

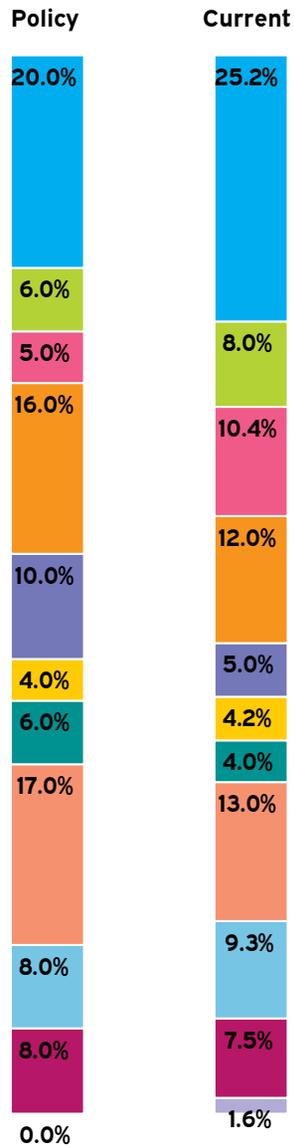
Massachusetts Housing Finance Agency Retirement System

Quarterly Review
June 30, 2024

Fund Evaluation Report

Second Quarter 2024 Performance Review

Asset Allocation Compliance | As of June 30, 2024



	Current Balance (\$)	Current Allocation (%)	Policy (%)	Difference (%)	Policy Range (%)	Within IPS Range?
US Equity	62,797,481	25	20	5	15 - 25	No
Developed Market Equity	20,069,787	8	6	2	2 - 10	Yes
Emerging Market Equity	25,825,908	10	5	5	0 - 15	Yes
Investment Grade Bonds	30,047,689	12	16	-4	11 - 21	Yes
TIPS	12,356,872	5	10	-5	5 - 15	No
Emerging Market Bonds	10,357,095	4	4	0	1 - 7	Yes
High Yield Bonds	9,998,448	4	6	-2	3 - 9	Yes
Private Equity	32,416,165	13	17	-4	12 - 22	Yes
Real Estate	23,136,174	9	8	1	5 - 11	Yes
Infrastructure	18,592,662	7	8	-1	5 - 12	Yes
Cash	3,893,568	2	0	2	0 - 5	Yes
Total	249,491,850	100	100	0		

Asset Class Performance Summary										
	Market Value \$	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Retirement System	249,491,850	100.0	1.0	4.8	10.0	4.1	8.5	6.8	6.2	Jul-01
<i>60% MSCI ACWI / 40% Barclays Global Aggregate</i>			<i>1.3</i>	<i>5.3</i>	<i>11.7</i>	<i>1.1</i>	<i>5.7</i>	<i>5.0</i>	<i>5.8</i>	
<i>InvMetrics Public DB \$50mm-\$250mm Net (USD) Median</i>			<i>1.0</i>	<i>6.3</i>	<i>11.8</i>	<i>2.9</i>	<i>7.5</i>	<i>6.7</i>	<i>6.1</i>	
Total Retirement System Rank			55	87	76	14	14	49	42	
Domestic Equity Assets	62,797,481	25.2	2.6	12.6	21.8	7.6	13.9	12.0	8.6	Jul-01
<i>Russell 3000 Index</i>			<i>3.2</i>	<i>13.6</i>	<i>23.1</i>	<i>8.1</i>	<i>14.1</i>	<i>12.1</i>	<i>8.8</i>	
<i>eV US Large Cap Equity Median</i>			<i>1.2</i>	<i>11.2</i>	<i>20.2</i>	<i>7.6</i>	<i>12.8</i>	<i>11.0</i>	<i>8.7</i>	
Domestic Equity Assets Rank			41	45	45	51	39	37	55	
Total International Developed Market Equity	20,069,787	8.0	-0.7	4.4	10.6	1.1	6.0	4.4	6.0	Jul-01
<i>MSCI EAFE (Net)</i>			<i>-0.4</i>	<i>5.3</i>	<i>11.5</i>	<i>2.9</i>	<i>6.5</i>	<i>4.3</i>	<i>5.4</i>	
<i>eV EAFE Core Equity Median</i>			<i>-0.4</i>	<i>4.8</i>	<i>10.8</i>	<i>1.5</i>	<i>6.3</i>	<i>4.6</i>	<i>6.2</i>	
Total International Developed Market Equity Rank			56	56	52	58	58	57	57	
International Emerging Market Equity Assets	25,825,908	10.4	4.3	15.8	31.6	4.0	8.7	4.1	3.1	Jul-07
<i>MSCI Emerging Markets (Net)</i>			<i>5.0</i>	<i>7.5</i>	<i>12.5</i>	<i>-5.1</i>	<i>3.1</i>	<i>2.8</i>	<i>2.6</i>	
<i>eV Emg Mkts Equity Median</i>			<i>4.2</i>	<i>7.2</i>	<i>12.3</i>	<i>-3.6</i>	<i>4.4</i>	<i>3.5</i>	<i>3.1</i>	
International Emerging Market Equity Assets Rank			49	5	2	11	12	31	52	
Investment Grade Bond Assets	30,047,689	12.0	0.3	0.0	4.0	-2.4	0.7	1.9	3.8	Jul-01
<i>Blmbg. U.S. Aggregate Index</i>			<i>0.1</i>	<i>-0.7</i>	<i>2.6</i>	<i>-3.0</i>	<i>-0.2</i>	<i>1.3</i>	<i>3.5</i>	
<i>eV US Core Fixed Inc Median</i>			<i>0.2</i>	<i>-0.3</i>	<i>3.2</i>	<i>-2.8</i>	<i>0.1</i>	<i>1.6</i>	<i>3.8</i>	
Investment Grade Bond Assets Rank			23	26	16	18	12	15	54	

