

# Plymouth County Retirement Association

November 28, 2023

Meeting Materials

## Agenda

1. Estimated Retirement Association Performance As of October 31 2023
2. Performance Update As of September 30, 2023
3. Appendices
  - Investment Manager Status Report
  - Economic Market Update As of October 31, 2023
  - Corporate Update
  - Disclaimer, Glossary, and Notes

**Estimated Retirement Association Performance  
As of October 31, 2023**

### Estimated Aggregate Performance<sup>1</sup>

	October <sup>2</sup> (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
<b>Total Retirement Association</b>	-1.8	2.4	4.6	8.0	7.3	6.3

### Benchmark Returns

	October (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
Russell 3000	-2.7	9.4	8.4	9.2	10.2	10.5
MSCI EAFE	-4.1	2.7	14.4	5.7	4.1	3.1
MSCI Emerging Markets	-3.9	-2.1	10.8	-3.7	1.6	1.2
Bloomberg Aggregate	-1.6	-2.8	0.4	-5.6	-0.1	0.9
Bloomberg TIPS	-0.7	-1.5	-0.7	-2.0	2.3	1.6
Bloomberg High Yield	-1.2	4.6	6.2	1.2	3.1	3.9
JPM EMBI Global Diversified (Hard Currency)	-1.4	0.4	8.4	-5.0	-0.2	2.1
S&P Global Natural Resources	-5.0	-5.1	1.0	17.7	6.6	3.7

### Estimated Total Assets

<b>Estimated Total Retirement Assets As of October 31, 2023</b>	<b>\$1,344,505,806</b>
<b>Current Month Performance Estimate through November 16</b>	<b>3.3%</b>

<sup>1</sup> The October performance estimates are calculated using index returns as of October 31, 2023 for each asset class. No performance estimate was included for private equity, real estate, infrastructure, and private natural resources asset classes.

<sup>2</sup> As of October 31, 2023.

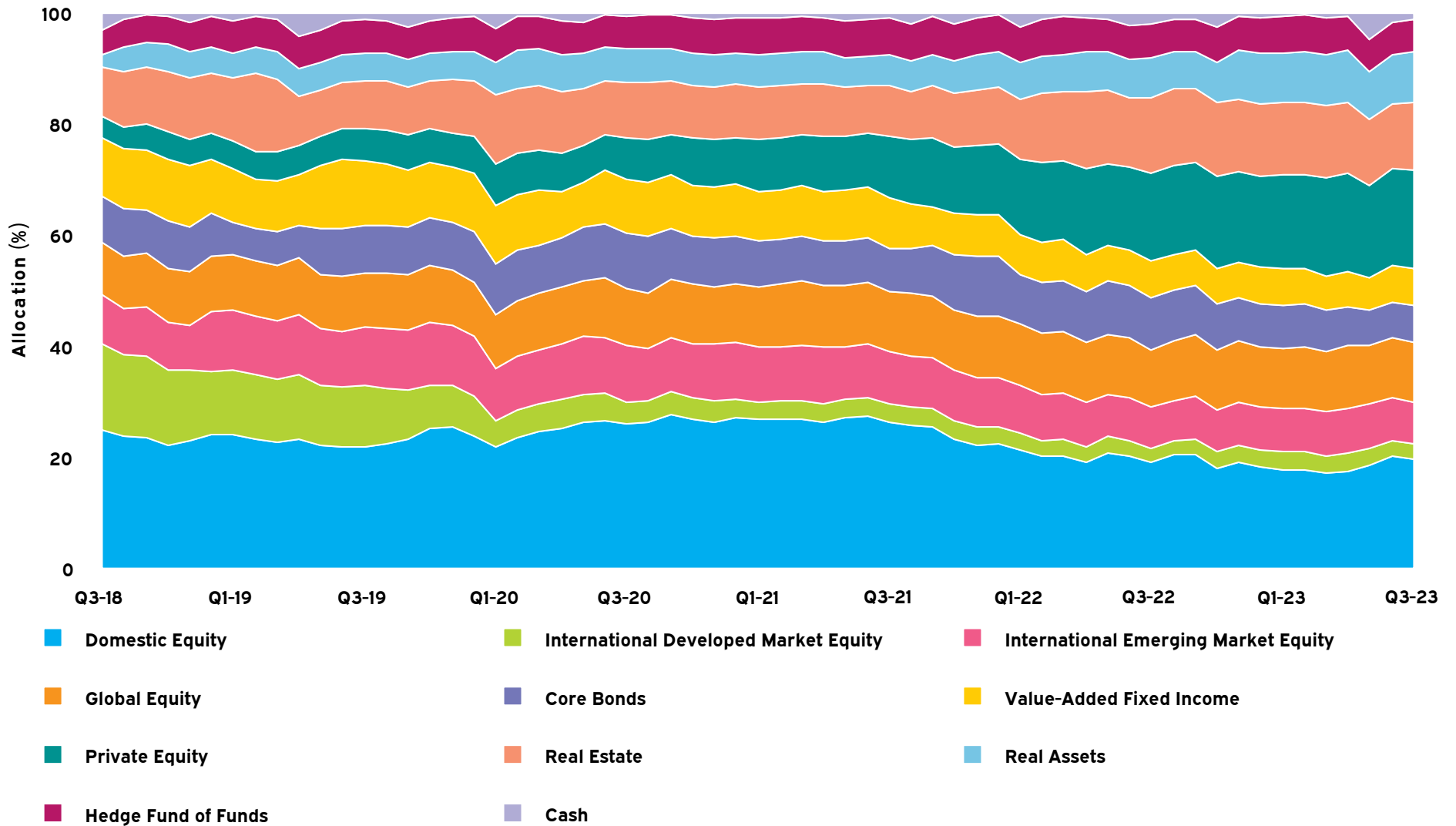
**Performance Update  
As of September 30, 2023**

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Asset Allocation Compliance | As of September 30, 2023

	Current Balance (\$)	Current Allocation (%)	Policy (%)	Policy Range (%)	Within IPS Range?
<b>Total Equity</b>	886,617,512	64	69	60 - 80	Yes
Domestic Equity	269,463,985	20	26	21 - 36	No
International Developed Market Equity	39,219,371	3	6	1 - 16	Yes
International Emerging Market Equity	103,836,699	8	10	5 - 20	Yes
Global Equity	148,900,987	11	10	5 - 20	Yes
Private Equity	245,849,693	18	13	4 - 18	Yes
Hedge Fund of Funds	79,346,778	6	4	2 - 8	Yes
<b>Total Fixed Income</b>	183,698,832	13	15	5 - 25	Yes
Core Bonds	91,352,281	7	9	4 - 14	Yes
Value-Added Fixed Income	92,346,551	7	6	2 - 12	Yes
<b>Total Real Assets and Real Estate</b>	293,886,064	21	16	7 - 25	Yes
Real Estate	166,355,205	12	10	5 - 15	Yes
Real Assets	127,530,859	9	6	2 - 10	Yes
<b>Cash</b>	14,768,943	1	0	0 - 3	Yes
Cash	14,768,943	1	0	0 - 3	Yes
<b>Total</b>	<b>1,378,971,351</b>	<b>100</b>	<b>100</b>		

## Asset Allocation History 5 Years Ending September 30, 2023



Asset Allocation & Performance | As of September 30, 2023

	Market Value \$	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Retirement Association</b>	<b>1,378,971,351</b>	<b>100.0</b>	<b>-1.5</b>	<b>-1.2</b>	<b>4.3</b>	<b>9.1</b>	<b>8.6</b>	<b>6.5</b>	<b>6.7</b>	<b>7.7</b>	<b>Nov-89</b>
<i>Policy Benchmark (Net)</i>			<i>-1.8</i>	<i>-1.4</i>	<i>7.5</i>	<i>11.7</i>	<i>5.7</i>	<i>5.5</i>	<i>6.4</i>	<i>--</i>	
<i>Actual Allocation (Net)</i>			<i>-1.0</i>	<i>-0.6</i>	<i>7.4</i>	<i>9.9</i>	<i>5.7</i>	<i>5.1</i>	<i>--</i>	<i>--</i>	
<b>Domestic Equity Assets</b>	<b>269,463,985</b>	<b>19.5</b>	<b>-5.1</b>	<b>-3.9</b>	<b>7.8</b>	<b>17.0</b>	<b>8.6</b>	<b>7.5</b>	<b>--</b>	<b>11.0</b>	<b>Jan-16</b>
<i>Russell 3000 Index</i>			<i>-4.8</i>	<i>-3.3</i>	<i>12.4</i>	<i>20.5</i>	<i>9.4</i>	<i>9.1</i>	<i>11.3</i>	<i>11.6</i>	
<b>International Developed Market Equity Assets</b>	<b>39,219,371</b>	<b>2.8</b>	<b>-5.1</b>	<b>-7.4</b>	<b>5.4</b>	<b>20.1</b>	<b>1.3</b>	<b>-0.8</b>	<b>--</b>	<b>2.3</b>	<b>Jan-16</b>
<i>MSCI EAFE (Net)</i>			<i>-3.4</i>	<i>-4.1</i>	<i>7.1</i>	<i>25.6</i>	<i>5.8</i>	<i>3.2</i>	<i>3.8</i>	<i>5.0</i>	
<b>International Emerging Market Equity Assets</b>	<b>103,836,699</b>	<b>7.5</b>	<b>-2.7</b>	<b>-2.2</b>	<b>4.8</b>	<b>10.6</b>	<b>-0.1</b>	<b>1.3</b>	<b>--</b>	<b>4.8</b>	<b>Jan-16</b>
<i>MSCI Emerging Markets (Net)</i>			<i>-2.6</i>	<i>-2.9</i>	<i>1.8</i>	<i>11.7</i>	<i>-1.7</i>	<i>0.6</i>	<i>2.1</i>	<i>4.9</i>	
<b>Global Equity Assets</b>	<b>148,900,987</b>	<b>10.8</b>	<b>-2.2</b>	<b>-1.9</b>	<b>6.4</b>	<b>18.6</b>	<b>8.0</b>	<b>6.8</b>	<b>--</b>	<b>5.5</b>	<b>Feb-18</b>
<i>MSCI AC World Index (Net)</i>			<i>-4.1</i>	<i>-3.4</i>	<i>10.1</i>	<i>20.8</i>	<i>6.9</i>	<i>6.5</i>	<i>7.6</i>	<i>5.4</i>	
<b>Core Fixed Income</b>	<b>91,352,281</b>	<b>6.6</b>	<b>-1.4</b>	<b>-1.3</b>	<b>0.6</b>	<b>2.2</b>	<b>-2.5</b>	<b>1.3</b>	<b>--</b>	<b>1.6</b>	<b>Jan-16</b>
<i>75% Bbg Aggregate/25% Bbg US TIPs 1-10 year</i>			<i>-2.2</i>	<i>-2.7</i>	<i>-0.8</i>	<i>1.0</i>	<i>-3.9</i>	<i>0.7</i>	<i>1.3</i>	<i>1.1</i>	
<b>Value Added Fixed Income</b>	<b>92,346,551</b>	<b>6.7</b>	<b>-0.6</b>	<b>0.5</b>	<b>5.5</b>	<b>9.2</b>	<b>1.9</b>	<b>2.6</b>	<b>--</b>	<b>4.3</b>	<b>Jan-16</b>
<i>Custom Benchmark - Global Fixed Income</i>			<i>-1.4</i>	<i>-0.5</i>	<i>3.9</i>	<i>8.9</i>	<i>-0.2</i>	<i>1.6</i>	<i>2.9</i>	<i>3.4</i>	
<b>Hedge Funds</b>	<b>79,346,778</b>	<b>5.8</b>	<b>-1.0</b>	<b>-0.5</b>	<b>2.1</b>	<b>9.3</b>	<b>2.4</b>	<b>0.4</b>	<b>2.7</b>	<b>3.3</b>	<b>Mar-10</b>
<i>Custom Benchmark</i>			<i>0.0</i>	<i>0.5</i>	<i>2.8</i>	<i>4.6</i>	<i>3.8</i>	<i>3.4</i>	<i>3.3</i>	<i>3.2</i>	
<b>Real Estate</b>	<b>166,355,205</b>	<b>12.1</b>	<b>-0.3</b>	<b>-0.4</b>	<b>-3.1</b>	<b>-5.8</b>	<b>14.5</b>	<b>10.9</b>	<b>--</b>	<b>8.6</b>	<b>Jan-16</b>
<i>Custom Benchmark</i>			<i>-1.9</i>	<i>-1.9</i>	<i>-7.6</i>	<i>-12.1</i>	<i>7.1</i>	<i>5.7</i>	<i>--</i>	<i>5.9</i>	
<b>Private Equity</b>	<b>245,849,693</b>	<b>17.8</b>	<b>1.5</b>	<b>1.5</b>	<b>5.4</b>	<b>8.1</b>	<b>25.2</b>	<b>17.6</b>	<b>--</b>	<b>13.1</b>	<b>Jan-16</b>
<i>MSCI ACWI IMI (1Q Lagged)+2%</i>			<i>6.4</i>	<i>6.4</i>	<i>26.2</i>	<i>18.4</i>	<i>13.2</i>	<i>9.8</i>	<i>10.8</i>	<i>11.8</i>	
<b>Real Assets</b>	<b>127,530,859</b>	<b>9.2</b>	<b>1.1</b>	<b>0.7</b>	<b>7.1</b>	<b>9.2</b>	<b>14.0</b>	<b>9.1</b>	<b>--</b>	<b>4.7</b>	<b>Jan-16</b>
<i>CPI +3% (Unadjusted)</i>			<i>0.5</i>	<i>1.6</i>	<i>6.0</i>	<i>6.8</i>	<i>8.9</i>	<i>7.2</i>	<i>5.8</i>	<i>6.6</i>	
<b>Cash and Cash Equivalent</b>	<b>14,768,943</b>	<b>1.1</b>									

Effective January 1, 2023, asset class and total plan performance is rolled up using a weighted average calculation.

The policy benchmark is comprised of 26% Russell 3000/ 6% MSCI EAFE/ 10% MSCI Emerging Markets/ 13% MSCI ACWI IMI (Lagged) + 2%/ 10% MSCI ACWI/ 4% Hedge Funds Custom Benchmark/ 9% (75/25 Barclays Aggregate and Barclays 10yr)/ 6% Value Added FI Custom Benchmark/ 10% (80/20 NCREIF ODCE and Wilshire REIT)/ 6% CPI+3%

The Custom Benchmark - Global Fixed Income is comprised of 25% BBgBarc/ US High Yield, 25% / Credit Suisse Leveraged Loans / 25% JP Morgan EMBI Global diversified / and 25% BBgBarc Multiverse TR

Real Estate, Private Equity, and Real Assets market values and performance are one quarter lagged. With the exception of JPM Strategic Property, IFM, and TA Realty.



Asset Allocation & Performance | As of September 30, 2023

	Market Value \$	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Retirement Association</b>	<b>1,378,971,351</b>	<b>100.0</b>	<b>-1.5</b>	<b>-1.2</b>	<b>4.3</b>	<b>9.1</b>	<b>8.6</b>	<b>6.5</b>	<b>6.7</b>	<b>7.7</b>	<b>Nov-89</b>
<i>Policy Benchmark (Net)</i>			-1.8	-1.4	7.5	11.7	5.7	5.5	6.4	--	
<i>Actual Allocation (Net)</i>			-1.0	-0.6	7.4	9.9	5.7	5.1	--	--	
<i>InvMetrics All Public DB Plans Net Median</i>			-3.4	-3.0	4.7	10.8	4.4	5.1	6.3	8.0	
InvMetrics All Public DB Plans Net Rank			4	5	65	82	2	7	29	67	
<b>Domestic Equity Assets</b>	<b>269,463,985</b>	<b>19.5</b>	<b>-5.1</b>	<b>-3.9</b>	<b>7.8</b>	<b>17.0</b>	<b>8.6</b>	<b>7.5</b>	<b>--</b>	<b>11.0</b>	<b>Jan-16</b>
<i>Russell 3000 Index</i>			-4.8	-3.3	12.4	20.5	9.4	9.1	11.3	11.6	
Rhumblin Russell 1000 Value	75,611,995	5.5	-3.8	-3.2	1.8	14.4	11.0	6.2	8.4	8.6	May-13
<i>Russell 1000 Value Index</i>			-3.9	-3.2	1.8	14.4	11.1	6.2	8.4	8.7	
<i>eV US Large Cap Value Equity Median</i>			-3.5	-2.4	2.3	15.4	11.8	6.8	8.8	9.1	
eV US Large Cap Value Equity Rank			69	71	55	58	61	66	65	67	
Rhumblin Russell 1000 Growth	53,369,785	3.9	-5.4	-3.1	24.9	27.7	8.0	12.4	14.4	15.1	Aug-09
<i>Russell 1000 Growth Index</i>			-5.4	-3.1	25.0	27.7	8.0	12.4	14.5	15.2	
<i>eV US Large Cap Growth Equity Median</i>			-5.4	-3.5	20.8	25.1	5.4	9.8	12.5	13.3	
eV US Large Cap Growth Equity Rank			52	42	25	26	26	10	7	6	
Fisher Midcap Value	50,911,949	3.7	-5.5	-4.7	5.9	20.4	12.4	9.5	10.5	8.6	May-07
<i>Russell Midcap Value Index</i>			-5.1	-4.5	0.5	11.0	11.0	5.2	7.9	6.7	
<i>eV US Mid Cap Value Equity Median</i>			-4.3	-3.5	2.7	14.1	13.5	5.8	8.0	7.2	
eV US Mid Cap Value Equity Rank			88	87	21	16	65	5	5	10	
Newton Small Cap Growth	44,761,084	3.2	-6.2	-6.7	3.1	4.8	-2.3	5.7	10.4	12.6	Sep-09
<i>Russell 2000 Growth Index</i>			-6.6	-7.3	5.2	9.6	1.1	1.6	6.7	10.4	
<i>eV US Small Cap Growth Equity Median</i>			-6.1	-6.6	5.0	9.8	2.1	4.2	8.3	12.0	
eV US Small Cap Growth Equity Rank			53	53	62	77	79	28	17	33	

Asset Allocation & Performance | As of September 30, 2023

	Market Value \$	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Vulcan Partners Small Cap Value	14,935,176	1.1	-7.5	-6.2	6.6	18.3	--	--	--	-16.5	Apr-22
<i>Russell 2000 Value Index</i>			-5.2	-3.0	-0.5	7.8	13.3	2.6	6.2	-8.8	
<i>eV US Small Cap Value Equity Median</i>			-4.9	-2.9	2.9	14.0	15.1	4.3	6.9	-3.8	
<i>eV US Small Cap Value Equity Rank</i>			100	92	23	23	--	--	--	100	
Systematic Small Cap Free Cash Flow	29,873,996	2.2	-4.0	-0.8	5.9	18.5	--	--	--	2.2	Apr-22
<i>Russell 2000 Value Index</i>			-5.2	-3.0	-0.5	7.8	13.3	2.6	6.2	-8.8	
<i>eV US Small Cap Value Equity Median</i>			-4.9	-2.9	2.9	14.0	15.1	4.3	6.9	-3.8	
<i>eV US Small Cap Value Equity Rank</i>			25	20	27	22	--	--	--	10	
<b>International Developed Market Equity Assets</b>	<b>39,219,371</b>	<b>2.8</b>	<b>-5.1</b>	<b>-7.4</b>	<b>5.4</b>	<b>20.1</b>	<b>1.3</b>	<b>-0.8</b>	<b>--</b>	<b>2.3</b>	<b>Jan-16</b>
<i>MSCI EAFE (Net)</i>			-3.4	-4.1	7.1	25.6	5.8	3.2	3.8	5.0	
Aristotle International Equity	21,235,406	1.5	-4.0	-4.7	7.0	21.8	--	--	--	-0.7	Mar-21
<i>MSCI EAFE (Net)</i>			-3.4	-4.1	7.1	25.6	5.8	3.2	3.8	0.3	
<i>eV EAFE Core Equity Median</i>			-3.7	-4.2	5.9	22.7	4.3	2.9	4.2	-0.8	
<i>eV EAFE Core Equity Rank</i>			58	58	34	58	--	--	--	49	
Walter Scott International Equity	17,983,965	1.3	-6.5	-10.5	3.6	18.1	--	--	--	-3.2	Mar-21
<i>MSCI EAFE (Net)</i>			-3.4	-4.1	7.1	25.6	5.8	3.2	3.8	0.3	
<i>eV EAFE Core Equity Median</i>			-3.7	-4.2	5.9	22.7	4.3	2.9	4.2	-0.8	
<i>eV EAFE Core Equity Rank</i>			98	100	77	84	--	--	--	78	
<b>International Emerging Market Equity Assets</b>	<b>103,836,699</b>	<b>7.5</b>	<b>-2.7</b>	<b>-2.2</b>	<b>4.8</b>	<b>10.6</b>	<b>-0.1</b>	<b>1.3</b>	<b>--</b>	<b>4.8</b>	<b>Jan-16</b>
<i>MSCI Emerging Markets (Net)</i>			-2.6	-2.9	1.8	11.7	-1.7	0.6	2.1	4.9	
ABS Emerging Markets	55,897,763	4.1	-2.7	-1.5	6.1	13.6	1.0	--	--	5.2	Dec-18
<i>MSCI Emerging Markets (Net)</i>			-2.6	-2.9	1.8	11.7	-1.7	0.6	2.1	1.6	
<i>eV Emg Mkts Equity Median</i>			-2.7	-3.2	3.8	14.2	-0.2	1.8	2.7	2.9	
<i>eV Emg Mkts Equity Rank</i>			52	30	33	54	42	--	--	26	

Asset Allocation & Performance | As of September 30, 2023

	Market Value \$	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Driehaus Emerging Markets Growth	47,938,937	3.5	-2.6	-3.0	3.3	7.2	-2.0	--	--	3.4	Mar-19
<i>MSCI Emerging Markets (Net)</i>			-2.6	-2.9	1.8	11.7	-1.7	0.6	2.1	0.4	
<i>eV Emg Mkts Equity Median</i>			-2.7	-3.2	3.8	14.2	-0.2	1.8	2.7	1.8	
<i>eV Emg Mkts Equity Rank</i>			46	47	54	89	63	--	--	31	
<b>Global Equity Assets</b>	<b>148,900,987</b>	<b>10.8</b>	<b>-2.2</b>	<b>-1.9</b>	<b>6.4</b>	<b>18.6</b>	<b>8.0</b>	<b>6.8</b>	<b>--</b>	<b>5.5</b>	<b>Feb-18</b>
<i>MSCI AC World Index (Net)</i>			-4.1	-3.4	10.1	20.8	6.9	6.5	7.6	5.4	
First Eagle Global Value Fund	25,097,783	1.8	-3.6	-3.7	5.2	19.0	6.9	5.4	--	4.1	Feb-18
<i>MSCI AC World Index Value (Net)</i>			-2.6	-1.8	2.4	17.0	9.7	4.0	5.3	2.6	
<i>eV Global Value Equity Median</i>			-3.6	-2.9	6.3	22.0	9.4	5.0	6.1	3.6	
<i>eV Global Value Equity Rank</i>			52	69	60	69	79	42	--	41	
Kopernik Global All Cap Fund	40,514,896	2.9	1.2	4.0	7.1	20.2	10.4	11.2	--	7.3	Feb-18
<i>MSCI AC World Index Value (Net)</i>			-2.6	-1.8	2.4	17.0	9.7	4.0	5.3	2.6	
<i>eV Global All Cap Value Eq Median</i>			-3.4	-2.8	6.5	22.0	9.5	5.0	5.8	3.5	
<i>eV Global All Cap Value Eq Rank</i>			1	2	47	62	38	6	--	10	
Lee Munder Global Multi-Cap Strategy	38,586,746	2.8	-3.6	-3.9	10.0	18.4	7.2	4.8	--	4.9	Mar-18
<i>MSCI AC World Index (Net)</i>			-4.1	-3.4	10.1	20.8	6.9	6.5	7.6	6.3	
<i>eV All Global Equity Median</i>			-4.5	-4.2	7.0	19.5	6.1	6.1	7.3	5.9	
<i>eV All Global Equity Rank</i>			27	45	31	56	41	68	--	65	
Wellington Durable Enterprises, L.P.	44,701,562	3.2	-3.0	-4.0	3.2	17.1	7.4	6.7	--	7.4	Mar-18
<i>MSCI AC World Index (Net)</i>			-4.1	-3.4	10.1	20.8	6.9	6.5	7.6	6.3	
<i>eV All Global Equity Median</i>			-4.5	-4.2	7.0	19.5	6.1	6.1	7.3	5.9	
<i>eV All Global Equity Rank</i>			17	47	72	62	39	41	--	29	

Asset Allocation & Performance | As of September 30, 2023

	Market Value \$	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Core Fixed Income</b>	<b>91,352,281</b>	<b>6.6</b>	<b>-1.4</b>	<b>-1.3</b>	<b>0.6</b>	<b>2.2</b>	<b>-2.5</b>	<b>1.3</b>	<b>--</b>	<b>1.6</b>	<b>Jan-16</b>
<i>75% Bbg Aggregate/25% Bbg US TIPS 1-10 year</i>			<i>-2.2</i>	<i>-2.7</i>	<i>-0.8</i>	<i>1.0</i>	<i>-3.9</i>	<i>0.7</i>	<i>1.3</i>	<i>1.1</i>	
Lord Abbett Short Duration Credit Trust II	38,910,438	2.8	-0.1	0.9	2.6	3.9	0.2	--	--	0.9	Aug-19
<i>Blmbg. 1-3 Year Credit</i>			<i>-0.1</i>	<i>0.8</i>	<i>2.2</i>	<i>3.5</i>	<i>-0.3</i>	<i>1.6</i>	<i>1.5</i>	<i>0.9</i>	
<i>eV US Short Duration Fixed Inc Median</i>			<i>-0.1</i>	<i>0.7</i>	<i>2.2</i>	<i>3.2</i>	<i>-0.4</i>	<i>1.3</i>	<i>1.2</i>	<i>0.7</i>	
<i>eV US Short Duration Fixed Inc Rank</i>			<i>52</i>	<i>27</i>	<i>29</i>	<i>29</i>	<i>21</i>	<i>--</i>	<i>--</i>	<i>35</i>	
Lord Abbett Core Fixed Income Trust II	39,616,080	2.9	-2.4	-2.9	-0.7	1.0	--	--	--	-7.8	Dec-21
<i>Blmbg. U.S. Aggregate Index</i>			<i>-2.5</i>	<i>-3.2</i>	<i>-1.2</i>	<i>0.6</i>	<i>-5.2</i>	<i>0.1</i>	<i>1.1</i>	<i>-8.1</i>	
<i>eV US Core Fixed Inc Median</i>			<i>-2.5</i>	<i>-3.1</i>	<i>-0.9</i>	<i>0.9</i>	<i>-5.0</i>	<i>0.4</i>	<i>1.4</i>	<i>-7.9</i>	
<i>eV US Core Fixed Inc Rank</i>			<i>34</i>	<i>32</i>	<i>40</i>	<i>43</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>44</i>	
Rhumblin TIPS Trust	12,825,763	0.9	-1.8	-2.6	-0.8	1.2	-2.0	--	--	-2.1	Sep-20
<i>Blmbg. U.S. TIPS</i>			<i>-1.8</i>	<i>-2.6</i>	<i>-0.8</i>	<i>1.2</i>	<i>-2.0</i>	<i>2.1</i>	<i>1.7</i>	<i>-2.0</i>	
<i>eV US TIPS / Inflation Fixed Inc Median</i>			<i>-1.8</i>	<i>-2.3</i>	<i>-0.6</i>	<i>1.5</i>	<i>-1.9</i>	<i>2.2</i>	<i>1.7</i>	<i>-1.9</i>	
<i>eV US TIPS / Inflation Fixed Inc Rank</i>			<i>63</i>	<i>67</i>	<i>61</i>	<i>64</i>	<i>57</i>	<i>--</i>	<i>--</i>	<i>58</i>	
<b>Value Added Fixed Income</b>	<b>92,346,551</b>	<b>6.7</b>	<b>-0.6</b>	<b>0.5</b>	<b>5.5</b>	<b>9.2</b>	<b>1.9</b>	<b>2.6</b>	<b>--</b>	<b>4.3</b>	<b>Jan-16</b>
<i>Custom Benchmark - Global Fixed Income</i>			<i>-1.4</i>	<i>-0.5</i>	<i>3.9</i>	<i>8.9</i>	<i>-0.2</i>	<i>1.6</i>	<i>2.9</i>	<i>3.4</i>	
Eaton Vance High Yield	12,228,147	0.9	-1.1	0.5	5.1	9.5	2.0	3.0	4.1	5.8	May-06
<i>ICE BofA High Yield Master II</i>			<i>-1.2</i>	<i>0.5</i>	<i>6.0</i>	<i>10.2</i>	<i>1.8</i>	<i>2.8</i>	<i>4.2</i>	<i>6.0</i>	
<i>eV US High Yield Fixed Inc Median</i>			<i>-1.1</i>	<i>0.6</i>	<i>5.4</i>	<i>9.5</i>	<i>1.8</i>	<i>2.9</i>	<i>3.9</i>	<i>5.6</i>	
<i>eV US High Yield Fixed Inc Rank</i>			<i>56</i>	<i>55</i>	<i>61</i>	<i>51</i>	<i>45</i>	<i>45</i>	<i>33</i>	<i>35</i>	
First Eagle Bank Loan Select Fund	11,512,085	0.8	0.8	3.1	9.2	9.9	5.2	3.8	4.3	4.9	Oct-10
<i>Credit Suisse Leveraged Loan Index</i>			<i>0.9</i>	<i>3.4</i>	<i>9.9</i>	<i>12.5</i>	<i>5.9</i>	<i>4.3</i>	<i>4.3</i>	<i>4.8</i>	
<i>Bank Loan Median</i>			<i>0.6</i>	<i>2.9</i>	<i>9.0</i>	<i>11.7</i>	<i>4.7</i>	<i>3.0</i>	<i>3.4</i>	<i>3.8</i>	
<i>Bank Loan Rank</i>			<i>16</i>	<i>35</i>	<i>39</i>	<i>89</i>	<i>34</i>	<i>19</i>	<i>1</i>	<i>1</i>	

