

# FUND EVALUATION REPORT

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## City of San Jose Police and Fire Department Retirement Plan

Quarterly Review  
December 31, 2018




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M E K E T A I N V E S T M E N T G R O U P

BOSTON  
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PORTLAND  
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SAN DIEGO  
CALIFORNIA

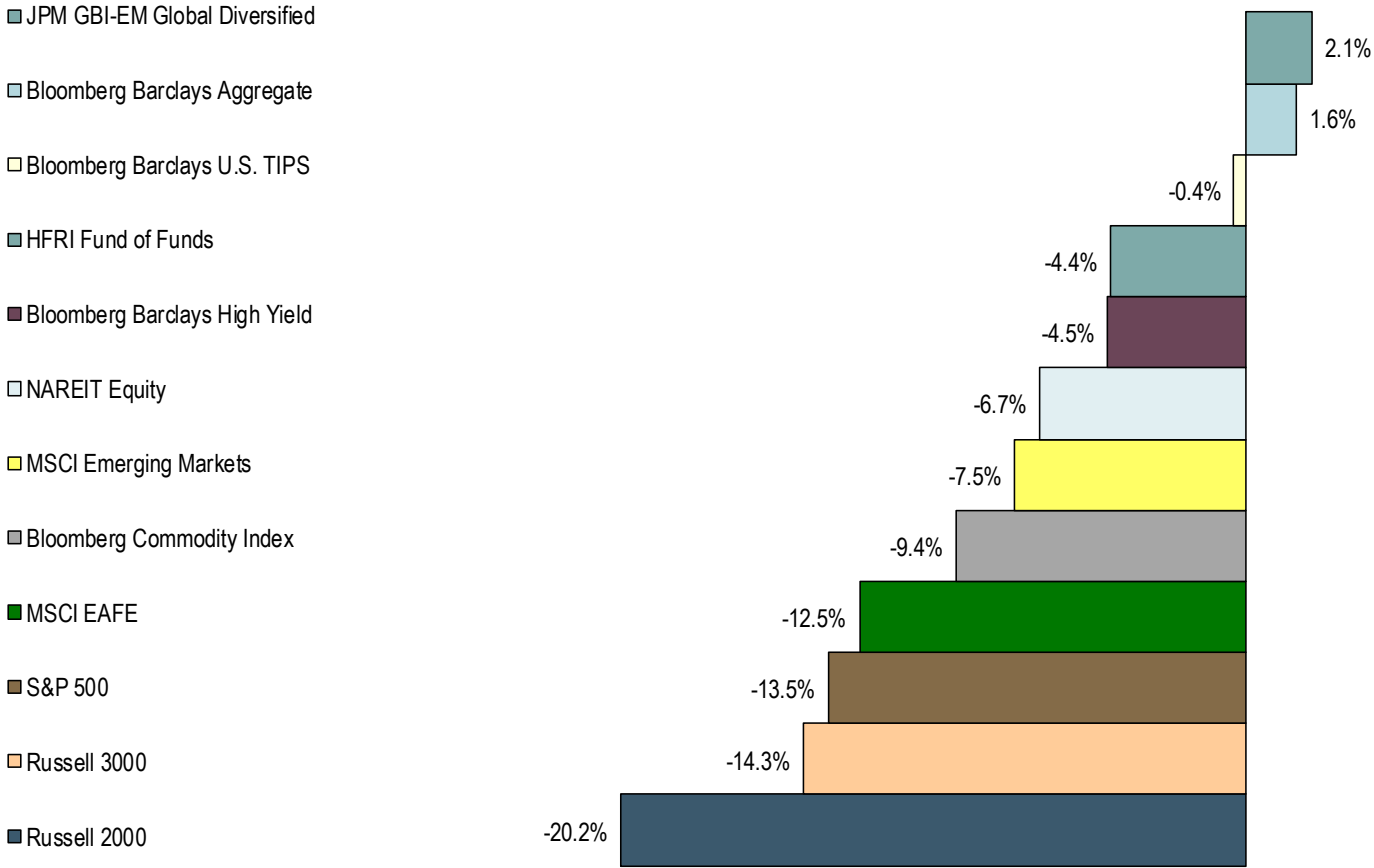
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# **The World Markets Fourth Quarter of 2018**