Asset Allocation & Performance | As of June 30, 2024

	Market Value \$	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
High Yield Bond Assets	9,998,448	4.0	1.2	3.2	10.6	0.7	3.7	4.2	5.7	Feb-05
<i>Credit Suisse High Yield Index</i>			<i>1.0</i>	<i>2.7</i>	<i>10.2</i>	<i>1.9</i>	<i>3.8</i>	<i>4.1</i>	<i>6.1</i>	
<i>eV US High Yield Fixed Inc Median</i>			<i>1.2</i>	<i>2.8</i>	<i>9.9</i>	<i>1.8</i>	<i>3.7</i>	<i>4.0</i>	<i>5.8</i>	
High Yield Bond Assets Rank			50	31	24	91	49	34	56	
TIPS Assets	12,356,872	5.0	0.8	0.8	2.7	-1.4	2.0	1.9	3.5	Jul-07
<i>Blmbg. U.S. TIPS Index</i>			<i>0.8</i>	<i>0.7</i>	<i>2.7</i>	<i>-1.3</i>	<i>2.1</i>	<i>1.9</i>	<i>3.5</i>	
<i>eV US TIPS / Inflation Fixed Inc Median</i>			<i>0.9</i>	<i>0.9</i>	<i>3.0</i>	<i>-1.2</i>	<i>2.1</i>	<i>1.9</i>	<i>3.4</i>	
TIPS Assets Rank			52	54	62	62	56	56	36	
Emerging Market Debt Assets	10,357,095	4.2	-0.3	2.0	9.5	-1.7	0.6	-0.3	-1.0	Mar-13
<i>50% JPM EMBI GD / 50% JPM GBI-EM</i>			<i>-0.7</i>	<i>-0.7</i>	<i>4.9</i>	<i>-2.9</i>	<i>-0.6</i>	<i>0.9</i>	<i>0.8</i>	
Real Estate Assets	23,136,174	9.3	0.6	-1.1	-4.9	2.4	3.6	6.8	5.4	Apr-05
<i>NCREIF ODCE (Net)</i>			<i>-0.7</i>	<i>-3.2</i>	<i>-10.0</i>	<i>1.0</i>	<i>2.3</i>	<i>5.5</i>	<i>5.5</i>	
Private Equity Assets	32,416,165	13.0	-2.4	-1.0	1.0	10.1	18.1	13.1	8.7	Oct-03
<i>Preqin Private Equity 1Q Lagged</i>			<i>1.2</i>	<i>3.2</i>	<i>6.7</i>	<i>10.2</i>	<i>15.7</i>	<i>14.1</i>	<i>13.3</i>	
Infrastructure Assets	18,592,662	7.5	1.0	-0.1	2.9	8.4	8.8	--	9.3	Oct-18
<i>CPI +3% (Unadjusted)</i>			<i>1.3</i>	<i>3.9</i>	<i>6.1</i>	<i>8.1</i>	<i>7.3</i>	<i>5.9</i>	<i>7.0</i>	
Cash	3,893,568	1.6								