Asset Allocation & Performance | As of September 30, 2023

	Market Value \$	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Manulife Strategic Fixed Income	34,165,051	2.5	-1.8	-2.0	1.6	4.9	-1.1	--	--	0.7	Aug-19
<i>Blmbg. Global Multiverse</i>			-2.9	-3.5	-1.9	2.7	-6.6	-1.5	-0.3	-3.3	
<i>Multisector Bond Median</i>			-1.6	-0.9	2.3	5.3	-0.7	1.5	2.5	0.6	
Multisector Bond Rank			70	86	65	56	63	--	--	44	
Mesirow High Yield	15,686,045	1.1	-0.1	2.7	10.5	13.3	6.7	--	--	5.7	Aug-19
<i>Blmbg. U.S. Corp: High Yield Index</i>			-1.2	0.5	5.9	10.3	1.8	3.0	4.2	2.2	
<i>eV US High Yield Fixed Inc Median</i>			-1.1	0.6	5.4	9.5	1.8	2.9	3.9	2.2	
eV US High Yield Fixed Inc Rank			8	4	1	1	1	--	--	2	
Eaton Vance EMD Opportunities Fund	8,600,235	0.6	-0.3	0.3	6.4	16.1	2.0	--	--	2.1	Aug-20
<i>JPM EMBI Global Diversified</i>			-2.6	-2.2	1.8	10.0	-4.6	-0.4	2.5	-4.7	
<i>eV Emg Mkts Fixed Inc - Blended Currency Median</i>			-2.6	-2.6	3.1	11.6	-2.4	0.4	1.6	-2.7	
eV Emg Mkts Fixed Inc - Blended Currency Rank			4	8	9	7	4	--	--	2	
Schroder All ILS Fund LTD	10,154,989	0.7	1.5	--	--	--	--	--	--	1.5	Aug-23

Asset Allocation & Performance | As of September 30, 2023

	Market Value \$	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Hedge Funds</b>	<b>79,346,778</b>	<b>5.8</b>	<b>-1.0</b>	<b>-0.5</b>	<b>2.1</b>	<b>9.3</b>	<b>2.4</b>	<b>0.4</b>	<b>2.7</b>	<b>3.3</b>	<b>Mar-10</b>
<i>Custom Benchmark</i>			<i>0.0</i>	<i>0.5</i>	<i>2.8</i>	<i>4.6</i>	<i>3.8</i>	<i>3.4</i>	<i>3.3</i>	<i>3.2</i>	
ABS Offshore SPC - Global Segregated Portfolio	30,791,402	2.2	-1.7	-0.7	3.0	7.8	3.2	3.3	4.1	4.8	Sep-10
<i>HFRI Equity Hedge (Total) Index</i>			<i>-1.8</i>	<i>-1.0</i>	<i>4.7</i>	<i>9.1</i>	<i>6.5</i>	<i>5.2</i>	<i>5.1</i>	<i>5.4</i>	
Entrust Special Opportunities Fund III, Ltd.	13,695,097	1.0	0.0	0.0	2.7	17.6	1.0	-3.2	--	2.6	Oct-16
<i>HFRI Fund of Funds Composite Index (QTR)</i>			<i>-0.4</i>	<i>0.5</i>	<i>2.8</i>	<i>4.6</i>	<i>3.8</i>	<i>3.4</i>	<i>3.3</i>	<i>3.8</i>	
Old Farm Partners Master Fund, L.P.	15,970,324	1.2	-1.6	-1.0	4.2	7.0	5.2	4.1	--	4.1	Oct-18
<i>HFRI Fund of Funds Composite Index</i>			<i>-0.4</i>	<i>0.5</i>	<i>2.8</i>	<i>4.6</i>	<i>3.8</i>	<i>3.4</i>	<i>3.3</i>	<i>3.4</i>	
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	18,889,955	1.4	0.0	0.0	-1.8	8.2	-0.1	--	--	1.3	Jan-19
<i>HFRI Fund of Funds Composite Index (QTR)</i>			<i>-0.4</i>	<i>0.5</i>	<i>2.8</i>	<i>4.6</i>	<i>3.8</i>	<i>3.4</i>	<i>3.3</i>	<i>4.7</i>	
<b>Real Estate</b>	<b>166,355,205</b>	<b>12.1</b>	<b>-0.3</b>	<b>-0.4</b>	<b>-3.1</b>	<b>-5.8</b>	<b>14.5</b>	<b>10.9</b>	<b>--</b>	<b>8.6</b>	<b>Jan-16</b>
<i>Custom Benchmark</i>			<i>-1.9</i>	<i>-1.9</i>	<i>-7.6</i>	<i>-12.1</i>	<i>7.1</i>	<i>5.7</i>	<i>--</i>	<i>5.9</i>	
<b>Core Real Estate</b>	<b>105,484,872</b>	<b>7.6</b>	<b>-0.7</b>	<b>-1.0</b>	<b>-3.8</b>	<b>-9.1</b>	<b>9.9</b>	<b>8.2</b>	<b>--</b>	<b>7.9</b>	<b>Jan-16</b>
<i>NCREIF Fund Index-Open End Diversified Core Equity (VW) Monthly</i>			<i>-1.9</i>	<i>-1.9</i>	<i>-7.6</i>	<i>-12.1</i>	<i>7.1</i>	<i>5.7</i>	<i>8.2</i>	<i>6.6</i>	
TA Realty Core Property Fund, L.P.	74,558,902	5.4	0.0	0.0	-1.9	-7.3	12.7	10.9	--	10.7	Apr-18
<i>NCREIF Fund Index-Open End Diversified Core Equity (VW) Monthly</i>			<i>-1.9</i>	<i>-1.9</i>	<i>-7.6</i>	<i>-12.1</i>	<i>7.1</i>	<i>5.7</i>	<i>8.2</i>	<i>5.9</i>	
JPMorgan Strategic Property	30,925,970	2.2	-2.5	-3.4	-8.2	-13.0	5.0	--	--	3.7	Apr-19
<i>NCREIF Fund Index-Open End Diversified Core Equity (VW) Monthly</i>			<i>-1.9</i>	<i>-1.9</i>	<i>-7.6</i>	<i>-12.1</i>	<i>7.1</i>	<i>5.7</i>	<i>8.2</i>	<i>5.6</i>	
<b>Non-Core Real Estate</b>	<b>60,870,333</b>	<b>4.4</b>	<b>0.6</b>	<b>0.6</b>	<b>-1.7</b>	<b>0.5</b>	<b>23.2</b>	<b>16.3</b>	<b>--</b>	<b>8.5</b>	<b>Jan-16</b>

Entrust Special Opportunities Fund III and Entrust Permal Special Opportunities Evergreen Fund: Data is based on June 30, 2023 fair market value, adjusted for subsequent cash flows.

Note: The data for JPMorgan Strategic Property is as of September 30, 2023.

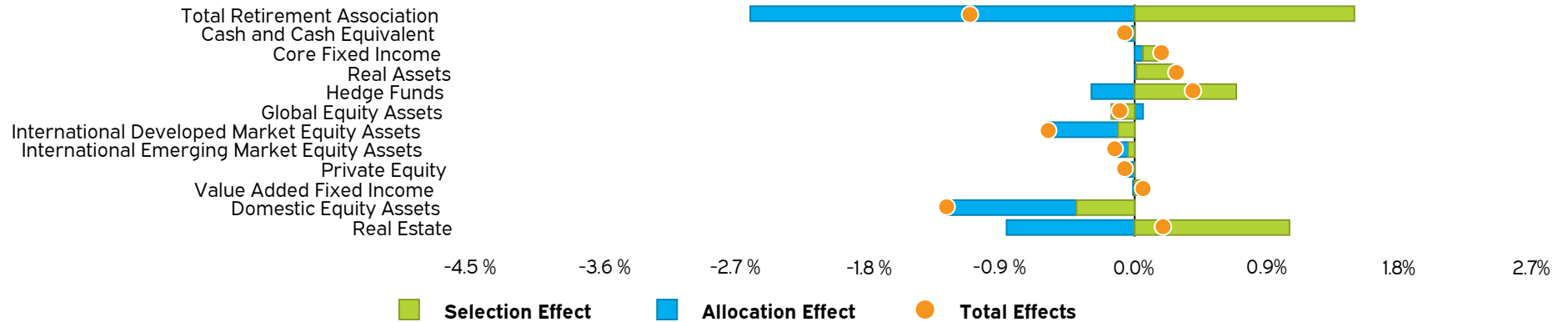
Asset Allocation & Performance | As of September 30, 2023

	Market Value \$	% of Portfolio	1 Mo (%)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Private Equity</b>	<b>245,849,693</b>	<b>17.8</b>	<b>1.5</b>	<b>1.5</b>	<b>5.4</b>	<b>8.1</b>	<b>25.2</b>	<b>17.6</b>	--	<b>13.1</b>	<b>Jan-16</b>
<i>MSCI ACWI IMI (1Q Lagged)+2%</i>			<i>6.4</i>	<i>6.4</i>	<i>26.2</i>	<i>18.4</i>	<i>13.2</i>	<i>9.8</i>	<i>10.8</i>	<i>11.8</i>	
<b>Private Equity</b>	<b>229,368,326</b>	<b>16.6</b>	<b>1.4</b>	<b>1.4</b>	<b>5.6</b>	<b>8.6</b>	<b>25.6</b>	<b>18.3</b>	--	<b>12.9</b>	<b>Feb-16</b>
<b>Venture Capital</b>	<b>16,481,367</b>	<b>1.2</b>	<b>3.0</b>	<b>3.0</b>	<b>3.4</b>	<b>1.0</b>	<b>20.2</b>	<b>10.6</b>	--	<b>10.9</b>	<b>Feb-16</b>
<b>Real Assets</b>	<b>127,530,859</b>	<b>9.2</b>	<b>1.1</b>	<b>0.7</b>	<b>7.1</b>	<b>9.2</b>	<b>14.0</b>	<b>9.1</b>	--	<b>4.7</b>	<b>Jan-16</b>
<i>CPI +3% (Unadjusted)</i>			<i>0.5</i>	<i>1.6</i>	<i>6.0</i>	<i>6.8</i>	<i>8.9</i>	<i>7.2</i>	<i>5.8</i>	<i>6.6</i>	
<b>Core Real Assets</b>	<b>75,041,648</b>	<b>5.4</b>	<b>1.0</b>	<b>0.4</b>	<b>5.6</b>	<b>9.8</b>	<b>11.7</b>	<b>10.6</b>	--	<b>10.6</b>	<b>Oct-18</b>
<i>CPI +3% (Unadjusted)</i>			<i>0.5</i>	<i>1.6</i>	<i>6.0</i>	<i>6.8</i>	<i>8.9</i>	<i>7.2</i>	<i>5.8</i>	<i>7.2</i>	
IFM Global Infrastructure	75,041,648	5.4	1.0	0.4	5.6	9.8	11.7	10.6	--	10.6	Oct-18
<i>CPI +3% (Unadjusted)</i>			<i>0.5</i>	<i>1.6</i>	<i>6.0</i>	<i>6.8</i>	<i>8.9</i>	<i>7.2</i>	<i>5.8</i>	<i>7.2</i>	
<b>Non-Core Real Assets</b>	<b>52,489,211</b>	<b>3.8</b>	<b>1.2</b>	<b>1.2</b>	<b>9.3</b>	<b>9.3</b>	<b>16.7</b>	<b>7.8</b>	--	<b>4.9</b>	<b>Jan-16</b>
<i>CPI +3% (Unadjusted)</i>			<i>0.5</i>	<i>1.6</i>	<i>6.0</i>	<i>6.8</i>	<i>8.9</i>	<i>7.2</i>	<i>5.8</i>	<i>6.6</i>	
<b>Cash and Cash Equivalent</b>	<b>14,768,943</b>	<b>1.1</b>									
Cash	14,768,943	1.1									

Note: The data for Real Estate, Private Equity, and Real Assets is based on June 30, 2023 fair market value, adjusted for subsequent cash flows.

Note: The data for IFM Global Infrastructure is as of September 30, 2023.

#### Attribution Effects 1 Year Ending September 30, 2023



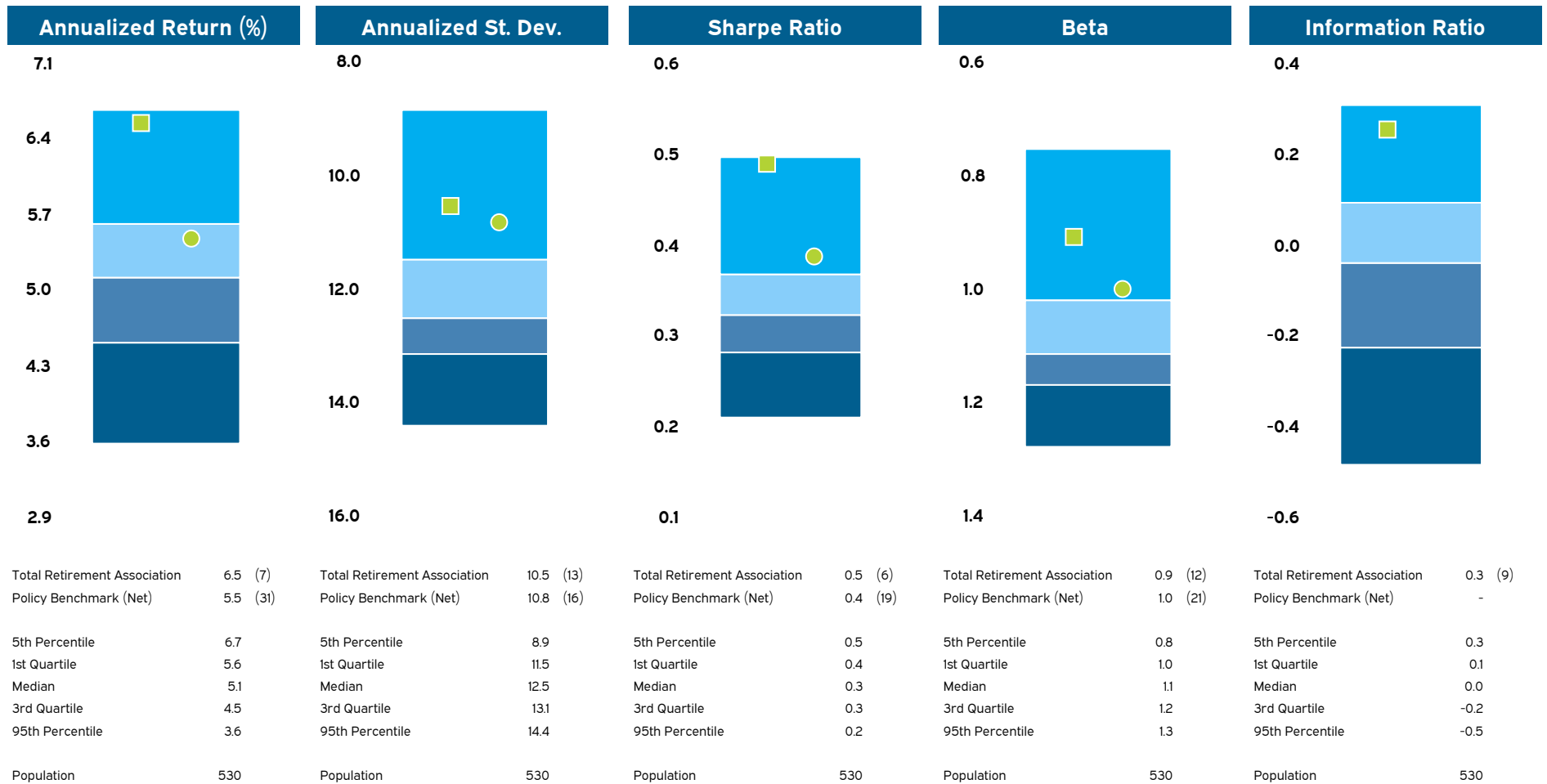
#### Attribution Summary

#### 1 Year Ending September 30, 2023

	Wtd. Actual Return (%)	Wtd. Index Return (%)	Excess Return (%)	Selection Effect (%)	Allocation Effect (%)	Total Effect (%)
Cash and Cash Equivalent	3.5	4.5	-0.9	0.0	-0.1	-0.1
Core Fixed Income	2.2	0.3	1.9	0.1	0.1	0.2
Real Assets	9.2	6.0	3.2	0.3	0.0	0.3
Hedge Funds	9.3	-1.3	10.6	0.7	-0.3	0.4
Global Equity Assets	18.6	20.0	-1.4	-0.2	0.1	-0.1
International Developed Market Equity Assets	20.1	24.8	-4.7	-0.1	-0.5	-0.6
International Emerging Market Equity Assets	10.6	10.9	-0.3	0.0	-0.1	-0.1
Private Equity	8.1	8.1	0.0	0.0	-0.1	-0.1
Value Added Fixed Income	9.2	8.1	1.1	0.1	0.0	0.1
Domestic Equity Assets	17.0	19.6	-2.6	-0.4	-0.9	-1.3
Real Estate	-5.8	-12.8	6.9	1.1	-0.9	0.2
<b>Total Retirement Association</b>	<b>9.1</b>	<b>10.2</b>	<b>-1.1</b>	<b>1.5</b>	<b>-2.6</b>	<b>-1.1</b>



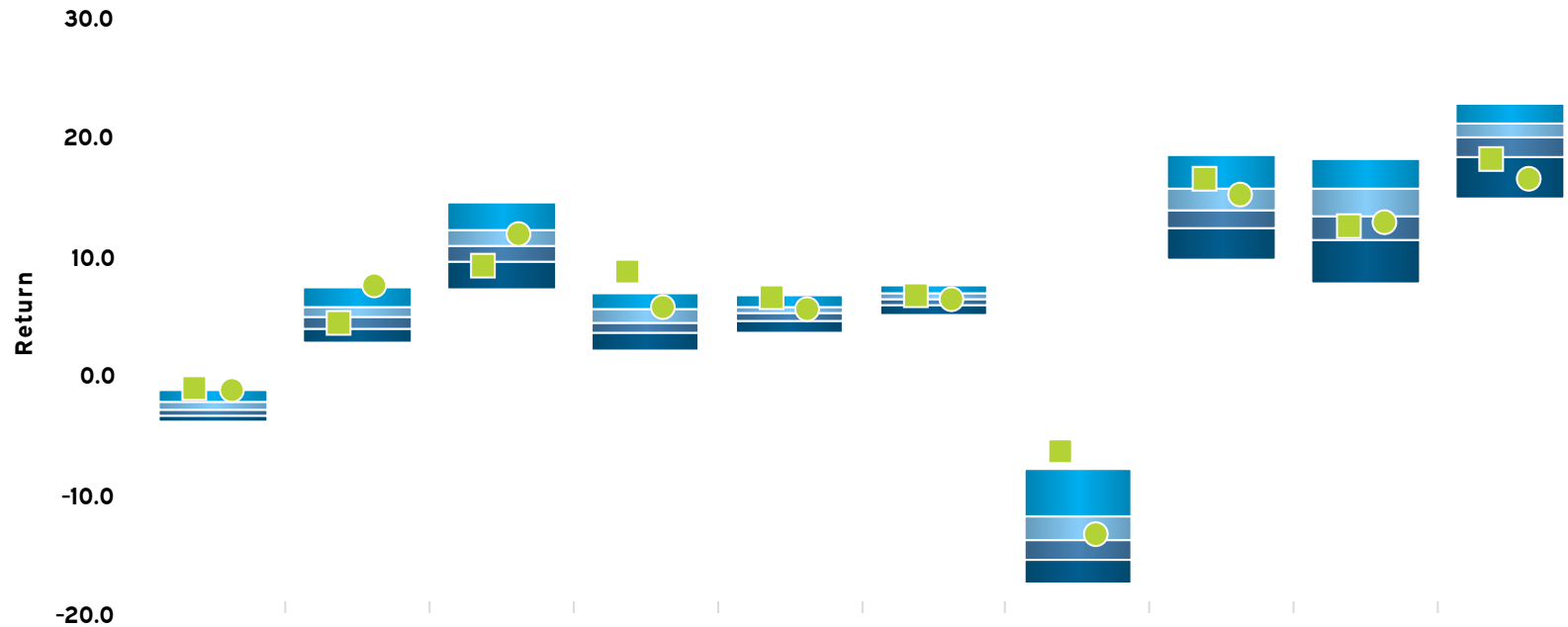
### Multi Report Enhanced | 5 Years As of September 30, 2023



**Risk Return Statistics**

	3 Yrs	5 Yrs
	Total Retirement Association	Total Retirement Association
<b>RETURN SUMMARY STATISTICS</b>		
Maximum Return	6.9	6.9
Minimum Return	-4.0	-10.5
Return	8.6	6.5
Excess Return	7.0	5.2
Excess Performance	2.9	1.1
<b>RISK SUMMARY STATISTICS</b>		
Beta	0.8	0.9
Upside Risk	7.7	8.0
Downside Risk	4.6	7.1
<b>RISK/RETURN SUMMARY STATISTICS</b>		
Standard Deviation	8.6	10.5
Sortino Ratio	1.4	0.7
Alpha	4.1	1.5
Sharpe Ratio	0.8	0.5
Excess Risk	8.7	10.7
Tracking Error	4.1	3.8
Information Ratio	0.6	0.3
<b>CORRELATION STATISTICS</b>		
R-Squared	0.9	0.9
Actual Correlation	0.9	0.9

### All Public DB Peer Group Analysis | As of September 30, 2023



	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	2022	2021	2020	2019
■ Total Retirement Association	-1.2 (5)	4.3 (65)	9.1 (82)	8.6 (2)	6.5 (7)	6.7 (29)	-6.5 (4)	16.5 (16)	12.5 (61)	18.0 (78)
● Policy Benchmark (Net)	-1.4 (7)	7.5 (5)	11.7 (34)	5.7 (19)	5.5 (31)	6.4 (42)	-13.4 (44)	15.2 (29)	12.8 (57)	16.4 (89)
5th Percentile	-1.2	7.2	14.5	6.9	6.7	7.5	-7.9	18.4	18.0	22.6
1st Quartile	-2.3	5.6	12.1	5.4	5.6	6.8	-11.8	15.5	15.6	21.0
Median	-2.9	4.8	10.8	4.4	5.1	6.3	-13.8	13.8	13.3	19.9
3rd Quartile	-3.4	3.8	9.4	3.5	4.5	5.8	-15.6	12.4	11.3	18.2
95th Percentile	-3.9	2.6	7.2	2.1	3.6	5.0	-17.4	9.6	7.6	14.8
Population	603	580	573	549	530	437	768	936	983	726

Parenteses contain percentile rankings.  
Calculation based on monthly periodicity.

Annual Investment Expense Analysis				
	Fee Schedule	Market Value	Estimated Expense	Expense Ratio (%)
<b>Domestic Equity Assets</b>				
Rhumblin Russell 1000 Value	0.05 % of First \$25 M 0.04 % of Next \$25 M 0.03 % Thereafter	75,611,995	30,184	0.04
Rhumblin Russell 1000 Growth	0.05 % of First \$25 M 0.04 % of Next \$25 M 0.03 % Thereafter	53,369,785	23,511	0.04
Fisher Midcap Value	0.65 % of Assets	50,911,949	330,928	0.65
Newton Small Cap Growth	0.45 % of Assets	44,761,084	201,425	0.45
Vulcan Partners Small Cap Value	0.83 % of Assets	14,935,176	123,962	0.83
Systematic Small Cap Free Cash Flow	0.76 % of Assets	29,873,996	227,042	0.76
<b>International Developed Market Equity Assets</b>		<b>39,219,371</b>	<b>238,933</b>	<b>0.61</b>
Aristotle International Equity	0.49 % of Assets	21,235,406	104,053	0.49
Walter Scott International Equity	0.75 % of Assets	17,983,965	134,880	0.75
<b>International Emerging Market Equity Assets</b>		<b>103,836,699</b>	<b>459,306</b>	<b>0.44</b>
ABS Emerging Markets	Performance Based 0.35 and 0.10	55,897,763	195,642	0.35
Driehaus Emerging Markets Growth	0.55 % of Assets	47,938,937	263,664	0.55
<b>Global Equity Assets</b>		<b>148,900,987</b>	<b>954,202</b>	<b>0.64</b>
First Eagle Global Value Fund	0.75 % of Assets	25,097,783	188,233	0.75
Kopernik Global All Cap Fund	0.80 % of First \$50 M 0.75 % of Next \$150 M 0.70 % of Next \$250 M 0.65 % of Next \$350 M 0.00 % Thereafter	40,514,896	324,119	0.80
Lee Munder Global Multi-Cap Strategy	0.45 % of Assets	38,586,746	173,640	0.45
Wellington Durable Enterprises, L.P.	0.60 % of Assets	44,701,562	268,209	0.60
<b>Core Fixed Income</b>		<b>91,352,281</b>	<b>129,920</b>	<b>0.14</b>
Lord Abbett Short Duration Credit Trust II	0.17 % of Assets	38,910,438	66,148	0.17
Lord Abbett Core Fixed Income Trust II	0.15 % of Assets	39,616,080	59,424	0.15
Rhumblin TIPS Trust	0.04 % of First \$5 M 0.03 % Thereafter	12,825,763	4,348	0.03
<b>Value Added Fixed Income</b>		<b>92,346,551</b>	<b>305,529</b>	<b>0.33</b>
Eaton Vance High Yield	0.42 % of Assets	12,228,147	51,358	0.42
First Eagle Bank Loan Select Fund	0.40 % of Assets	11,512,085	46,048	0.40
Manulife Strategic Fixed Income	0.35 % of Assets	34,165,051	119,578	0.35
Mesirow High Yield	0.40 % of Assets	15,686,045	62,744	0.40
Eaton Vance EMD Opportunities Fund	0.30 % of Assets	8,600,235	25,801	0.30
<b>Total</b>		<b>734,964,886</b>	<b>3,024,942</b>	

Eaton Vance EMD Opportunities Fund: Stated fee of 0.30% with other operating expenses capped at 0.15%.