### The World Markets<sup>1</sup> Fourth Quarter of 2018



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

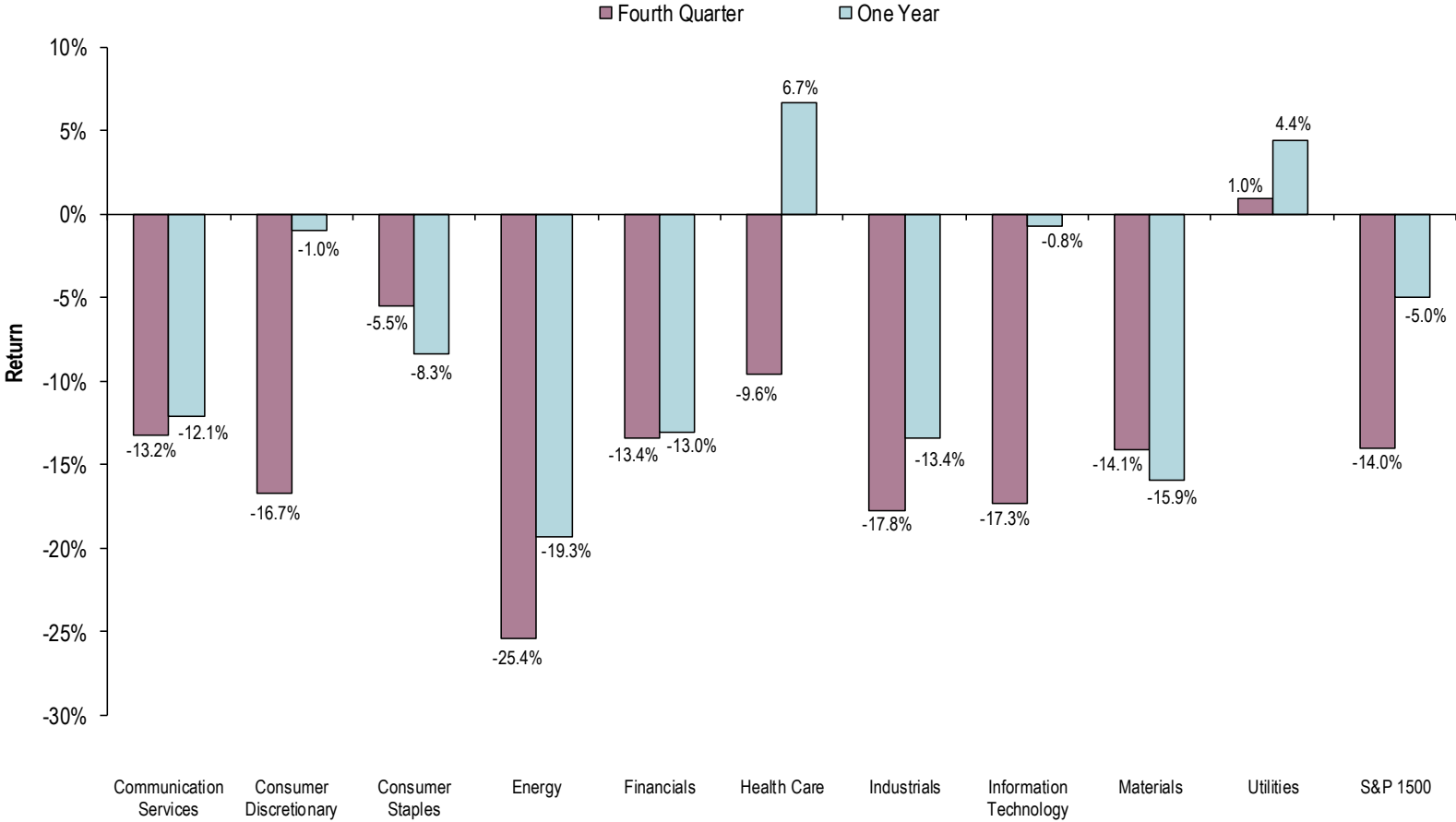


Index Returns<sup>1</sup>

	4Q18 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
<b>Domestic Equity</b>					
Russell 3000	-14.3	-5.2	9.0	7.9	13.2
Russell 1000	-13.8	-4.8	9.1	8.2	13.3
Russell 1000 Growth	-15.9	-1.5	11.1	10.4	15.3
Russell 1000 Value	-11.7	-8.3	7.0	5.9	11.2
Russell MidCap	-15.4	-9.1	7.0	6.3	14.0
Russell MidCap Growth	-16.0	-4.8	8.6	7.4	15.1
Russell MidCap Value	-15.0	-12.3	6.1	5.4	13.0
Russell 2000	-20.2	-11.0	7.4	4.4	12.0
Russell 2000 Growth	-21.7	-9.3	7.2	5.1	13.5
Russell 2000 Value	-18.7	-12.9	7.4	3.6	10.4
<b>Foreign Equity</b>					
MSCI ACWI (ex. U.S.)	-11.5	-14.2	4.5	0.7	6.6
MSCI EAFE	-12.5	-13.8	2.9	0.5	6.3
MSCI EAFE (Local Currency)	-12.2	-11.0	2.6	3.8	7.5
MSCI EAFE Small Cap	-16.0	-17.9	3.7	3.1	10.5
MSCI Emerging Markets	-7.5	-14.6	9.2	1.6	8.0
MSCI Emerging Markets (Local Currency)	-7.4	-10.1	8.8	5.0	9.6
<b>Fixed Income</b>					
Bloomberg Barclays Universal	1.2	-0.3	2.6	2.7	4.1
Bloomberg Barclays Aggregate	1.6	0.0	2.1	2.5	3.5
Bloomberg Barclays U.S. TIPS	-0.4	-1.3	2.1	1.7	3.6
Bloomberg Barclays High Yield	-4.5	-2.1	7.2	3.8	11.1
JPM GBI-EM Global Diversified	2.1	-6.2	5.9	-1.0	3.4
<b>Other</b>					
NAREIT Equity	-6.7	-5.0	2.7	7.8	12.1
Bloomberg Commodity Index	-9.4	-11.2	0.3	-8.8	-3.8
HFRI Fund of Funds	-4.4	-3.5	1.5	1.5	3.2