Trailing Net Performance										
	Market Value \$	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Retirement System	249,491,850	100.0	1.0	4.8	10.0	4.1	8.5	6.8	6.2	Jul-01
<i>60% MSCI ACWI / 40% Barclays Global Aggregate</i>			<i>1.3</i>	<i>5.3</i>	<i>11.7</i>	<i>1.1</i>	<i>5.7</i>	<i>5.0</i>	<i>5.8</i>	
<i>InvMetrics Public DB \$50mm-\$250mm Net (USD) Median</i>			<i>1.0</i>	<i>6.3</i>	<i>11.8</i>	<i>2.9</i>	<i>7.5</i>	<i>6.7</i>	<i>6.1</i>	
Total Retirement System Rank			55	87	76	14	14	49	42	
Domestic Equity Assets	62,797,481	25.2	2.6	12.6	21.8	7.6	13.9	12.0	8.6	Jul-01
<i>Russell 3000 Index</i>			<i>3.2</i>	<i>13.6</i>	<i>23.1</i>	<i>8.1</i>	<i>14.1</i>	<i>12.1</i>	<i>8.8</i>	
<i>eV US Large Cap Equity Median</i>			<i>1.2</i>	<i>11.2</i>	<i>20.2</i>	<i>7.6</i>	<i>12.8</i>	<i>11.0</i>	<i>8.7</i>	
Domestic Equity Assets Rank			41	45	45	51	39	37	55	
SSgA Russell 1000 Value Index-NL	27,179,459	10.9	-2.2	6.6	13.0	5.5	9.0	8.2	7.6	Jan-05
<i>Russell 1000 Value Index</i>			<i>-2.2</i>	<i>6.6</i>	<i>13.1</i>	<i>5.5</i>	<i>9.0</i>	<i>8.2</i>	<i>7.7</i>	
<i>eV US Large Cap Value Equity Median</i>			<i>-1.4</i>	<i>7.4</i>	<i>15.2</i>	<i>6.9</i>	<i>10.4</i>	<i>9.0</i>	<i>8.2</i>	
SSgA Russell 1000 Value Index-NL Rank			67	58	68	72	74	70	73	
SSgA Russell 1000 Growth-NL	30,603,995	12.3	8.3	20.7	33.5	11.3	19.3	16.2	12.7	Jul-07
<i>Russell 1000 Growth Index</i>			<i>8.3</i>	<i>20.7</i>	<i>33.5</i>	<i>11.3</i>	<i>19.3</i>	<i>16.3</i>	<i>12.8</i>	
<i>eV US Large Cap Growth Equity Median</i>			<i>5.4</i>	<i>18.3</i>	<i>30.3</i>	<i>7.9</i>	<i>15.9</i>	<i>14.1</i>	<i>11.3</i>	
SSgA Russell 1000 Growth-NL Rank			15	38	36	13	10	8	10	
SSgA Russell 2000 Index-NL	5,014,027	2.0	-3.3	1.7	10.1	-2.5	7.0	7.0	10.1	Aug-10
<i>Russell 2000 Index</i>			<i>-3.3</i>	<i>1.7</i>	<i>10.1</i>	<i>-2.6</i>	<i>6.9</i>	<i>7.0</i>	<i>10.1</i>	
<i>eV US Small Cap Core Equity Median</i>			<i>-3.3</i>	<i>2.3</i>	<i>10.4</i>	<i>1.4</i>	<i>9.1</i>	<i>7.9</i>	<i>11.2</i>	
SSgA Russell 2000 Index-NL Rank			50	64	54	87	84	79	76	

Asset Allocation & Performance | As of June 30, 2024

	Market Value \$	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total International Developed Market Equity	20,069,787	8.0	-0.7	4.4	10.6	1.1	6.0	4.4	6.0	Jul-01
<i>MSCI EAFE (Net)</i>			-0.4	5.3	11.5	2.9	6.5	4.3	5.4	
<i>eV EAFE Core Equity Median</i>			-0.4	4.8	10.8	1.5	6.3	4.6	6.2	
Total International Developed Market Equity Rank			56	56	52	58	58	57	57	
SSgA MSCI EAFE Index-NL	15,595,195	6.3	-0.3	5.5	11.7	3.1	6.7	4.6	6.4	Aug-10
<i>MSCI EAFE (Net)</i>			-0.4	5.3	11.5	2.9	6.5	4.3	6.2	
<i>eV EAFE Core Equity Median</i>			-0.4	4.8	10.8	1.5	6.3	4.6	6.8	
SSgA MSCI EAFE Index-NL Rank			48	40	39	28	43	51	68	
SSgA MSCI EAFE Small Cap Index-NL	4,474,592	1.8	-1.8	0.6	7.8	-3.2	4.2	4.3	7.0	Aug-10
<i>MSCI EAFE Small Cap (Net)</i>			-1.8	0.5	7.8	-3.4	4.2	4.3	6.9	
<i>eV EAFE Small Cap Core Median</i>			-1.3	2.0	9.1	-2.9	5.0	5.0	7.8	
SSgA MSCI EAFE Small Cap Index-NL Rank			63	68	58	52	65	67	69	
International Emerging Market Equity Assets	25,825,908	10.4	4.3	15.8	31.6	4.0	8.7	4.1	3.1	Jul-07
<i>MSCI Emerging Markets (Net)</i>			5.0	7.5	12.5	-5.1	3.1	2.8	2.6	
<i>eV Emg Mkts Equity Median</i>			4.2	7.2	12.3	-3.6	4.4	3.5	3.1	
International Emerging Market Equity Assets Rank			49	5	2	11	12	31	52	
GQG Partners Emerging Markets	25,825,908	10.4	4.3	15.8	31.6	4.0	9.9	--	10.9	Apr-19
<i>MSCI Emerging Markets (Net)</i>			5.0	7.5	12.5	-5.1	3.1	2.8	3.1	
<i>eV Emg Mkts Equity Median</i>			4.2	7.2	12.3	-3.6	4.4	3.5	4.5	
GQG Partners Emerging Markets Rank			49	5	2	11	9	--	8	