Private Equity	Commitment	Total Contributions	Total Distributions	Value
Ascend Ventures II, L.P.	2,500,000	2,327,488	995,193	4,793
Ascent Venture Partners V, L.P.	5,000,000	5,004,731	4,494,116	3,184,982
Audax Mezzanine Fund IV, L.P.	10,000,000	9,003,599	7,751,969	3,277,132
Charlesbank Technology Opportunities Fund, L.P.	12,000,000	8,759,666	1,999,703	17,773,050
Ironsides Opportunities Fund II	20,000,000	6,269,024	127,791	6,397,452
Ironsides Co-Investment Fund VI, L.P.	13,000,000	11,749,689	440,844	13,754,542
DN Partners II, L.P.	5,000,000	2,375,841	23,571	2,602,713
Euro Choice V, L.P.	6,078,518	5,919,759	6,026,656	3,018,836
FS Equity Partners VIII, L.P.	12,000,000	9,724,864	324,324	15,343,879
Globespan Capital Partners V, L.P.	5,000,000	4,852,500	9,516,019	2,555,951
HarbourVest Partners Co-Investment Fund V, L.P.	12,000,000	9,300,000	2,373,256	14,397,177
HarbourVest Partners Co-Investment Fund VI, L.P.	13,000,000	6,500,000	0	6,810,931
Ironsides Direct Investment Fund V, L.P.	12,000,000	11,870,897	3,152,053	18,739,860
Kohlberg Investors IX	10,000,000	8,363,166	294,108	11,261,413
Landmark Equity Partners XIV, L.P.	6,000,000	5,843,572	7,446,442	408,687
Leeds Equity Partners V, L.P.	2,500,000	3,525,207	5,594,639	259,644
Lexington Capital Partners VII, L.P.	10,000,000	8,958,787	13,401,824	1,143,016
LLR Equity Partners V, L.P.	12,000,000	11,640,000	3,986,780	16,944,947
Mesirow Financial Capital Partners IX, L.P.	4,000,000	3,840,731	2,021,056	79,611
Ridgemont Equity Partners III, L.P.	12,000,000	12,910,739	7,072,051	16,752,593
Ridgemont Equity Partners IV, L.P.	13,000,000	1,008,678	0	1,092,995
Rimco Production Company, Inc	2,000,000	2,000,000	7,651,066	1
Searchlight Capital III, L.P.	12,000,000	9,246,689	3,969,713	10,951,931
Siguler Guff Distressed Opportunities Fund III, L.P.	6,000,000	5,820,000	9,239,704	415,671
Summit Partners Growth Equity Fund IX, L.P.	10,000,000	11,781,000	12,558,753	15,509,792
Summit Partners Venture Capital Fund V	10,000,000	5,548,562	444,178	5,245,832
Summit Partners Growth Equity Fund XI, L.P.	13,000,000	3,172,863	0	3,332,562
TRG Growth Partnership II, L.P.	7,500,000	7,366,152	8,989,845	543,251
Trilantic Capital Partners VI (North America), L.P.	12,000,000	11,854,436	1,192,424	15,119,481
Waud Capital Partners V, L.P.	10,000,000	10,036,521	52,149	15,122,664
Wellspring Capital Partners VI, L.P.	12,000,000	11,801,119	2,594,018	16,108,359
Kohlberg Investors X, L.P.	10,000,000	0	0	0

Waud Capital Partners VI	10,000,000	0	0	0
Trilantic Capital Partners VII	10,000,000	0	0	0
<b>Total Plymouth County - PE</b>	<b>291,578,518</b>	<b>228,376,281</b>	<b>123,734,243</b>	<b>238,153,748</b>
<b>Real Assets</b>	<b>Commitment</b>	<b>Total Contributions</b>	<b>Total Distributions</b>	<b>Value</b>
Basalt Infrastructure Partners II	10,000,000	9,416,866	5,845,746	7,375,110
BlackRock Global Renewable Power Infrastructure Fund III, L.P.	10,000,000	5,827,537	282,545	6,305,557
BTG Pactual Global Timberland Resources Fund, LLC	5,043,536	5,043,536	1,869,240	1,441,400
Climate Adaptive Infrastructure Fund I	10,000,000	4,921,629	584,326	5,271,387
Global Infrastructure Partners III, L.P.	10,000,000	10,281,798	4,885,650	10,389,781
Global Infrastructure Partners IV, L.P.	10,000,000	7,943,160	206,895	8,153,443
IFM Global Infrastructure (U.S.), L.P.	60,000,000	60,000,000	4,082,232	75,041,648
ISQ Global Infrastructure Fund III (USTE), L.P.	10,000,000	2,815,287	1,223	2,932,979
JPMorgan Global Maritime Investment	10,000,000	10,034,375	5,459,408	3,428,354
Domain Timbervest Partners III, L.P.	5,000,000	5,000,000	4,151,126	3,579,478
BlackRock Global Infrastructure Fund IV	10,000,000	1,871,975	0	1,794,988
<b>Total Plymouth County - RA</b>	<b>140,043,536</b>	<b>113,739,297</b>	<b>21,522,645</b>	<b>118,339,015</b>
<b>Real Estate</b>	<b>Commitment</b>	<b>Total Contributions</b>	<b>Total Distributions</b>	<b>Value</b>
1921 Realty, Inc.	5,000,000	5,378,294	0	544,736
AEW Partners IX, L.P.	10,000,000	7,201,646	141,499	7,658,914
AEW Partners Real Estate Fund VIII, L.P.	25,000,000	23,989,589	29,352,491	6,254,291
Berkshire Value Fund V, L.P.	9,000,000	6,283,181	1,058,371	5,782,165
Carlyle Realty Partners VIII, L.P.	18,000,000	15,404,133	11,476,769	9,959,998
DSF Capital Partners IV, L.P.	5,000,000	5,000,000	7,406,550	0
DSF Multi-Family Real Estate Fund III, L.P.	15,000,000	15,079,717	22,982,692	4,416,237
JPMorgan Strategic Property Fund	27,000,000	27,000,000	7,006,337	31,681,950
PCCP Equity IX, L.P.	10,000,000	6,719,943	0	6,939,010
Real Estate International Partnership Fund I, L.P.	15,000,000	12,677,141	11,372,161	591,899
Rockpoint Real Estate Fund VI, L.P.	9,000,000	7,292,898	1,091,059	7,653,917

Note: The value is based on June 30, 2023 FMV.

Note: The value for IFM Global Infrastructure and JPMorgan Strategic Property is as of September 30, 2023. The Value for TA Realty Core Property Fund is based on 6/30/2023 FMV as this fund is reported in real time.

Financial Reconciliation | 1 Month Ending September 30, 2023

	Beginning Market Value	Contributions	Distributions	Net Cash Flow	Ending Market Value
Rhumblin Russell 1000 Value	78,636,010	-	-	-	75,611,995
Rhumblin Russell 1000 Growth	56,435,443	-	-	-	53,369,785
Fisher Midcap Value	53,840,125	-	-	-	50,911,949
Newton Small Cap Growth	47,710,496	-	-	-	44,761,084
Vulcan Partners Small Cap Value	16,130,050	-	-	-	14,935,176
Systematic Small Cap Free Cash Flow	31,133,474	-	-	-	29,873,996
Aristotle International Equity	22,112,097	-	-	-	21,235,406
Walter Scott International Equity	19,214,835	-	-	-	17,983,965
ABS Emerging Markets	57,461,947	-	-	-	55,897,763
Driehaus Emerging Markets Growth	49,201,386	-	-	-	47,938,937
First Eagle Global Value Fund	26,034,894	-	-	-	25,097,783
Kopernik Global All Cap Fund	40,036,011	-	-	-	40,514,896
Lee Munder Global Multi-Cap Strategy	40,015,407	-	-	-	38,586,746
Wellington Durable Enterprises, L.P.	46,104,132	-	-	-	44,701,562
Lord Abbett Short Duration Credit Trust II	38,947,180	-	-	-	38,910,438
Lord Abbett Core Fixed Income Trust II	40,597,648	-	-	-	39,616,080
Rhumblin TIPS Trust	13,066,218	-	-	-	12,825,763
Eaton Vance High Yield	12,366,486	-	-	-	12,228,147
First Eagle Bank Loan Select Fund	11,420,580	-	-	-	11,512,085
Manulife Strategic Fixed Income	34,786,234	-	-	-	34,165,051
Mesirow High Yield	15,698,465	-	-	-	15,686,045
Eaton Vance EMD Opportunities Fund	8,625,695	-	-	-	8,600,235
Schroder All ILS Fund LTD	10,000,000	-	-	-	10,154,989
ABS Offshore SPC - Global Segregated Portfolio	31,333,792	-	-	-	30,791,402
Entrust Special Opportunities Fund III, Ltd.	13,695,097	-	-	-	13,695,097
Old Farm Partners Master Fund, L.P.	16,224,406	-	-	-	15,970,324
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	18,889,955	-	-	-	18,889,955
TA Realty Core Property Fund, L.P.	74,558,902	-	-	-	74,558,902
JPMorgan Strategic Property	31,681,950	-	-	-	30,925,970

Financial Reconciliation | 1 Month Ending September 30, 2023

	Beginning Market Value	Contributions	Distributions	Net Cash Flow	Ending Market Value
Mesirow Financial International Real Estate Fund I	634,320	-	-	-	591,899
DSF Multi-Family Real Estate Fund III	4,304,566	-	-	-	4,402,033
AEW Partners Real Estate VIII	6,047,171	-	-	-	6,254,291
1921 Realty, Inc	542,385	-	-	-	544,736
Carlyle Realty Partners VIII	9,820,655	190,670	-577,209	-386,539	9,573,459
Berkshire Value Fund V	5,893,196	-	-	-	5,782,165
Rockpoint Real Estate Fund VI, L.P.	8,141,514	23,458	-	23,458	8,084,662
TerraCap Partners V, L.P	10,583,174	-	-	-	10,630,682
AEW Partners Real Estate Fund IX, L.P.	7,541,452	-	-91,518	-91,518	7,567,396
PCCP Equity IX, L.P.	6,958,920	500,000	-	500,000	7,439,010
Euro Choice V Programme	2,918,403	-	-	-	3,018,836
Lexington Capital Partners VII	1,114,145	-	-22,764	-22,764	1,087,564
TRG Growth Partnership II	495,617	-	-132,811	-132,811	410,440
Landmark Equity Partners XIV	367,612	-	-	-	351,103
Summit Partners Growth Equity Fund IX	15,113,150	-	-354,804	-354,804	15,154,988
Leeds Equity Partners V	254,662	-	-	-	259,644
Audax Mezzanine Debt IV	3,251,043	-	-	-	3,231,773
Siguler Guff Distressed Opportunities Fund III, LP	433,763	-	-	-	415,671
Mesirow Financial Capital Partners IX, LP	79,293	-	-	-	79,611
DN Partners II, LP	2,502,220	-	-	-	2,553,293
LLR Equity Partners V, LP.	16,350,140	-	-627,080	-627,080	16,200,290
Wellspring Capital Partners VI	17,332,422	-	-	-	17,314,577
Trilantic Capital Partners VI, L.P.	15,071,863	265,682	-	265,682	15,472,435
HarbourVest Partners Co-Investment V	14,148,427	-	-	-	14,397,177
Ironsides Direct Investment Fund V, L.P.	19,833,700	-	-	-	19,891,350
Ridgemont Equity Partners III, L.P.	16,465,561	-	-	-	16,752,593
FS Equity Partners VIII, L.P.	15,813,194	-	-	-	15,460,851
Charlesbank Technology Opportunities Fund	19,232,877	-	-	-	20,164,223
Searchlight Capital III, L.P.	11,982,990	159,141	-314,467	-155,326	11,661,714



Financial Reconciliation | 1 Month Ending September 30, 2023

	Beginning Market Value	Contributions	Distributions	Net Cash Flow	Ending Market Value
Waud Capital Partners V	15,237,624	-	-	-	15,122,664
Summit Partners Venture Capital Fund V	5,072,160	-	-	-	5,325,618
Ironsides Co-Investment Fund VI, L.P.	13,404,658	-	-	-	13,754,542
HarbourVest Partners Co-Investment Fund VI, L.P.	6,670,972	650,000	-	650,000	7,460,931
Ridgemont Equity Partners IV, L.P.	3,992,647	-	-	-	3,969,163
Summit Partners Growth Equity Fund XI	3,311,780	-	-	-	3,478,171
Ironsides Opportunities Fund II, L.P.	6,220,112	2,096,323	-3,320,889	-1,224,566	5,172,886
Ascent Ventures V	3,172,565	-	-	-	3,184,982
Globespan Capital V	2,037,059	-	-	-	2,034,972
Kohlberg Investors IX	10,794,894	-	-	-	11,261,413
Waud Capital Partners VI	1,206,218	-	-	-	1,206,218
IFM Global Infrastructure	74,267,628	-	-	-	75,041,648
JP Morgan Global Maritime Investment	3,319,035	-	-	-	3,428,354
Timbervest Partners III, LP	3,585,553	110,000	-	110,000	3,469,478
BTG Pactual Global Timberland Resources	1,439,495	-	-	-	1,441,400
Global Infrastructure Partners III	10,297,014	-	-	-	10,327,651
Basalt Infrastructure Partners II	7,097,180	-	-230,337	-230,337	7,144,773
Global Infrastructure Partners IV, L.P.	8,125,601	661,750	-	661,750	8,911,423
ISQ Global Infrastructure Fund III (USTE), L.P.	2,899,636	-	-	-	2,932,979
BlackRock Global Renewable Power Infrastructure Fund III, L.P.	6,614,767	-	-	-	6,769,418
Climate Adaptive Infrastructure Fund	5,126,959	-	-	-	5,191,340
BlackRock Global Infrastructure Fund IV, L.P.	2,851,508	-	-	-	2,872,396
Cash	23,491,723	3,467,780	-12,190,561	-8,722,780	14,768,943
<b>Total</b>	<b>1,409,424,137</b>	<b>8,124,804</b>	<b>-17,862,440</b>	<b>-9,737,636</b>	<b>1,378,971,351</b>

Financial Reconciliation | April 1, 2023 To August 31, 2023

	Beginning Market Value	Contributions	Distributions	Net Cash Flow	Ending Market Value
Rhumblin Russell 1000 Value	47,688,830	37,500,000	-8,000,000	29,500,000	78,636,010
Rhumblin Russell 1000 Growth	42,492,302	12,500,000	-5,000,000	7,500,000	56,435,443
Fisher Midcap Value	56,112,073	-	-5,000,000	-5,000,000	53,840,125
Newton Small Cap Growth	45,322,353	-	-	-	47,710,496
Vulcan Partners Small Cap Value	15,119,259	-	-	-	16,130,050
Systematic Small Cap Free Cash Flow	28,837,278	-	-	-	31,133,474
Aristotle International Equity	21,235,406	-	-	-	22,112,097
Walter Scott International Equity	19,435,466	-	-71,585	-71,585	19,214,835
ABS Emerging Markets	54,727,404	-	-	-	57,461,947
Driehaus Emerging Markets Growth	48,211,899	-	-	-	49,201,386
First Eagle Global Value Fund	25,238,379	-	-	-	26,034,894
Kopernik Global All Cap Fund	35,288,872	4,000,000	-	4,000,000	40,036,011
Lee Munder Global Multi-Cap Strategy	37,729,431	-	-	-	40,015,407
Wellington Durable Enterprises, L.P.	44,167,270	-	-	-	46,104,132
Lord Abbett Short Duration Credit Trust II	43,541,947	-	-5,000,000	-5,000,000	38,947,180
Lord Abbett Core Fixed Income Trust II	41,147,326	-	-	-	40,597,648
Rhumblin TIPS Trust	17,391,974	-	-4,000,000	-4,000,000	13,066,218
Eaton Vance High Yield	12,044,384	-	-	-	12,366,486
First Eagle Bank Loan Select Fund	10,830,299	-	-	-	11,420,580
Manulife Strategic Fixed Income	41,753,641	-	-7,030,343	-7,030,343	34,786,234
Mesirow High Yield	14,816,668	-	-	-	15,698,465
Eaton Vance EMD Opportunities Fund	8,184,029	-	-	-	8,625,695
Schroder All ILS Fund LTD	-	10,000,000	-	10,000,000	10,000,000
ABS Offshore SPC - Global Segregated Portfolio	35,424,688	-	-5,000,000	-5,000,000	31,333,792
Entrust Special Opportunities Fund III, Ltd.	14,429,772	-	-335,366	-335,366	13,695,097
Old Farm Partners Master Fund, L.P.	15,473,403	-	-	-30,558	16,224,406
EnTrustPermal Special Opportunities Evergreen Fund, Ltd.	18,939,967	-	-	-	18,889,955
TA Realty Core Property Fund, L.P.	76,217,008	-	-762,170	-762,170	74,558,902
JPMorgan Strategic Property	33,359,987	-	-924,573	-924,573	31,681,950

Financial Reconciliation | April 1, 2023 To August 31, 2023

	Beginning Market Value	Contributions	Distributions	Net Cash Flow	Ending Market Value
Mesirow Financial International Real Estate Fund I	661,586	-	-	-	634,320
DSF Multi-Family Real Estate Fund III	4,214,656	-	-28,409	-28,409	4,304,566
AEW Partners Real Estate VIII	6,330,592	-	-325,755	-325,755	6,047,171
1921 Realty, Inc	541,326	-	-	-	542,385
Carlyle Realty Partners VIII	10,210,612	-	-308,265	-308,265	9,820,655
Berkshire Value Fund V	6,403,223	-	-	-	5,893,196
Rockpoint Real Estate Fund VI, L.P.	7,671,408	429,460	-	429,460	8,141,514
TerraCap Partners V, L.P.	10,635,469	-	-	-	10,583,174
AEW Partners Real Estate Fund IX, L.P.	7,467,816	64,373	-	64,373	7,541,452
PCCP Equity IX, L.P.	6,447,254	600,000	-	600,000	6,958,920
Euro Choice V Programme	2,778,281	-	-	-	2,918,403
Lexington Capital Partners VII	1,251,576	-	-105,649	-105,649	1,114,145
TRG Growth Partnership II	479,471	-	-	-	495,617
Landmark Equity Partners XIV	442,942	-	-82,270	-82,270	367,612
Summit Partners Growth Equity Fund IX	14,759,796	77,000	-	77,000	15,113,150
Leeds Equity Partners V	251,649	-	-	-	254,662
Audax Mezzanine Debt IV	3,051,590	253,655	-155,507	98,147	3,251,043
Siguler Guff Distressed Opportunities Fund III, LP	443,577	-	-33,566	-33,566	433,763
Mesirow Financial Capital Partners IX, LP	78,800	-	-	-	79,293
DN Partners II, LP	2,426,338	-	-100,513	-100,513	2,502,220
LLR Equity Partners V, LP.	16,081,297	-	-117,577	-117,577	16,350,140
Wellspring Capital Partners VI	15,946,152	1,206,218	-	1,206,218	17,332,422
Trilantic Capital Partners VI, L.P.	14,207,445	883,421	-	883,421	15,071,863
HarbourVest Partners Co-Investment V	14,837,536	-	-460,488	-460,488	14,148,427
Ironsides Direct Investment Fund V, L.P.	18,458,056	1,151,490	-	1,151,490	19,833,700
Ridgemont Equity Partners III, L.P.	16,867,336	-	-50,536	-50,536	16,465,561
FS Equity Partners VIII, L.P.	15,365,575	116,972	-	116,972	15,813,194
Charlesbank Technology Opportunities Fund	15,643,537	2,495,294	-	2,495,294	19,232,877
Searchlight Capital III, L.P.	9,891,126	1,483,992	-	1,483,992	11,982,990

Financial Reconciliation | April 1, 2023 To August 31, 2023

	Beginning Market Value	Contributions	Distributions	Net Cash Flow	Ending Market Value
Waud Capital Partners V	14,735,012	234,744	-61,818	172,926	15,237,624
Summit Partners Venture Capital Fund V	5,315,412	265,402	-444,178	-178,776	5,072,160
Ironsides Co-Investment Fund VI, L.P.	14,151,794	-	-1,023,990	-1,023,990	13,404,658
HarbourVest Partners Co-Investment Fund VI, L.P.	4,301,949	1,950,000	-	1,950,000	6,670,972
Ridgemont Equity Partners IV, L.P.	1,023,625	2,876,168	-	2,876,168	3,992,647
Summit Partners Growth Equity Fund XI	2,444,117	824,214	-	824,214	3,311,780
Ironsides Opportunities Fund II, L.P.	2,971,086	3,035,883	-	3,035,883	6,220,112
Ascent Ventures V	3,154,566	-	-	-	3,172,565
Globespan Capital V	2,653,803	-	-612,060	-612,060	2,037,059
Kohlberg Investors IX	9,886,815	511,349	-	511,349	10,794,894
Waud Capital Partners VI	-	1,206,218	-	1,206,218	1,206,218
IFM Global Infrastructure	73,563,508	-	-660,016	-660,016	74,267,628
JP Morgan Global Maritime Investment	4,621,161	-	-	-	3,319,035
Timbervest Partners III, LP	3,648,200	-	-70,000	-70,000	3,585,553
BTG Pactual Global Timberland Resources	1,438,097	-	-	-	1,439,495
Global Infrastructure Partners III	10,232,408	38,063	-132,421	-94,358	10,297,014
Basalt Infrastructure Partners II	6,811,895	-	-	-	7,097,180
Global Infrastructure Partners IV, L.P.	8,060,570	96,230	-124,550	-28,320	8,125,601
ISQ Global Infrastructure Fund III (USTE), L.P.	2,326,494	535,659	-	535,659	2,899,636
BlackRock Global Renewable Power Infrastructure Fund III, L.P.	4,929,357	1,507,173	-	1,507,173	6,614,767
Climate Adaptive Infrastructure Fund	3,609,092	1,149,789	-80,047	1,069,742	5,126,959
BlackRock Global Infrastructure Fund IV, L.P.	614,058	2,293,177	-	2,293,177	2,851,508
Cash	8,995,600	132,156,679	-117,660,556	14,496,123	23,491,723
<b>Total</b>	<b>1,318,495,958</b>	<b>221,442,621</b>	<b>-163,762,208</b>	<b>57,649,855</b>	<b>1,409,424,137</b>

**Private Markets 2023 Q2  
Performance Update**

The purpose of this document is to offer a review of the Plymouth County Retirement Association’s aggregate private market investments.

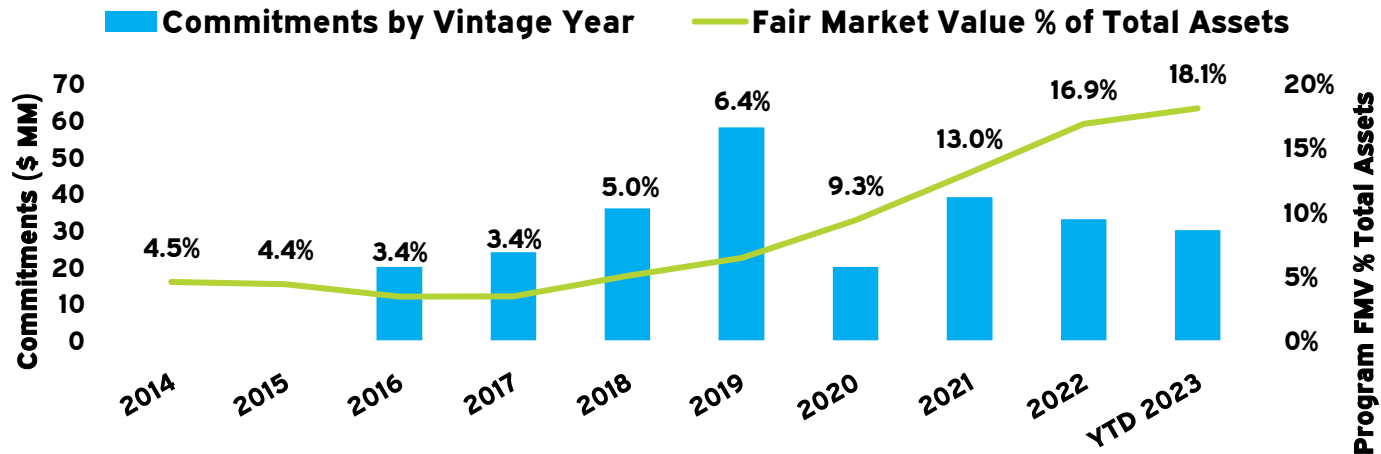
As of June 30, 2023 the Retirement Association had committed \$790.1 million to 73 partnerships. The reported fair market value of the program, in aggregate, was \$531.7 million at the end of the quarter.

Private Equity Program		Real Assets Program		Real Estate Program	
No. of Funds	41	No of Funds	11	No of Funds	21
Committed	347.1	Committed	150.0	Committed	293.0
Contributed	255.4	Contributed	123.1	Contributed	282.0
Distributed	151.8	Distributed	27.1	Distributed	232.0
Fair Market Value	238.2	Fair Market Value	126.1	Fair Market Value	167.4
TVPI	1.52x	TVPI	1.24x	TVPI	1.41x
Since Inception IRR	9.3%	Since Inception IRR	6.1%	Since Inception IRR	6.4%
1-Quarter IRR	1.5%	1-Quarter IRR	2.2%	1-Quarter IRR	-0.9%
1-Year IRR	8.2%	1-Year IRR	5.8%	1-Year IRR	-5.2%

## **Private Equity Program**

### Introduction

As of June 30, 2023, the Plymouth County Retirement Association (“PCRA,” or the “Retirement Association”) had committed \$347.1 million to 41 partnerships. PCRA maintains a 13% allocation to private equity. As of the end of the second quarter of 2023, the fair market value of PCRA’s private equity program was \$238.2 million, representing 18.1% of total assets.

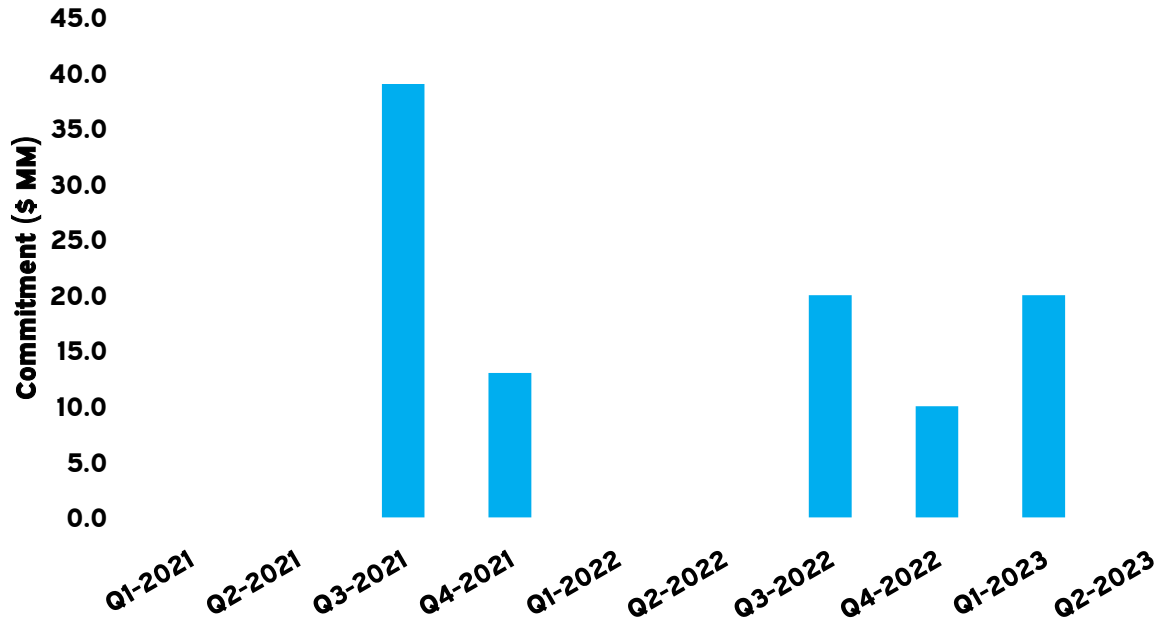


Program Status	
No. of Investments	41
Committed (\$M)	347.1
Contributed (\$M)	255.4
Distributed (\$M)	151.8
Fair Market Value (\$M)	238.2

Performance Since Inception	
	Program
DPI	0.59x
TVPI	1.52x
IRR	9.3%



**Commitments**  
Recent Quarterly Commitments

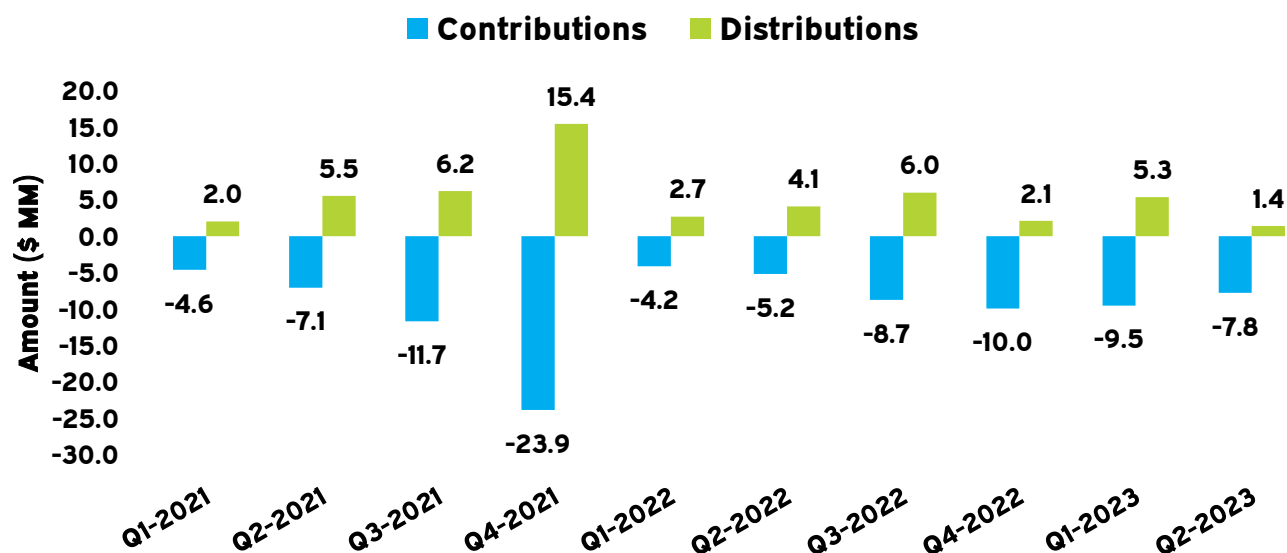


**Commitments This Quarter**

Fund	Strategy	Region	Amount (MM)
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None to report None to report.