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

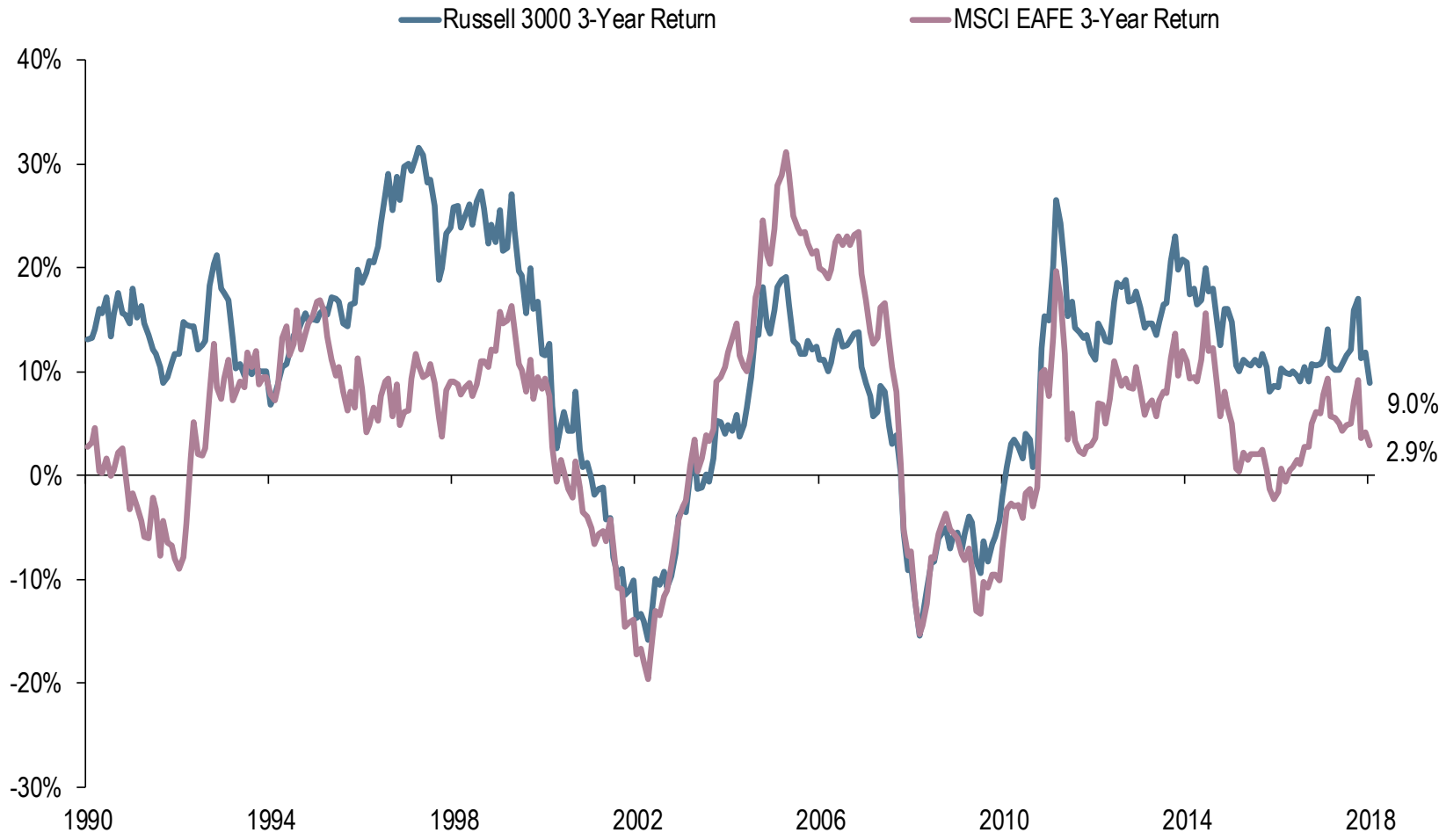
### S&P Sector Returns<sup>1</sup>