Asset Allocation & Performance | As of June 30, 2024

	Market Value \$	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Investment Grade Bond Assets	30,047,689	12.0	0.3	0.0	4.0	-2.4	0.7	1.9	3.8	Jul-01
<i>Blmbg. U.S. Aggregate Index</i>			0.1	-0.7	2.6	-3.0	-0.2	1.3	3.5	
<i>eV US Core Fixed Inc Median</i>			0.2	-0.3	3.2	-2.8	0.1	1.6	3.8	
Investment Grade Bond Assets Rank			23	26	16	18	12	15	54	
Longfellow Investment Grade Bond	30,047,689	12.0	0.3	0.0	4.0	-2.4	0.7	--	1.4	Sep-17
<i>Blmbg. U.S. Aggregate Index</i>			0.1	-0.7	2.6	-3.0	-0.2	1.3	0.7	
<i>eV US Core Fixed Inc Median</i>			0.2	-0.3	3.2	-2.8	0.1	1.6	1.0	
Longfellow Investment Grade Bond Rank			23	26	16	18	12	--	12	
High Yield Bond Assets	9,998,448	4.0	1.2	3.2	10.6	0.7	3.7	4.2	5.7	Feb-05
<i>Credit Suisse High Yield Index</i>			1.0	2.7	10.2	1.9	3.8	4.1	6.1	
<i>eV US High Yield Fixed Inc Median</i>			1.2	2.8	9.9	1.8	3.7	4.0	5.8	
High Yield Bond Assets Rank			50	31	24	91	49	34	56	
Lord Abbett High Yield Core	9,998,448	4.0	1.2	3.2	10.6	0.7	3.7	--	3.7	Jul-19
<i>Blmbg. U.S. Corp: High Yield Index</i>			1.1	2.6	10.4	1.6	3.9	4.3	3.9	
<i>eV US High Yield Fixed Inc Median</i>			1.2	2.8	9.9	1.8	3.7	4.0	3.7	
Lord Abbett High Yield Core Rank			50	31	24	90	48	--	51	

Asset Allocation & Performance | As of June 30, 2024

	Market Value \$	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
TIPS Assets	12,356,872	5.0	0.8	0.8	2.7	-1.4	2.0	1.9	3.5	Jul-07
<i>Blmbg. U.S. TIPS Index</i>			0.8	0.7	2.7	-1.3	2.1	1.9	3.5	
<i>eV US TIPS / Inflation Fixed Inc Median</i>			0.9	0.9	3.0	-1.2	2.1	1.9	3.4	
TIPS Assets Rank			52	54	62	62	56	56	36	
SSgA TIPS-NL	12,356,872	5.0	0.8	0.8	2.7	-1.4	2.0	1.8	3.5	Jul-07
<i>Blmbg. U.S. TIPS Index</i>			0.8	0.7	2.7	-1.3	2.1	1.9	3.5	
<i>eV US TIPS / Inflation Fixed Inc Median</i>			0.9	0.9	3.0	-1.2	2.1	1.9	3.4	
SSgA TIPS-NL Rank			52	54	62	63	57	65	38	
Emerging Market Debt Assets	10,357,095	4.2	-0.3	2.0	9.5	-1.7	0.6	-0.3	-1.0	Mar-13
<i>50% JPM EMBI GD / 50% JPM GBI-EM</i>			-0.7	-0.7	4.9	-2.9	-0.6	0.9	0.8	
Metlife Emerging Markets Debt	4,309,963	1.7	-0.7	0.8	6.7	-1.4	0.9	--	2.4	Nov-16
<i>MetLife Custom Benchmark</i>			0.2	0.8	6.3	-1.8	0.5	1.8	1.9	
Aberdeen Emerging Markets Bond Fund	6,047,132	2.4	0.0	2.9	11.7	-1.9	0.4	--	2.2	Dec-16
<i>JPM EMBI Global Diversified</i>			0.3	2.3	9.2	-2.6	0.0	2.6	2.3	
Real Estate Assets	23,136,174	9.3	0.6	-1.1	-4.9	2.4	3.6	6.8	5.4	Apr-05
<i>NCREIF ODCE (Net)</i>			-0.7	-3.2	-10.0	1.0	2.3	5.5	5.5	
Intercontinental U.S. REIF	9,189,591	3.7	-0.3	-4.3	-10.7	-0.9	1.9	--	5.7	Oct-14
<i>NCREIF ODCE (Net)</i>			-0.7	-3.2	-10.0	1.0	2.3	5.5	5.3	
AEW Core Property Trust	9,542,062	3.8	0.0	-1.1	-4.2	2.9	3.4	--	5.8	Oct-14
<i>NCREIF ODCE (Net)</i>			-0.7	-3.2	-10.0	1.0	2.3	5.5	5.3	
AEW Partners IX, L.P.	4,404,521	1.8	4.2	6.7	8.9	6.2	--	--	-3.5	Apr-21
<i>NCREIF ODCE (Net)</i>			-0.7	-3.2	-10.0	1.0	2.3	5.5	2.1	

AEW Core Property Trust market value is as of 3/31/2024 adjusted for subsequent cash flows.

Asset Allocation & Performance | As of June 30, 2024

	Market Value \$	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Private Equity Assets	32,416,165	13.0	-2.4	-1.0	1.0	10.1	18.1	13.1	8.7	Oct-03
<i>Preqin Private Equity 1Q Lagged</i>			<i>1.2</i>	<i>3.2</i>	<i>6.7</i>	<i>10.2</i>	<i>15.7</i>	<i>14.1</i>	<i>13.3</i>	
Ascent Venture Partners - Fund V	631,678	0.3								
Ascent Venture Partners - Fund VI	1,488,640	0.6								
Constitution Capital Partners Ironsides III	51,196	0.0								
Constitution Capital Partners Ironsides IV	3,193,439	1.3								
Constitution Capital Partners Ironsides V	3,007,179	1.2								
Constitution Capital Direct IV	971,393	0.4								
Constitution Capital Direct V	4,159,603	1.7								
Constitution Capital Co-Investment Fund VI, L.P.	4,251,175	1.7								
Goldman Sachs PEP 2005	104,138	0.0								
HarbourVest Partners VIII	23,586	0.0								
HarbourVest Partners IX	2,285,384	0.9								
HarbourVest X Buyout Fund	5,484,796	2.2								
HarbourVest Partners XI	5,296,117	2.1								
HarbourVest Fund XII	1,467,840	0.6								

Private Equity Asset market values are as of 3/31/2024 adjusted for subsequent cash flows.