### Cash Flows Recent Quarterly Cash Flows



#### Largest Contributions This Quarter

Fund	Vintage	Strategy	Region	Amount (\$MM)
Ironsides Opps II	2022	Private Debt	North America	3.04
HV Co-Invest VI	2021	Buyout	Global: All	1.95
Summit Growth XI	2021	Growth Equity	North America	0.81

#### Largest Distributions This Quarter

Fund	Vintage	Strategy	Region	Amount (\$MM)
HV Co-Invest V	2018	Buyout	North America	0.46
Summit Venture V	2020	Venture Capital	North America	0.44
Audax Mezz IV	2016	Private Debt	North America	0.11

### Significant Events

- During the second quarter of 2023, PCRA contributed \$7.77 million to its private equity partnerships and received \$1.41 million in distributions, representing a \$6.36 million net cash outflow.
- Ironsides Opportunities Fund II, L.P. called \$3.04 million during the second quarter, primarily to fund investments, as well as management fees and partnership expenses.
- HarbourVest Partners Co-Investment Fund VI, L.P. called \$1.95 million during the second quarter to fund new investments.
- Summit Partners Growth Equity Fund XI, L.P. called \$0.81 million during the second quarter to fund new investments.
- HarbourVest Partners Co-Investment Fund V, L.P. distributed \$0.46 million in proceeds received from two direct co-investments. Of the total distribution, \$0.39 million represented a return of capital while \$0.07 million represented gains.
- Summit Partners Venture Capital Fund V, L.P. distributed \$0.44 million during the second quarter, all of which being a return of capital. The funds stemmed from the acquisition of one of their investments, resulting in the repurchase of Summit's equity stake in the company.
- Audax Mezzanine Fund IV, L.P. distributed \$0.11 million, comprised of approximately \$0.05 million in dividend income and \$0.06 million in interest income.

By Strategy

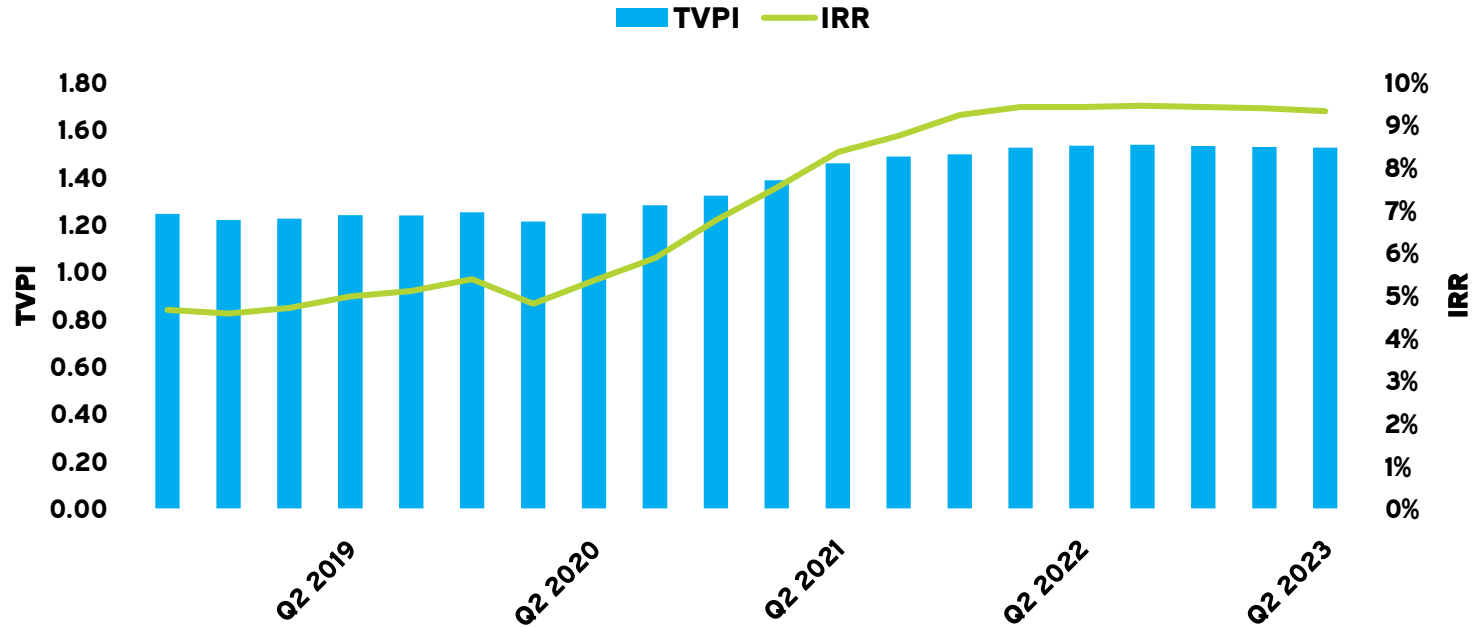
Group	Number	Committed (\$ M)	Contributed (\$ M)	Unfunded (\$ M)	Distributed (\$ M)	Fair Market Value (\$ M)	Exposure (\$ M)	DPI (X)	TVPI (X)	IRR (%)
Buyout	23	218.1	154.3	78.0	52.6	193.1	271.6	0.34	1.59	11.7
Fund of Funds	3	17.6	17.3	1.9	23.3	3.4	5.4	1.35	1.55	8.5
Growth Equity	3	30.5	22.3	13.2	21.5	19.4	32.6	0.97	1.83	12.7
Private Debt	2	30.0	15.3	16.4	7.9	9.7	26.1	0.52	1.15	10.6
Secondary	2	16.0	14.8	1.3	20.8	1.6	2.8	1.41	1.51	12.3
Special Situations	1	3.0	4.9	0.0	5.1	0.0	0.0	1.04	1.04	1.3
Venture Capital	7	31.8	26.5	5.5	20.6	11.1	16.6	0.78	1.19	3.0
<b>Total</b>	<b>41</b>	<b>347.1</b>	<b>255.4</b>	<b>116.4</b>	<b>151.8</b>	<b>238.2</b>	<b>354.5</b>	<b>0.59</b>	<b>1.52</b>	<b>9.3</b>

### By Vintage

Group	Number	Committed (\$ M)	Contributed (\$ M)	Unfunded (\$ M)	Distributed (\$ M)	Fair Market Value (\$ M)	Exposure (\$ M)	DPI (X)	TVPI (X)	IRR (%)
1998	1	2.6	2.7	0.0	0.1	0.0	0.0	0.04	0.04	-25.5
1999	1	5.0	4.4	0.6	2.2	0.0	0.6	0.49	0.49	-14.9
2000	1	1.8	1.8	0.0	2.5	0.0	0.0	1.39	1.39	5.5
2001	1	2.0	2.0	0.0	7.7	0.0	0.0	3.83	3.83	29.1
2004	3	13.0	13.1	0.5	18.2	0.0	0.5	1.39	1.39	4.8
2005	3	9.5	11.0	0.3	8.1	0.2	0.5	0.73	0.75	-5.2
2006	1	5.0	4.9	0.1	9.5	2.6	2.7	1.96	2.49	13.8
2007	2	12.5	9.7	2.8	9.0	3.1	5.9	0.93	1.25	3.1
2008	2	12.0	11.7	0.3	16.7	0.8	1.2	1.43	1.50	10.3
2009	1	10.0	9.0	1.1	13.4	1.1	2.3	1.50	1.62	13.6
2010	1	2.5	3.5	0.0	5.6	0.3	0.3	1.59	1.66	12.3
2011	1	5.0	5.0	0.2	4.5	3.2	3.3	0.90	1.53	6.4
2012	1	6.1	5.9	1.4	6.0	3.0	4.4	1.02	1.53	8.2
2016	2	20.0	20.8	5.8	20.3	18.8	24.6	0.98	1.88	25.4
2017	2	24.0	23.4	3.2	6.6	33.1	36.2	0.28	1.69	19.3
2018	3	36.0	33.0	6.1	6.7	48.3	54.3	0.20	1.66	18.1
2019	5	58.0	50.7	13.9	13.4	75.9	89.8	0.26	1.76	34.0
2020	2	20.0	13.9	6.4	0.7	16.5	22.9	0.05	1.24	18.0
2021	3	39.0	21.4	17.9	0.4	23.9	41.8	0.02	1.14	NM
2022	2	33.0	7.3	25.8	0.1	7.5	33.3	0.02	1.05	NM
2023	3	30.0	0.0	30.0	0.0	NM <sup>1</sup>	30.0	0.00	NA	NA
<b>Total</b>	<b>41</b>	<b>347.1</b>	<b>255.4</b>	<b>116.4</b>	<b>151.8</b>	<b>238.2</b>	<b>354.5</b>	<b>0.59</b>	<b>1.52</b>	<b>9.3</b>

<sup>1</sup> PCRA's fair market value for vintage year 2023 is deemed "Not Meaningful," or "NM" due to a negative capital account balance in Kohlberg Investors X, L.P. as of June 30, 2023. The fair market value of Kohlberg Investors X, L.P. was (\$48,351) as of June 30, 2023, due to syndication costs, placement fees, and other expenses incurred by the fund since inception, without having called capital.

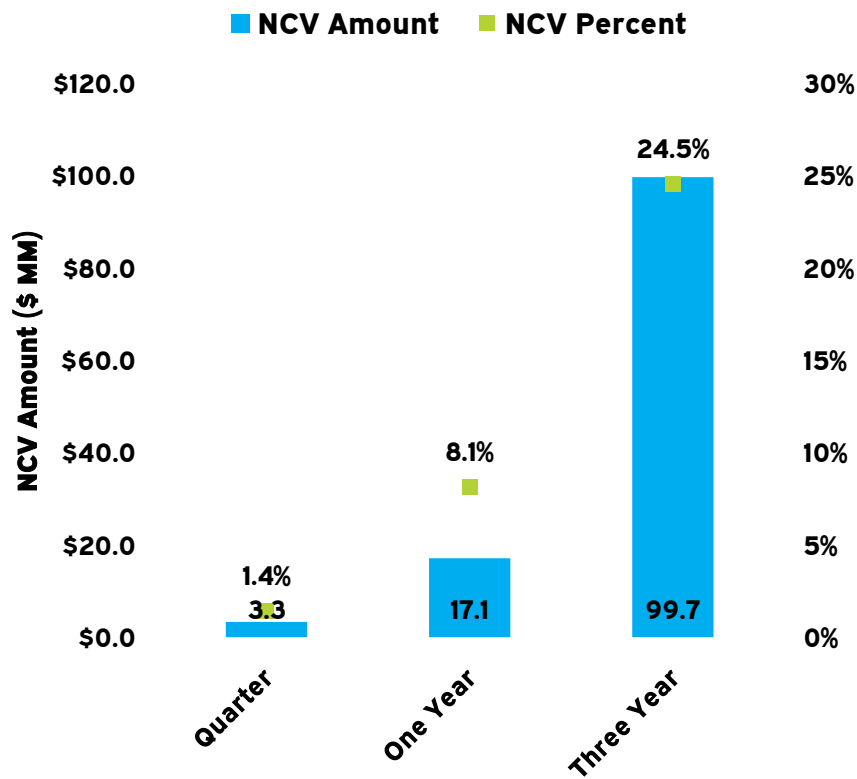
#### Since Inception Performance Over Time



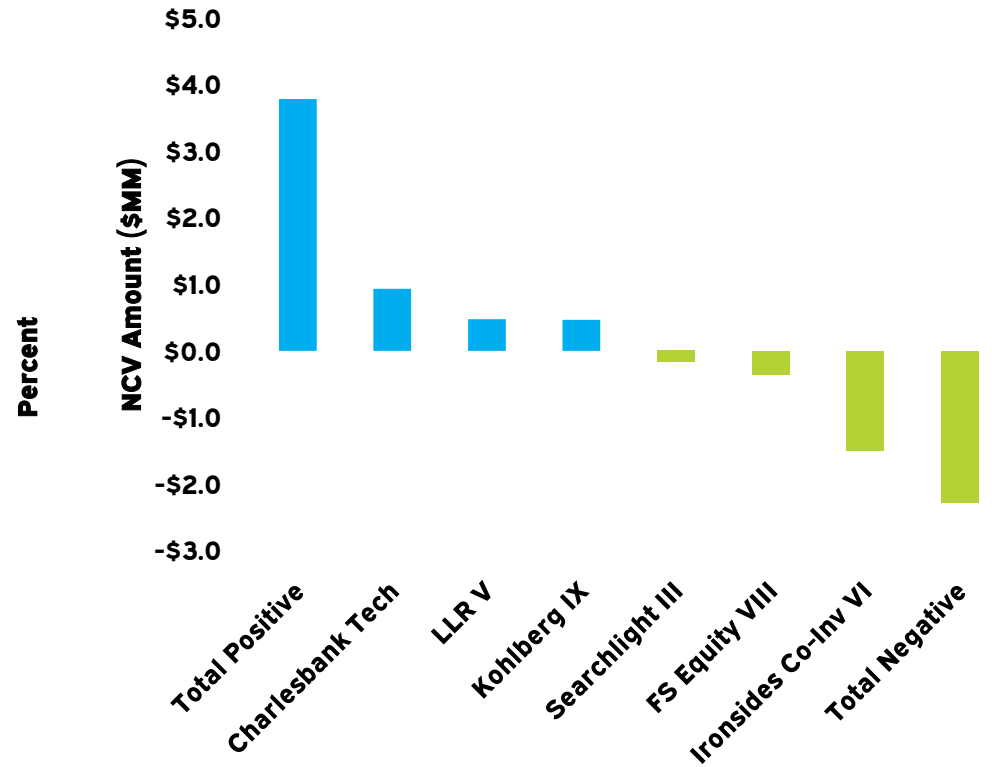
#### Horizon IRRs

	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)	Since Inception (%)
Aggregate Portfolio	8.2	24.6	20.3	14.5	9.3
Public Market Equivalent	15.8	7.5	7.0	8.2	6.8

### 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)	Fair Market Value (\$M)	TVPI (X)	Peer TVPI (X) <sup>1</sup>	IRR (%)	Peer IRR (%) <sup>1</sup>
Senior Tour Players	1998	Buyout	2.6	2.7	0.0	0.1	0.0	0.04	1.38	-25.5	8.0
Charles River X	1999	Venture Capital	5.0	4.4	0.6	2.2	0.0	0.49	1.30	-14.9	7.3
Chales River XI	2000	Venture Capital	1.8	1.8	0.0	2.5	0.0	1.39	1.44	5.5	8.3
Rimco	2001	Buyout	2.0	2.0	0.0	7.7	0.0	3.83	1.65	29.1	13.1
Leeds IV	2004	Buyout	5.0	5.1	0.1	9.7	0.0	1.91	1.58	8.0	9.0
Euro Choice II	2004	Fund of Funds	5.5	5.5	0.4	8.0	0.0	1.46	1.58	7.0	9.0
Ascent Venture IV	2004	Venture Capital	2.5	2.5	0.0	0.4	0.0	0.17	1.58	-27.2	9.0
Mesirow IX	2005	Buyout	4.0	3.8	0.2	2.0	0.1	0.55	1.47	-7.0	8.1
Levine Leichtman DV	2005	Special Situations	3.0	4.9	0.0	5.1	0.0	1.04	1.47	1.3	8.1
Ascend Ventures II	2005	Venture Capital	2.5	2.3	0.2	1.0	0.1	0.46	1.47	-8.5	8.1
Globespan V	2006	Venture Capital	5.0	4.9	0.1	9.5	2.6	2.49	1.44	13.8	7.5
DN Partners II	2007	Buyout	5.0	2.4	2.6	0.0	2.6	1.11	1.70	0.8	12.0
TRG II	2007	Growth Equity	7.5	7.4	0.2	9.0	0.5	1.29	1.70	4.5	12.0
Siguler Guff III	2008	Fund of Funds	6.0	5.8	0.2	9.2	0.4	1.66	1.66	10.5	12.5

<sup>1</sup> Preqin, Private Equity – All, Net Median As of June 30, 2023 (unless otherwise noted).



Fund Performance: Sorted By Vintage And Strategy (con't)

By Investment	Vintage	Strategy	Committed (\$ M)	Contributed (\$ M)	Unfunded (\$ M)	Distributed (\$ M)	Fair Market Value (\$ M)	TVPI (X)	Peer TVPI (X)	IRR (%)	Peer IRR (%)
Landmark XIV	2008	Secondary	6.0	5.8	0.2	7.4	0.4	1.34	1.66	9.6	12.5
Lexington VII	2009	Secondary	10.0	9.0	1.1	13.4	1.1	1.62	1.94	13.6	16.7
Leeds V	2010	Buyout	2.5	3.5	0.0	5.6	0.3	1.66	1.88	12.3	15.3
Ascent Venture V	2011	Venture Capital	5.0	5.0	0.2	4.5	3.2	1.53	1.91	6.4	16.3
Euro Choice V	2012	Fund of Funds	6.1	5.9	1.4	6.0	3.0	1.53	1.77	8.2	15.2
Summit Growth IX	2016	Growth Equity	10.0	11.8	3.2	12.6	15.5	2.38	2.03	31.8	20.2
Audax Mezz IV	2016	Private Debt	10.0	9.0	2.6	7.8	3.3	1.22	1.30 <sup>1</sup>	10.5	9.5 <sup>1</sup>
LLR V	2017	Buyout	12.0	11.6	1.9	4.0	16.9	1.80	1.80	19.6	20.3
Wellspring VI	2017	Buyout	12.0	11.8	1.2	2.6	16.1	1.58	1.80	18.9	20.3
HV Co-Invest V	2018	Buyout	12.0	9.3	2.7	2.4	14.4	1.80	1.62	22.9	21.0
Ironsides Direct V	2018	Buyout	12.0	11.9	2.1	3.2	18.7	1.84	1.62	17.3	21.0
Trilantic VI	2018	Buyout	12.0	11.9	1.3	1.2	15.1	1.38	1.62	14.8	21.0
Charlesbank Tech	2019	Buyout	12.0	8.8	4.9	2.0	17.8	2.26	1.42	60.9	19.7

<sup>1</sup> Preqin, Private Debt – All, Net Median as of June 30, 2023.

Fund Performance: Sorted By Vintage and Strategy (cont)

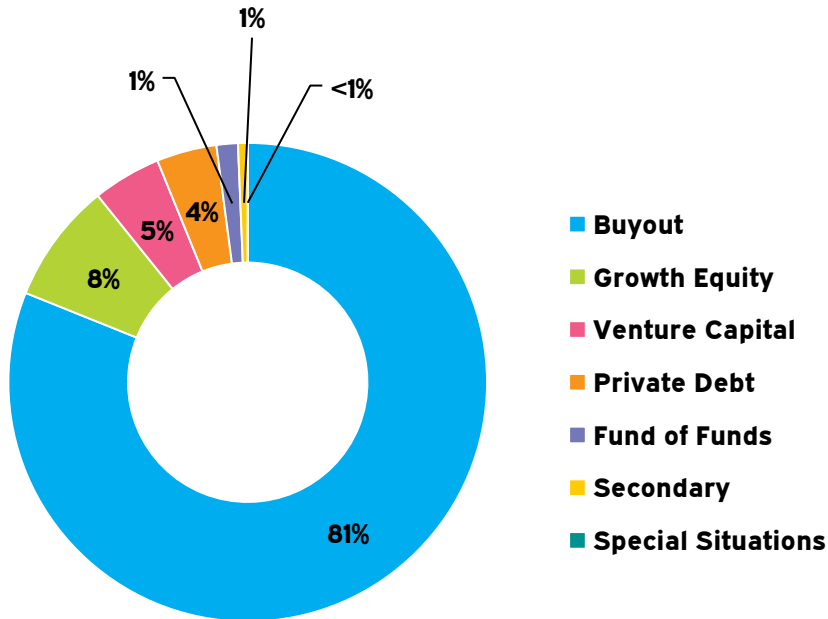
By Investment	Vintage	Strategy	Committed (\$ M)	Contributed (\$ M)	Unfunded (\$ M)	Distributed (\$ M)	Fair Market Value (\$ M)	TVPI (X)	Peer TVPI (X)	IRR (%)	Peer IRR (%)
FS Equity VIII	2019	Buyout	12.0	9.7	2.3	0.3	15.3	1.61	1.42	23.5	19.7
Ridgemont III	2019	Buyout	12.0	12.9	2.1	7.1	16.8	1.85	1.42	37.5	19.7
Searchlight III	2019	Buyout	12.0	9.3	4.6	4.0	11.0	1.61	1.42	30.5	19.7
Waud V	2019	Buyout	10.0	10.0	0.0	0.1	15.1	1.51	1.42	23.3	19.7
Kohlberg IX	2020	Buyout	10.0	8.4	1.9	0.3	11.3	1.38	1.21	28.2	14.3
Summit Venture V	2020	Venture Capital	10.0	5.5	4.5	0.4	5.2	1.03	1.21	1.9	14.3
HV Co-Invest VI	2021	Buyout	13.0	6.5	6.5	0.0	6.8	1.05	1.07	NM	NM
Ironsides Co-Inv VI	2021	Buyout	13.0	11.7	1.6	0.4	13.8	1.21	1.07	NM	NM
Summit Growth XI	2021	Growth Equity	13.0	3.2	9.8	0.0	3.3	1.05	1.07	NM	NM
Ridgemont IV	2022	Buyout	13.0	1.0	12.0	0.0	1.1	1.08	1.00	NM	NM
Ironsides Opps II	2022	Private Debt	20.0	6.3	13.9	0.1	6.4	1.04	1.07 <sup>1</sup>	NM	NM
Kohlberg X	2023	Buyout	10.0	0.0	10.0	0.0	NM <sup>2</sup>	NM	NM	NM	NM
Trilantic VII	2023	Buyout	10.0	0.0	10.0	0.0	0.0	NM	NM	NM	NM
Waud VI	2023	Buyout	10.0	0.0	10.0	0.0	0.0	NM	NM	NM	NM
<b>Total</b>			<b>347.1</b>	<b>255.4</b>	<b>116.4</b>	<b>151.8</b>	<b>238.2</b>	<b>1.52</b>		<b>9.3</b>	

<sup>1</sup> Preqin, Private Debt – All, Net Median as of June 30, 2023.

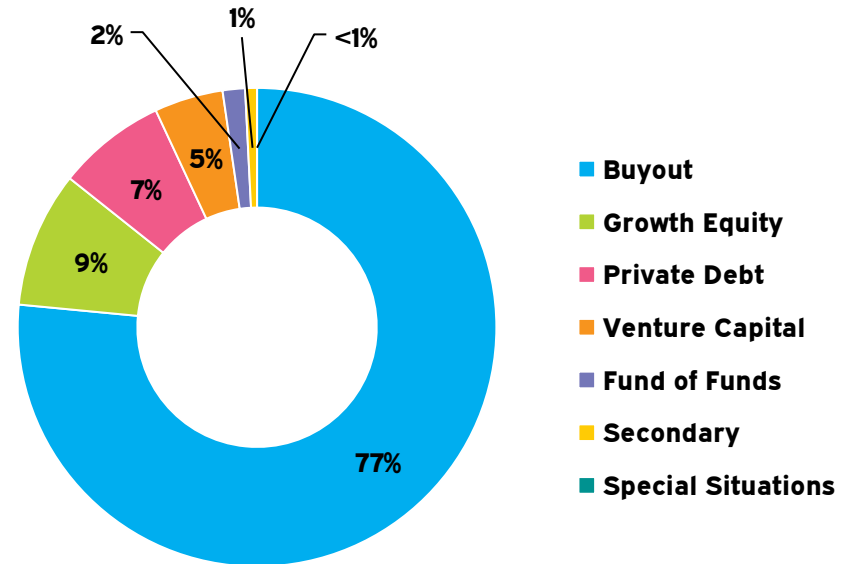
<sup>2</sup> PCRA's investment in Kohlberg Investors X, L.P. is deemed "NM," or "Not Meaningful" due to a negative capital account balance as of June 30, 2023. The fair market value of the Fund was (\$48,351) as of June 30, 2023, due to syndication costs, placement fees, and other expenses incurred by the fund since inception, without having called capital.

