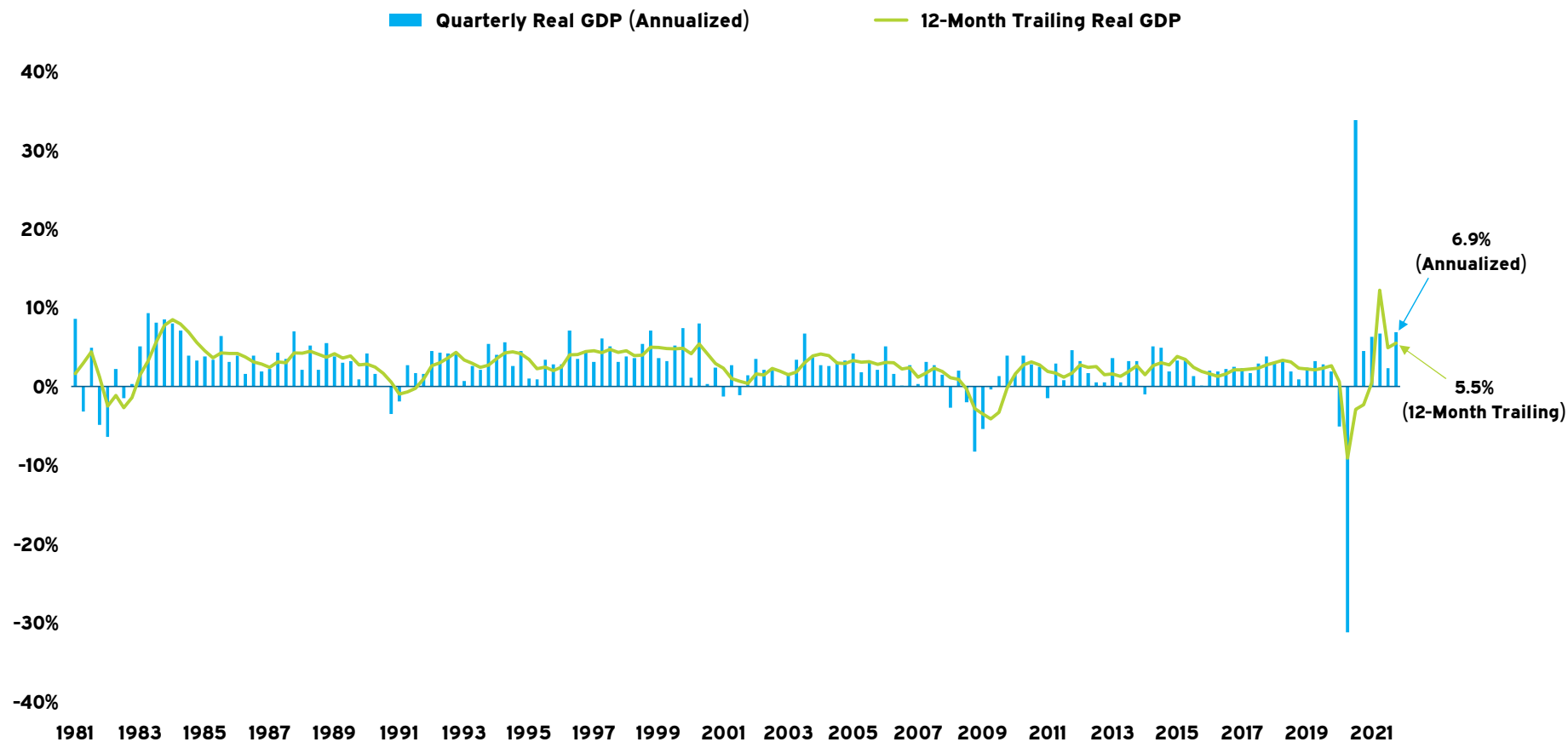


<sup>1</sup> Source: Barclays Live. Data represents the OAS.

<sup>2</sup> The median high yield spread was 4.7% from 1997-2021.