Asset Allocation & Performance | As of June 30, 2024

	Market Value \$	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Infrastructure Assets	18,592,662	7.5	1.0	-0.1	2.9	8.4	8.8	--	9.3	Oct-18
<i>CPI +3% (Unadjusted)</i>			<i>1.3</i>	<i>3.9</i>	<i>6.1</i>	<i>8.1</i>	<i>7.3</i>	<i>5.9</i>	<i>7.0</i>	
IFM Global Infrastructure (U.S.), L.P.	18,592,662	7.5	1.0	-0.1	2.9	8.4	8.8	--	9.3	Oct-18
<i>CPI +3% (Unadjusted)</i>			<i>1.3</i>	<i>3.9</i>	<i>6.1</i>	<i>8.1</i>	<i>7.3</i>	<i>5.9</i>	<i>7.0</i>	
Cash	3,893,568	1.6								
Cash STIF	3,893,568	1.6								

	Calendar Year Performance								
	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)
Total Retirement System	11.2	-8.6	16.2	14.1	17.4	-3.2	14.3	9.6	-2.7
<i>60% MSCI ACWI / 40% Barclays Global Aggregate</i>	<i>15.4</i>	<i>-17.3</i>	<i>8.8</i>	<i>14.0</i>	<i>18.6</i>	<i>-6.0</i>	<i>17.1</i>	<i>5.7</i>	<i>-2.5</i>
Domestic Equity Assets	24.3	-18.2	25.2	21.5	30.8	-5.6	20.9	13.0	0.4
<i>Russell 3000 Index</i>	<i>26.0</i>	<i>-19.2</i>	<i>25.7</i>	<i>20.9</i>	<i>31.0</i>	<i>-5.2</i>	<i>21.1</i>	<i>12.7</i>	<i>0.5</i>
SSgA Russell 1000 Value Index-NL	11.4	-7.6	25.1	2.8	26.5	-8.3	13.7	17.2	-3.8
<i>Russell 1000 Value Index</i>	<i>11.5</i>	<i>-7.5</i>	<i>25.2</i>	<i>2.8</i>	<i>26.5</i>	<i>-8.3</i>	<i>13.7</i>	<i>17.3</i>	<i>-3.8</i>
SSgA Russell 1000 Growth-NL	42.7	-29.2	27.5	38.4	36.3	-1.8	30.1	7.1	5.5
<i>Russell 1000 Growth Index</i>	<i>42.7</i>	<i>-29.1</i>	<i>27.6</i>	<i>38.5</i>	<i>36.4</i>	<i>-1.5</i>	<i>30.2</i>	<i>7.1</i>	<i>5.7</i>
SSgA Russell 2000 Index-NL	17.0	-20.3	14.9	19.9	25.5	-11.0	14.6	21.4	-4.5
<i>Russell 2000 Index</i>	<i>16.9</i>	<i>-20.4</i>	<i>14.8</i>	<i>20.0</i>	<i>25.5</i>	<i>-11.0</i>	<i>14.6</i>	<i>21.3</i>	<i>-4.4</i>
Total International Developed Market Equity	16.6	-16.4	10.9	9.2	23.1	-14.8	27.3	1.6	2.0
<i>MSCI EAFE (Net)</i>	<i>18.2</i>	<i>-14.5</i>	<i>11.3</i>	<i>7.8</i>	<i>22.0</i>	<i>-13.8</i>	<i>25.0</i>	<i>1.0</i>	<i>-0.8</i>
SSgA MSCI EAFE Index-NL	18.5	-14.2	11.4	8.2	22.4	-13.6	25.4	1.3	-0.6
<i>MSCI EAFE (Net)</i>	<i>18.2</i>	<i>-14.5</i>	<i>11.3</i>	<i>7.8</i>	<i>22.0</i>	<i>-13.8</i>	<i>25.0</i>	<i>1.0</i>	<i>-0.8</i>
SSgA MSCI EAFE Small Cap Index-NL	13.4	-21.1	9.9	12.2	24.7	-17.8	33.0	2.2	9.4
<i>MSCI EAFE Small Cap (Net)</i>	<i>13.2</i>	<i>-21.4</i>	<i>10.1</i>	<i>12.3</i>	<i>25.0</i>	<i>-17.9</i>	<i>33.0</i>	<i>2.2</i>	<i>9.6</i>
International Emerging Market Equity Assets	30.3	-21.2	-1.5	24.6	15.8	-17.9	31.8	11.7	-17.9
<i>MSCI Emerging Markets (Net)</i>	<i>9.8</i>	<i>-20.1</i>	<i>-2.5</i>	<i>18.3</i>	<i>18.4</i>	<i>-14.6</i>	<i>37.3</i>	<i>11.2</i>	<i>-14.9</i>
GQG Partners Emerging Markets	30.3	-21.2	-1.5	33.9	--	--	--	--	--
<i>MSCI Emerging Markets (Net)</i>	<i>9.8</i>	<i>-20.1</i>	<i>-2.5</i>	<i>18.3</i>	<i>18.4</i>	<i>-14.6</i>	<i>37.3</i>	<i>11.2</i>	<i>-14.9</i>

