

# Dallas Police & Fire Pension System

June 30, 2020

## Fund Evaluation Report

## Agenda

1. Executive Summary
2. Performance Update As of June 30, 2020
3. Disclaimer, Glossary and Notes

**Executive Summary**  
**As of June 30, 2020**

DPFP 2Q20 Flash Summary

Category	Results	Notes
Total Fund Performance Return	Positive	+5.6%
Performance vs. Policy Index	Underperformed	+5.6% vs. +10.7%
Performance vs. Peers <sup>1</sup>	Underperformed	+5.6% vs. +10.5% median (99th percentile in peer group)
Asset Allocation vs. Targets	Negative	Underweight public equities and overweight Real Estate and Private Equity hurt
Safety Reserve Exposure	Sufficient	\$275 million (approximately 14%)
Active Management	Mixed	5/10 beat benchmarks
DPFP Public Markets vs. 60/40 <sup>2</sup>	Underperformed	+11.8% vs. +13.1%
DPFP Public Markets vs. Peers	Outperformed	+11.8% vs. +10.5% median (27th percentile in peer group)
Compliance with Targets	No	Below minimum in EM Equity

<sup>1</sup> InvestorForce Public DB \$1-5 billion net

<sup>2</sup> Performance of Total Fund excluding private market investments relative to a 60% MSCI ACWI IMI Net/40% Barclays Global Aggregate Index.

DPFP Trailing One-Year Flash Summary

Category	Results	Notes
Total Fund Performance Return	Positive	+4.7%
Performance vs. Policy Index	Outperformed	+4.7% vs. +1.9%
Performance vs. Peers <sup>1</sup>	Outperformed	+4.7% vs. +1.3% median (1st percentile in peer group)
Asset Allocation vs. Targets	Mixed	Overweight real estate helped, while overweight Infrastructure and Private Equity hurt
Active Management	Mixed	5/10 beat benchmarks
DPFP Public Markets vs. 60/40 <sup>2</sup>	Underperformed	+2.1% vs. +2.9%
DPFP Public Markets vs. Peers	Outperformed	+2.1% vs. +1.3% median (35th percentile in peer group)

<sup>1</sup> InvestorForce Public DB \$1-5 billion net.

<sup>2</sup> Performance of Total Fund excluding private market investments relative to a 60% MSCI ACWI IMI Net/40% Barclays Global Aggregate Index.

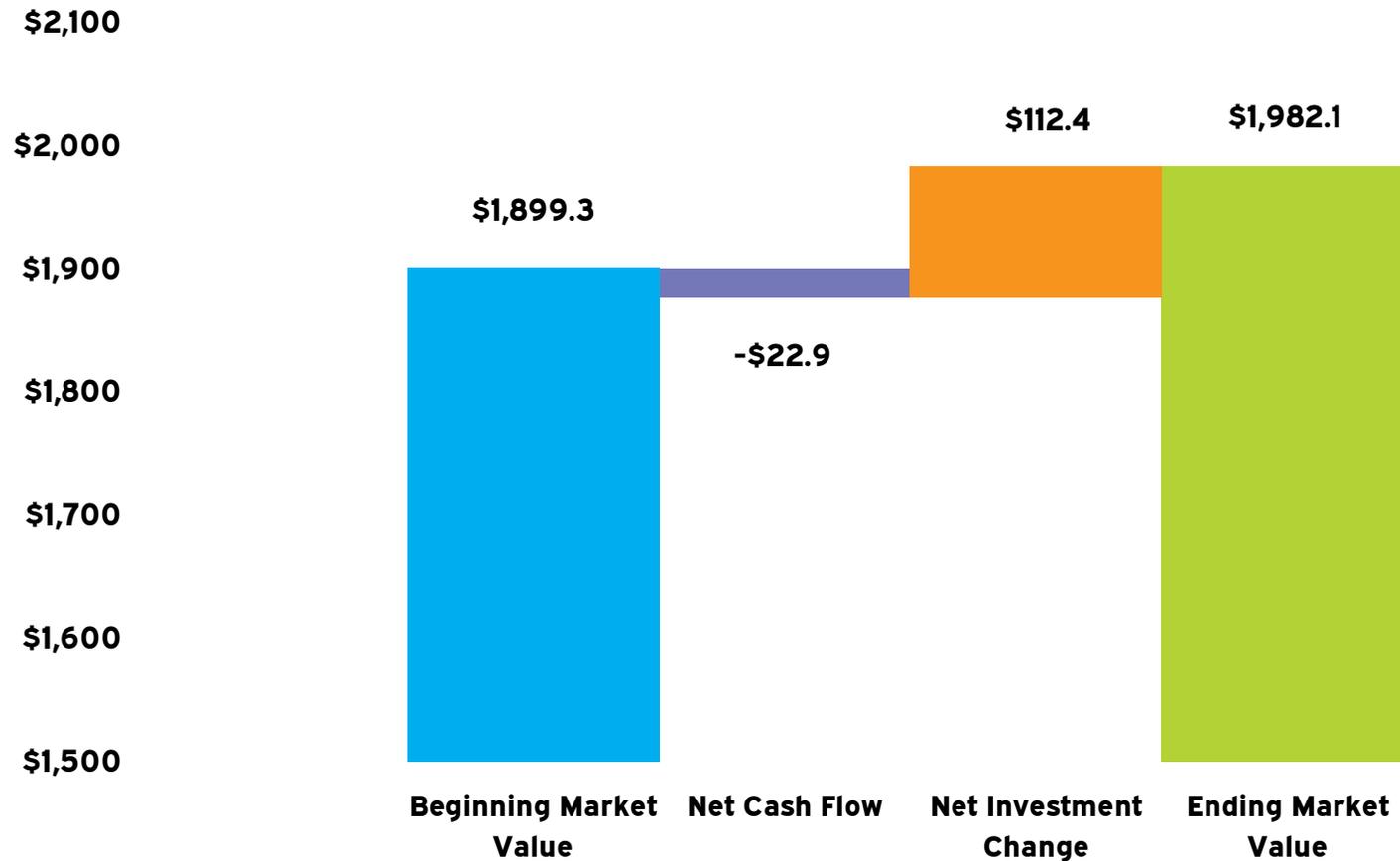
DPFP Trailing Three-Year Flash Summary

Category	Results	Notes
Total Fund Performance Return	Positive	+3.4%
Performance vs. Policy Index	Underperformed	+3.4% vs. +4.4%
Performance vs. Peers <sup>1</sup>	Underperformed	+3.4% vs. +4.8% median (93rd percentile in peer group)
Active Management	Hurt	Hurt in most asset classes, but favorable in global equity and short term core bonds
DPFP Public Markets vs. 60/40 <sup>2</sup>	Underperformed	+4.7% vs. +5.2%
DPFP Public Markets vs. Peers	Underperformed	+4.7% vs. +4.8% median (62nd percentile in peer group)

<sup>1</sup> InvestorForce Public DB \$1-5 billion net

<sup>2</sup> Performance of Total Fund excluding private market investments relative to a 60% MSCI ACWI IMI Net/40% Barclays Global Aggregate Index.

#### Quarterly Change in Market Value

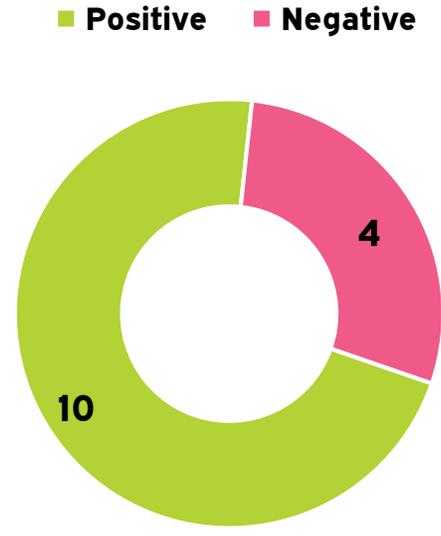
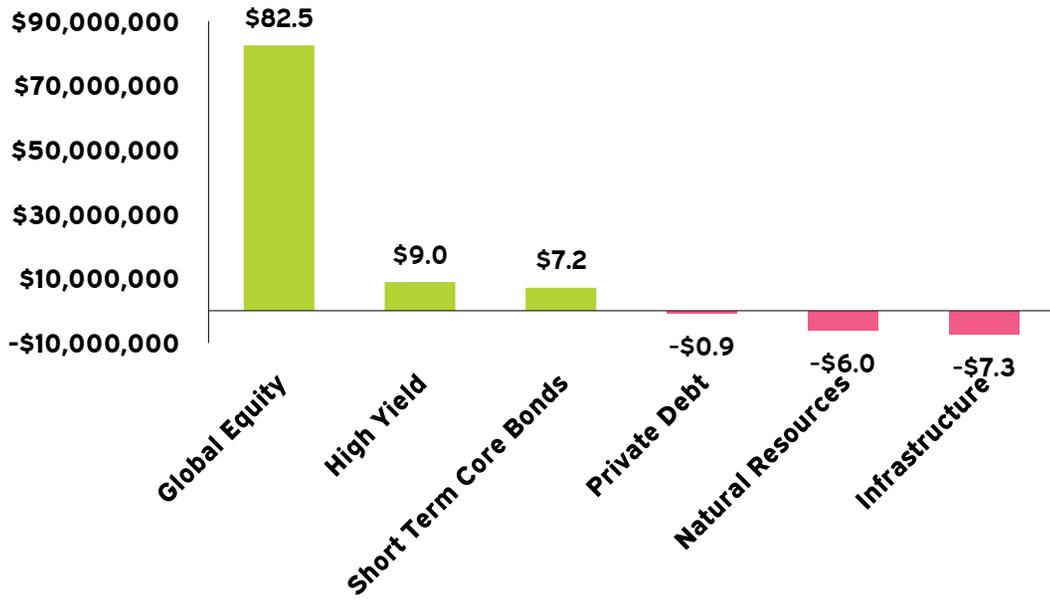


- Total market value increased due to positive investment performance.

### Quarterly Absolute Performance

#### Asset Classes Dollar Gain/ Loss<sup>1</sup> Top Three and Bottom Three

#### Asset Class Absolute Performance

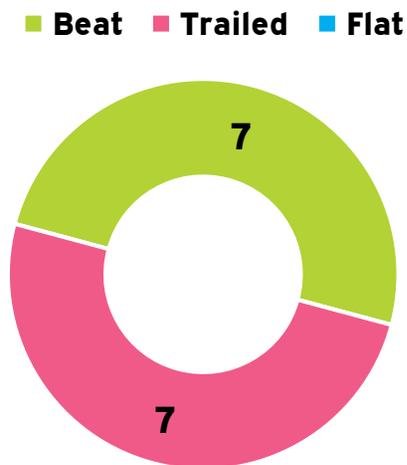


- Asset class performance was mostly positive during the quarter.
- In absolute terms, Global Equity appreciated the most, gaining approximately \$82.5 million in market value.
- Infrastructure depreciated the most, losing approximately \$7.3 million in value.