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



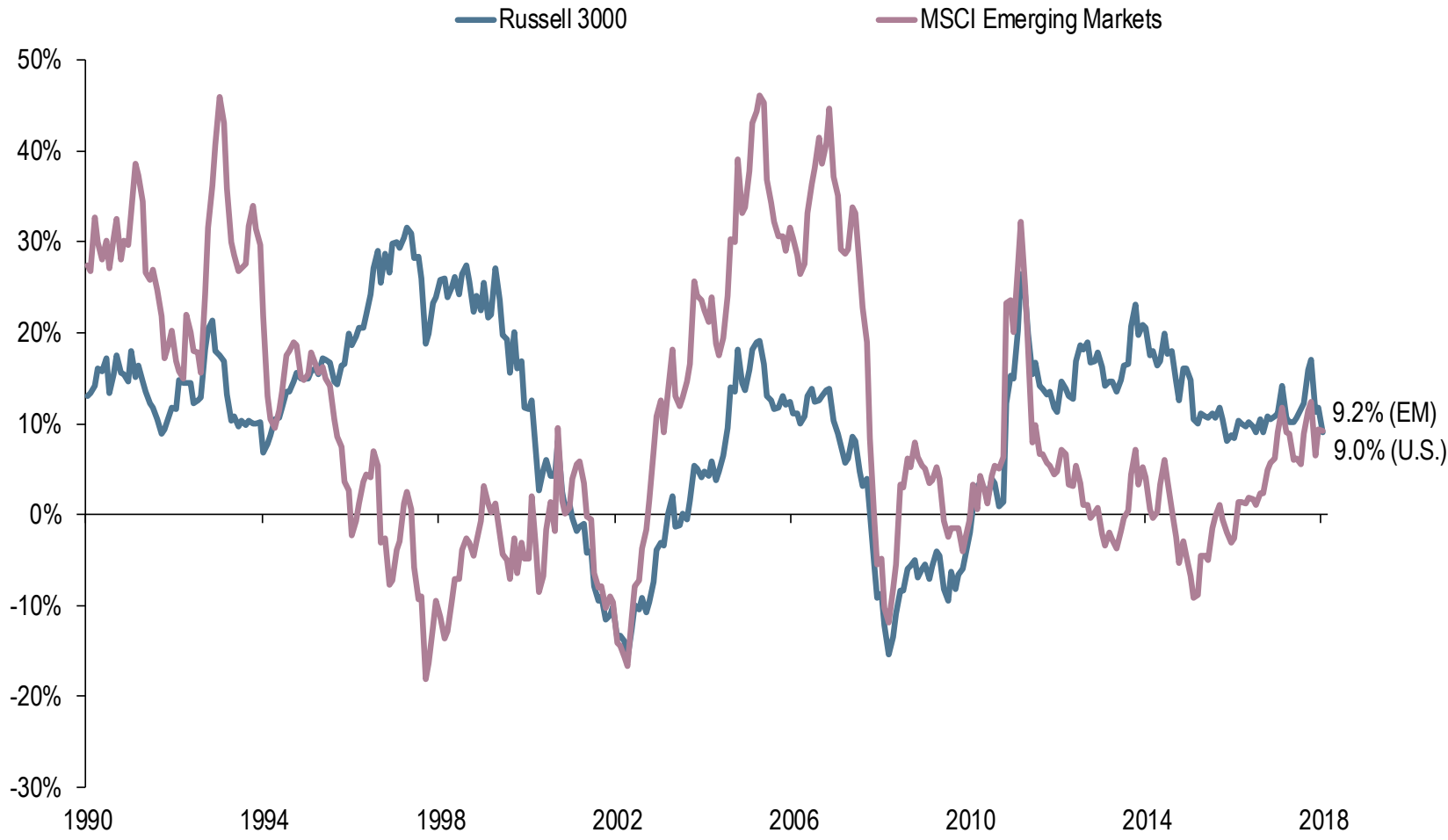
### U.S. and Developed Market Foreign Equity Rolling Three-Year Returns<sup>1</sup>