Asset Allocation & Performance | As of June 30, 2024

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)
Investment Grade Bond Assets	6.8	-13.1	-0.2	9.2	8.9	-0.1	3.5	2.7	0.8
<i>Blmbg. U.S. Aggregate Index</i>	<i>5.5</i>	<i>-13.0</i>	<i>-1.5</i>	<i>7.5</i>	<i>8.7</i>	<i>0.0</i>	<i>3.5</i>	<i>2.6</i>	<i>0.5</i>
Longfellow Investment Grade Bond	6.8	-13.1	-0.2	9.2	8.9	-0.1	--	--	--
<i>Blmbg. U.S. Aggregate Index</i>	<i>5.5</i>	<i>-13.0</i>	<i>-1.5</i>	<i>7.5</i>	<i>8.7</i>	<i>0.0</i>	<i>3.5</i>	<i>2.6</i>	<i>0.5</i>
High Yield Bond Assets	12.1	-13.0	5.8	8.6	15.5	-3.7	6.8	11.5	-0.2
<i>Credit Suisse High Yield Index</i>	<i>13.6</i>	<i>-10.6</i>	<i>5.5</i>	<i>5.5</i>	<i>14.0</i>	<i>-2.4</i>	<i>7.0</i>	<i>18.3</i>	<i>-4.9</i>
Lord Abbett High Yield Core	12.1	-12.9	5.8	8.6	--	--	--	--	--
<i>Blmbg. U.S. Corp: High Yield Index</i>	<i>13.4</i>	<i>-11.2</i>	<i>5.3</i>	<i>7.1</i>	<i>14.3</i>	<i>-2.1</i>	<i>7.5</i>	<i>17.1</i>	<i>-4.5</i>
TIPS Assets	3.9	-12.0	5.9	10.9	8.4	-1.3	3.0	4.6	-1.4
<i>Blmbg. U.S. TIPS Index</i>	<i>3.9</i>	<i>-11.8</i>	<i>6.0</i>	<i>11.0</i>	<i>8.4</i>	<i>-1.3</i>	<i>3.0</i>	<i>4.7</i>	<i>-1.4</i>
SSgA TIPS-NL	3.9	-12.0	5.9	10.9	8.4	-1.3	2.9	4.4	-1.4
<i>Blmbg. U.S. TIPS Index</i>	<i>3.9</i>	<i>-11.8</i>	<i>6.0</i>	<i>11.0</i>	<i>8.4</i>	<i>-1.3</i>	<i>3.0</i>	<i>4.7</i>	<i>-1.4</i>
Emerging Market Debt Assets	13.3	-15.3	-4.0	5.5	14.9	-7.1	13.1	10.0	-15.2
<i>50% JPM EMBI GD / 50% JPM GBI-EM</i>	<i>11.9</i>	<i>-14.8</i>	<i>-5.3</i>	<i>4.0</i>	<i>14.3</i>	<i>-5.2</i>	<i>12.7</i>	<i>10.2</i>	<i>-7.1</i>
Metlife Emerging Markets Debt	12.6	-13.3	-3.7	6.1	14.5	-6.6	13.4	--	--
<i>MetLife Custom Benchmark</i>	<i>10.7</i>	<i>-13.5</i>	<i>-2.9</i>	<i>5.4</i>	<i>13.7</i>	<i>-4.0</i>	<i>10.6</i>	<i>10.0</i>	<i>-3.8</i>
Aberdeen Emerging Markets Bond Fund	13.8	-16.6	-4.0	5.0	15.3	-7.5	12.7	--	--
<i>JPM EMBI Global Diversified</i>	<i>11.1</i>	<i>-17.8</i>	<i>-1.8</i>	<i>5.3</i>	<i>15.0</i>	<i>-4.3</i>	<i>10.3</i>	<i>10.2</i>	<i>1.2</i>