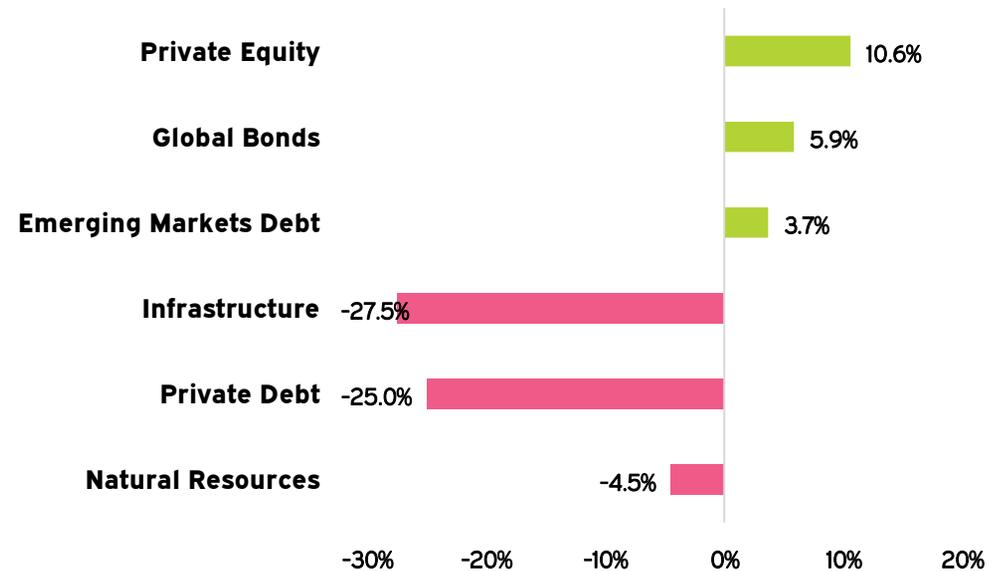
<sup>1</sup> Estimated Gain/ Loss calculated by multiplying beginning market value by quarterly performance.

### Quarterly Relative Performance

Asset Classes vs Benchmarks



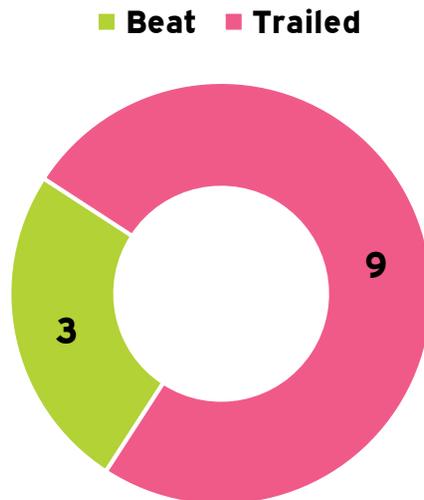
Asset Classes vs Benchmarks  
Top Three and Bottom Three



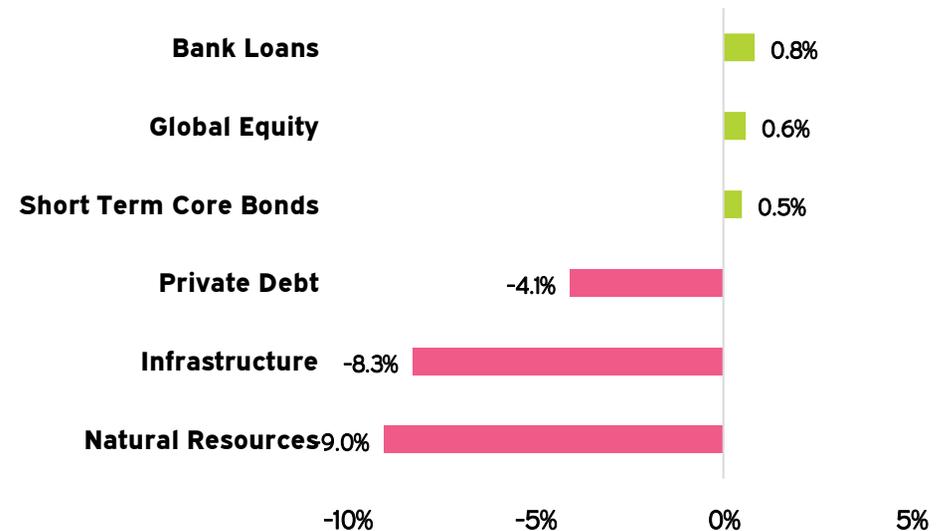
- Private Equity, Global Bonds and Emerging Markets Debt had the best relative performance for the quarter.
- Over the quarter, Infrastructure, Private Debt and Natural Resources had the worst relative performance.
- Seven of fourteen asset classes delivered positive relative performance versus respective benchmarks.

### Trailing 3 Year Relative Performance

Asset Classes vs Benchmarks<sup>1</sup>



Asset Classes vs Benchmarks  
Top Three and Bottom Three

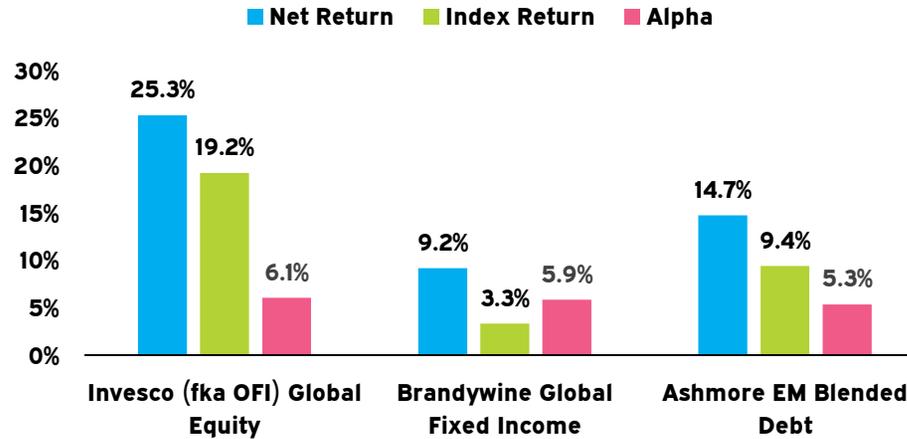


- 3 of the 12 asset classes with trailing three-year return history delivered positive relative performance versus respective benchmarks.
- Over the trailing three-year period, the best relative performance came from Bank Loans, Global Equity and Short Term Core Bonds.
- Private Debt, Infrastructure and Natural Resources had the worst relative performance over the trailing three-year period.

<sup>1</sup> Analysis excludes cash and asset classes with a performance history of less than three years.

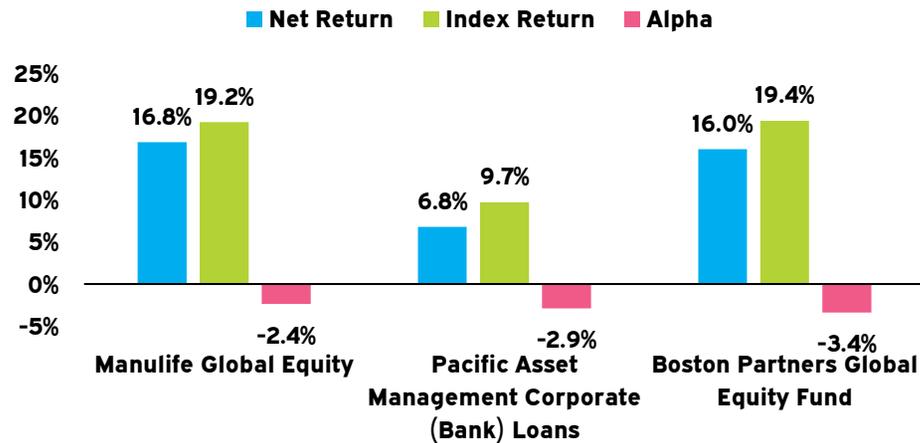
#### Public Manager Alpha

Top Three  
Outperformers in  
Quarter



**\$225 million**  
Combined exposure

Bottom Three  
Underperformers in  
Quarter



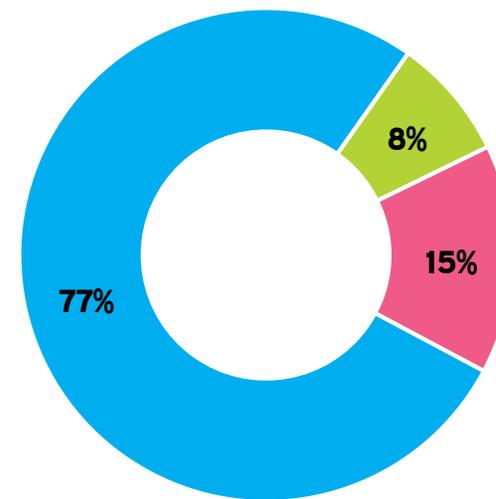
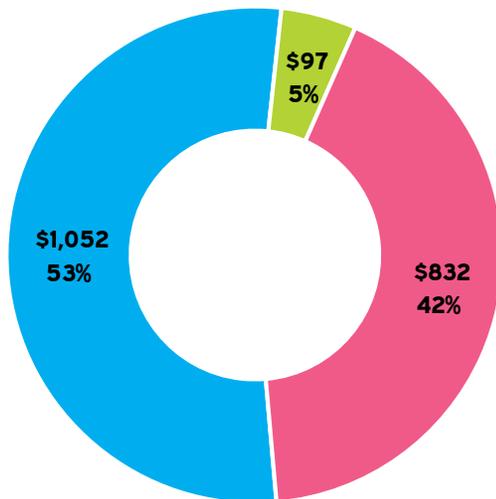
**\$331 million**  
Combined exposure