#### By Strategy

Percent of FMV

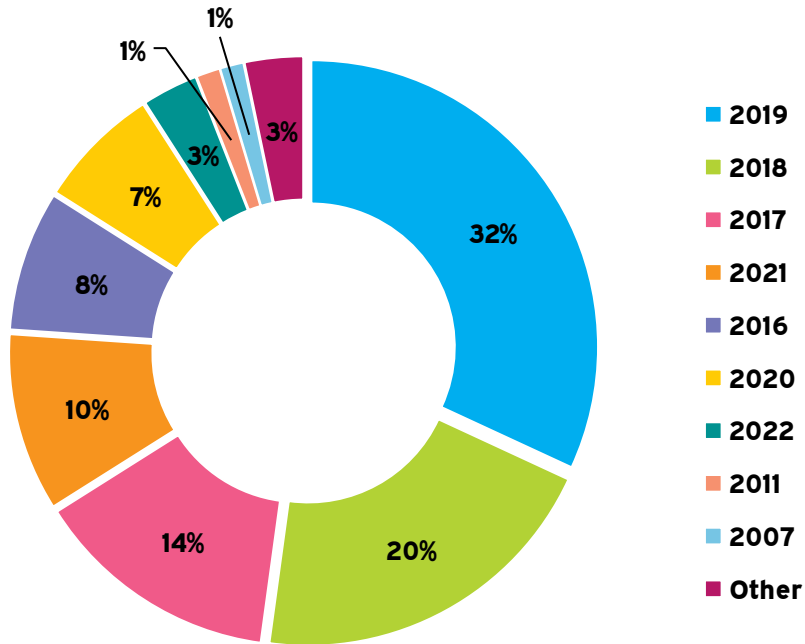


Percent of Exposure

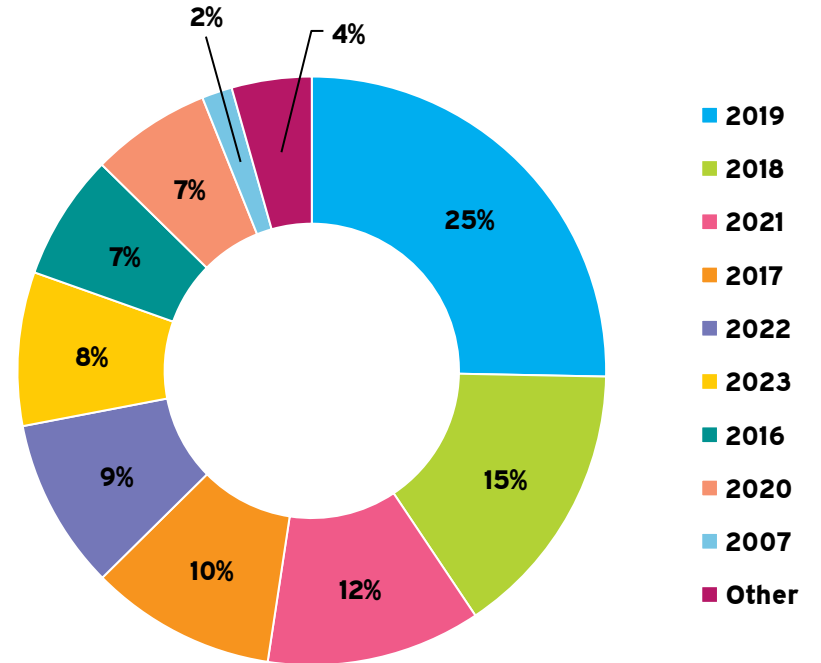


#### By Vintage

Percent of FMV

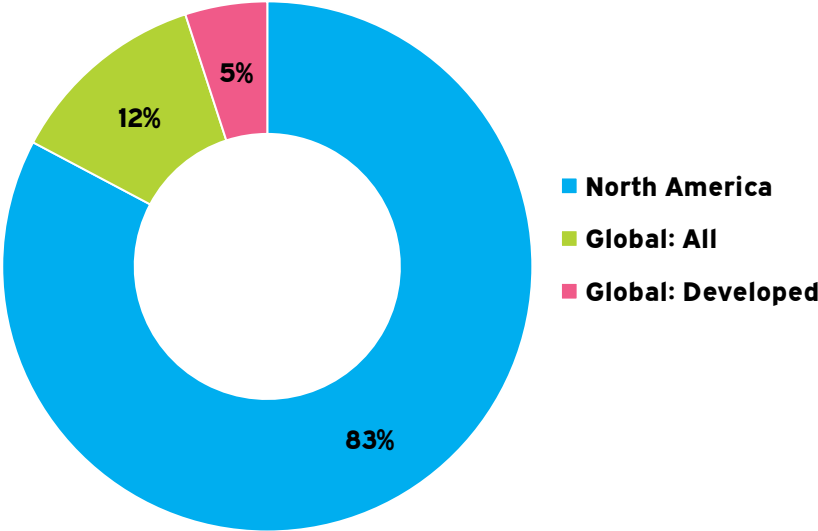


Percent of Exposure

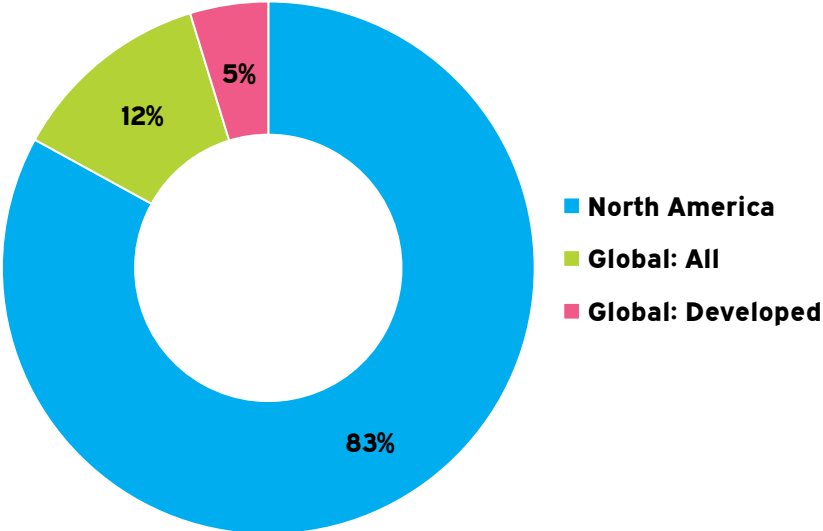


By Geographic Focus

Percent of FMV



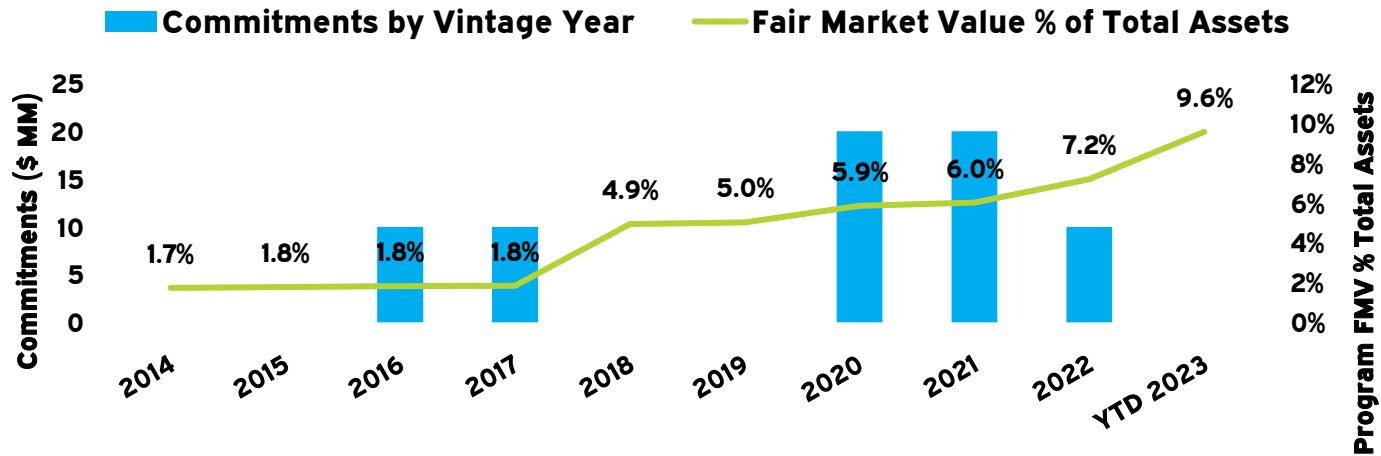
Percent of Exposure



# Real Assets Program

### Introduction

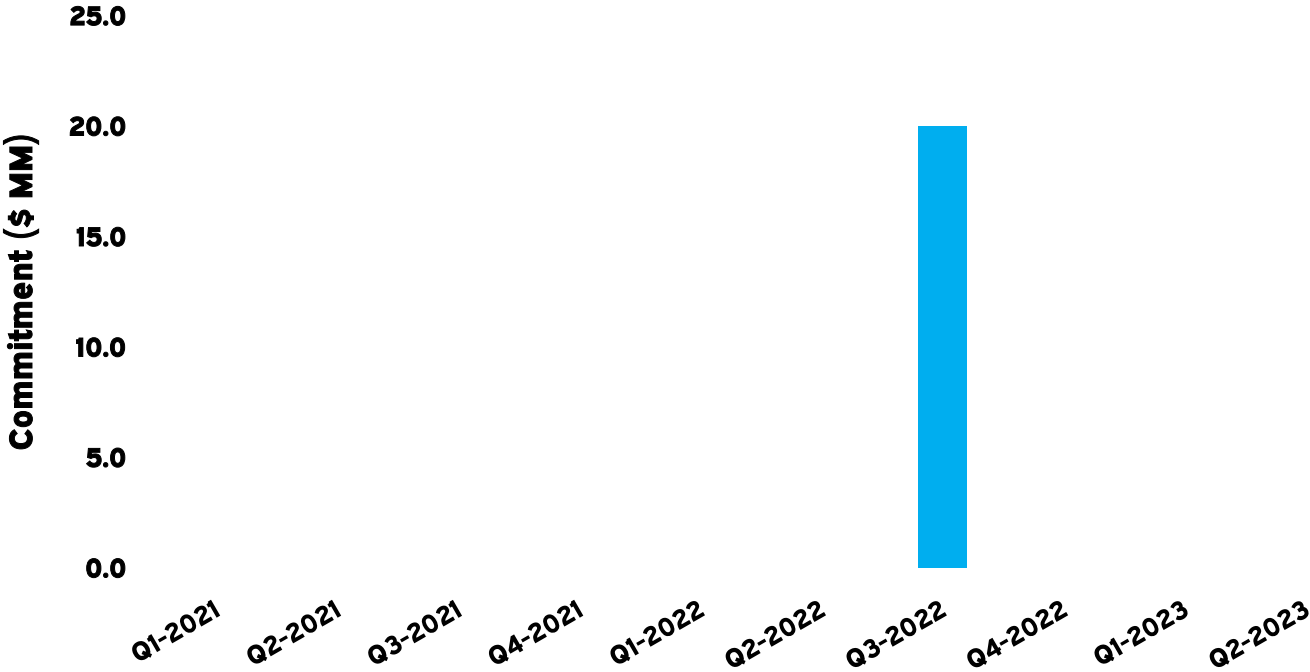
As of June 30, 2023, the Plymouth County Retirement Association (“PCRA,” or the “Retirement Association”) had committed \$150.0 million to 11 partnerships. No new commitments closed during the second quarter of 2023. The fair market value of PCRA’s Real Assets program was \$126.1 million (approximately 65.6% of fair market value in open-end core funds), representing 9.6% of total assets, exceeding the program’s 6.0% target.



Program Status	
No. of Investments	11
Committed (\$M)	150.0
Contributed (\$M)	123.1
Distributed (\$M)	27.1
Fair Market Value (\$M)	126.1

Performance Since Inception	
	Program
DPI	0.22x
TVPI	1.24x
IRR	6.1%

**Commitments**  
Recent Quarterly Commitments



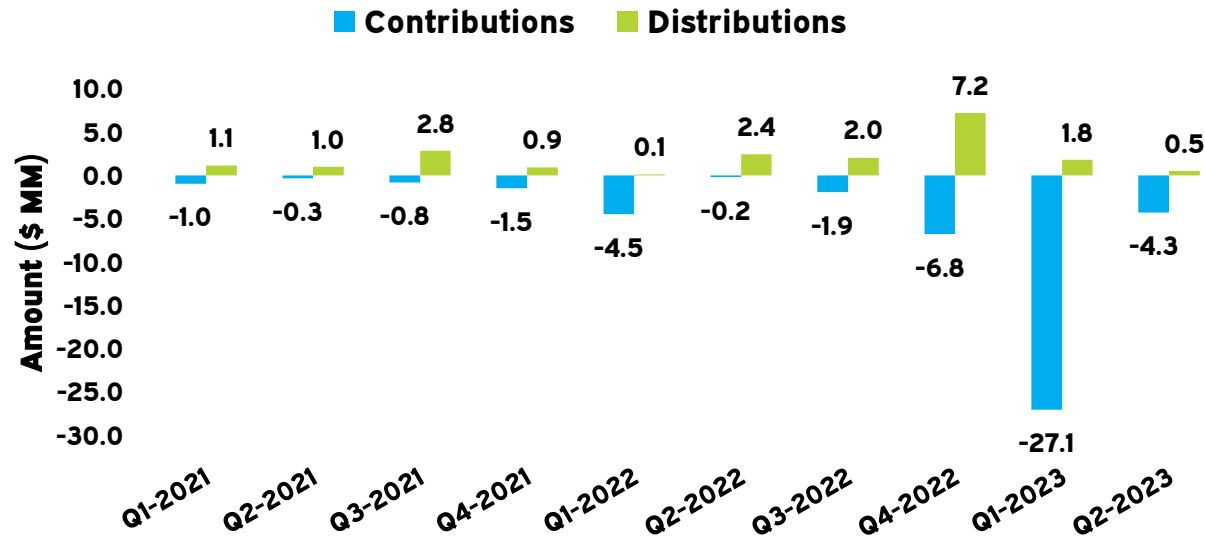
**Commitments This Quarter**

Fund	Strategy	Region	Amount (MM)
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No new commitments made during the quarter.



### Cash Flows Recent Quarterly Cash Flows



#### Largest Contributions This Quarter

Fund	Vintage	Strategy	Region	Amount(\$M)
Climate Adaptive IS	2021	Value-Added	North America	1.36
Blackrock Infra IV	2022	Value-Added	Global: All	1.22
BlackRock GRPIF III	2020	Value-Added	Global: All	1.04

#### Largest Distributions This Quarter

Fund	Vintage	Strategy	Region	Amount (\$M)
Climate Adaptive IS	2021	Value Added	North America	0.21
GIP IV	2020	Value Added	Global: Developed	0.16
GIP III	2016	Value Added	Global: Developed	0.07

### Significant Events

- During the second quarter of 2023, the Retirement Association contributed \$4.30 million to its private real assets partnerships and received \$0.51 million in distributions, representing a \$3.79 million net cash outflow.
- Climate Adaptive Infrastructure called \$1.36 million during the second quarter to fund a new investment, management fees and partnership expenses. In addition, \$0.21 million was distributed as a result of a Return of Capital and Bridge Financing Income.
- During the quarter, the Retirement Association contributed \$1.22 million to BlackRock Global Infrastructure Fund IV. The called capital funded partnership expenses as well as capital into Jupiter Power LLC, an energy infrastructure company.
- BlackRock Global Renewable Power and Infrastructure Fund called \$1.04 million in the second quarter, reaching ~60% of committed capital.
- Global Infrastructure Partners IV distributed \$0.16 million during the second quarter. Proceeds stemmed primarily from dividend proceeds from existing investments.
- Global Infrastructure Partners III distributed \$0.07 million as a result of dividend proceeds. The distribution was offset by a \$0.04 million capital call for management fees and partnership expenses, resulting in a \$0.03 million net distribution.

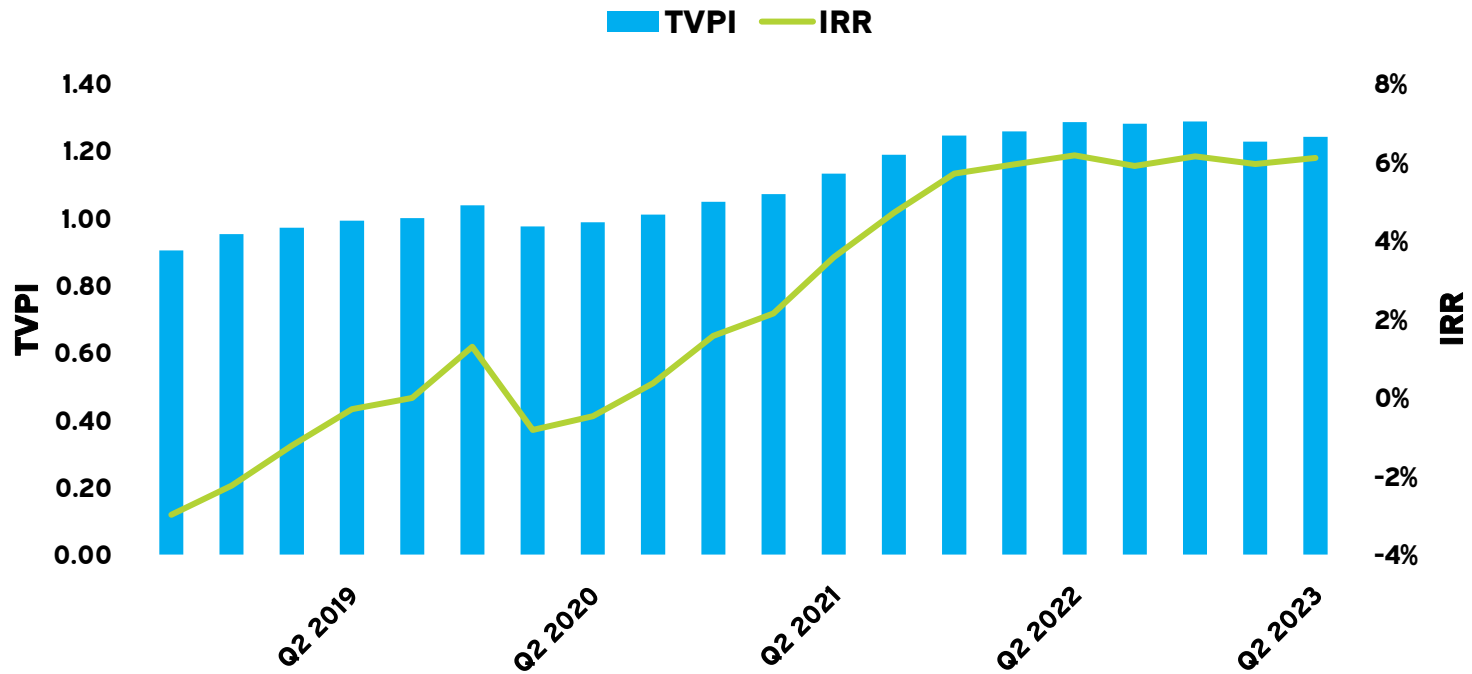
#### By Strategy

Group	Number	Committed (\$ M)	Contributed (\$ M)	Unfunded (\$ M)	Distributed (\$ M)	Fair Market Value (\$ M)	Exposure (\$ M)	DPI (X)	TVPI (X)	IRR (%)
Core	2	70.0	69.4	3.1	9.7	82.8	85.9	0.14	1.33	10.7
Natural Resources	2	10.0	10.0	0.0	6.0	5.0	5.0	0.60	1.10	1.1
Opportunistic	1	10.0	10.0	0.3	5.5	3.4	3.7	0.54	0.89	-1.6
Value-Added	6	60.0	33.6	29.4	6.0	34.8	64.2	0.18	1.22	10.0
<b>Total</b>	<b>11</b>	<b>150.0</b>	<b>123.1</b>	<b>32.8</b>	<b>27.1</b>	<b>126.1</b>	<b>158.9</b>	<b>0.22</b>	<b>1.24</b>	<b>6.1</b>

By Vintage

Group	Number	Committed (\$ M)	Contributed (\$ M)	Unfunded (\$ M)	Distributed (\$ M)	Fair Market		DPI (X)	TVPI (X)	IRR (%)
						Value (\$ M)	Exposure (\$ M)			
Open-End Fund	1	60.0	60.0	0.0	3.8	75.4	75.4	0.06	1.32	11.0
2010	2	15.0	15.0	0.3	9.6	7.0	7.3	0.64	1.11	1.3
2011	1	5.0	5.0	0.0	1.9	1.4	1.4	0.37	0.66	-4.8
2016	1	10.0	10.3	1.1	4.9	10.4	11.5	0.48	1.49	10.1
2017	1	10.0	9.4	3.1	5.8	7.4	10.5	0.62	1.40	9.7
2020	2	20.0	13.7	7.3	0.5	14.5	21.8	0.04	1.09	6.9
2021	2	20.0	7.7	12.9	0.6	8.2	21.1	0.08	1.14	NM
2022	1	10.0	1.9	8.1	0.0	1.8	9.9	0.00	0.96	NM
<b>Total</b>	<b>11</b>	<b>150.0</b>	<b>123.1</b>	<b>32.8</b>	<b>27.1</b>	<b>126.1</b>	<b>158.9</b>	<b>0.22</b>	<b>1.24</b>	<b>6.1</b>

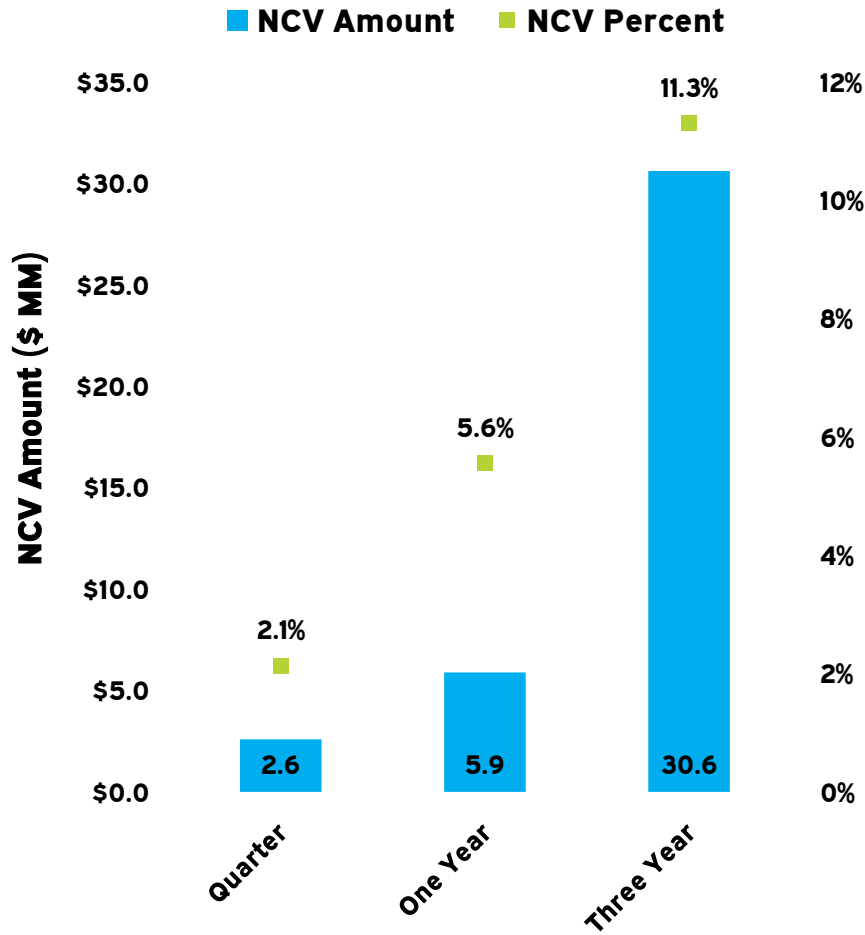
#### Since Inception Performance Over Time



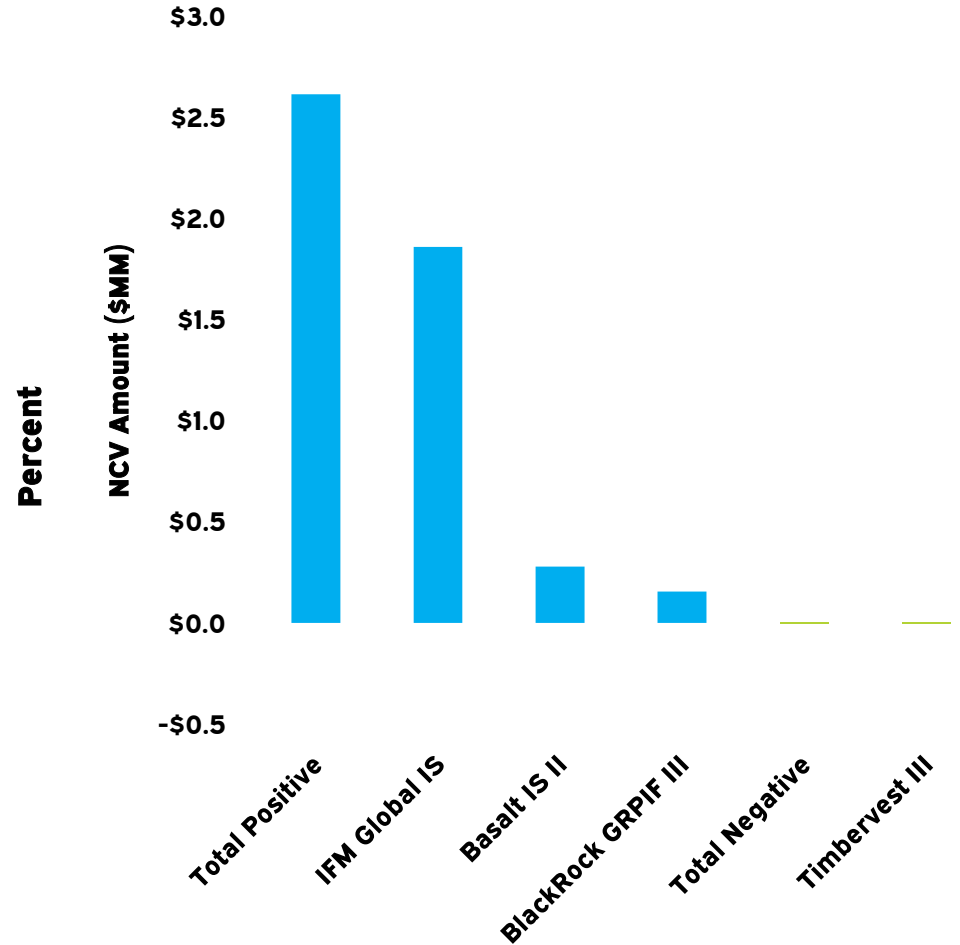
#### Horizon IRRs

	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)	Since Inception (%)
Aggregate Portfolio	5.8	12.9	9.5	6.6	6.1
Public Market Equivalent	0.5	10.3	6.6	6.6	6.5

#### Periodic NCV



#### 1 Quarter Drivers Of NCV



	2Q23 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Since Inception (%)	Inception Date
IFM Global Infrastructure	2.5	9.7	12.3	NA	NA	10.7	10/01/2018
<i>CPI + 3%</i>	1.8	6.0	8.9	NA	NA	7.2	

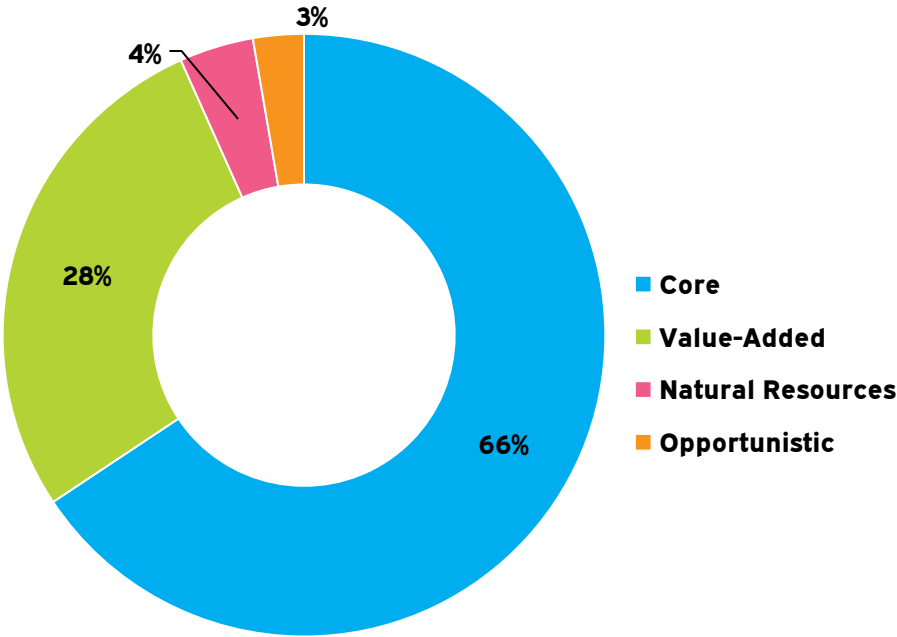
### Fund Performance: Sorted By Vintage And Strategy

By Investment	Vintage	Strategy	Committed (\$ M)	Contributed (\$ M)	Unfunded (\$ M)	Distributed (\$ M)	Fair Market Value (\$ M)	TVPI (X)	Peer TVPI (X)	IRR (%)	Peer IRR (%)
IFM Global IS	Open-end	Core	60.0	60.0	0.0	3.8	75.4	1.32	NA	11.0	NA
Timbervest III	2010	Natural Resources	5.0	5.0	0.0	4.2	3.6	1.55	1.30	5.0	11.8
JPMorgan Maritime	2010	Opportunistic	10.0	10.0	0.3	5.5	3.4	0.89	1.30	-1.6	11.8
BTG Global Timber	2011	Natural Resources	5.0	5.0	0.0	1.9	1.4	0.66	1.44	-4.8	10.0
GIP III	2016	Value-Added	10.0	10.3	1.1	4.9	10.4	1.49	1.47	10.1	10.7
Basalt IS II	2017	Core	10.0	9.4	3.1	5.8	7.4	1.40	1.41	9.7	15.1
BlackRock GRPIF III	2020	Value-Added	10.0	5.8	4.4	0.3	6.3	1.13	1.20	11.8	15.3
GIP IV	2020	Value-Added	10.0	7.9	2.9	0.2	8.2	1.06	1.20	4.2	15.3
Climate Adaptive IS	2021	Value-Added	10.0	4.9	5.7	0.6	5.3	1.19	1.05	NM	NM
ISQ IS III	2021	Value-Added	10.0	2.8	7.2	0.0	2.9	1.04	1.05	NM	NM
Blackrock Infra IV	2022	Value-Added	10.0	1.9	8.1	0.0	1.8	0.96	1.03	NM	NM
<b>Total</b>			<b>150.0</b>	<b>123.1</b>	<b>32.8</b>	<b>27.1</b>	<b>126.1</b>	<b>1.24</b>		<b>6.1</b>	