Asset Allocation & Performance | As of June 30, 2024

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)
Real Estate Assets	-10.6	7.8	19.4	0.5	8.1	8.3	8.4	9.0	13.8
<i>NCREIF ODCE (Net)</i>	<i>-12.7</i>	<i>6.5</i>	<i>21.0</i>	<i>0.3</i>	<i>4.4</i>	<i>7.4</i>	<i>6.7</i>	<i>7.8</i>	<i>14.0</i>
Intercontinental U.S. REIF	-16.0	7.4	20.0	1.0	8.2	9.3	7.5	10.9	12.7
<i>NCREIF ODCE (Net)</i>	<i>-12.7</i>	<i>6.5</i>	<i>21.0</i>	<i>0.3</i>	<i>4.4</i>	<i>7.4</i>	<i>6.7</i>	<i>7.8</i>	<i>14.0</i>
AEW Core Property Trust	-10.3	7.8	20.8	0.3	5.1	6.6	6.6	7.6	12.8
<i>NCREIF ODCE (Net)</i>	<i>-12.7</i>	<i>6.5</i>	<i>21.0</i>	<i>0.3</i>	<i>4.4</i>	<i>7.4</i>	<i>6.7</i>	<i>7.8</i>	<i>14.0</i>
AEW Partners IX, L.P.	6.5	5.6	--	--	--	--	--	--	--
<i>NCREIF ODCE (Net)</i>	<i>-12.7</i>	<i>6.5</i>	<i>21.0</i>	<i>0.3</i>	<i>4.4</i>	<i>7.4</i>	<i>6.7</i>	<i>7.8</i>	<i>14.0</i>
Private Equity Assets	3.3	11.1	46.1	25.3	15.7	13.7	11.8	6.3	0.8
<i>Preqin Private Equity 1Q Lagged</i>	<i>7.9</i>	<i>2.9</i>	<i>44.7</i>	<i>17.0</i>	<i>10.2</i>	<i>15.7</i>	<i>18.0</i>	<i>10.2</i>	<i>10.9</i>
Ascent Venture Partners - Fund V									
Ascent Venture Partners - Fund VI									
Constitution Capital Partners Ironsides III									
Constitution Capital Partners Ironsides IV									
Constitution Capital Partners Ironsides V									
Constitution Capital Direct IV									
Constitution Capital Direct V									
Constitution Capital Co-Investment Fund VI, L.P.									
Goldman Sachs PEP 2005									
HarbourVest Partners VIII									

Asset Allocation & Performance | As of June 30, 2024

	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)	2015 (%)
HarbourVest Partners IX									
HarbourVest X Buyout Fund									
HarbourVest Partners XI									
HarbourVest Fund XII									
Infrastructure Assets	8.4	8.2	17.4	3.1	14.6	--	--	--	--
<i>CPI +3% (Unadjusted)</i>	<i>6.4</i>	<i>9.6</i>	<i>10.2</i>	<i>4.4</i>	<i>5.3</i>	<i>5.0</i>	<i>5.2</i>	<i>5.1</i>	<i>3.7</i>
IFM Global Infrastructure (U.S.), L.P.	8.4	8.2	17.4	3.1	14.6	--	--	--	--
<i>CPI +3% (Unadjusted)</i>	<i>6.4</i>	<i>9.6</i>	<i>10.2</i>	<i>4.4</i>	<i>5.3</i>	<i>5.0</i>	<i>5.2</i>	<i>5.1</i>	<i>3.7</i>
Cash									
Cash STIF									

Benchmark History

From Date	To Date	Benchmark
Metlife Emerging Markets Debt		
02/01/2002	Present	30.0% JPM GBI-EM Global Diversified, 35.0% JPM CEMBI Broad Diversified Index, 35.0% JPM EMBI Global Index (USD)

	Risk Return Statistics	
	3 Yrs (%)	5 Yrs (%)
	Total Retirement System	Total Retirement System
RETURN SUMMARY STATISTICS		
Maximum Return	4.6	5.7
Minimum Return	-4.4	-6.5
Return	4.1	8.5
Excess Return	1.4	6.4
Excess Performance	3.1	2.8
RISK SUMMARY STATISTICS		
Beta	0.6	0.6
Upside Risk	6.3	7.2
Downside Risk	5.2	5.2
RISK/RETURN SUMMARY STATISTICS		
Standard Deviation	8.1	8.6
Sortino Ratio	0.2	1.2
Alpha	3.3	4.5
Sharpe Ratio	0.2	0.7
Excess Risk	8.0	8.7
Tracking Error	5.7	5.2
Information Ratio	0.4	0.4
CORRELATION STATISTICS		
R-Squared	0.9	0.9
Actual Correlation	1.0	0.9

Fund	Vintage Year	Committed (\$mm)	Called (\$mm)	Distributed (\$mm)	Fair Value (\$mm)	Net IRR ¹
AEW Partners IX, L.P.	2019	\$5.0	\$3.8	\$0.2	\$4.2	7.7%
Ascent Venture Partners – Fund V	2011	\$1.0	\$1.0	\$0.9	\$0.6	6.1%
Ascent Venture Partners – Fund VI	2015	\$1.5	\$1.5	\$0.0	\$1.5	0.4%
Constitution Capital Partners Ironsides III	2014	\$5.0	\$6.1	\$8.9	\$4.0	23.5%
Constitution Capital Partners Ironsides IV	2016	\$3.3	\$3.4	\$3.7	\$3.2	27.0%
Constitution Capital Partners Ironsides V	2020	\$2.5	\$2.3	\$0.3	\$3.0	20.2%
Constitution Capital Direct IV	2016	\$3.3	\$3.9	\$5.2	\$1.2	17.9%
Constitution Capital Direct V	2019	\$2.5	\$3.0	\$1.1	\$4.3	16.9%
Constitution Capital Co-Investment Fund VI, L.P.	2021	\$4.0	\$3.7	\$0.3	\$4.3	8.9%
Goldman Sachs PEP 2005	2006	\$2.3	\$2.4	\$3.0	\$0.1	4.99%
HarbourVest Partners VIII	2006	\$2.5	\$2.4	\$4.3	\$0.0	10.6%
HarbourVest Partners IX	2010	\$5.0	\$4.4	\$7.1	\$2.5	17.6%
HarbourVest X Buyout Fund	2016	\$6.5	\$5.6	\$4.4	\$5.7	21.3%
HarbourVest Partners XI	2019	\$5.0	\$4.2	\$1.2	\$5.3	22.5%
HarbourVest Fund XII	2019	\$4.0	\$1.2	\$0.0	\$1.4	21.1%

¹ As of March 31, 2024.