### Liquidity Exposure As of June 30, 2020

Exposure (\$ mm)	Targets
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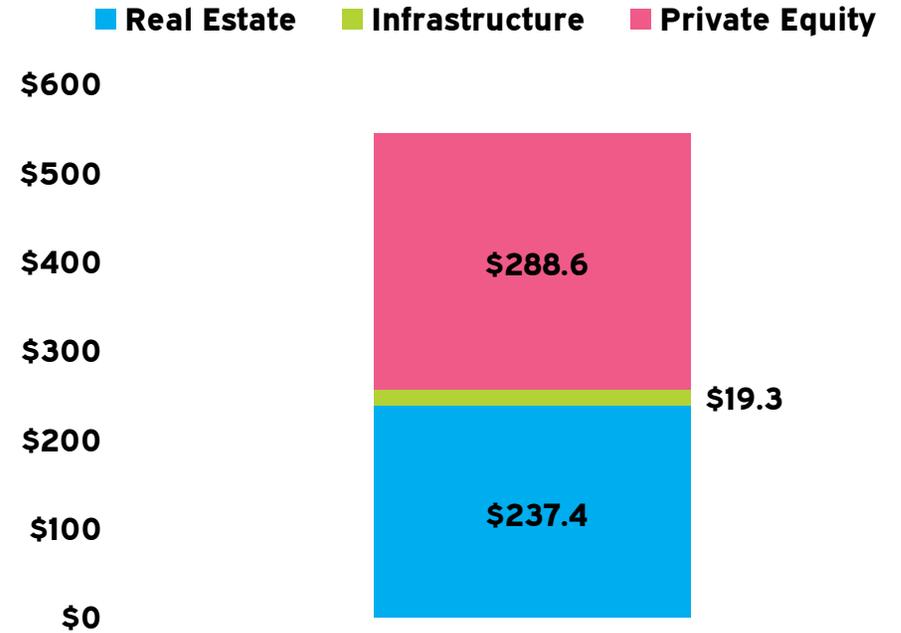
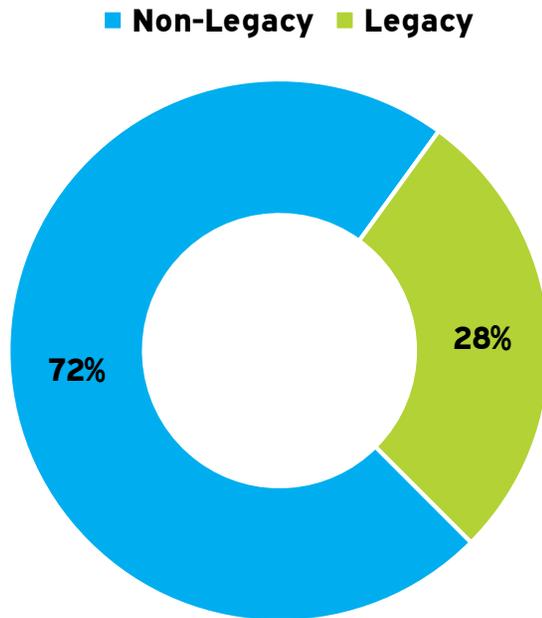
■ Daily or Weekly ■ Monthly ■ Illiquid

■ Daily or Weekly ■ Monthly ■ Illiquid



- Approximately 42% of the System's assets are illiquid versus 15% of the target allocation.

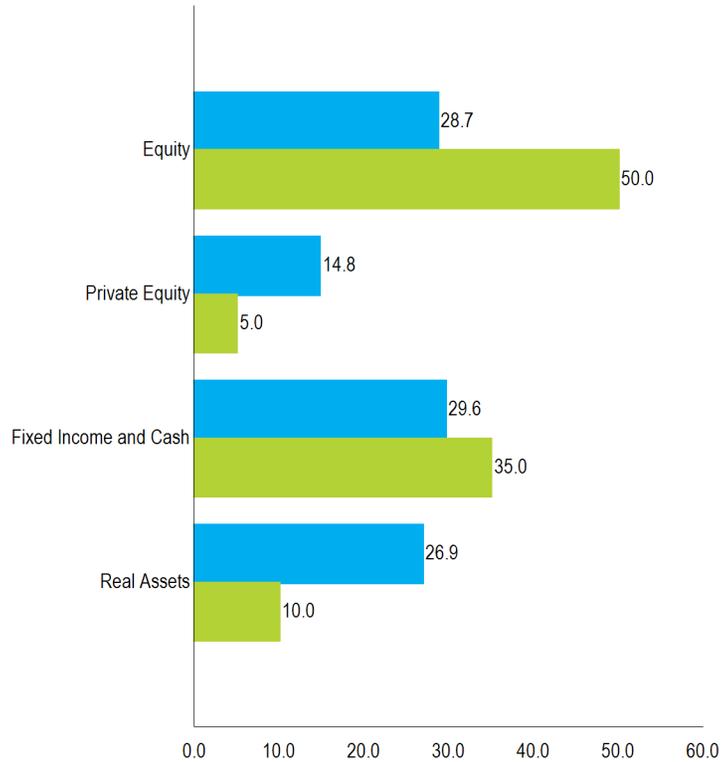
#### Legacy Assets



**\$545 million**  
Net Asset Value of Legacy Assets

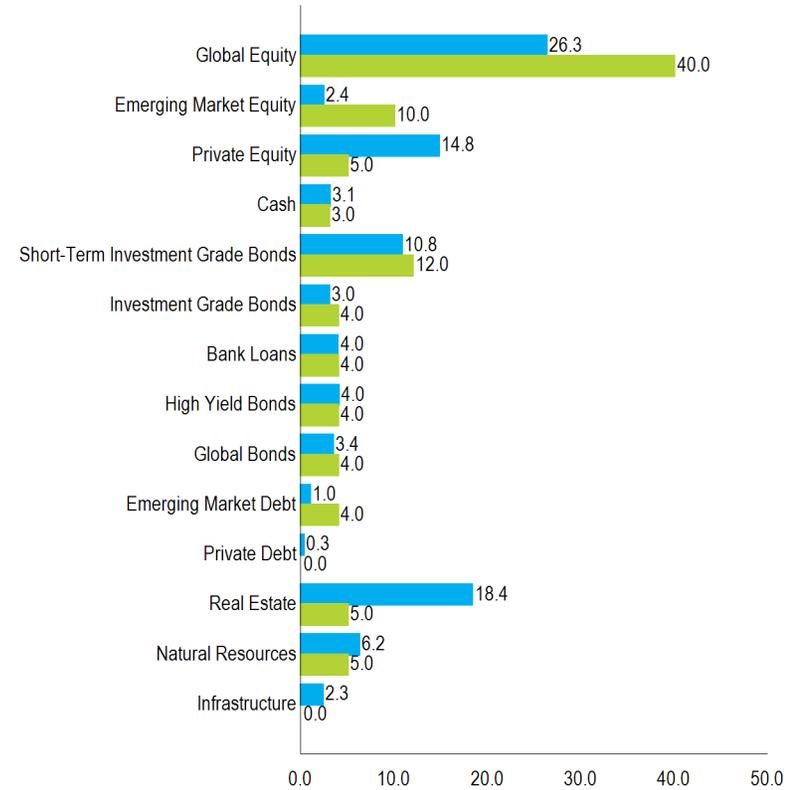
**Performance Update  
As of June 30, 2020**

**Asset Category  
Actual vs Target Allocation (%)  
As of June 30, 2020**



Actual Policy

**Asset Classes Actual vs Target Allocation (%)  
As of June 30, 2020**



Actual Policy

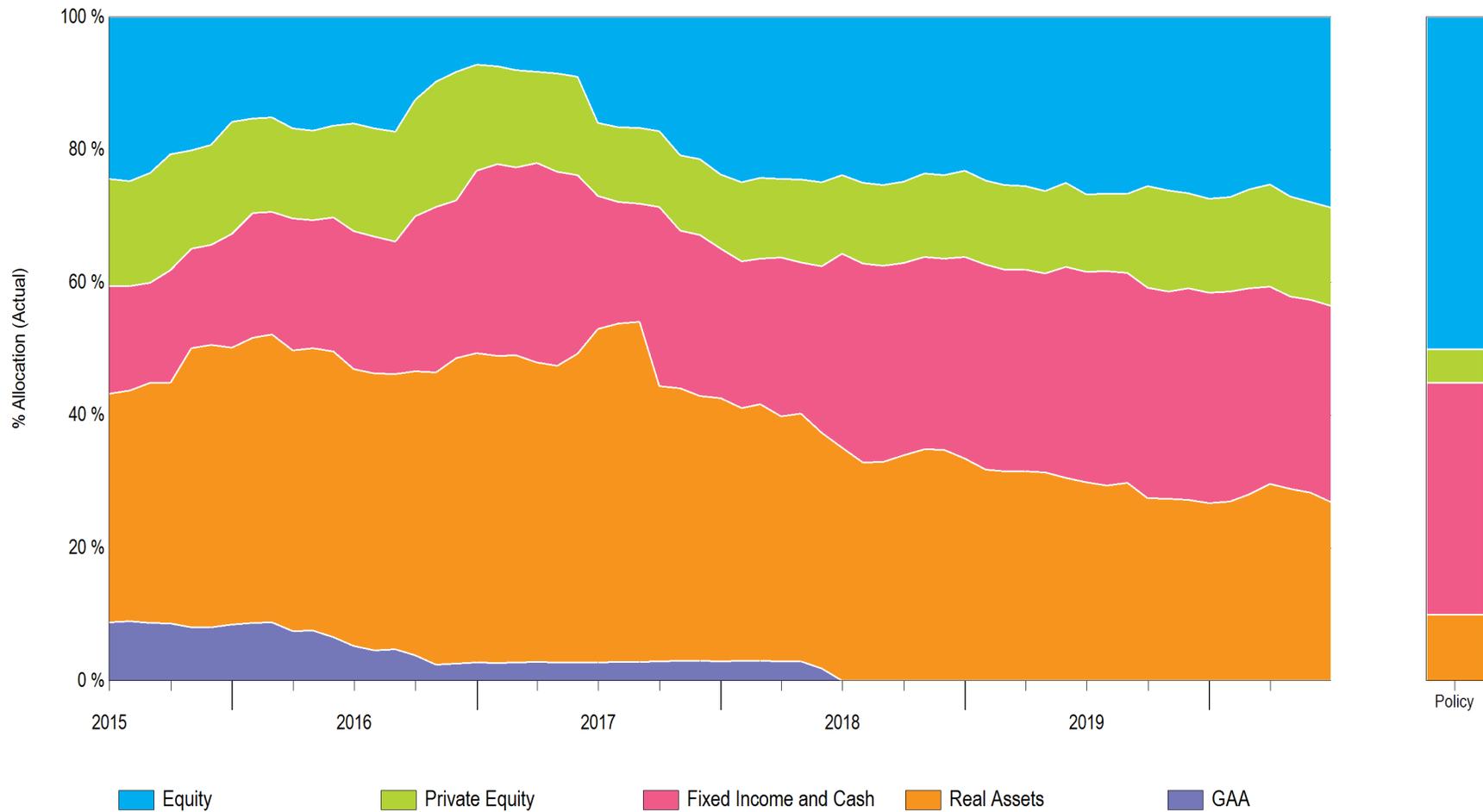
## Allocation vs. Targets and Policy

	Current Balance	Current Allocation	Policy	Policy Range	Within IPS Range?
<b>Equity</b>	<b>\$569,212,909</b>	<b>29%</b>	<b>50%</b>		
Global Equity	\$521,423,518	26%	40%	22% - 48%	Yes
Emerging Market Equity	\$47,789,391	2%	10%	3% - 12%	No
Private Equity	\$292,716,007	15%	5%		
<b>Fixed Income and Cash</b>	<b>\$586,712,309</b>	<b>30%</b>	<b>35%</b>		
Cash	\$60,819,690	3%	3%	0% - 5%	Yes
Short-Term Investment Grade Bonds	\$214,383,954	11%	12%	5% - 15%	Yes
Investment Grade Bonds	\$60,228,068	3%	4%	2% - 6%	Yes
Global Bonds	\$68,030,229	3%	4%	2% - 6%	Yes
Bonds Bank Loans	\$78,370,114	4%	4%	2% - 6%	Yes
High Yield Bonds	\$79,823,449	4%	4%	2% - 6%	Yes
Emerging Market Debt	\$19,058,913	1%	4%	0% - 6%	Yes
Private Debt	\$5,997,892	0%	0%		
<b>Real Assets</b>	<b>\$533,496,830</b>	<b>27%</b>	<b>10%</b>		
Real Estate	\$363,865,826	18%	5%		
Natural Resources	\$123,564,163	6%	5%		
Infrastructure	\$46,066,841	2%	0%		
<b>Total</b>	<b>\$1,982,138,054</b>	<b>100%</b>	<b>100%</b>		