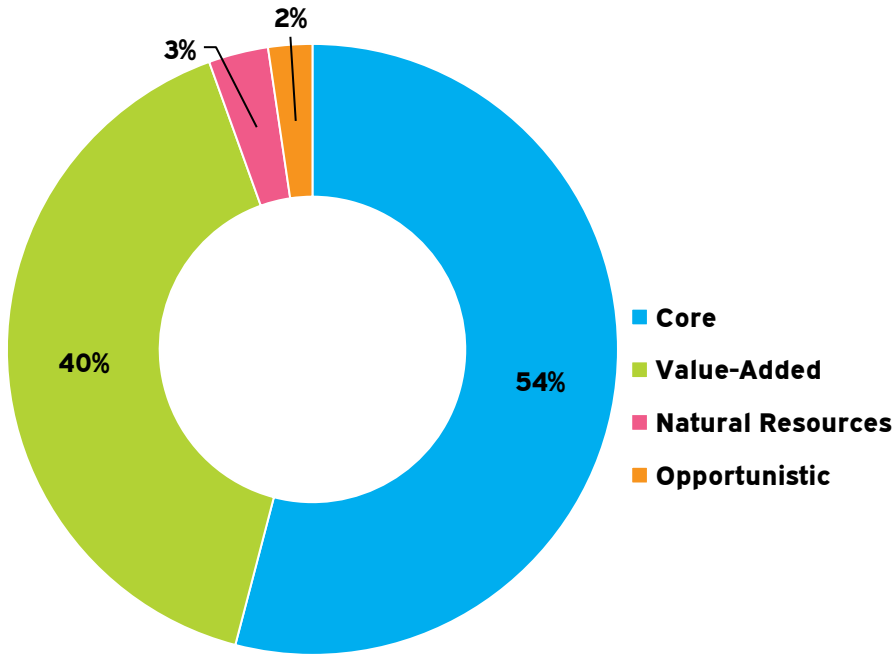


By Strategy

Percent of FMV

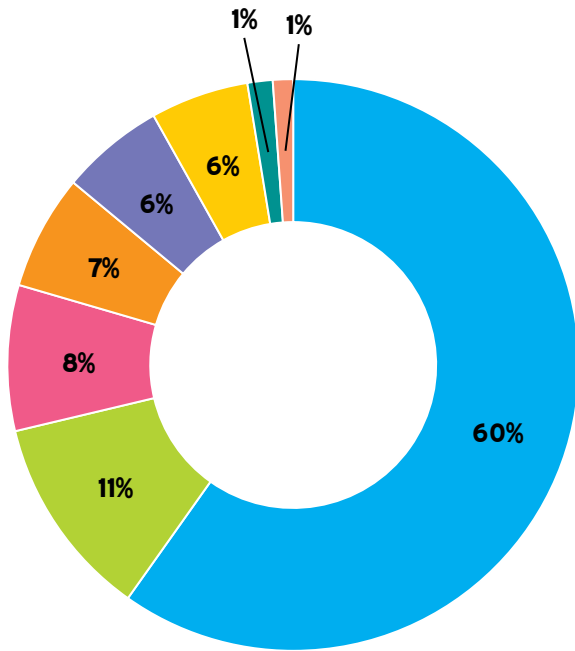


Percent of Exposure

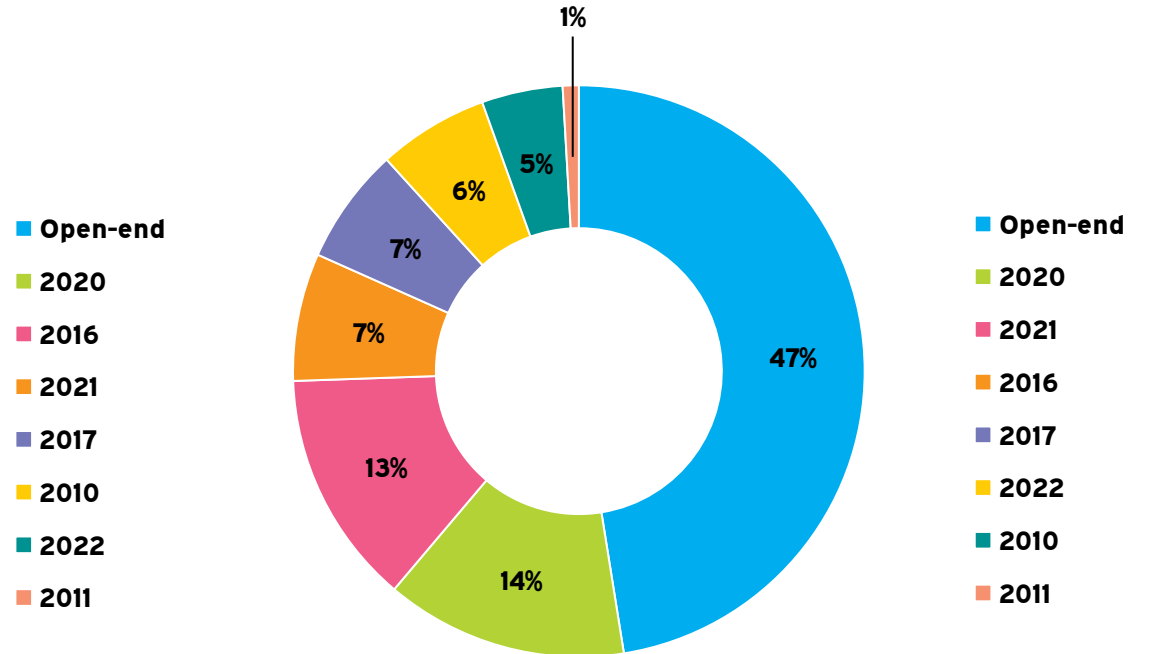


#### By Vintage

Percent of FMV



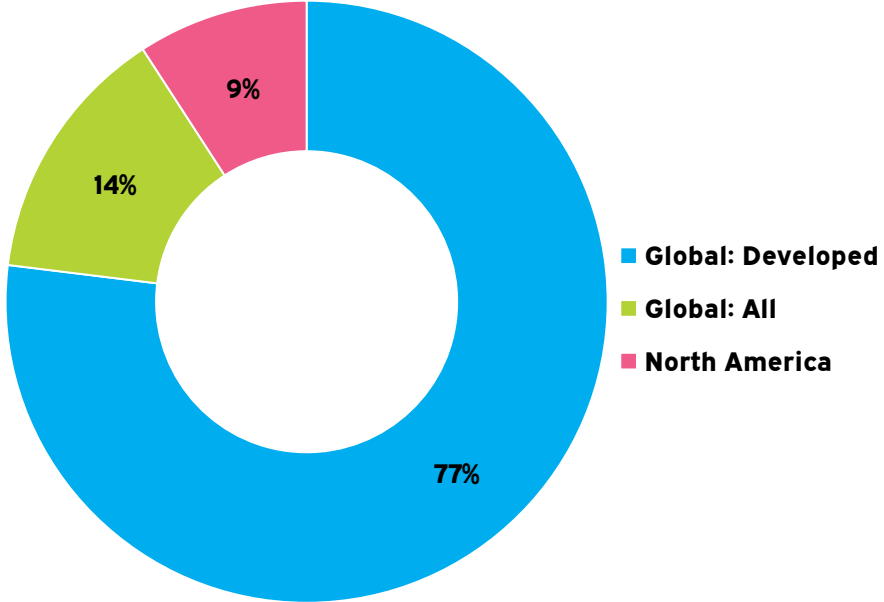
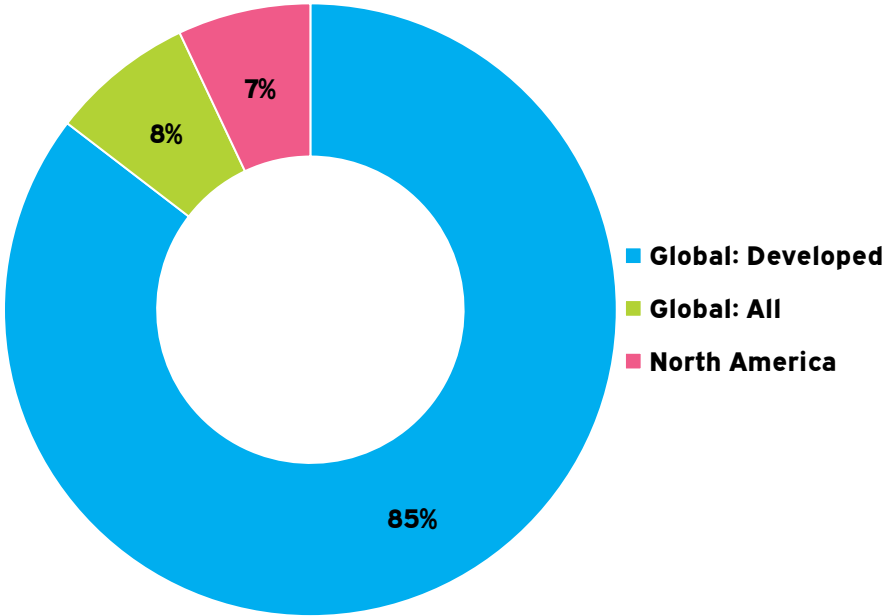
Percent of Exposure



**By Geographic Focus**

**Percent of FMV**

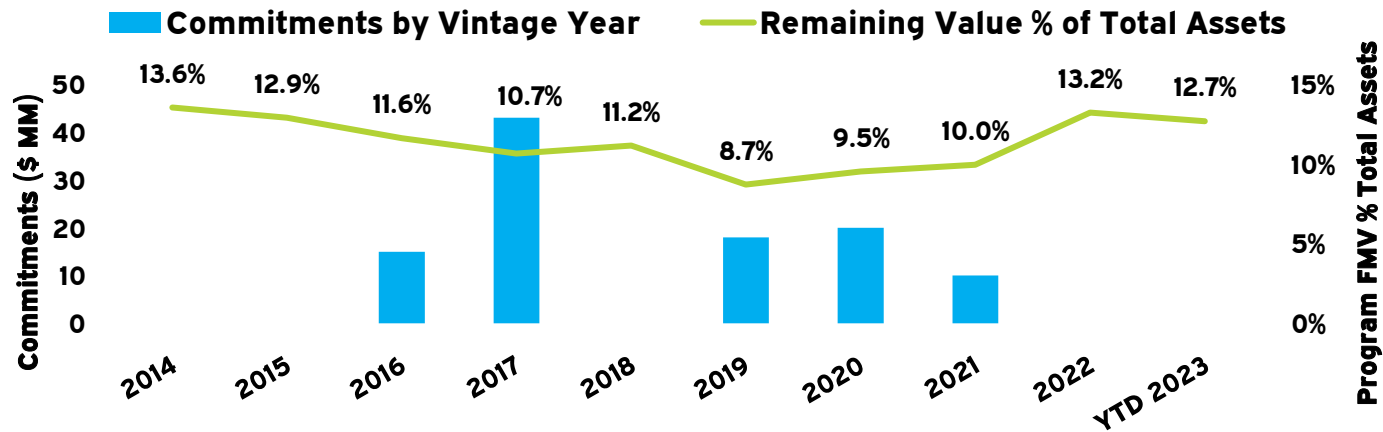
**Percent of Exposure**



## **Real Estate Program**

### Introduction

As of June 30, 2023, the Plymouth County Retirement Association (“PCRA,” or the “Retirement Association”) had committed \$293.0 million to 21 partnerships. As of the end of the second quarter, the fair market value of PCRA’s private real estate partnerships, in aggregate, was \$167.4 million (approximately 63.9% of the fair market value of the program in open-end core funds). The fair market value of PCRA’s real estate program represents 12.7% of total assets, exceeding the program’s 10% long-term target.



Program Status	
No. of Investments	21
Committed (\$M)	293.0
Contributed (\$M)	282.0
Distributed (\$M)	232.0
Fair Market Value (\$M)	167.4

Performance Since Inception	
	Program
DPI	0.82x
TVPI	1.41x
IRR	6.4%

Commitments  
Recent Quarterly Commitments

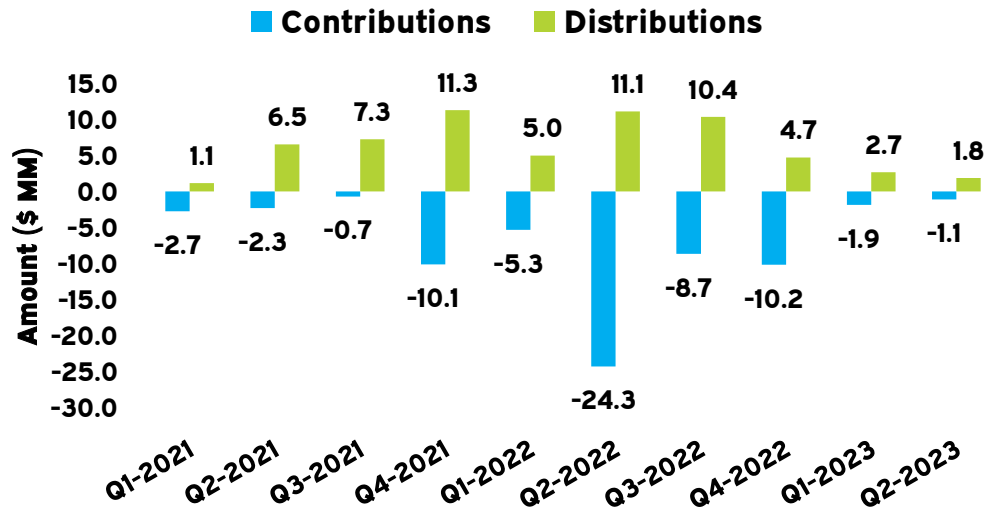


Commitments This Quarter

Fund	Strategy	Region	Amount (MM)
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None to report.

### Cash Flows Recent Quarterly Cash Flows



#### Largest Contributions This Quarter

Fund	Vintage	Strategy	Region	Amount (\$M)
PCCP Equity IX	2021	Opportunistic	North America	0.60
AEW Partners IX	2020	Opportunistic	North America	0.21
Carlyle Realty VIII	2017	Opportunistic	North America	0.16

#### Largest Distributions This Quarter

Fund	Vintage	Strategy	Region	Amount (\$M)
TA Realty Core	2018	Core	North America	0.90
Carlyle Realty VIII	2017	Opportunistic	North America	0.47
AEW Partners VIII	2017	Opportunistic	North America	0.33

### Significant Events

- During the second quarter of 2023, the Retirement Association contributed \$1.14 million to its private real estate partnerships and received \$1.85 million in distributions, representing a \$0.71 million net cash inflow.
- PCCP Equity IX, L.P. called \$0.60 million in the second quarter, primarily to fund investments as well as partnership expenses.
- AEW Partners IX, L.P. called \$0.21 million during the quarter to fund partnership expenses and existing investments.
- Carlyle Realty Partners VIII, L.P. distributed \$0.47 million during the second quarter as proceeds from existing investments. The distributions were offset by a \$0.16 million capital call for partnership expenses and management fees, resulting in a \$0.31 million net distribution.
- TA Realty Core Property Fund, L.P. distributed \$0.90 million as a result of dividend proceeds and a return of capital. The distribution was offset by a \$0.13 million capital call to fund management fees, resulting in a \$0.76 million net distribution.
- AEW Real Estate Partners VIII, L.P. distributed \$0.33 million in the quarter as a result of a capital gain and a return of capital.



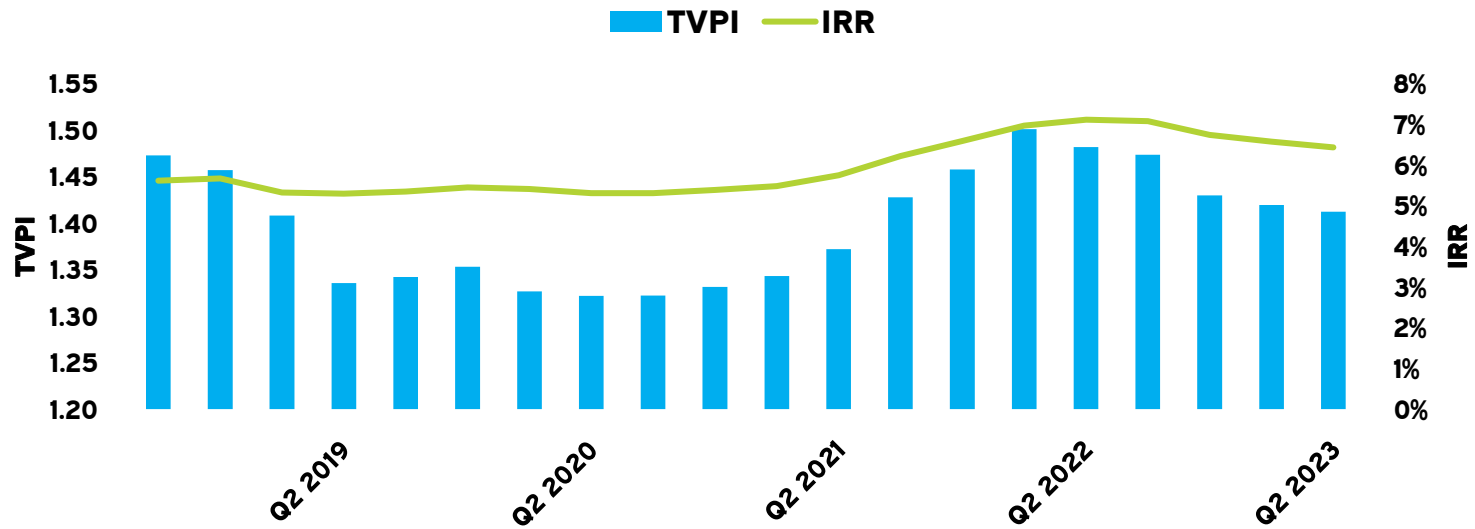
By Strategy

Group	Number	Committed (\$ M)	Contributed (\$ M)	Unfunded (\$ M)	Distributed (\$ M)	Fair Market Value (\$ M)	Exposure (\$ M)	DPI (X)	TVPI (X)	IRR (%)
Core	5	129.0	134.2	0.0	104.4	106.9	106.9	0.78	1.58	6.9
Fund of Funds	1	15.0	12.7	2.3	11.4	0.6	2.9	0.90	0.94	-1.0
Opportunistic	6	77.0	66.0	23.7	42.1	39.0	62.8	0.64	1.23	6.8
Value-Added	9	72.0	69.1	7.2	74.2	20.8	28.0	1.07	1.37	6.6
<b>Total</b>	<b>21</b>	<b>293.0</b>	<b>282.0</b>	<b>33.3</b>	<b>232.0</b>	<b>167.4</b>	<b>200.6</b>	<b>0.82</b>	<b>1.41</b>	<b>6.4</b>

### By Vinatge

Group	Number	Committed (\$ M)	Contributed (\$ M)	Unfunded (\$ M)	Distributed (\$ M)	Fair Market		DPI (X)	TVPI (X)	IRR (%)
						Value (\$ M)	Exposure (\$ M)			
Open-end Fund	5	129.0	134.2	0.0	104.4	106.9	106.9	0.78	1.58	6.9
2001	1	4.0	4.6	0.0	5.7	0.0	0.0	1.23	1.23	2.4
2003	1	10.0	9.0	1.9	11.7	0.0	1.9	1.31	1.31	5.1
2004	1	4.0	4.6	0.0	2.4	0.0	0.0	0.54	0.54	-8.0
2007	3	30.0	26.9	4.3	33.3	0.6	4.9	1.24	1.26	4.7
2008	1	5.0	5.4	0.0	0.0	0.5	0.5	0.00	0.10	-14.2
2011	1	5.0	5.0	0.0	7.4	0.0	0.0	1.48	1.48	11.6
2016	1	15.0	15.1	0.0	23.0	4.4	4.4	1.52	1.82	15.3
2017	2	43.0	39.4	15.6	40.8	16.2	31.8	1.04	1.45	20.4
2019	2	18.0	13.6	5.5	2.1	13.4	18.9	0.16	1.15	7.9
2020	2	20.0	17.6	2.8	1.2	18.3	21.1	0.07	1.11	8.1
2021	1	10.0	6.7	3.3	0.0	6.9	10.2	0.00	1.03	NM
<b>Total</b>	<b>21</b>	<b>293.0</b>	<b>282.0</b>	<b>33.3</b>	<b>232.0</b>	<b>167.4</b>	<b>200.6</b>	<b>0.82</b>	<b>1.41</b>	<b>6.4</b>

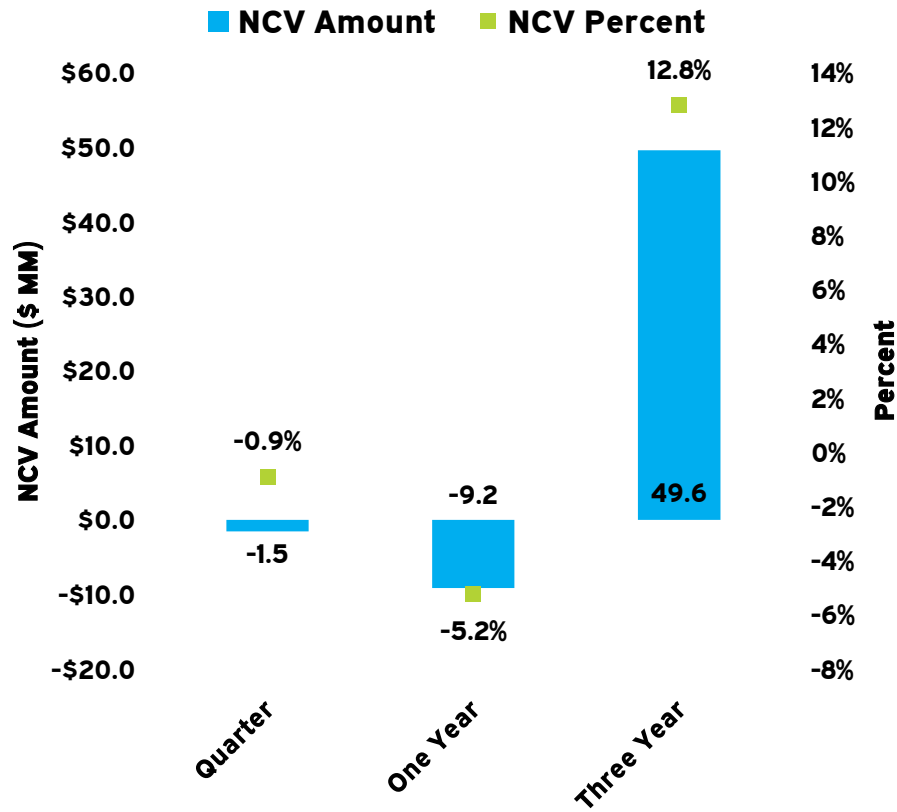
#### Since Inception Performance Over Time



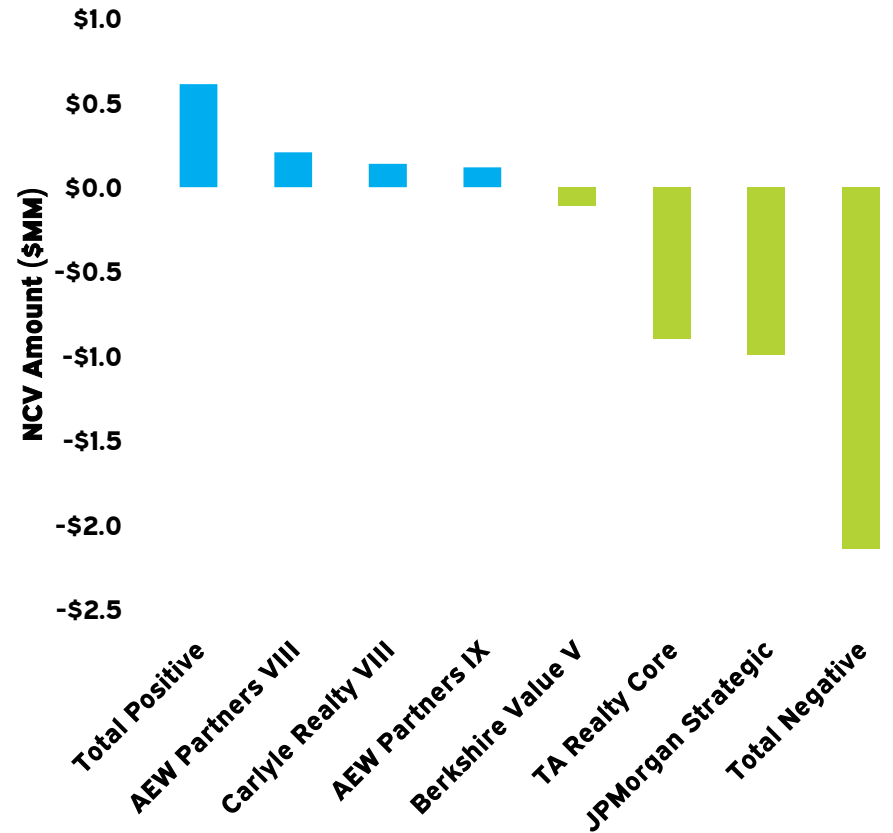
#### Horizon IRRs

	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)	Since Inception (%)
Aggregate Portfolio	-5.2	13.0	9.0	8.0	6.4
Public Market Equivalent	-5.7	2.7	-1.4	1.2	3.5

#### Periodic NCV



#### 1 Quarter Drivers Of NCV



	2Q23 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Since Inception (%)	Inception Date
JPMorgan Strategic Property	-3.0	-12.4	5.8	NA	NA	4.7	4/01/2019
NCREIF Fund Index-Open End Diversified Core Equity (EW) (Net)	-3.0	-10.5	7.6	NA	NA	6.0	NA
TA Realty Core Property Fund, L.P.	-1.2	-6.0	13.1	10.6	NA	11.8	4/01/2018
NCREIF Fund Index-Open End Diversified Core Equity (EW) (Net)	-3.0	-10.5	7.6	6.1	NA	6.1	NA

### Fund Performance: Sorted By Vintage And Strategy

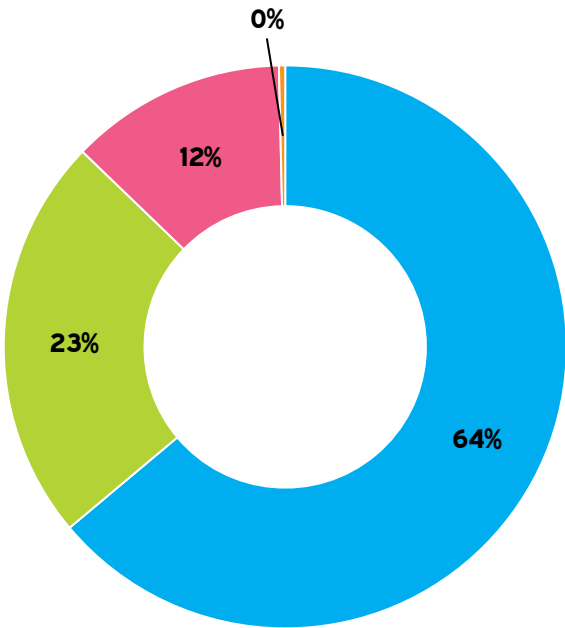
By Investment	Vintage	Strategy	Committed (\$ M)	Contributed (\$ M)	Unfunded (\$ M)	Distributed (\$ M)	Fair Market Value (\$ M)	TVPI (X)	Peer TVPI (X)	IRR (%)	Peer IRR (%)
Invesco RE	Open-end	Core	22.0	23.9	0.0	44.8	0.0	1.87	NA	8.3	NA
JPMorgan Strategic	Open-end	Core	27.0	27.0	0.0	0.5	32.4	1.22	NA	4.7	NA
MEPT	Open-end	Core	5.0	5.0	0.0	15.9	0.0	3.18	NA	6.5	NA
PRISA I	Open-end	Core	15.0	17.2	0.0	35.5	0.0	2.06	NA	5.3	NA
TA Realty Core	Open-end	Core	60.0	61.0	0.0	7.7	74.6	1.35	NA	10.0	NA
Intercontinental III	2001	Value-Added	4.0	4.6	0.0	5.7	0.0	1.23	1.60	2.4	19.1
Hunt Redevelopment	2003	Value-Added	10.0	9.0	1.9	11.7	0.0	1.31	1.60	5.1	16.2
Intercontinental IV	2004	Value-Added	4.0	4.6	0.0	2.4	0.0	0.54	1.23	-8.0	8.0
Mesirow RE Intl	2007	Fund of Funds	15.0	12.7	2.3	11.4	0.6	0.94	1.26	-1.0	6.8
Berkshire Multi II	2007	Value-Added	10.0	11.3	0.0	17.9	0.0	1.59	1.26	11.0	6.8
New Boston VII	2007	Value-Added	5.0	3.0	2.0	4.0	0.0	1.33	1.26	5.6	6.8
1921 Realty	2008	Opportunistic	5.0	5.4	0.0	0.0	0.5	0.10	1.38	-14.2	9.8
DSF IV	2011	Value-Added	5.0	5.0	0.0	7.4	0.0	1.48	1.68	11.6	18.5
DSF III	2016	Value-Added	15.0	15.1	0.0	23.0	4.4	1.82	1.38	15.3	11.3

Fund Performance: Sorted By Vintage And Strategy (con't)

By Investment	Vintage	Strategy	Committed (\$ M)	Contributed (\$ M)	Unfunded (\$ M)	Distributed (\$ M)	Fair Market Value (\$ M)	TVPI (X)	Peer TVPI (X)	IRR (%)	Peer IRR (%)
AEW Partners VIII	2017	Opportunistic	25.0	24.0	4.5	29.4	6.3	1.48	1.34	20.3	13.0
Carlyle Realty VIII	2017	Opportunistic	18.0	15.4	11.1	11.5	10.0	1.39	1.34	20.6	13.0
Rockpoint VI	2019	Opportunistic	9.0	7.3	2.1	11	7.7	1.20	1.25	11.1	14.4
Berkshire Value V	2019	Value-Added	9.0	6.3	3.4	1.1	5.8	1.09	1.25	4.6	14.4
AEW Partners IX	2020	Opportunistic	10.0	7.2	2.8	0.1	7.7	1.08	1.18	6.8	14.8
TerraCap V	2020	Value-Added	10.0	10.4	0.0	1.0	10.6	1.12	1.18	8.8	14.8
PCCP Equity IX	2021	Opportunistic	10.0	6.7	3.3	0.0	6.9	1.03	1.12	NM	NM
Total			293.0	282.0	33.3	232.0	167.4	1.41		6.4	
AEW Partners VIII	2017	Opportunistic	25.0	24.0	4.5	29.4	6.3	1.48	1.34	20.3	13.0