Appendices

Corporate Update

Corporate Update | 2Q.2024





7
Offices



240+
Employees



250+
Clients



\$2T
Assets Under Advisement



\$340B
Assets in Alternative Investments



98%
Client Retention Rate



5:1
Client | Consultant Ratio

Meketa
Investment Group
is proud to work
for over 25 million
American families
everyday!

UPCOMING EVENTS



Q3 Investment Perspectives Webcast
October 2024



Evolving Asia: Japan, India and EM Ex-China
September 2024

Client and employee counts as of June 30, 2024; assets as of December 31, 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 Research Note “Exploring the Backbone of Digital Communications: Towers”

Digital infrastructure refers to the robust communications system of assets that connect, transmit, process, and store data.

There are three primary subsectors: wireless, wired fiber networks, and data centers. This research note, focuses on the wireless sector, specifically the macro cell tower subsector of the digital infrastructure environment.

Read more here:

<https://meketa.com/leadership/exploring-the-backbone-of-digital-communications-towers/>



Read our recent primer on “Growth Equity”

Growth equity is often overshadowed by its cousins in buyouts and venture capital, but it should not be overlooked.

This paper discusses the characteristics of the asset class and reasons for investing in growth equity. It presents an analysis of major return, risk, and implementation considerations for institutional investors..

Read more here:

<https://meketa.com/leadership/growth-equity-primer/>



Cash balance comeback

There has been recent news of a plan sponsor announcing a new cash balance provision for their active employees. This bucks the trend of the last few decades when it was common for companies to announce pension plan closures and freezing future benefit accruals.

This has resulted in many companies asking the following questions:

What is a cash balance pension plan?

Why would a plan sponsor have interest in implementing a new cash balance provision in the existing defined benefit plan?

Should other companies with frozen pension plans consider this approach?

What are some investment considerations for any cash balance pension plan?

Read more here:

<https://meketa.com/leadership/cash-balance-comebacks/>

MEKETA VALUES COMMUNITY AND SERVICE

Brad Walker, the head of technology at Meketa, recently gave the keynote address to graduates of Per Scholas Boston.

These hardworking students completed a 13-week intensive training to kick-start their tech careers. Brad shared insights from his experiences in the Marine Corps and working in the IT field.

Per Scholas, a non-profit organization, offers free IT training for careers in IT support, cybersecurity, cloud engineering, and software development. Their mission is to advance economic equity through rigorous training for tech careers and to connect skilled talent to leading businesses.



CELEBRATING THIS QUARTER

Meketa employees take part in Habitat for Humanity Build Days on both coasts!

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 on a home that had suffered from fire damages.

In Boston, our employees traveled to Malden, MA to help with the Greater Boston Build Day.



MEKETA IN THE NEWS

Infrastructure Investor

As GP consolidation wave grows, LPs brace for impact

By Zak Bently | 4.2.24

[Read full article here](#)

A fear of the unknown will be prevalent for many LPs across private markets, but it may be that conservative infrastructure investors are the most cautious in this respect.

“In all cases, there’s a little bit of trepidation about what it means, whether there’ll be pressure to launch bigger funds or charge higher fees or go into riskier assets to target more carry,” outlines Lisa Bacon, managing principal of Meketa’s infrastructure programme.

PERE Credit

Brookfield’s Brian Kingston: The future is debt

Randy Plavajka and Samantha Rowan | 6.3.24

[Read full article here](#)

Meketa Investment Group, a Westwood, Massachusetts-based advisory, has indeed seen more of its clientele shifting toward real estate private credit as part of their overall strategy.

“Real estate credit investments potentially offer a very good risk-adjusted return and now, as property values have come down and traditional lenders are capital-constrained, it is possible to earn attractive returns,” says Colin Hill, managing principal.

Investors include large credit funds [like those offered by Brookfield] within their debt allocations, Hill notes.

The shift toward private real estate credit has been happening gradually over the past 18 to 24 months, Hill adds. “We have seen some investors moving out of equities and moving into debt as a way to better match liabilities and get returns with lower volatility and more current income. I wouldn’t say it is a pendulum swing, but there has been a shift for a lot of our clients to take a couple of points out of equity and reallocate to fixed income,” Hill says.

WSJ PRO PRIVATE EQUITY

Venture Capital

The Search for Venture Funds That Don’t Do AI

By YULIYA CHERNOVA | 2024

[Read full article here](#)

“They “talk about AI 90% of the time now,” said Ethan Samson, managing principal and private markets consultant and counsel at Meketa Investment Group, referring to venture fund managers that are pitching their funds. Meketa advises large institutional investors such as endowments and pension funds on making venture-fund and other investments.

Samson said Meketa is considering venture funds that specialize in defense, consumer products and life sciences to reach sectors with less generative AI reliance.

“We want to be sure we are not overexposed in that area,” Samson said.

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

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

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

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

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

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.