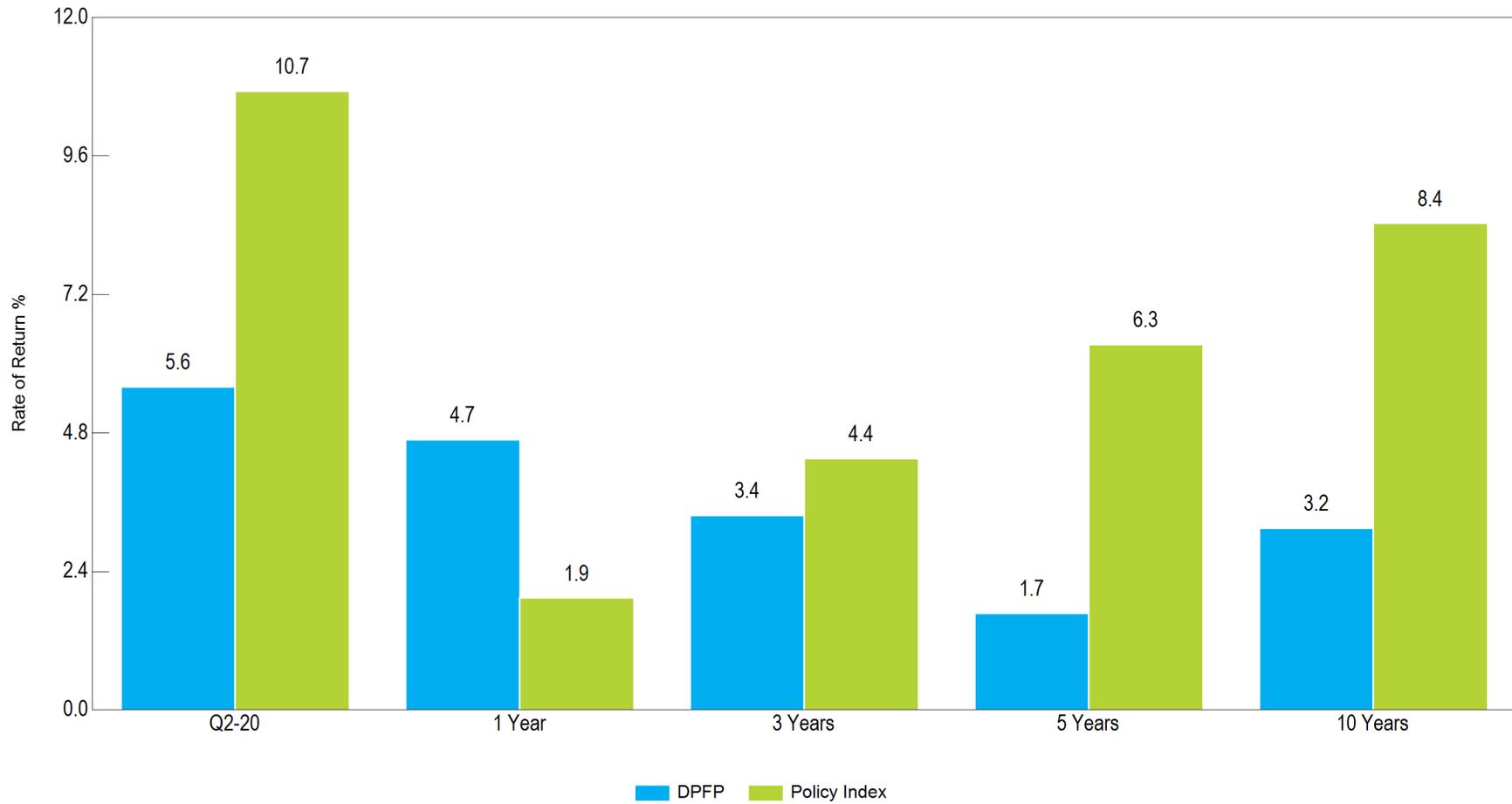
As of 6/30/2020 the Safety Reserve exposure was approximately \$275.2 million (14%).

Rebalancing ranges are not established for illiquid assets (Private Equity, Private Debt, Natural Resources, Infrastructure and Real Estate)

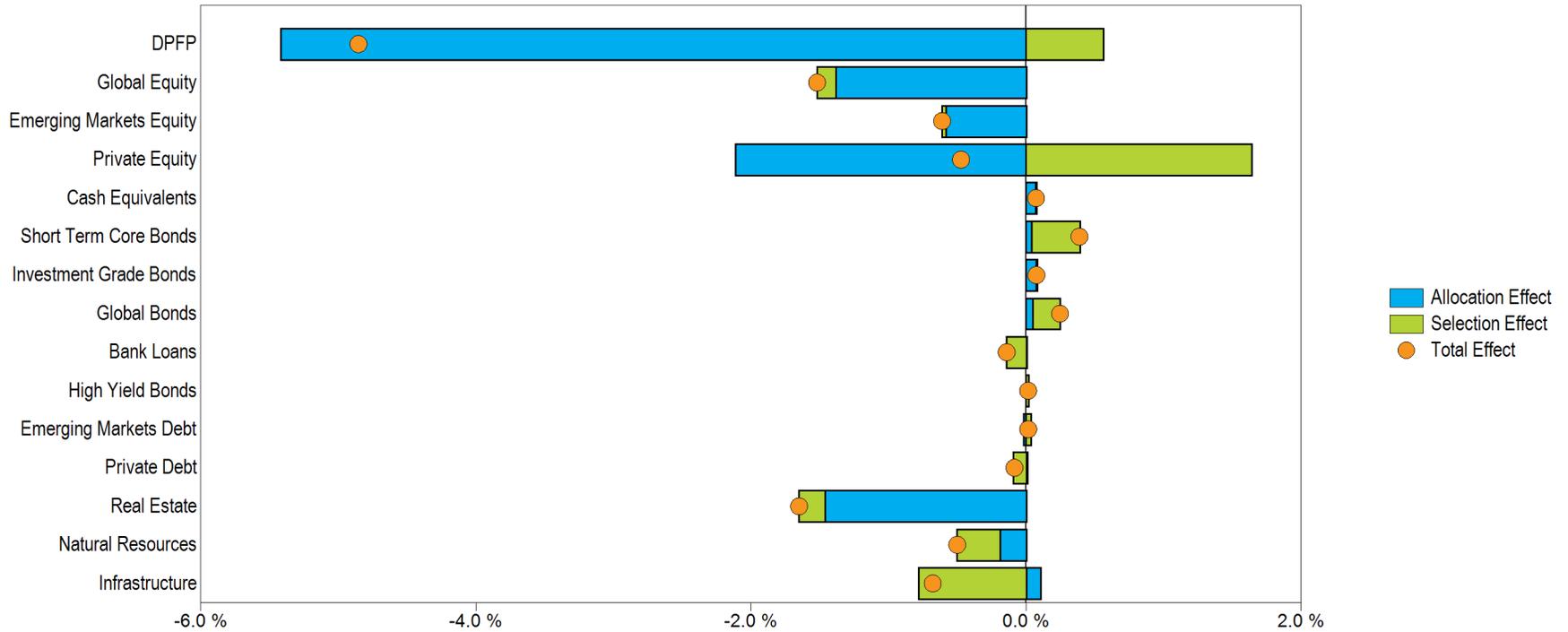
### Asset Allocation History vs. Policy 5 Years Ending June 30, 2020



Net Return Summary  
Ending June 30, 2020



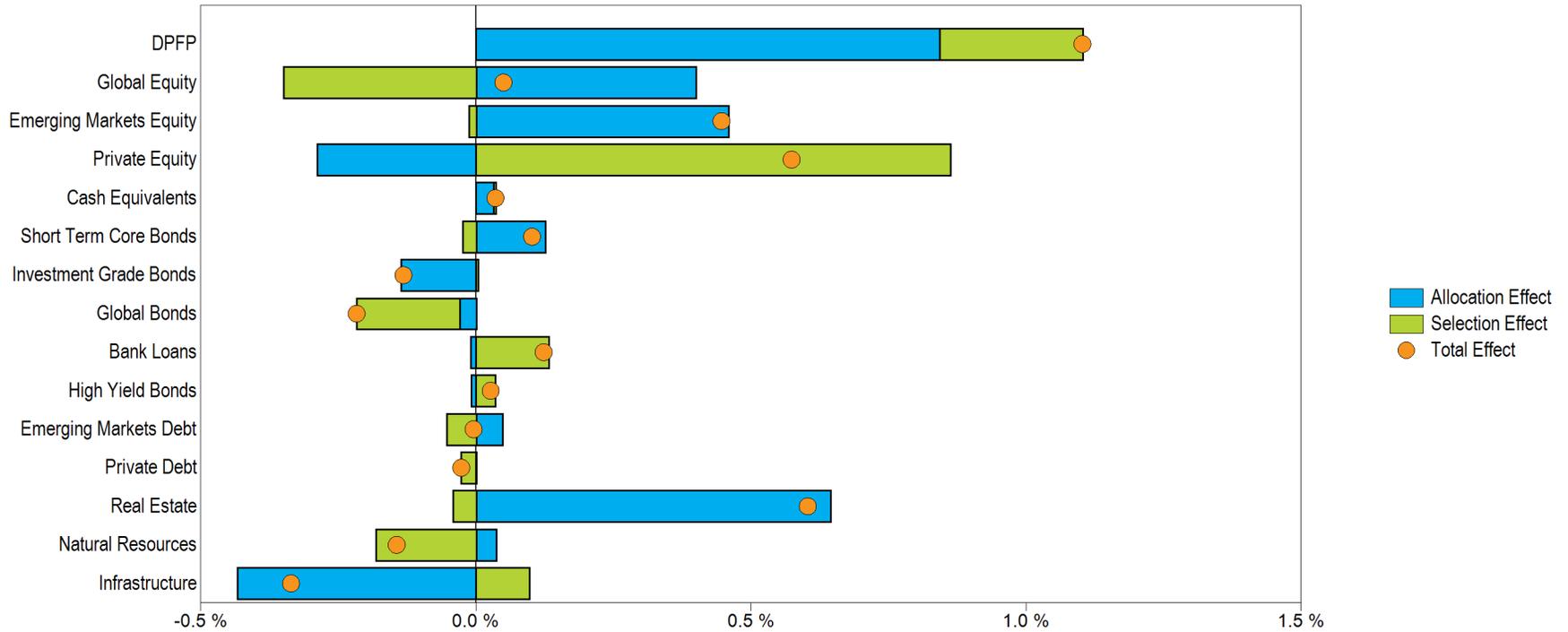
### Attribution Effects vs. Policy Benchmark 3 Months Ending June 30, 2020



Attribution Summary						
3 Months Ending June 30, 2020						
	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
<b>Total</b>	<b>5.6%</b>	<b>10.5%</b>	<b>-4.9%</b>	<b>0.6%</b>	<b>-5.4%</b>	<b>-4.9%</b>

The performance calculation methodology in attribution tables is different from the standard time weighted returns (geometric linkage of monthly returns) found throughout the rest of the report. In attribution tables, the average weight of each asset class (over the specified time period) is multiplied by the time period performance of that asset class and summed. Values may not sum due to rounding.