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



### U.S. and Emerging Market Equity Rolling Three-Year Returns<sup>1</sup>

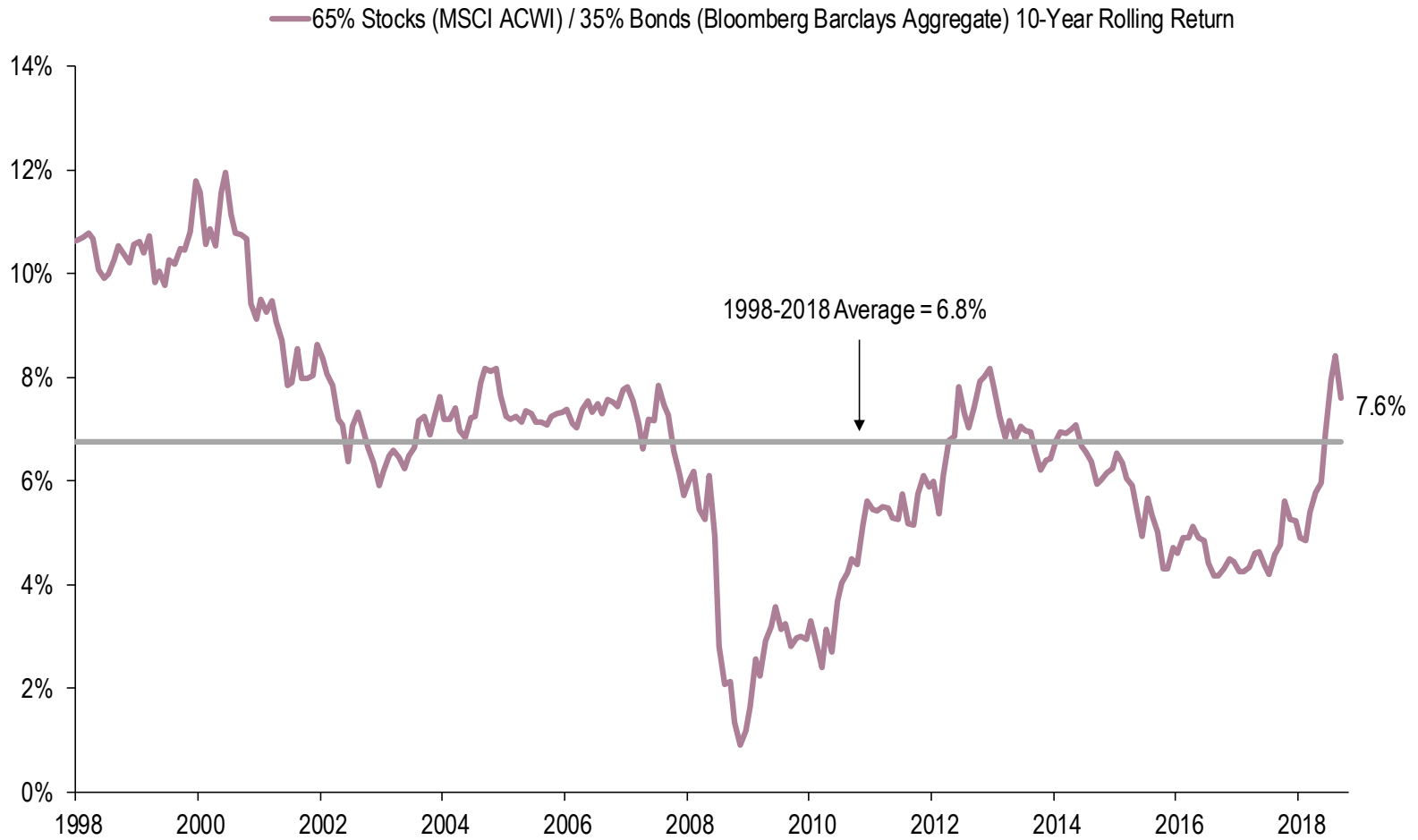