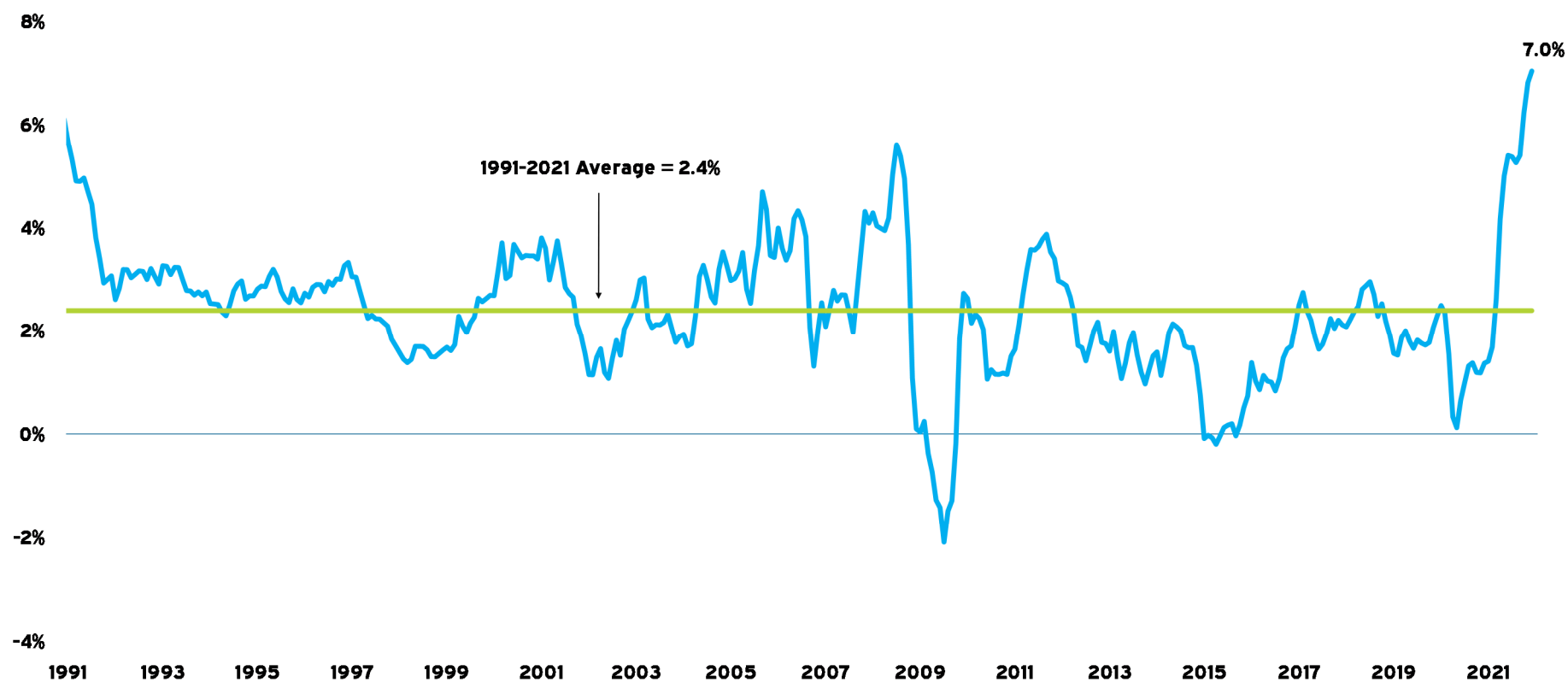


### US Real Gross Domestic Product (GDP) Growth<sup>1</sup>



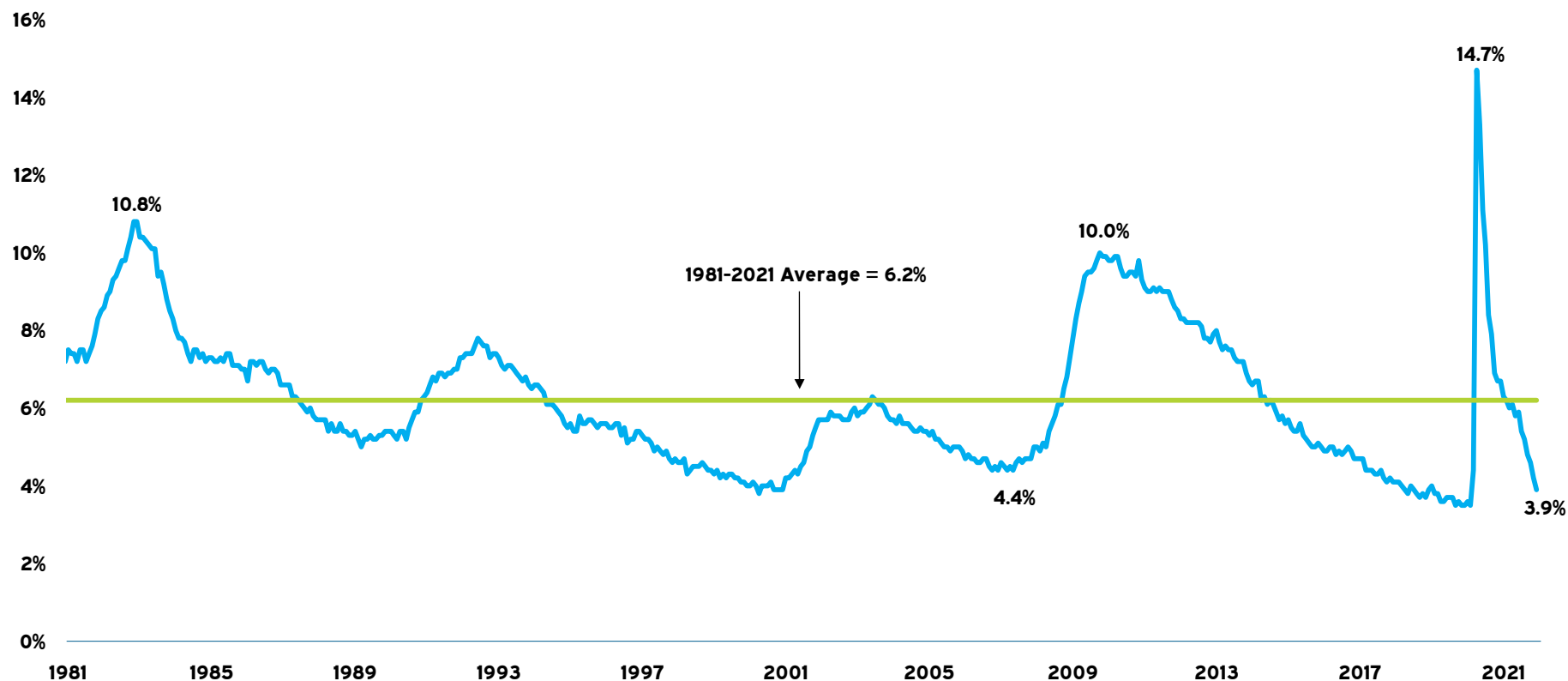
<sup>1</sup> Source: Bureau of Economic Analysis. Data is as of Q4 2021 and represents the first estimate.

### US Inflation (CPI) Trailing Twelve Months<sup>1</sup>



<sup>1</sup> Source: Bureau of Labor Statistics. Data is non-seasonally adjusted CPI, which may be volatile in the short-term. Data is as of December 31, 2021.

### US Unemployment<sup>1</sup>



<sup>1</sup> Source: Bureau of Labor Statistics. Data is as of December 31, 2021.

## Disclaimer, Glossary, and Notes

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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.  $\text{Portfolio Return} - [\text{Risk Free Rate} + \text{Beta} \times (\text{market return} - \text{Risk Free Rate})]$ .

**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 its 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%.

$$\frac{5\% \text{ (discount)}}{5 \text{ (yrs. to maturity)}} = 1\% \text{ pro rata, plus } 5.26\% \text{ (current yield)} = 6.26\% \text{ (yield to maturity)}$$

**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

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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.