### Attribution Effects vs. Policy Benchmark Year to Date Ending June 30, 2020



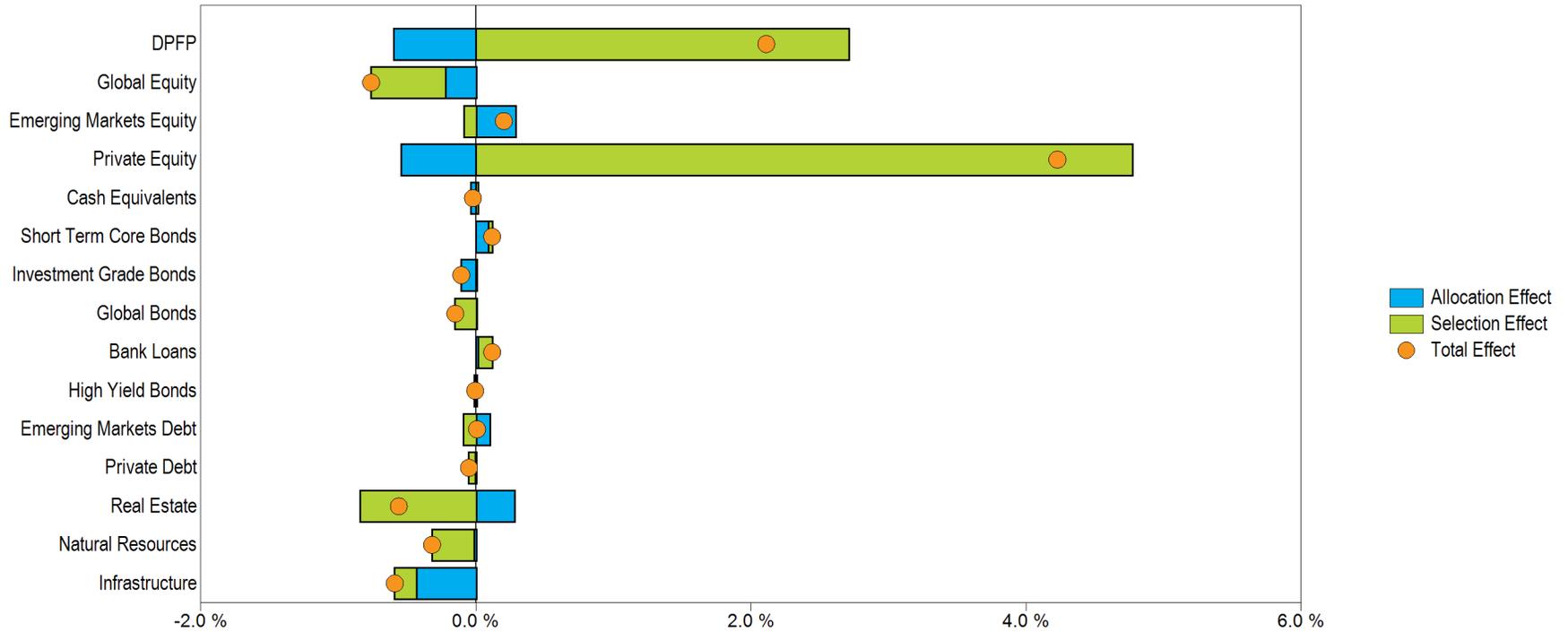
### Attribution Summary

#### Year to Date Ending June 30, 2020

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
<b>Total</b>	<b>-1.7%</b>	<b>-2.8%</b>	<b>1.1%</b>	<b>0.3%</b>	<b>0.8%</b>	<b>1.1%</b>

The performance calculation methodology in attribution tables is different from the standard time weighted returns (geometric linkage of monthly returns) found throughout the rest of the report. In attribution tables, the average weight of each asset class (over the specified time period) is multiplied by the time period performance of that asset class and summed. Values may not sum due to rounding.

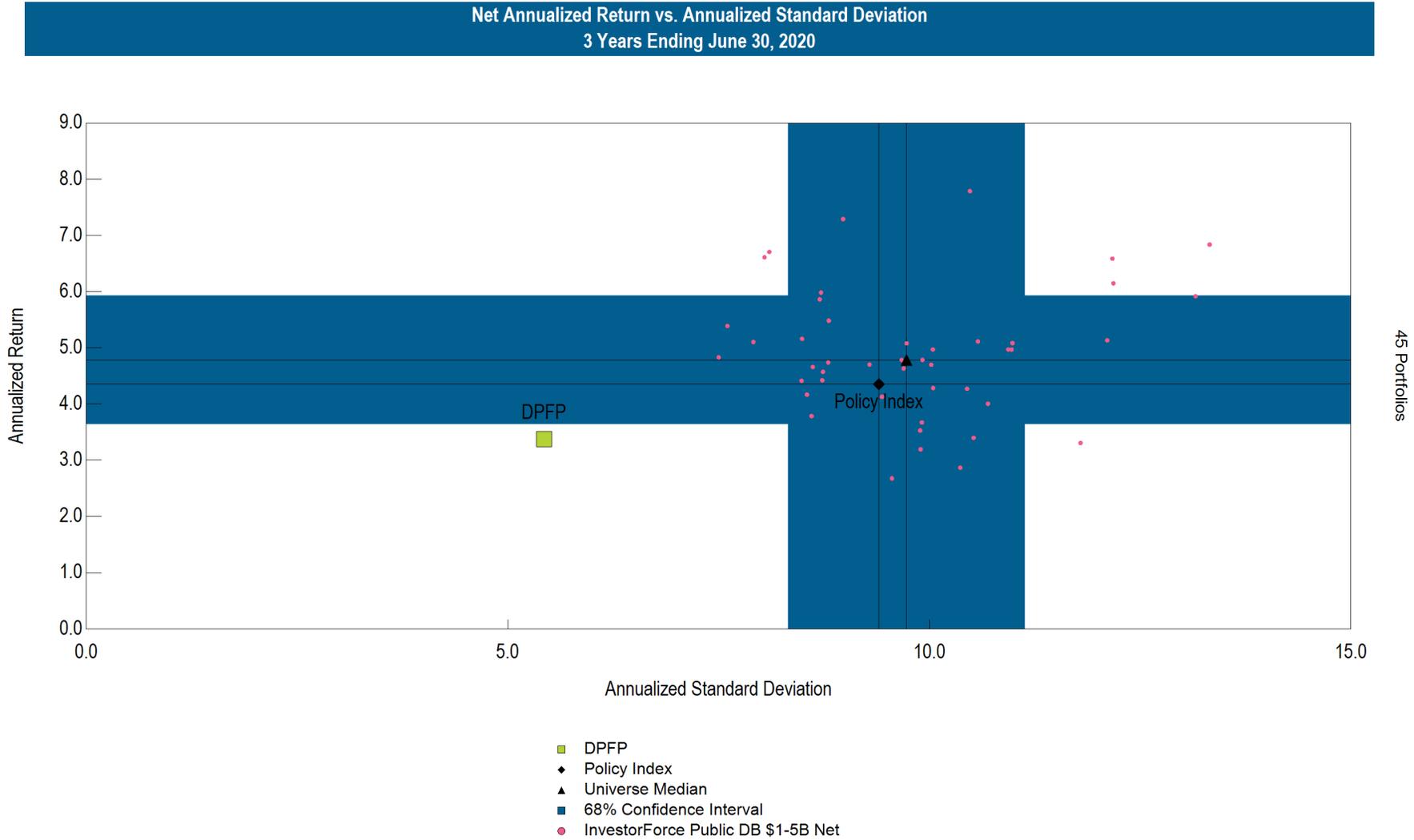
### Attribution Effects vs. Policy Benchmark 1 Year Ending June 30, 2020



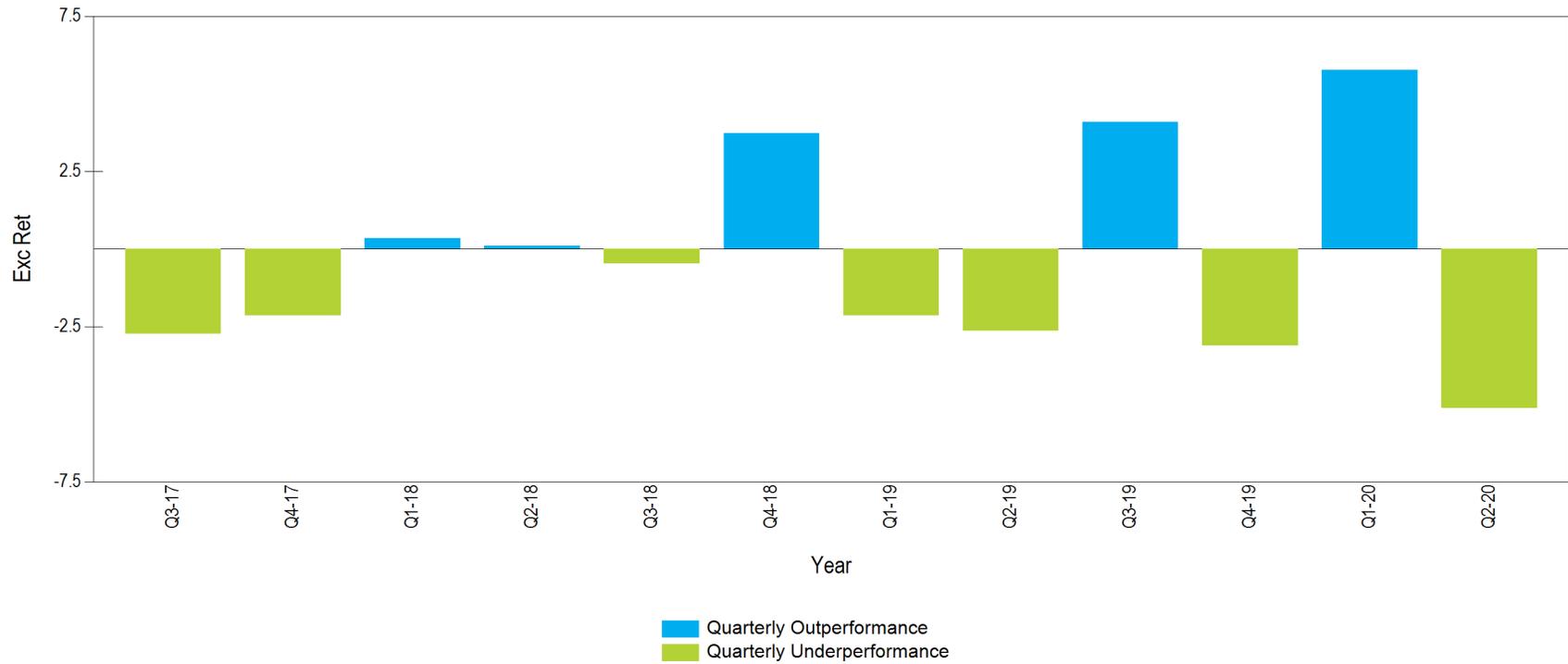
### Attribution Summary 1 Year Ending June 30, 2020

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
<b>Total</b>	<b>4.7%</b>	<b>2.6%</b>	<b>2.1%</b>	<b>2.7%</b>	<b>-0.6%</b>	<b>2.1%</b>

The performance calculation methodology in attribution tables is different from the standard time weighted returns (geometric linkage of monthly returns) found throughout the rest of the report. In attribution tables, the average weight of each asset class (over the specified time period) is multiplied by the time period performance of that asset class and summed. Values may not sum due to rounding.