<sup>1</sup> Source: InvestorForce.





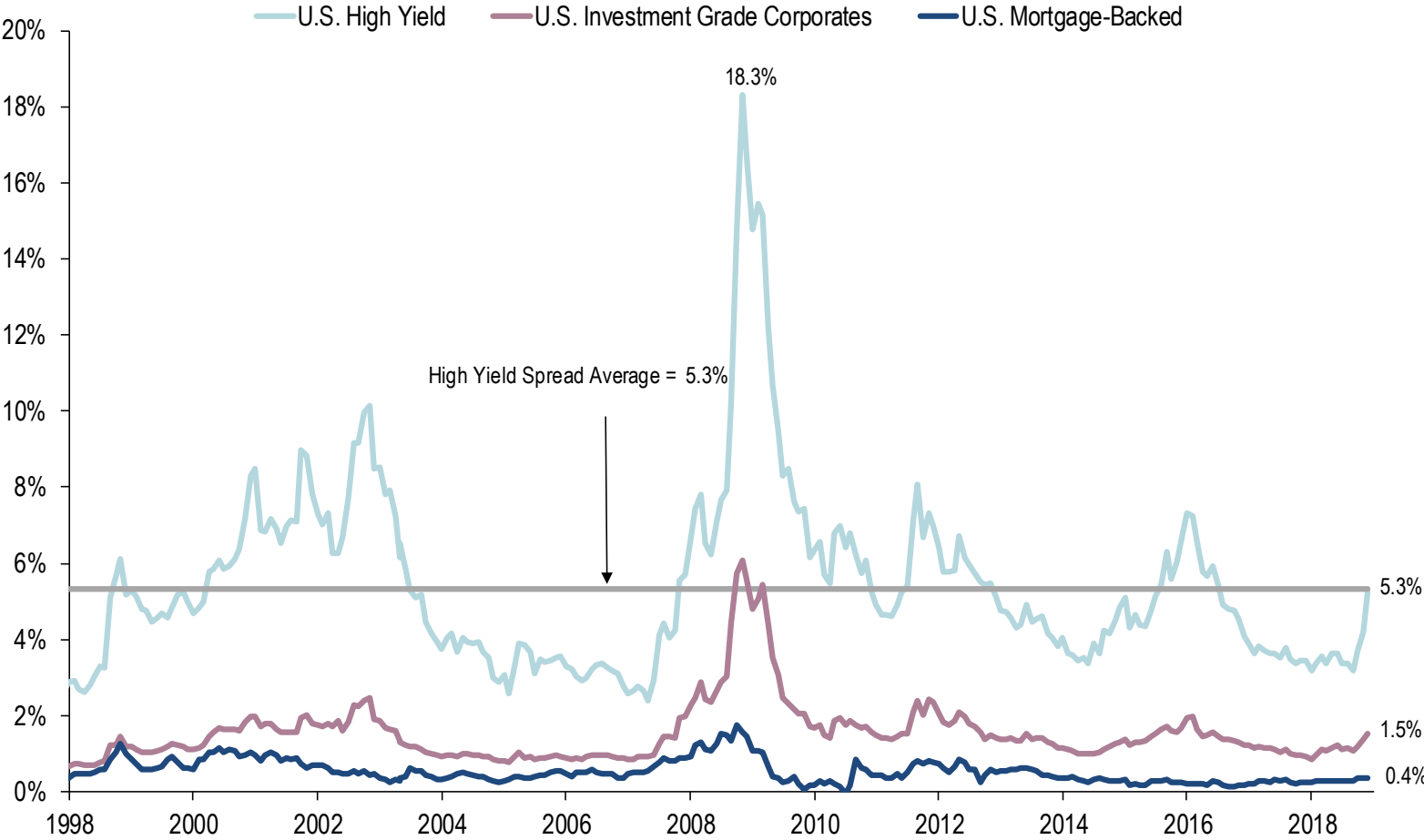
### Rolling Ten-Year Returns: 65% Stocks and 35% Bonds<sup>1</sup>