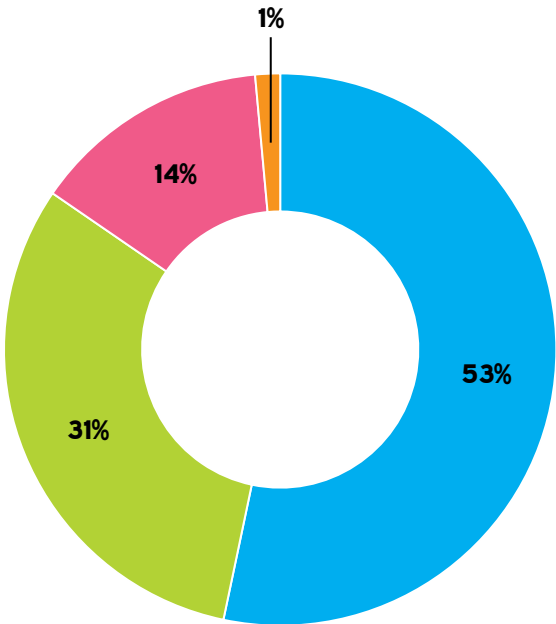
**By Strategy**

**Percent of FMV**



- Core
- Opportunistic
- Value-Added
- Fund of Funds

**Percent of Exposure**

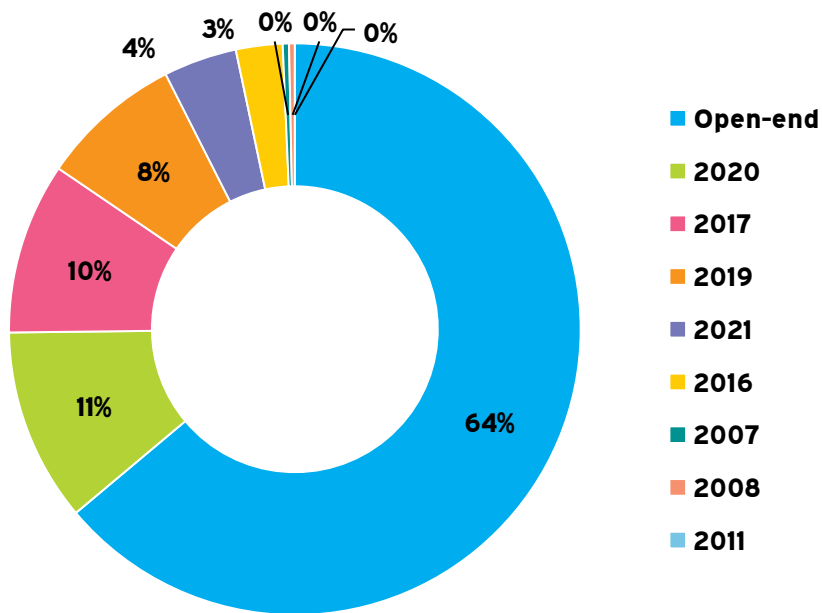


- Core
- Opportunistic
- Value-Added
- Fund of Funds

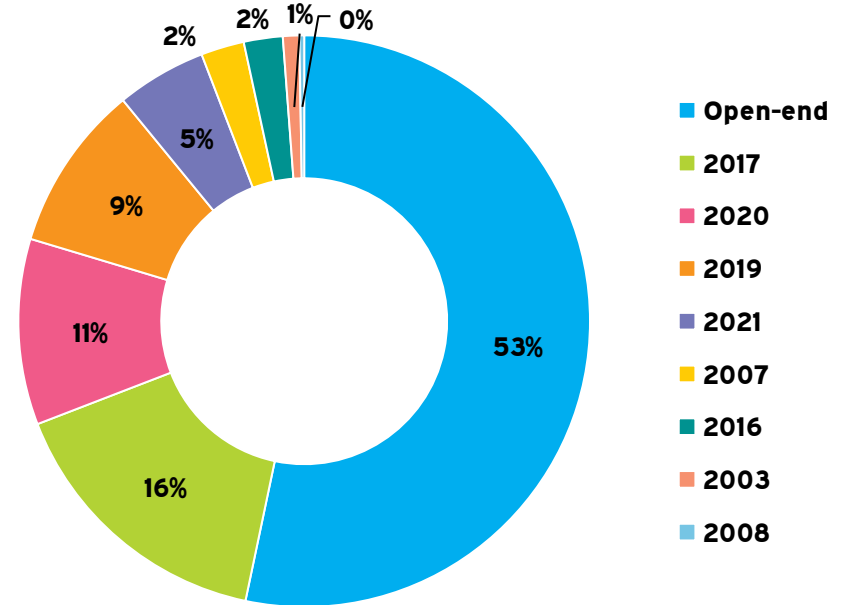


#### By Vintage

Percent of FMV



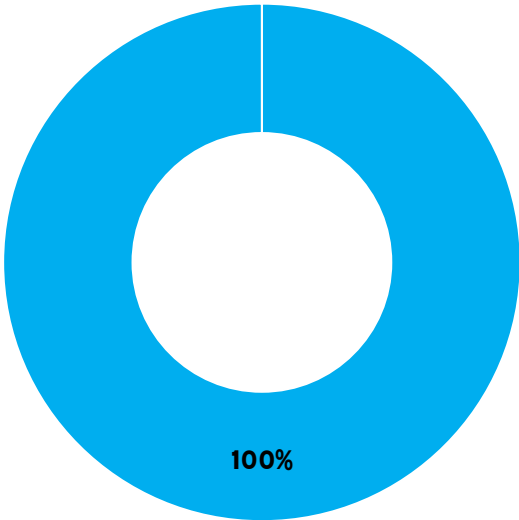
Percent of Exposure



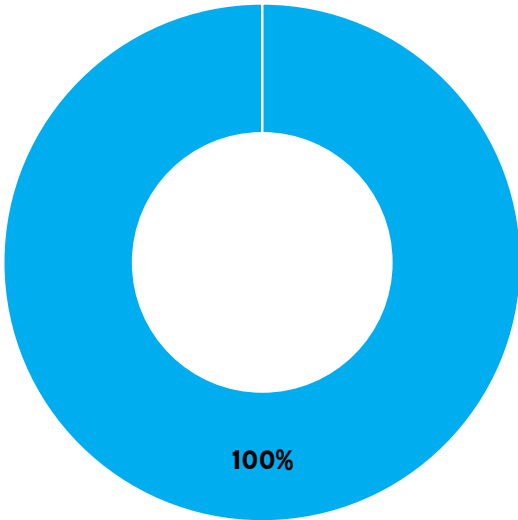
By Geographic Focus

Percent of FMV

Percent of Exposure



■ North America



■ North America

# Appendices

## **Investment Manager Status Report**

### Overview of Watch List Policies

- The Board is responsible for selecting and monitoring investment managers on the Association's roster and recognizes the importance of diligent manager oversight.
- The Board must be informed of changes in strategy, personnel, and organizational structure, to effectively evaluate the Association's managers.
- However, overly aggressive "management" of managers (i.e., rapid hiring and firing of managers) can be counterproductive.
  - Achieving superior returns requires patience. Frequent changes in managers usually results in poor performance, since each change can incur substantial transaction costs, as an entire portfolio of securities is restructured.
- Watch List Policies represent an intermediate state of heightened oversight, triggered by any change that could jeopardize an Investment Manager's ability to successfully fulfill their role for the Association.
- This document presents an overview of the Association's current Watch List Policy and our recommendations.

## Watch List and Probation Policy

### In-Compliance

→ The investment manager is acting in accordance with its investment guidelines.

### Watch List

→ An elevated state of review. There is a problem with performance, an unusual change in characteristics, an alternation in management style or key investment personnel, and/or any irregularities that diminish the Board's confidence in the manager.

### Probation

→ An elevated state of Watch List status. Based on continued concern with one or more of the alert issues, failure for a manager to improve upon stated issues within a time period justifies termination.

### Termination

→ The Board has voted to terminate the manager.

### PCRA Investment Policy Statement Language: Portfolio Monitoring Procedures

- The Trustees will meet with the Consultant no less frequently than quarterly to review portfolio performance, review portfolio weights relative to target weights and managers' performance. Further, the Board will endeavor to meet with each of its investment managers in accordance with PERAC requirements.
- The investment managers managing separate accounts on behalf of the System will be issued investment manager guidelines and they will be monitored at two levels of contract review: Watchlist and Probation, the latter being a more heightened level of review.
- The Consultant will recommend to the Board when a manager should be placed on or removed from Watchlist or Probation. When an investment manager is placed on the Watchlist/Probation, it is effective immediately. There is no minimum time requirement on the Watchlist/Probation before a termination may be made. An investment manager's contract may be terminated for any reason at any time, whether on Watchlist/Probation or not.
- A representative listing of potential reasons an investment manager may be added to Watchlist/Probation is detailed on the next page. During an investment manager's tenure on the Watchlist/Probation, the investment consultant will provide the Board with regular reports, including background information and support, about the progress the investment manager is or is not making. An investment manager may be removed from heightened alert if the Board believes the issues that placed the firm on the Watchlist/Probation are resolved.
- Should the manager's performance not improve over a reasonable time period, the Consultant will recommend further action and possible termination after a careful review of the manager's performance, portfolio structure and the market environment. Before a manager is officially dismissed, the Consultant will recommend to the Board a plan of action for managing (internally, externally, or in combination) or liquidating the assets.
- Circumstances may warrant that the Trustees take immediate action to terminate a manager. Therefore, the Trustees reserve the right to bypass the course outlined above and remove a manager immediately if deemed prudent and in the best interests of the Association participants.

**PCRA Investment Policy Statement Language: Watch List and Probation Policy****Organizational Issues**

- Change in ownership or control of the company
- Significant change in team composition or responsibilities
- Material change in the business organization of the investment manager
- Departure of significant personnel

**Performance**

- 1, 3 and 5-year performance net of fees below benchmark
- 1, 3 and 5-year performance net of fees below peers (below median of relevant peer universe)
- Performance inconsistent with the investment manager's style and risk controls

**Investment Process**

- Deviation from investment style
- Deviation from risk controls

**Other**

- Material guideline violation not brought to our attention by the investment manager
- Material guideline violation not sufficiently explained by the investment manager
- Failure to comply with terms of contract
- Any extraordinary regulatory action or other proceeding affecting the investment
- Failure to abide by Massachusetts law and investment restrictions
- Unsatisfactory client service



Active Manager Roster<sup>1</sup>

Investment Manager	Recommendation as of 9/30/23
Fisher Midcap Value	In-Compliance
Newton Small Cap Growth (formerly Mellon)	In-Compliance
Vulcan Partners Small Cap Value	In-Compliance
Systematic Small Cap FCF	In-Compliance
Aristotle International Equity	In-Compliance
Walter Scott International Equity	In-Compliance
ABS Emerging Markets	In-Compliance
Driehaus Emerging Markets Growth	In-Compliance
First Eagle Global Value	In-Compliance
Kopernik Global All Cap	In-Compliance
Lee Munder Global Multi-cap	In-Compliance
Wellington Durable Enterprises	In-Compliance

<sup>1</sup> Excluding illiquid asset classes of private equity and non-core real estate.

Active Manager Roster<sup>1</sup> (con't)

Investment Manager	Recommendation As of 9/30/23
Lord Abbett Short Duration	In-Compliance
Lord Abbett Core Fixed Income	In-Compliance
Rhumblin Tips	In-Compliance
Eaton Vance High Yield	In-Compliance
First Eagle Bank Loan Select (Formerly THL Bank Loan Select)	Watch List (performance)
Manulife Strategic Fixed Income	In-Compliance
Mesirow High Yield	In-Compliance
Eaton Vance Emerging Market Debt	In-Compliance
Schroder All ILS Fund LTD	In-Compliance
ABS Offshore SPC - Global Segregated	Watch List (performance)
Entrust Special Opportunities Fund III, Ltd	In-Compliance
Old Farm Partners Master Fund	In-Compliance
EnTrustPermal Special Opportunities Evergreen Fund	In-Compliance
TA Realty Core Property Fund	In-Compliance
JPMorgan Strategic Property	In-Compliance
IFM Global Infrastructure	In-Compliance

<sup>1</sup> Excluding illiquid asset classes of private equity and non-core real estate.

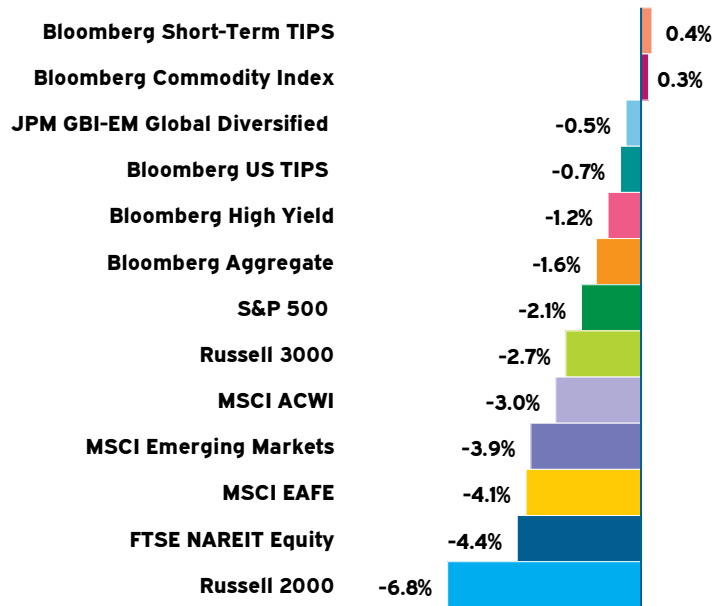
**Economic and Market Update**  
Data As of October 31, 2023

### Commentary

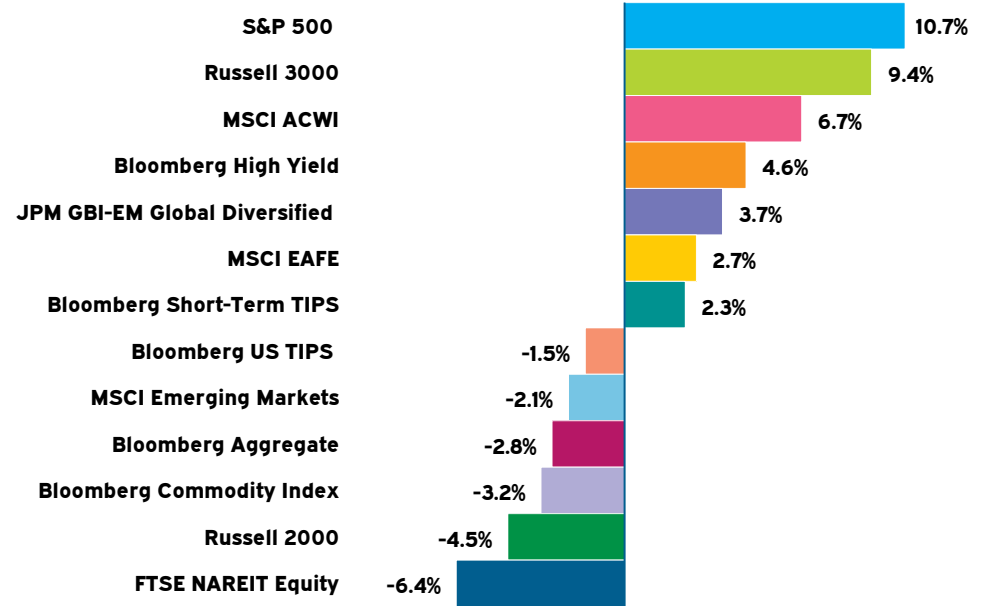
- Global markets continued to struggle in October, as expectations remained on the Fed keeping interest rates higher for longer due to resilient economic data.
- The Federal Open Markets Committee (FOMC), which increased policy rates in July by 0.25% to a range of 5.25% - 5.5%, has been on pause since. Markets are now largely expecting the FOMC to maintain interest rates at this level through the first half of next year with cuts to follow.
  - US equity markets (Russell 3000 index) fell in October (-2.7%), lowering the year-to-date gains to 9.4%. Most sectors except utilities struggled in October.
  - Non-US developed equity markets declined more than the US in October (MSCI EAFE -4.1%), with the strength of the US dollar weighing on returns. This widened the gap between US and international developed equities for the year (to 9.4% versus 2.7%).
  - Emerging market equities also fell in October (-3.9%), with negative results driven by China and the strong US dollar. Emerging markets continue to significantly trail developed market equities year-to-date, returning -2.1%, again driven by losses from China (-11.2%).
  - Interest rates generally rose in October, particularly for longer-dated maturities. The broad US bond market declined (-1.6%) in October falling further into negative territory (-2.8%) year-to-date, as higher income has offset a portion of the capital losses from rising rates.
- For the rest of this year and into 2024, the paths of inflation and monetary policy, slowing global growth, and the wars in Ukraine and Israel will all be key.

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

#### QTD



#### YTD



→ After a strong start to the year, the prospect of higher interest rates for longer given resilient economic data has weighed on markets from August through October.

<sup>1</sup> Source: Bloomberg. Data is as of October 31, 2023.

### Domestic Equity Returns<sup>1</sup>

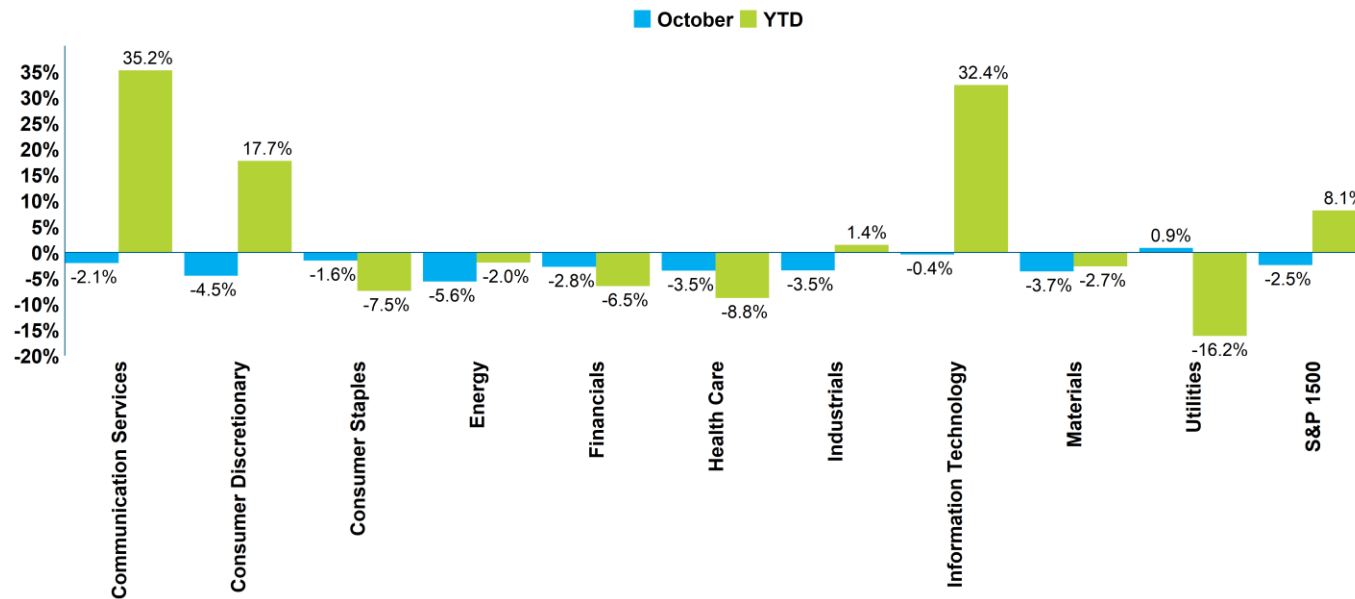
Domestic Equity	October (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	-2.1	-3.3	10.7	10.1	10.3	11.0	11.2
Russell 3000	-2.7	-3.3	9.4	8.4	9.2	10.2	10.5
Russell 1000	-2.4	-3.1	10.3	9.5	9.5	10.7	10.9
Russell 1000 Growth	-1.4	-3.1	23.2	19.0	8.7	14.2	13.8
Russell 1000 Value	-3.5	-3.2	-1.8	0.1	10.2	6.6	7.6
Russell MidCap	-5.0	-4.7	-1.3	-1.0	6.0	7.1	8.0
Russell MidCap Growth	-5.1	-5.2	4.3	3.3	0.8	8.1	9.1
Russell MidCap Value	-5.0	-4.5	-4.4	-3.6	8.8	5.7	6.9
Russell 2000	-6.8	-5.1	-4.5	-8.6	3.9	3.3	5.6
Russell 2000 Growth	-7.7	-7.3	-2.9	-7.6	-1.8	2.7	5.7
Russell 2000 Value	-6.0	-3.0	-6.5	-9.9	9.7	3.3	5.2

#### US Equities: The Russell 3000 Index fell 2.7% in October but is up 9.4% YTD.

- A surprisingly strong September jobs report and third quarter GDP reading reinforced investors' expectations that the Federal Reserve will keep interest rates higher for longer and broadly weighed on US equities.
- The utility sector was the only sector that posted a gain during October. Energy stocks experienced the steepest fall, followed by consumer discretionary stocks.
- Large cap stocks outperformed small cap stocks during October driven by the technology sector. Microsoft and Amazon, both of which reported stronger than expected third quarter results, were significant contributors to this dynamic.

<sup>1</sup> Source: Bloomberg. Data is as of October 31, 2023.

### S&P 1500 Sector Returns<sup>1</sup>



→ Except for utilities all sectors were down in October.

→ So far in 2023, the communication services (+35.2%) and technology (+32.4%) sectors had the best results, helped by artificial intelligence optimism. Given the continued strength in the US consumer the consumer discretionary sector followed (+17.7%), while more traditionally defensive sectors like utilities (-16.2%), health care (-8.8%), and consumer staples (-7.5%) have trailed.

<sup>1</sup> Source: Bloomberg. Data is as of October 31, 2023.

### Foreign Equity Returns<sup>1</sup>

Foreign Equity	October (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	-4.1	-3.8	1.0	12.1	3.0	3.5	2.5
MSCI EAFE	-4.1	-4.1	2.7	14.4	5.7	4.1	3.1
MSCI EAFE (Local Currency)	-3.4	-1.3	7.0	10.4	11.0	6.4	6.0
MSCI EAFE Small Cap	-5.9	-3.5	-4.2	6.5	0.3	1.6	3.4
MSCI Emerging Markets	-3.9	-2.9	-2.1	10.8	-3.7	1.6	1.2
MSCI Emerging Markets (Local Currency)	-3.6	-1.4	0.3	9.8	-1.1	3.6	4.2
MSCI China	-4.3	-1.9	-11.2	21.1	-16.9	-2.6	1.0

**Foreign Equity: Developed international equities (MSCI EAFE) fell 4.1% in October, dropping the YTD gain to 2.7%. Emerging market equities (MSCI EM) fell 3.9% in the period and were down 2.1% YTD.**

- Non-US equities fell for the third consecutive month with steeper declines compared to the US market. The continued strength of the US dollar contributed to losses, as well as the ongoing geopolitical crisis in the Middle East.
- European equities struggled due to slowing growth, falling PMI, and a contraction in household and business credit supply. The UK saw greater losses, with sticky inflation, and continued wage growth suggesting that rates will be high for some time. Japan remains the best performing market year-to-date, though the TOPIX lost momentum in October.
- Emerging market equity performance was slightly better than developed international equities, but the declines for the month brought year-to-date results into negative territory. While there were some positive data out of China on industrial production and retail sales, continued weakness in real estate and new US chip restrictions weighed on market sentiment.

<sup>1</sup> Source: Bloomberg. Data is as of October 31, 2023.



### Fixed Income Returns<sup>1</sup>

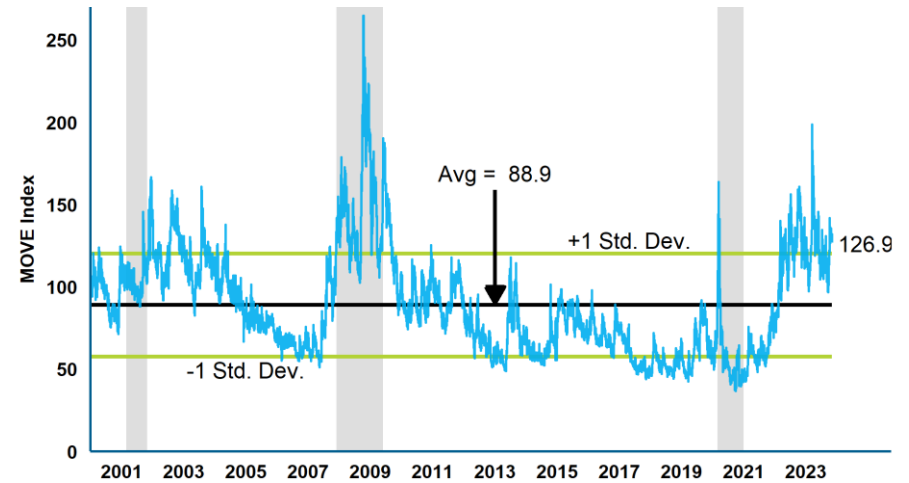
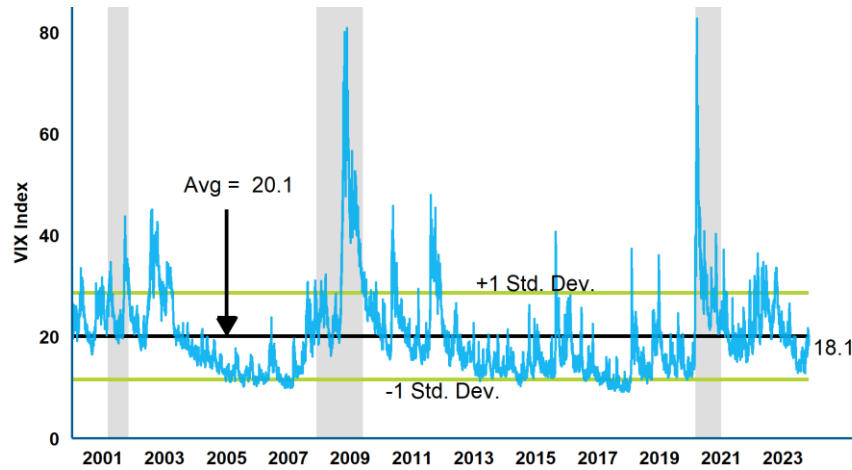
Fixed Income	October (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	-1.5	-2.9	-2.1	1.2	-5.0	0.2	1.2	6.0	5.9
Bloomberg Aggregate	-1.6	-3.2	-2.8	0.4	-5.6	-0.1	0.9	5.6	6.1
Bloomberg US TIPS	-0.7	-2.6	-1.5	-0.7	-2.0	2.3	1.6	5.2	6.6
Bloomberg Short-term TIPS	0.4	0.4	2.3	2.6	2.1	3.0	1.7	5.4	2.5
Bloomberg High Yield	-1.2	0.5	4.6	6.2	1.2	3.0	3.9	9.5	4.0
JPM GBI-EM Global Diversified (USD)	-0.5	-3.3	3.7	13.5	-3.0	0.3	-1.2	7.0	4.9

#### Fixed Income: The Bloomberg Universal index declined 1.5% in October and 2.1% YTD.

- Expectations for policy rates to remain higher for longer than previously expected continued to weigh on yields in October.
- The broad US bond market (Bloomberg Aggregate) fell 1.6% in the month, driving year-to-date performance further into negative territory. The broader TIPS index fell by 0.7%, while the less interest-rate-sensitive short-term TIPS index outperformed most sectors, up 0.4%.
- High yield bonds also weakened, declining 1.2%, and emerging market bonds fell 0.5%. Volatility in both asset classes is being driven by movement in broader interest rates, but also a modest deterioration in risk appetite.

<sup>1</sup> Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of October 31, 2023. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

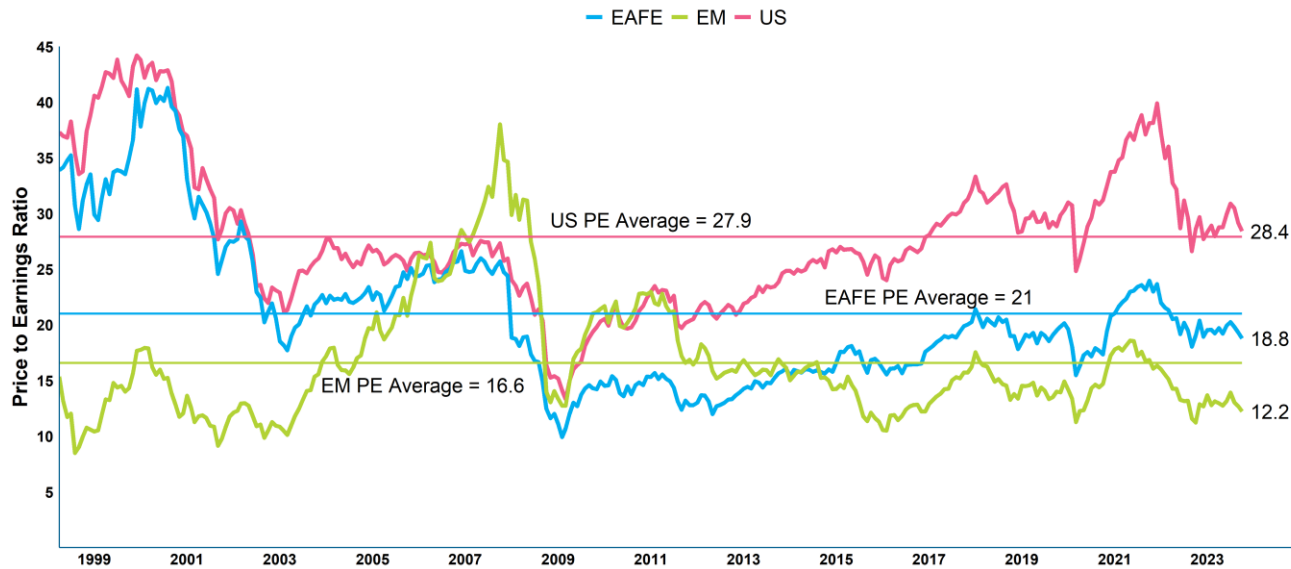
**Equity and Fixed Income Volatility<sup>1</sup>**



- Volatility in equities (VIX) increased in October but finished at a level near the long-term average. The recent increase in equity volatility has largely been driven by investors coming to terms that interest rates might remain higher for a longer period.
- In comparison, volatility in the bond market (MOVE) remains well above its long-run average (88.9) after last year’s historic losses and due to continued policy uncertainty. In October, fixed income volatility finished higher compared to where it started, like equities, driven by expectations for rates to stay higher for longer and increased concerns about future US debt issuance.

<sup>1</sup> Equity Volatility – Source: FRED. 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 October 2023. The average line indicated is the average of the VIX and MOVE values between January 2000 and October 2023.

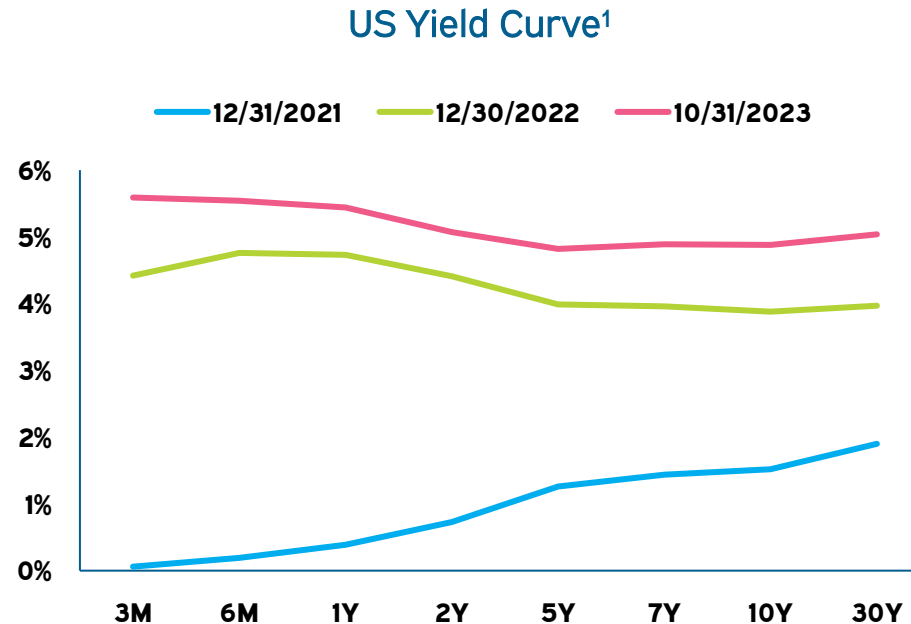
**Equity Cyclically Adjusted P/E Ratios<sup>1</sup>**



→ Given the strong technology-driven rally this year, the US equity price-to-earnings ratio increased above its long-run (21st century) average. With the equity market decline in August through October, the P/E ratio fell from its recent peak.