Quarterly Excess Performance vs. Policy Benchmark



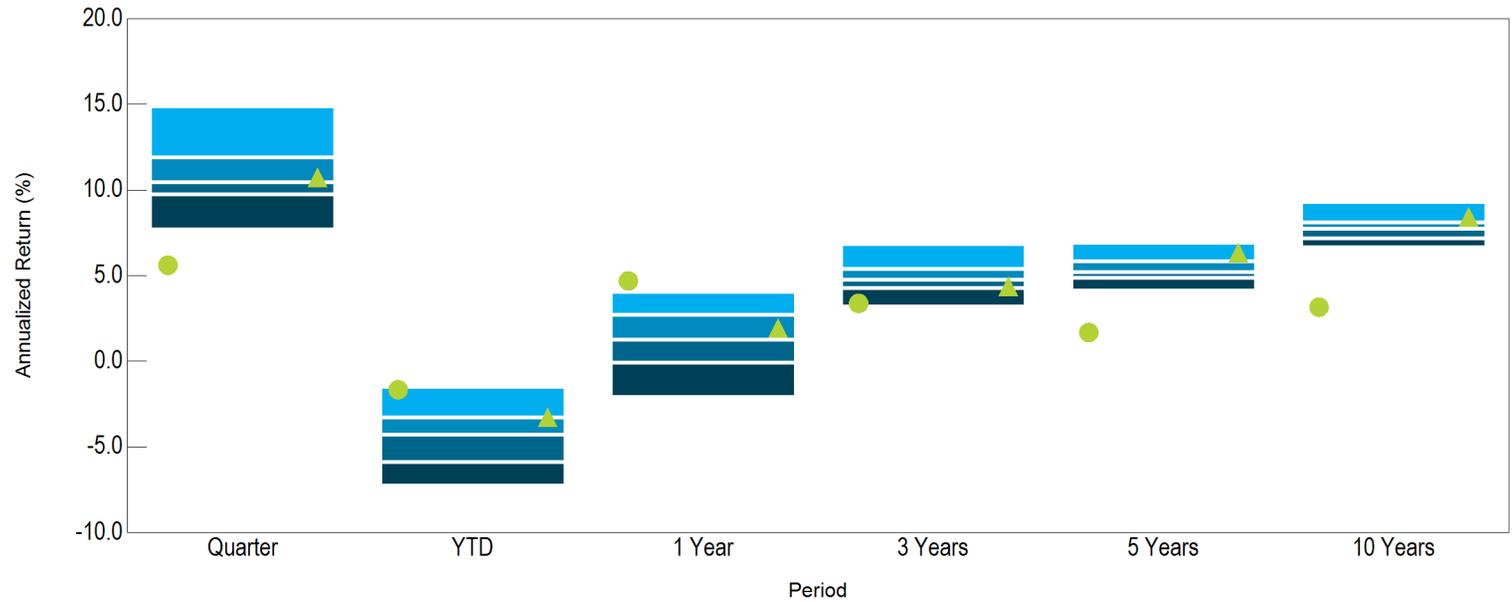
**Total Fund Correlation Matrix  
1 Year Ending June 30, 2020**

	<i>DPFP</i>	<i>Policy Index</i>	<i>60% MSCI ACWI/40% Barclays Global Agg</i>
DPFP	1.00	--	--
Policy Index	0.85	1.00	--
60% MSCI ACWI/40% Barclays Global Agg	0.82	0.99	1.00

**Total Fund Correlation Matrix  
3 Years Ending June 30, 2020**

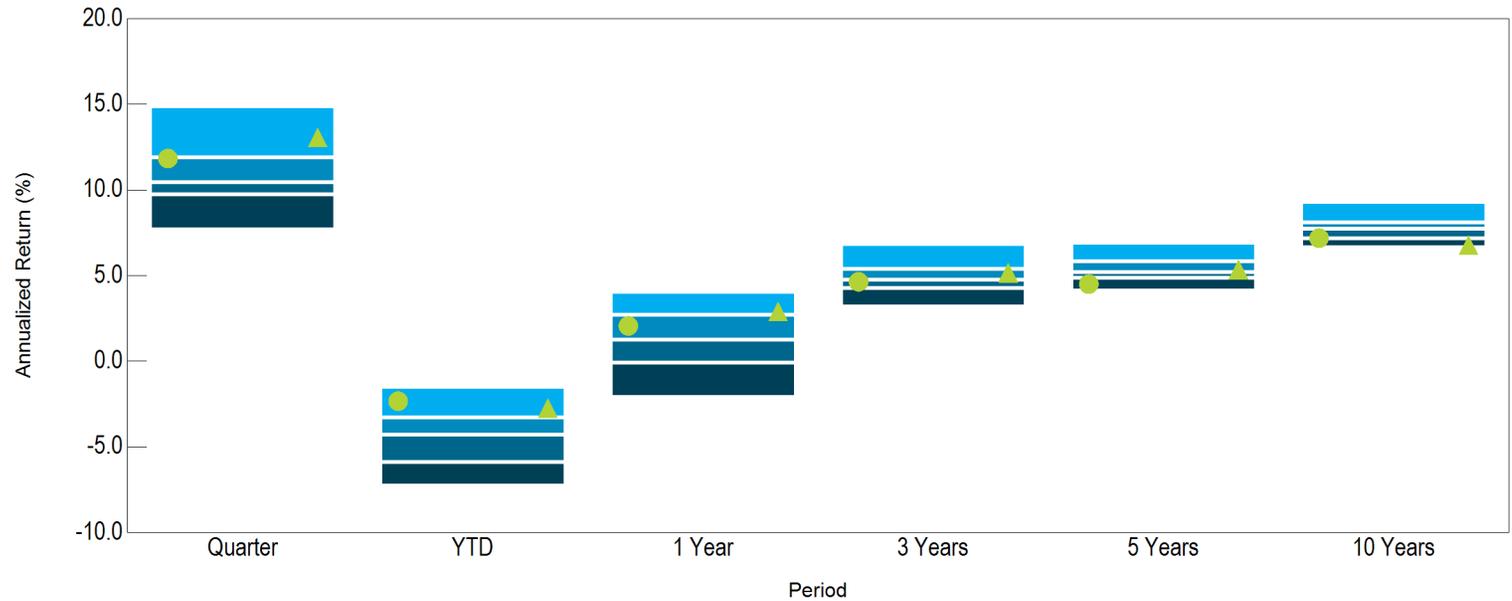
	<i>DPFP</i>	<i>Policy Index</i>	<i>60% MSCI ACWI/40% Barclays Global Agg</i>
DPFP	1.00	--	--
Policy Index	0.86	1.00	--
60% MSCI ACWI/40% Barclays Global Agg	0.84	0.99	1.00

**Total Plan vs. InvestorForce Public DB \$1-5B Net Accounts**  
Ending June 30, 2020



	Return (Rank)		Quarter		YTD		1 Year		3 Years		5 Years		10 Years	
5th Percentile	14.9		-1.5		4.0		6.8		6.9		9.3			
25th Percentile	11.9		-3.3		2.7		5.4		5.9		8.1			
Median	10.5		-4.3		1.3		4.8		5.2		7.7			
75th Percentile	9.7		-5.9		-0.1		4.3		4.9		7.2			
95th Percentile	7.7		-7.2		-2.1		3.2		4.1		6.7			
# of Portfolios	45		45		45		45		45		40			
● DPFP	5.6	(99)	-1.7	(10)	4.7	(1)	3.4	(92)	1.7	(99)	3.2	(99)		
▲ Policy Index	10.7	(41)	-3.3	(26)	1.9	(36)	4.4	(72)	6.3	(15)	8.4	(19)		

**Total Plan ex Privates vs. InvestorForce Public DB \$1-5B Net Accounts**  
As of June 30, 2020



	Return (Rank)											
5th Percentile	14.9		-1.5		4.0		6.8		6.9		9.3	
25th Percentile	11.9		-3.3		2.7		5.4		5.9		8.1	
Median	10.5		-4.3		1.3		4.8		5.2		7.7	
75th Percentile	9.7		-5.9		-0.1		4.3		4.9		7.2	
95th Percentile	7.7		-7.2		-2.1		3.2		4.1		6.7	
# of Portfolios	45		45		45		45		45		40	
● Total Fund ex Privates	11.8	(27)	-2.3	(15)	2.1	(35)	4.6	(64)	4.5	(91)	7.2	(76)
▲ 60% MSCI ACWI IMI Net/40% Barclays Global	13.1	(15)	-2.7	(18)	2.9	(23)	5.2	(28)	5.3	(46)	6.8	(93)

DPFP | As of June 30, 2020

Asset Class Performance Summary (Net)										
	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
<b>DPFP</b>	<b>1,982,138,054</b>	<b>100.0</b>	<b>5.6</b>	<b>-1.7</b>	<b>4.7</b>	<b>3.4</b>	<b>1.7</b>	<b>3.2</b>	<b>5.7</b>	<b>Jun-96</b>
<i>Policy Index</i>			10.7	-3.3	1.9	4.4	6.3	8.4	--	Jun-96
<i>Allocation Index</i>			5.0	-2.3	1.9	4.6	6.2	7.7	7.0	Jun-96
<i>Total Fund Ex Private Markets</i>			11.8	-2.3	2.1	4.6	4.5	7.2	5.4	Jun-96
<i>60% MSCI ACWI IMI Net/40% Barclays Global Aggregate Index</i>			13.1	-2.7	2.9	5.2	5.3	6.8	5.9	Jun-96
<b>Global Equity</b>	<b>521,423,518</b>	<b>26.3</b>	<b>18.8</b>	<b>-7.3</b>	<b>0.5</b>	<b>6.2</b>	<b>7.0</b>	<b>9.9</b>	<b>6.1</b>	<b>Jul-06</b>
<i>MSCI ACWI IMI Net USD</i>			19.8	-7.1	1.2	5.5	6.1	9.1	5.7	Jul-06
<b>Emerging Markets Equity</b>	<b>47,789,391</b>	<b>2.4</b>	<b>17.0</b>	<b>-10.1</b>	<b>-6.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-2.0</b>	<b>Jan-18</b>
<i>MSCI Emerging Market IMI Net</i>			18.9	-10.1	-4.0	1.3	2.3	3.1	-4.2	Jan-18
<b>Private Equity</b>	<b>292,716,007</b>	<b>14.8</b>	<b>0.5</b>	<b>0.3</b>	<b>35.1</b>	<b>7.4</b>	<b>-2.4</b>	<b>-1.2</b>	<b>0.8</b>	<b>Oct-05</b>
<i>Cambridge Associates US All PE (1 Qtr Lag)</i>			-10.1	-6.6	-2.1	8.6	9.1	12.1	11.7	Oct-05
<b>Cash Equivalents</b>	<b>60,819,690</b>	<b>3.1</b>	<b>0.1</b>	<b>0.5</b>	<b>1.7</b>	<b>1.8</b>	<b>1.5</b>	<b>--</b>	<b>1.5</b>	<b>Apr-15</b>
<i>91 Day T-Bills</i>			0.0	0.4	1.3	1.7	1.1	0.6	1.1	Apr-15
<b>Short Term Core Bonds</b>	<b>214,383,954</b>	<b>10.8</b>	<b>3.1</b>	<b>3.3</b>	<b>4.7</b>	<b>3.2</b>	<b>--</b>	<b>--</b>	<b>3.2</b>	<b>Jun-17</b>
<i>BBgBarc US Treasury 1-3 Yr TR</i>			0.2	3.0	4.1	2.7	1.9	1.3	2.7	Jun-17
<b>Investment Grade Bonds</b>	<b>60,228,068</b>	<b>3.0</b>	<b>3.0</b>	<b>6.4</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>6.4</b>	<b>Oct-19</b>
<i>BBgBarc US Aggregate TR</i>			2.9	6.1	8.7	5.3	4.3	3.8	6.3	Oct-19
<b>Global Bonds</b>	<b>68,030,229</b>	<b>3.4</b>	<b>9.2</b>	<b>-2.4</b>	<b>-0.1</b>	<b>1.7</b>	<b>2.7</b>	<b>--</b>	<b>2.6</b>	<b>Dec-10</b>
<i>BBgBarc Global Aggregate TR</i>			3.3	3.0	4.2	3.8	3.6	2.8	2.3	Dec-10
<b>Bank Loans</b>	<b>78,370,114</b>	<b>4.0</b>	<b>6.2</b>	<b>-1.4</b>	<b>0.4</b>	<b>3.0</b>	<b>3.4</b>	<b>--</b>	<b>3.6</b>	<b>Jan-14</b>
<i>Credit Suisse Leveraged Loan</i>			9.7	-4.8	-2.3	2.1	2.9	--	3.0	Jan-14
<b>High Yield Bonds</b>	<b>79,823,449</b>	<b>4.0</b>	<b>12.6</b>	<b>-3.8</b>	<b>-1.7</b>	<b>1.0</b>	<b>3.4</b>	<b>--</b>	<b>5.3</b>	<b>Dec-10</b>
<i>BBgBarc Global High Yield TR</i>			12.2	-4.7	-2.0	2.2	4.4	6.4	5.6	Dec-10
<b>Emerging Markets Debt</b>	<b>19,058,913</b>	<b>1.0</b>	<b>14.7</b>	<b>-10.0</b>	<b>-9.7</b>	<b>-0.7</b>	<b>2.8</b>	<b>--</b>	<b>2.4</b>	<b>Dec-10</b>
<i>50% JPM EMBI/50% JPM GBI-EM</i>			11.0	-4.8	-1.1	2.4	3.9	--	3.1	Dec-10
<b>Private Debt</b>	<b>5,997,892</b>	<b>0.3</b>	<b>-12.3</b>	<b>-12.4</b>	<b>-11.6</b>	<b>0.2</b>	<b>--</b>	<b>--</b>	<b>-4.5</b>	<b>Jan-16</b>
<i>Barclays Global High Yield +2%</i>			12.7	-3.7	0.0	4.3	6.5	--	8.1	Jan-16

<sup>1</sup> AEW Funds 12/31/2019 valuation used, Huff Alternative Fund 12/31/2019 valuation used and Lone Star Funds 9/30/2019 valuation used.

DPFP | As of June 30, 2020

### Asset Class Performance Summary (Net)

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
<b>Real Estate</b>	<b>363,865,826</b>	<b>18.4</b>	<b>-0.2</b>	<b>2.0</b>	<b>1.0</b>	<b>3.2</b>	<b>-1.3</b>	<b>-3.1</b>	<b>3.7</b>	<b>Mar-85</b>
<i>NCREIF Property (1-quarter lagged)</i>			<i>0.7</i>	<i>2.3</i>	<i>5.3</i>	<i>6.4</i>	<i>7.6</i>	<i>10.2</i>	<i>8.0</i>	<i>Mar-85</i>
<b>Natural Resources</b>	<b>123,564,163</b>	<b>6.2</b>	<b>-4.6</b>	<b>-0.9</b>	<b>-1.1</b>	<b>-3.3</b>	<b>-1.0</b>	<b>--</b>	<b>3.4</b>	<b>Dec-10</b>
<i>NCREIF Farmland Total Return Index 1Q Lag</i>			<i>-0.1</i>	<i>2.2</i>	<i>4.0</i>	<i>5.7</i>	<i>6.6</i>	<i>10.9</i>	<i>11.3</i>	<i>Dec-10</i>
<b>Infrastructure</b>	<b>46,066,841</b>	<b>2.3</b>	<b>-13.6</b>	<b>-15.6</b>	<b>-17.7</b>	<b>-9.2</b>	<b>3.8</b>	<b>--</b>	<b>3.5</b>	<b>Jul-12</b>
<i>S&amp;P Global Infrastructure TR USD</i>			<i>13.9</i>	<i>-19.4</i>	<i>-14.8</i>	<i>-0.9</i>	<i>2.6</i>	<i>6.9</i>	<i>5.6</i>	<i>Jul-12</i>

<sup>1</sup> Please see the Appendix for composition of the Custom Benchmarks. <sup>2</sup> As of 6/30/2020, the Safety Reserve exposure was approximately \$275.2 million (14%). <sup>3</sup> All private market data is one quarter lagged, unless otherwise noted. <sup>4</sup> AEW Funds 12/31/2019 valuation used, Huff Alternative Fund 12/31/2019 valuation used and Lone Star Funds 9/30/2019 valuation used.

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Trailing Net Performance											
	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
<b>DPFP</b>	<b>1,982,138,054</b>	<b>100.0</b>	<b>--</b>	<b>5.6</b>	<b>-1.7</b>	<b>4.7</b>	<b>3.4</b>	<b>1.7</b>	<b>3.2</b>	<b>5.7</b>	<b>Jun-96</b>
<i>Policy Index</i>				10.7	-3.3	1.9	4.4	6.3	8.4	--	Jun-96
<i>Allocation Index</i>				5.0	-2.3	1.9	4.6	6.2	7.7	7.0	Jun-96
<i>Total Fund Ex Private Markets</i>				11.8	-2.3	2.1	4.6	4.5	7.2	5.4	Jun-96
<i>60% MSCI ACWI IMI Net/40% Barclays Global Aggregate Index</i>				13.1	-2.7	2.9	5.2	5.3	6.8	5.9	Jun-96
<i>InvestorForce Public DB \$1-5B Net Rank</i>				99	10	1	92	99	99	83	Jun-96
<b>Total Equity</b>	<b>861,928,916</b>	<b>43.5</b>	<b>43.5</b>	<b>11.8</b>	<b>-4.3</b>	<b>11.3</b>	<b>6.6</b>	<b>0.8</b>	<b>--</b>	<b>4.8</b>	<b>Dec-10</b>
<i>MSCI ACWI IMI Net USD</i>				19.8	-7.1	12	5.5	6.1	9.1	7.0	Dec-10
<b>Public Equity</b>	<b>569,212,909</b>	<b>28.7</b>	<b>66.0</b>	<b>18.6</b>	<b>-6.9</b>	<b>0.7</b>	<b>6.0</b>	<b>6.9</b>	<b>9.8</b>	<b>6.1</b>	<b>Jul-06</b>
<i>MSCI ACWI IMI Net USD</i>				19.8	-7.1	12	5.5	6.1	9.1	5.7	Jul-06
<i>eV All Global Equity Net Rank</i>				54	51	51	45	37	39	38	Jul-06
<b>Global Equity</b>	<b>521,423,518</b>	<b>26.3</b>	<b>91.6</b>	<b>18.8</b>	<b>-7.3</b>	<b>0.5</b>	<b>6.2</b>	<b>7.0</b>	<b>9.9</b>	<b>6.1</b>	<b>Jul-06</b>
<i>MSCI ACWI IMI Net USD</i>				19.8	-7.1	12	5.5	6.1	9.1	5.7	Jul-06
<i>eV All Global Equity Net Rank</i>				54	53	52	43	36	38	38	Jul-06
<i>Boston Partners Global Equity Fund</i>	126,549,595	6.4	24.3	16.0	-16.5	-10.1	-1.4	--	--	-1.4	Jul-17
<i>MSCI World Net</i>				19.4	-5.8	2.8	6.7	6.9	10.0	6.7	Jul-17
<i>eV Global Large Cap Value Eq Net Rank</i>				47	48	56	70	--	--	70	Jul-17
<i>Manulife Global Equity Strategy</i>	127,161,102	6.4	24.4	16.8	-9.9	-2.1	4.0	--	--	4.0	Jul-17
<i>MSCI ACWI Net</i>				19.2	-6.3	2.1	6.1	6.5	9.2	6.1	Jul-17
<i>eV Global Large Cap Value Eq Net Rank</i>				37	10	9	11	--	--	11	Jul-17

<sup>1</sup>60% MSCI ACWI IMI Net/40% Barclays Global Aggregate Index composed of 60% MSCI ACWI (Net)/ 40% Barclays Global Aggregate in periods before 2/1/1997.