→ International developed market valuations are below their own long-term average, with those for emerging markets the lowest and well under the long-term average (close to one standard deviation below).

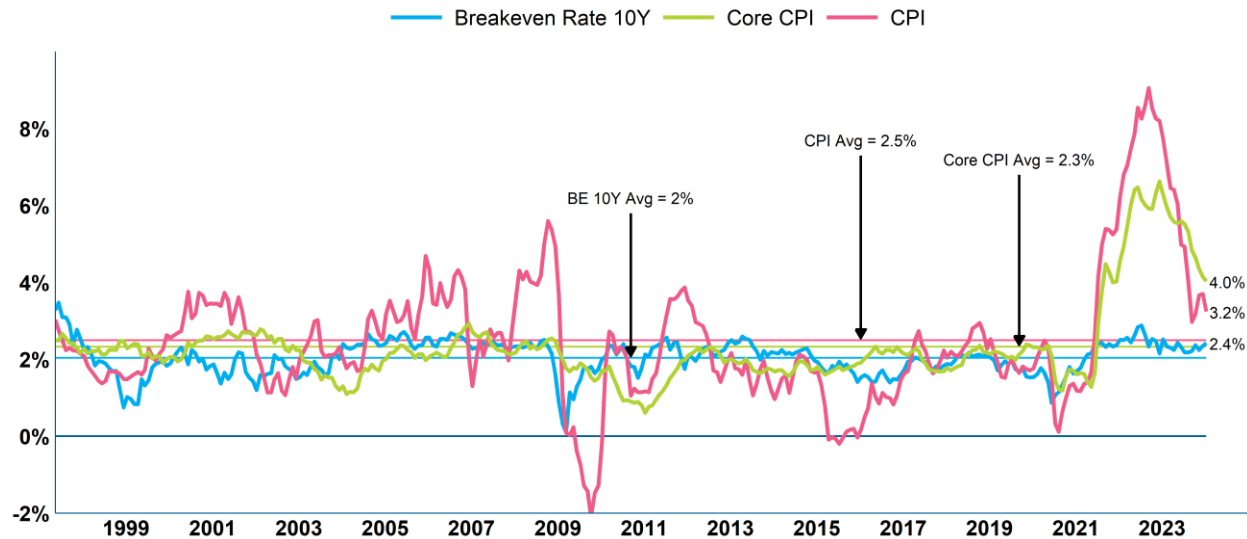
<sup>1</sup> US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years. Data is as of October 2023. The average line is the long-term average of the US, EM, and EAFE PE values from April 1998 to the recent month-end respectively.



- Overall rates continued to increase this year, particularly at the policy sensitive front-end of the yield curve, but at a much slower pace compared to last year.
- In October, very short-term interest rates (two years or less) increased only slightly as monetary policy has likely reached close to its terminal rate for this cycle. By contrast, longer-term rates continued their dramatic rise as investors come to terms with rates remaining higher for longer. The ten-year Treasury yield has experienced a significant increase from 3.9% to 4.9% since the beginning of the year.
- Because of the dynamic above, the yield curve's inversion decreased further with the spread between two-year and ten-year Treasuries at -0.15% at the end of October (it started the third quarter at -1.05%).

<sup>1</sup> Source: Bloomberg. Data is as of October 31, 2023.

**Ten-Year Breakeven Inflation and CPI<sup>1</sup>**

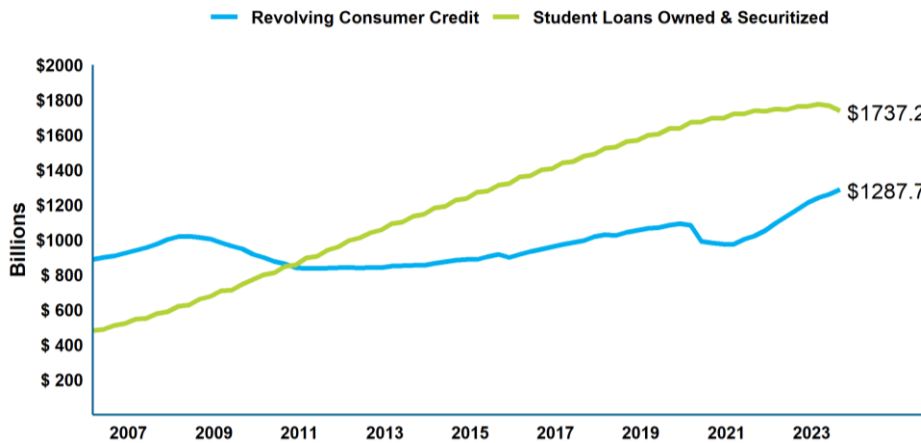


- Year-over-year headline inflation fell from 3.7% to 3.2%, coming in slightly below expectations. Declines were driven by energy, used cars and trucks, and medical services.
- Core inflation – excluding food and energy – fell slightly (4.1% to 4.0%) year-over-year. It remains stubbornly high, though, driven by shelter costs (+6.7%), particularly owners’ equivalent rent, and transportation services (+9.2%).
- Inflation expectations (breakevens) remain below current inflation as investors continue to expect inflation to track back toward the Fed’s 2% average target.

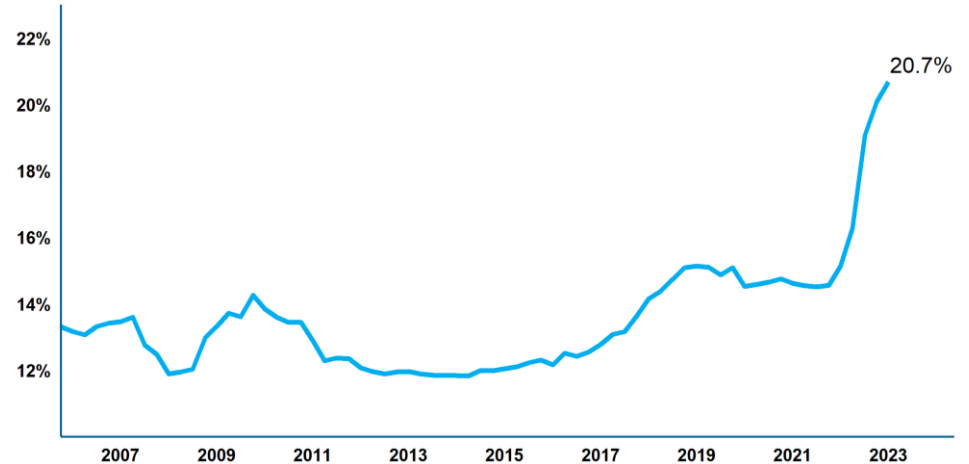
<sup>1</sup> Source: FRED. Data is as October 31, 2023. The CPI and 10 Year Breakeven average lines denote the average values from February 1997 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

### US Consumer Under Stress?<sup>1</sup>

#### Revolving Consumer Credit & Student Loans (\$B)



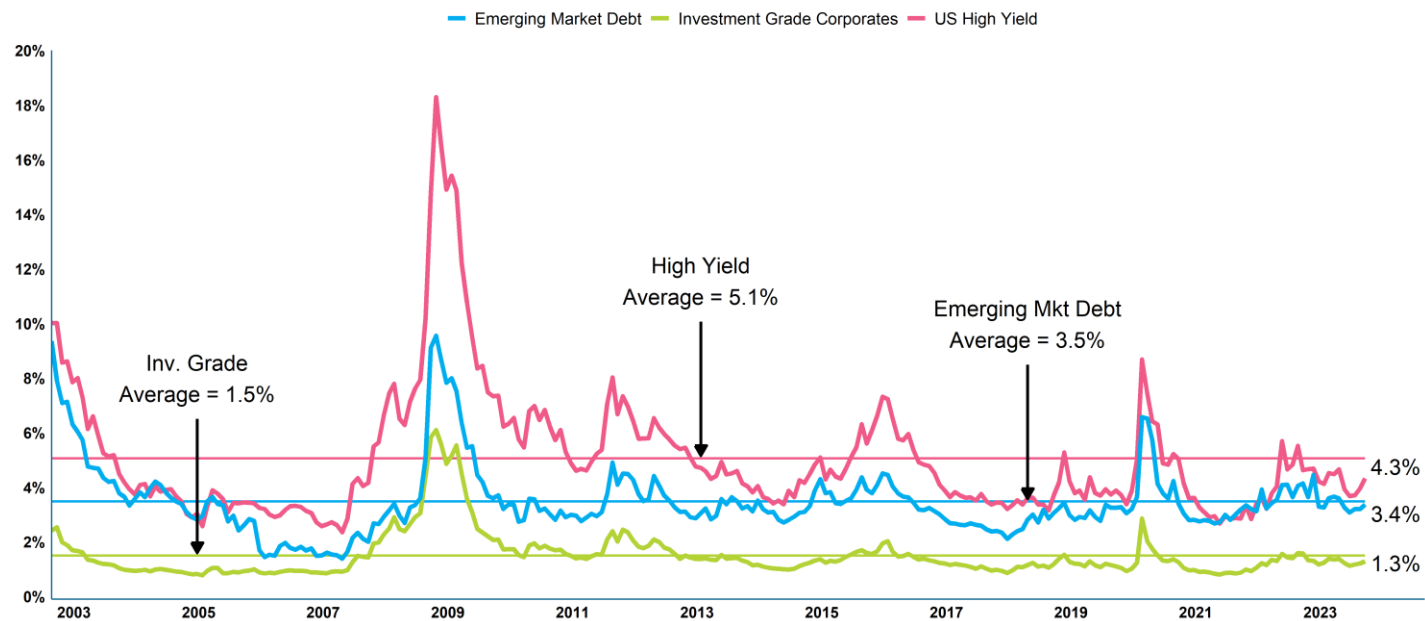
#### Consumer Credit Card Interest Rates (%)



- Despite the strong labor market and higher wages, pressures have started to build on the US consumer. This is an important consideration as consumer spending has been an important driver of economic growth.
- Revolving consumer credit surged to new highs in 2023 even as credit card interest rates hit levels not seen before (the prior peak was around 19% in the 1980s).
- The return of student loan repayments after a three-year pandemic-related reprieve could add to pressures on consumers' budgets. This might be partially balanced by recently initiated repayment and forgiveness programs.
- As we look ahead, the strength of the US consumer will remain key as this sector makes up most of the domestic economy (GDP).

<sup>1</sup> Source: FRED. Revolving Consumer Credit and Student Loans data is as of September 30, 2023. Revolving Consumer Credit data is seasonally adjusted to remove distortions during the holiday season. Consumer Credit Card Interest Rates data is as of June 30, 2023.

**Credit Spreads vs. US Treasury Bonds<sup>1</sup>**

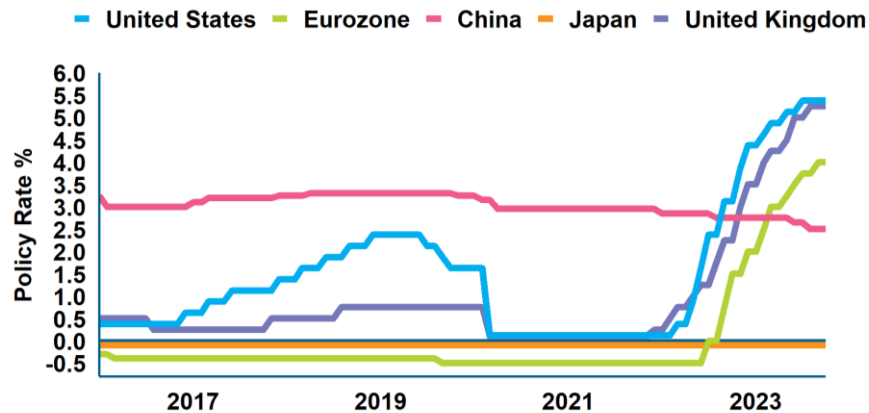


- Credit spreads (the added yield above a comparable maturity Treasury) increased in October but remained below their respective long run averages.
- High yield spreads continue to be the furthest below their long-term average given the overall risk appetite this year. Investment-grade and emerging market spreads are also below their respective long-term averages, but by smaller margins.

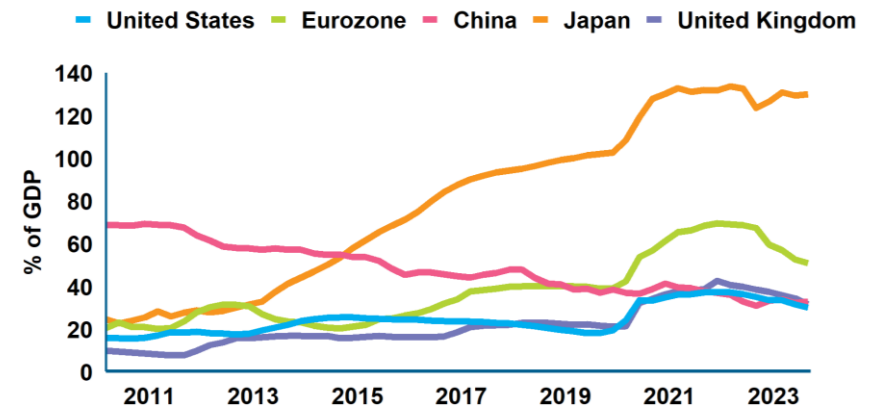
<sup>1</sup> Sources: Bloomberg. Data is as of October 31, 2023. Average lines denote the average of the investment grade, high yield, and emerging market spread values from September 2002 to the recent month-end, respectively.

### Central Bank Response<sup>1</sup>

#### Policy Rates



#### Balance Sheet as % of GDP

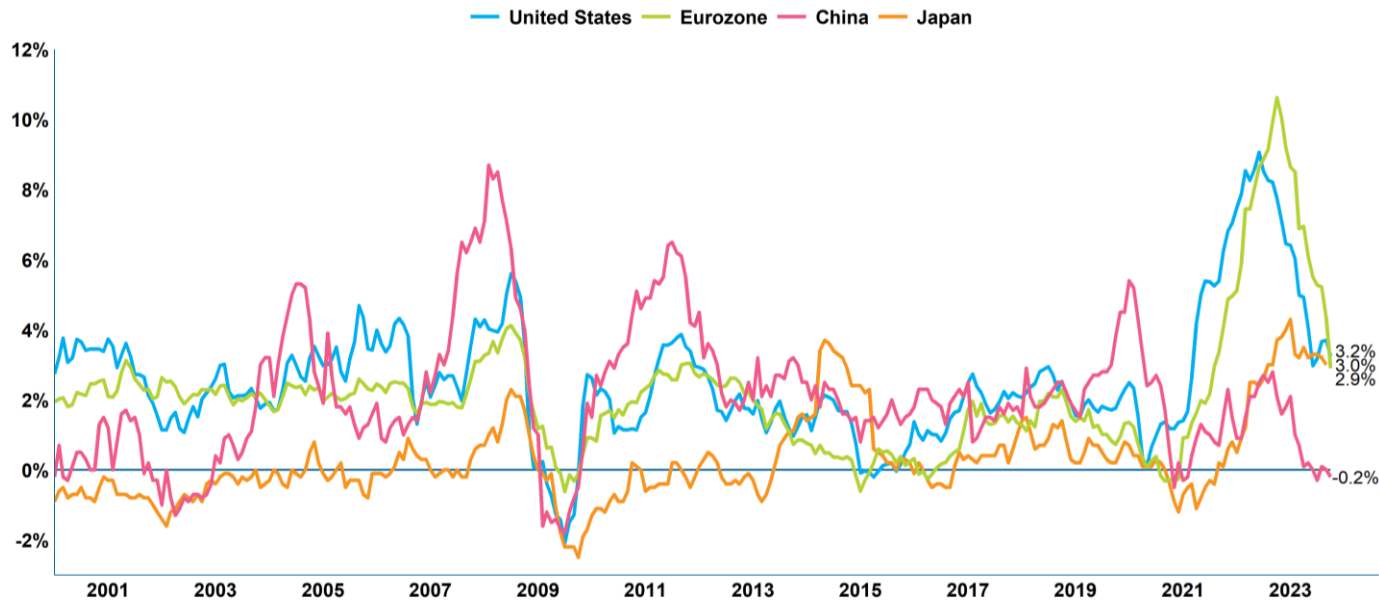


- Slowing inflation and growth have led to expectations for a reduction in the pace of aggressive policy tightening.
- In July, the Fed raised rates another 25 basis points to a range of 5.25% to 5.50% and then kept rates at this level at their September and October/November meetings. Markets are not expecting any additional rate hikes.
- The European Central Bank paused in October, with lower-than-expected inflation and weaker growth. In Japan, the BoJ has further relaxed its yield curve control on the 10-year bond, and expectations for further policy normalization are rising.
- The central bank in China has continued to cut interest rates and inject liquidity into the banking system, as weaker than expected economic data appears to indicate a widespread slowdown.
- Risks remain for a policy error as central banks attempt to balance bringing down inflation, maintaining financial stability, and supporting growth.

<sup>1</sup> Source: Bloomberg. Policy rate data is as of October 31, 2023. 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 September 30, 2023.



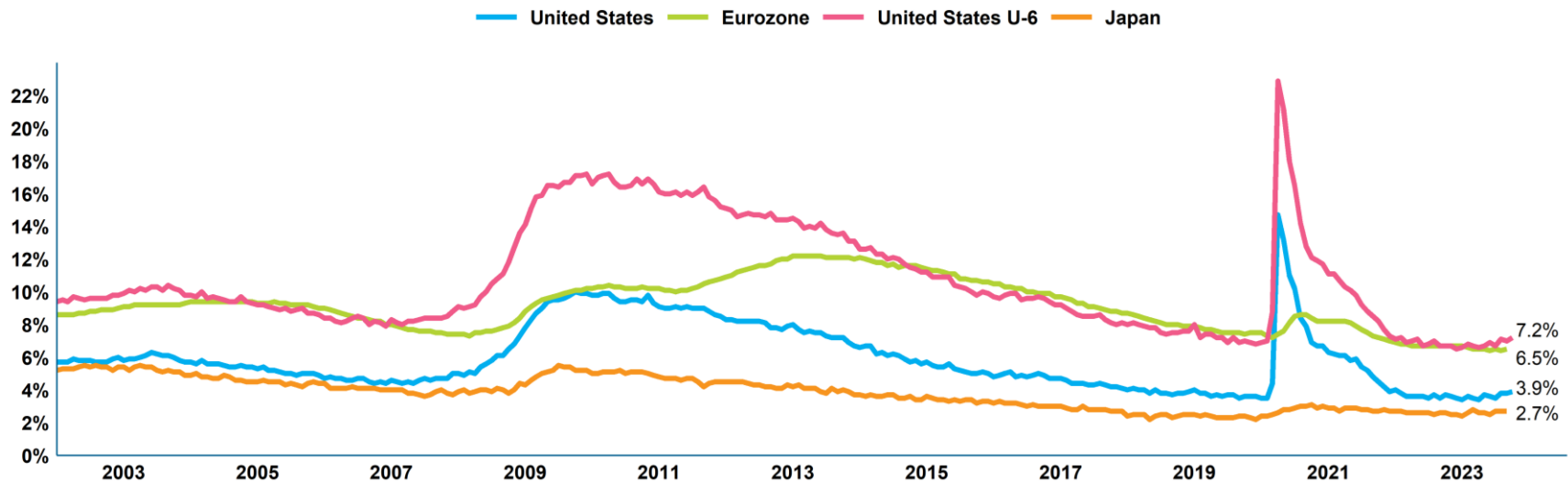
**Inflation (CPI Trailing Twelve Months)<sup>1</sup>**



- The inflation picture remains mixed across the major economies.
- In the US, inflation fell from 3.7% to 3.2%, driven by falling energy prices. In the eurozone inflation experienced a dramatic decline in October (4.3% to 2.9%), to a level below the US, also driven by a decline in energy prices. Despite 2023’s significant declines in the US and Europe, inflation levels remain elevated compared to central bank targets.
- Inflation in Japan, has increased to levels not seen in almost a decade, driven by food and home related items. In China, deflationary pressures returned in October, as consumption declined after the holiday earlier in the month.

<sup>1</sup> United States CPI and Eurozone CPI – Source: FRED. Japan CPI and China CPI - Source: Bloomberg. Data is as October 31, 2023. The most recent data for Japanese inflation is as of September 30, 2023.

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



- Overall, the US labor market remains healthy with the unemployment rate relatively low, wage growth now positive in real terms, and initial claims for unemployment staying subdued. The pace of wage growth has slowed though, and despite remaining elevated, the number of job openings has declined from recent highs.
- In October, US unemployment increased slightly (3.8% to 3.9%), with job gains of 150,000 coming in below expectations of 180,000. The labor force participation rate declined slightly over the month from 62.8% to 62.7%, well off the lows of the pandemic (60.1%) but not back to pre-pandemic levels (63.3%). Broader measures of unemployment (U-6) finished the quarter at 7.2%, up from the September reading of 7.0%.
- Unemployment in Europe (6.5%) remains higher than the US, while levels in Japan (2.7%) remained low through the pandemic given less layoffs.

<sup>1</sup> Eurozone Unemployment - Source: Bloomberg. Japan, United States, United States U-6 Unemployment – Source: FRED. Data is as October 31, 2023, for the US. The most recent data for Eurozone and Japan unemployment is as of September 30, 2023.

**US Dollar versus Broad Currencies<sup>1</sup>**



- After a strong 2022, the US dollar declined late last year and into early this year as weaker economic data and lower inflation led to investors anticipating the end of FOMC tightening.
- Recently though, the dollar reversed course and appreciated against major currencies as relative growth remains strong and investors anticipate the FOMC keeping interest rates higher for longer.
- For the rest of this year, the track of inflation across economies and the corresponding monetary policies will likely be key drivers of currency moves.

<sup>1</sup> Source: Bloomberg. Data as of October 31, 2023.

## Summary

### Key Trends:

- The impact of inflation still above policy targets will remain key, with bond market volatility likely to stay high.
- Global monetary policies could diverge going forward. The risk of policy errors remains elevated as central banks try to reduce persistent inflation while not tipping their economies into recession.
- Growth is expected to slow globally this year, with many economies forecasted to tip into recession. However, optimism has been building that some economies could experience soft landings. Inflation, monetary policy, and the war will all be key.
- In the US, consumers could feel pressure as certain components of inflation (e.g., shelter), remain high, borrowing costs are elevated, and the job market may weaken.
- The key for US equities going forward will be whether earnings can remain resilient if growth continues to slow. Also, the future paths of the large technology companies that have driven market gains will be important.
- Equity valuations remain lower in emerging and developed markets, but risks remain, including the potential for recent strength in the US dollar to persist, higher inflation weighing particularly on Europe, and China's sluggish economic reopening and on-going weakness in the real estate sector. Japan's recent hint at potentially tightening monetary policy along with changes in corporate governance in the country could influence relative results.
- Recent, heightened tensions in Israel could add to overall uncertainty and drive safe haven flows.

**Corporate Update**



**7**  
Offices



**240+**  
Employees



**240+**  
Clients



**\$1.8T**  
Assets Under Advisement



**\$200B**  
Assets in Alternative Investments



**99%**  
Client Retention Rate



**5:1**  
Client | Consultant Ratio

Meketa Investment Group is proud to work for over 15 million American families everyday!

### UPCOMING EVENTS



Q4 Investment Perspectives Webcast  
January 2024



Mission Driven Investing Manager Research Day  
December 2023

Client and employee counts as of September 30, 2023; assets as of June 30, 2023.  
Client retention rate is one minus the number of clients lost divided by the number of clients at prior year-end.

### THOUGHT LEADERSHIP



#### Read our July Connectives “Your Plan is 100% Funded, Now What?”

Continuing in our newest series of “Meketa Connectives”, our July issue covers the effect high interest rates are having on the funded status of plans. For well over a decade, low fixed income yields have suppressed discount rates and increased the value of liabilities on an accounting basis. As the Federal Reserve hikes interest rates to fight inflation, the corporate discount rate has started to rise. As a result, plans are finding that their funded status has improved on an accounting basis, which in turn broadens the range of options available to them.

Read more here:

<https://meketa.com/news/meketa-connectives-your-plan-is-100-funded-now-what/>



#### Read our recent white paper “Venture Capital Primer”

Venture capital has been an attention-grabbing, headline generating asset class from its very beginning. Many household names started out as (or still are) venture backed investments, including Apple, Microsoft, Google, Facebook, SpaceX, Uber, Airbnb, DoorDash, and Peloton. Recently, venture capital has become a dominating presence in the cryptocurrency and AI industries, driving innovation through investments in companies such as Coinbase and OpenAI.

The primary allure of venture capital is its risk/reward potential. Investors are drawn by possibly generating some of the highest returns of any asset class but should also be aware of the increased risks. This primer provides an overview of the venture capital asset class and contrasts it to other private markets strategies, particularly buyouts.

Read more here:

<https://meketa.com/leadership/venture-capital-primer/>



#### Watch our recent webinar “Navigating Investment Risks Through Modeling Climate Scenario Analysis”

Watch our fireside chat on using climate scenario analysis to navigate investment risks.

Moderated by research consultant, [Alison Adams](#), and accompanied by Meketa’s own climate scenario experts, [Stephen MacLellan](#), consultant, and [Zach Stevens](#), senior quantitative research analyst, the panel discussed how modeling climate scenarios to analyze the impact on portfolios may provide a deeper understanding of broad investment risks.

Read more here:

<https://meketa.com/leadership/navigating-investment-risks-through-modeling-climate-scenario-analysis/>

### MEKETA VALUES COMMUNITY

#### Habitat Build Days

As part of Meketa's volunteer opportunities, each employee is given 8 hours to volunteer in their local communities. During the summer our Carlsbad office in San Diego and our Boston office in Westwood hosts Habitat for Humanity Build Days.

In Carlsbad, employees traveled to San Diego to help a homeowner with repairs and maintenance through a government program that pairs with Habitat for Humanity. In Boston, our employees traveled to Malden to help with the building of 3 homes for qualifying families.





### MEKETA IN THE NEWS

#### Pensions&Investments

##### Investors cooling on China ahead of Biden executive order

By Brian Croce & Arleen Jacobius  
August 11, 2023

While Washington legislators cheered President Joe Biden's executive order restricting new U.S. private equity and venture capital investments in certain Chinese technology companies, investor sentiment on the country had already been starting to cool.

On Aug. 9, the president signed an executive order barring U.S. investment including joint ventures in

Chinese companies focused on semiconductors and microelectronics, quantum information technologies and artificial intelligence. It also requires Americans to notify the Treasury Department of direct investments in those sectors.

"China is the second largest economy in the world and it is important to global supply chains and a major importer of commodities, which makes China an unavoidable presence in the global economy and global capital markets," said **Alison Adams**, Portland, Ore.-based managing principal and a research consultant on the capital markets research team at **Meketa Investment Group** in an emailed response to questions.

"But how U.S. investors think about how to allocate global capital appears to be changing," Ms. Adams said. Prior to the pandemic, investors were more willing to place a big bet on China and may have sought out direct investment, she said.

"Now the risk/return balance appears to be shifting to a more cautious approach where a big bet on direct China may be less likely" possibly due to the political risks of direct investment in China shifting inside China and in the U.S., Ms. Adams said.

Politics was less of a factor before the pandemic when China's GDP was growing 7% to 10% a year, and investors were interested in increasing their investment allocations to take advantage of China's rise, she said.

"Now that China's growth is only a couple of a percent above the U.S. — that risk/return analysis has shifted," Ms. Adams said.

#### Private Debt Investor

##### Yes, banks and private debt can co-exist

The maritime world is trying to figure out a new sustainable fuel mix, which ought to inspire elevator pitches to private debt managers.

By Christopher Faille | August 31, 2023

Private debt funds in the US have for years now made their case to potential investors with some version of the following narrative: "This fund relies upon strategy X. Strategy X is solid, but for various reasons (practical and/or regulatory) banks have largely withdrawn from the field of X lending. This has created an opportunity for private debt funds, which can step in and do the work the banks used to do."

Much the same risk spectrum is sometimes described as a distinction between "core" infrastructure and "non-core" or "core plus". As **Lisa Bacon**, of the private markets team at **Meketa Investment Group**, says: "Core includes low-risk assets that are operational and have predictable cashflows. Examples of non-core assets with higher risk-return profiles include those in the development, permitting, construction and early operations stages."

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

**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.