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	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
Invesco (fka OFI) Global Equity	138,244,225	7.0	26.5	25.3	-0.6	7.7	9.3	8.2	11.6	6.5	Oct-07
<i>MSCI ACWI Net</i>				19.2	-6.3	2.1	6.1	6.5	9.2	4.1	Oct-07
<i>eV Global Large Cap Growth Eq Net Rank</i>				36	75	83	93	89	67	54	Oct-07
Walter Scott Global Equity Fund	129,468,597	6.5	24.8	17.0	-2.7	5.9	11.8	10.6	11.2	9.7	Dec-09
<i>MSCI ACWI Net</i>				19.2	-6.3	2.1	6.1	6.5	9.2	7.8	Dec-09
<i>eV Global Large Cap Growth Eq Net Rank</i>				99	91	91	77	68	80	86	Dec-09
<b>Emerging Markets Equity</b>	<b>47,789,391</b>	<b>2.4</b>	<b>8.4</b>	<b>17.0</b>	<b>-10.1</b>	<b>-6.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-2.0</b>	<b>Jan-18</b>
<i>MSCI Emerging Market IMI Net</i>				18.9	-10.1	-4.0	1.3	2.3	3.1	-4.2	Jan-18
<i>eV Emg Mkts Equity Net Rank</i>				79	51	63	--	--	--	25	Jan-18
RBC Emerging Markets Equity	47,789,391	2.4	100.0	17.0	-10.1	-6.1	--	--	--	-2.0	Jan-18
<i>MSCI Emerging Market IMI Net</i>				18.9	-10.1	-4.0	1.3	2.3	3.1	-4.2	Jan-18
<i>eV Emg Mkts Equity Net Rank</i>				79	51	63	--	--	--	25	Jan-18
<b>Private Equity</b>	<b>292,716,007</b>	<b>14.8</b>	<b>34.0</b>	<b>0.5</b>	<b>0.3</b>	<b>35.1</b>	<b>7.4</b>	<b>-2.4</b>	<b>-1.2</b>	<b>0.8</b>	<b>Oct-05</b>
<i>Cambridge Associates US All PE (1 Qtr Lag)</i>				-10.1	-6.6	-2.1	8.6	9.1	12.1	11.7	Oct-05
<b>Total Fixed Income and Cash</b>	<b>586,712,309</b>	<b>29.6</b>	<b>29.6</b>	<b>5.2</b>	<b>0.4</b>	<b>1.9</b>	<b>2.8</b>	<b>2.6</b>	<b>5.3</b>	<b>5.1</b>	<b>Jul-06</b>
<i>BBgBarc Multiverse TR</i>				3.7	2.5	3.8	3.7	3.6	3.0	3.9	Jul-06
<i>eV All Global Fixed Inc Net Rank</i>				78	50	60	63	80	24	39	Jul-06
<b>Cash Equivalents</b>	<b>60,819,690</b>	<b>3.1</b>	<b>10.4</b>	<b>0.1</b>	<b>0.5</b>	<b>1.7</b>	<b>1.8</b>	<b>1.5</b>	<b>--</b>	<b>1.5</b>	<b>Apr-15</b>
<i>91 Day T-Bills</i>				0.0	0.4	1.3	1.7	1.1	0.6	1.1	Apr-15

<sup>1</sup> All Private Equity market values are one quarter lagged unless otherwise noted.

<sup>2</sup> AEW Funds 12/31/2019 valuation used, Huff Alternative Fund 12/31/2019 valuation used and Lone Star Funds 9/30/2019 valuation used.

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
<b>Public Fixed Income</b>	<b>519,894,727</b>	<b>26.2</b>	<b>88.6</b>	<b>6.1</b>	<b>0.7</b>	<b>2.3</b>	<b>3.0</b>	<b>4.2</b>	<b>--</b>	<b>5.0</b>	<b>Dec-10</b>
BBgBarc Multiverse TR				3.7	2.5	3.8	3.7	3.6	3.0	2.5	Dec-10
eV All Global Fixed Inc Net Rank				70	47	55	59	34	--	24	Dec-10
<b>Short Term Core Bonds</b>	<b>214,383,954</b>	<b>10.8</b>	<b>41.2</b>	<b>3.1</b>	<b>3.3</b>	<b>4.7</b>	<b>3.2</b>	<b>--</b>	<b>--</b>	<b>3.2</b>	<b>Jun-17</b>
BBgBarc US Treasury 1-3 Yr TR				0.2	3.0	4.1	2.7	1.9	1.3	2.7	Jun-17
IR&M 1-3 Year Strategy	214,383,954	10.8	100.0	3.1	3.3	4.7	3.2	--	--	3.2	Jul-17
BBgBarc US Govt/Credit 1-3 Yr. TR				1.2	2.9	4.2	2.9	2.1	1.6	2.9	Jul-17
eV US Short Duration Fixed Inc Net Rank				35	21	23	26	--	--	26	Jul-17
<b>Investment Grade Bonds</b>	<b>60,228,068</b>	<b>3.0</b>	<b>11.6</b>	<b>3.0</b>	<b>6.4</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>6.4</b>	<b>Oct-19</b>
BBgBarc US Aggregate TR				2.9	6.1	8.7	5.3	4.3	3.8	6.3	Oct-19
Vanguard Total Bond Market Index Inst	60,228,068	3.0	100.0	3.0	6.4	--	--	--	--	5.5	Sep-19
BBgBarc US Aggregate Float Adjusted TR				3.0	6.3	8.9	5.4	4.4	3.9	5.8	Sep-19
<b>Global Bonds</b>	<b>68,030,229</b>	<b>3.4</b>	<b>13.1</b>	<b>9.2</b>	<b>-2.4</b>	<b>-0.1</b>	<b>1.7</b>	<b>2.7</b>	<b>--</b>	<b>2.6</b>	<b>Dec-10</b>
BBgBarc Global Aggregate TR				3.3	3.0	4.2	3.8	3.6	2.8	2.3	Dec-10
eV All Global Fixed Inc Net Rank				40	67	70	82	78	--	67	Dec-10
Brandywine Global Fixed Income	68,030,229	3.4	100.0	9.2	-2.4	-0.1	1.7	2.6	4.1	4.4	Oct-04
BBgBarc Global Aggregate TR				3.3	3.0	4.2	3.8	3.6	2.8	3.6	Oct-04
eV All Global Fixed Inc Net Rank				40	67	70	82	81	53	58	Oct-04

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	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
<b>Bank Loans</b>	<b>78,370,114</b>	<b>4.0</b>	<b>15.1</b>	<b>6.2</b>	<b>-1.4</b>	<b>0.4</b>	<b>3.0</b>	<b>3.4</b>	<b>--</b>	<b>3.6</b>	<b>Jan-14</b>
<i>Credit Suisse Leveraged Loan</i>				9.7	-4.8	-2.3	2.1	2.9	--	3.0	Jan-14
<i>eV US Float-Rate Bank Loan Fixed Inc Net Rank</i>				92	3	4	3	3	--	3	Jan-14
Pacific Asset Management Corporate (Bank) Loans	76,854,203	3.9	98.1	6.8	-3.3	-0.5	--	--	--	2.6	Aug-17
<i>Credit Suisse Leveraged Loan</i>				9.7	-4.8	-2.3	2.1	2.9	--	1.9	Aug-17
<i>eV US Float-Rate Bank Loan Fixed Inc Net Rank</i>				84	11	9	--	--	--	6	Aug-17
Loomis Sayles Senior Rate and Fixed Income	1,515,911	0.1	1.9								
<b>High Yield Bonds</b>	<b>79,823,449</b>	<b>4.0</b>	<b>15.4</b>	<b>12.6</b>	<b>-3.8</b>	<b>-1.7</b>	<b>1.0</b>	<b>3.4</b>	<b>--</b>	<b>5.3</b>	<b>Dec-10</b>
<i>BBgBarc Global High Yield TR</i>				12.2	-4.7	-2.0	2.2	4.4	6.4	5.6	Dec-10
<i>eV Global High Yield Fixed Inc Net Rank</i>				19	25	66	93	80	--	64	Dec-10
Loomis Sayles High Yield Fund	79,823,449	4.0	100.0	12.6	-3.9	-1.8	1.0	3.5	6.5	8.6	Oct-98
<i>BBgBarc Global High Yield TR</i>				12.2	-4.7	-2.0	2.2	4.4	6.4	7.8	Oct-98
<i>eV Global High Yield Fixed Inc Net Rank</i>				19	26	66	93	78	21	--	Oct-98
<b>Emerging Markets Debt</b>	<b>19,058,913</b>	<b>1.0</b>	<b>3.7</b>	<b>14.7</b>	<b>-10.0</b>	<b>-9.7</b>	<b>-0.7</b>	<b>2.8</b>	<b>--</b>	<b>2.4</b>	<b>Dec-10</b>
<i>50% JPM EMBI/50% JPM GBI-EM</i>				11.0	-4.8	-1.1	2.4	3.9	--	3.1	Dec-10
<i>eV All Emg Mkts Fixed Inc Net Rank</i>				26	98	99	96	69	--	63	Dec-10
Ashmore EM Blended Debt	19,058,913	1.0	100.0	14.7	-10.0	-9.7	--	--	--	-1.8	Dec-17
<i>Ashmore Blended Debt Benchmark</i>				9.4	-4.3	-1.3	2.2	3.5	3.6	1.4	Dec-17
<i>eV All Emg Mkts Fixed Inc Net Rank</i>				26	98	99	--	--	--	96	Dec-17
<b>Private Debt</b>	<b>5,997,892</b>	<b>0.3</b>	<b>1.0</b>	<b>-12.3</b>	<b>-12.4</b>	<b>-11.6</b>	<b>0.2</b>	<b>--</b>	<b>--</b>	<b>-4.5</b>	<b>Jan-16</b>
<i>Barclays Global High Yield +2%</i>				12.7	-3.7	0.0	4.3	6.5	--	8.1	Jan-16

<sup>1</sup> The Loomis Sayles Senior Rate and Fixed Income market value represents a residual balance.

	Market Value (\$)	% of Portfolio	% of Sector	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	S.I. (%)	S.I. Date
<b>Total Real Assets</b>	<b>533,496,830</b>	<b>26.9</b>	<b>26.9</b>	<b>-2.5</b>	<b>-0.5</b>	<b>-1.4</b>	<b>0.5</b>	<b>0.3</b>	<b>--</b>	<b>-1.8</b>	<b>Dec-10</b>
<i>Total Real Assets Policy Index</i>				<i>0.3</i>	<i>2.3</i>	<i>4.6</i>	<i>6.1</i>	<i>7.1</i>	<i>10.6</i>	<i>10.6</i>	<i>Dec-10</i>
<b>Real Estate</b>	<b>363,865,826</b>	<b>18.4</b>	<b>68.2</b>	<b>-0.2</b>	<b>2.0</b>	<b>1.0</b>	<b>3.2</b>	<b>-1.3</b>	<b>-3.1</b>	<b>3.7</b>	<b>Mar-85</b>
<i>NCREIF Property (1-quarter lagged)</i>				<i>0.7</i>	<i>2.3</i>	<i>5.3</i>	<i>6.4</i>	<i>7.6</i>	<i>10.2</i>	<i>8.0</i>	<i>Mar-85</i>
<b>Natural Resources</b>	<b>123,564,163</b>	<b>6.2</b>	<b>23.2</b>	<b>-4.6</b>	<b>-0.9</b>	<b>-1.1</b>	<b>-3.3</b>	<b>-1.0</b>	<b>--</b>	<b>3.4</b>	<b>Dec-10</b>
<i>NCREIF Farmland Total Return Index 1Q Lag</i>				<i>-0.1</i>	<i>2.2</i>	<i>4.0</i>	<i>5.7</i>	<i>6.6</i>	<i>10.9</i>	<i>11.3</i>	<i>Dec-10</i>
<b>Infrastructure</b>	<b>46,066,841</b>	<b>2.3</b>	<b>8.6</b>	<b>-13.6</b>	<b>-15.6</b>	<b>-17.7</b>	<b>-9.2</b>	<b>3.8</b>	<b>--</b>	<b>3.5</b>	<b>Jul-12</b>
<i>S&amp;P Global Infrastructure TR USD</i>				<i>13.9</i>	<i>-19.4</i>	<i>-14.8</i>	<i>-0.9</i>	<i>2.6</i>	<i>6.9</i>	<i>5.6</i>	<i>Jul-12</i>

<sup>1</sup> All Private Market market values are one quarter lagged unless otherwise noted.

## **Disclaimer, Glossary, and Notes**

WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

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

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

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

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

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

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

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

**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.