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



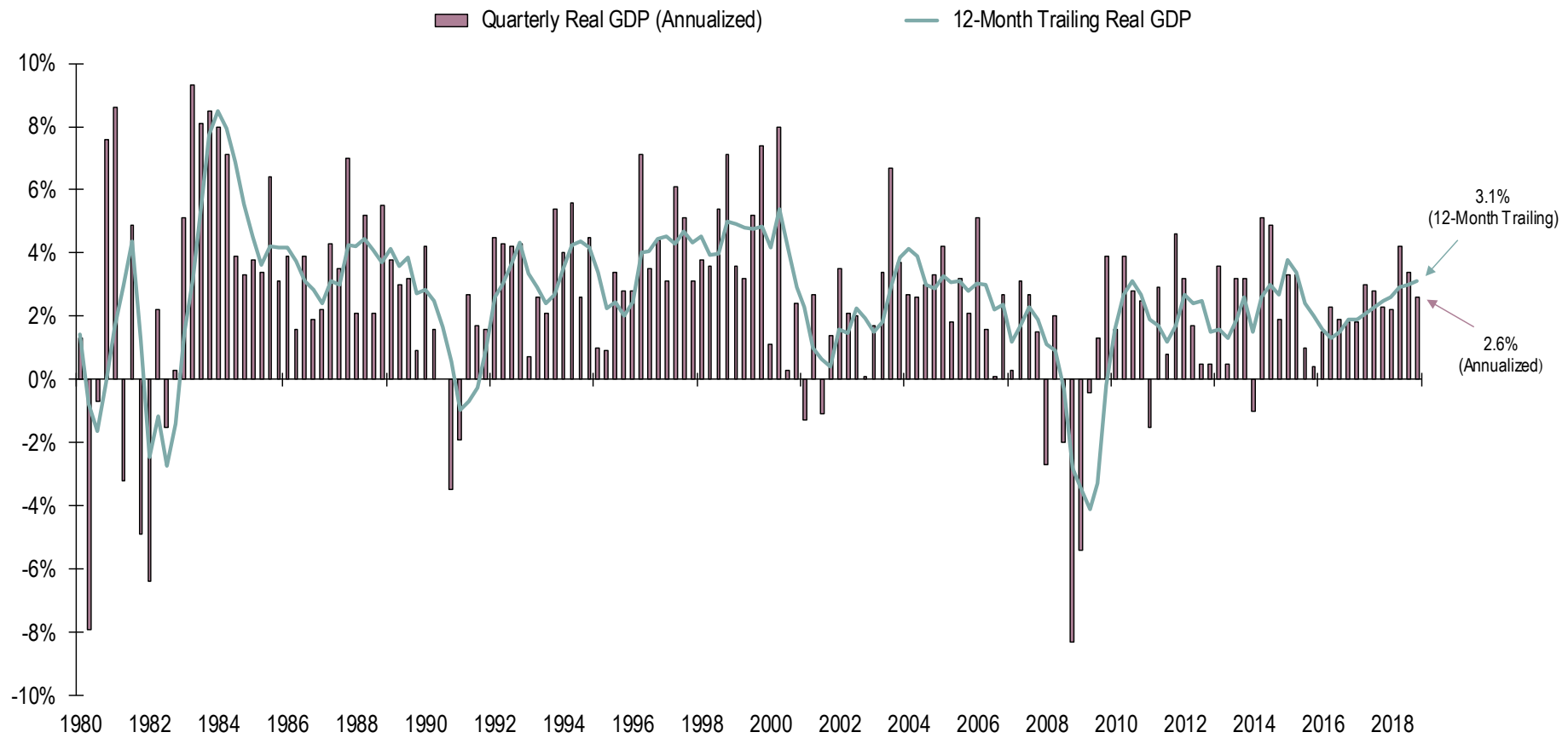
**Credit Spreads vs. U.S. Treasury Bonds<sup>1,2</sup>**



<sup>1</sup> Source: Barclays Live.  
<sup>2</sup> The median high yield spread was 4.8% from 1997-2018.



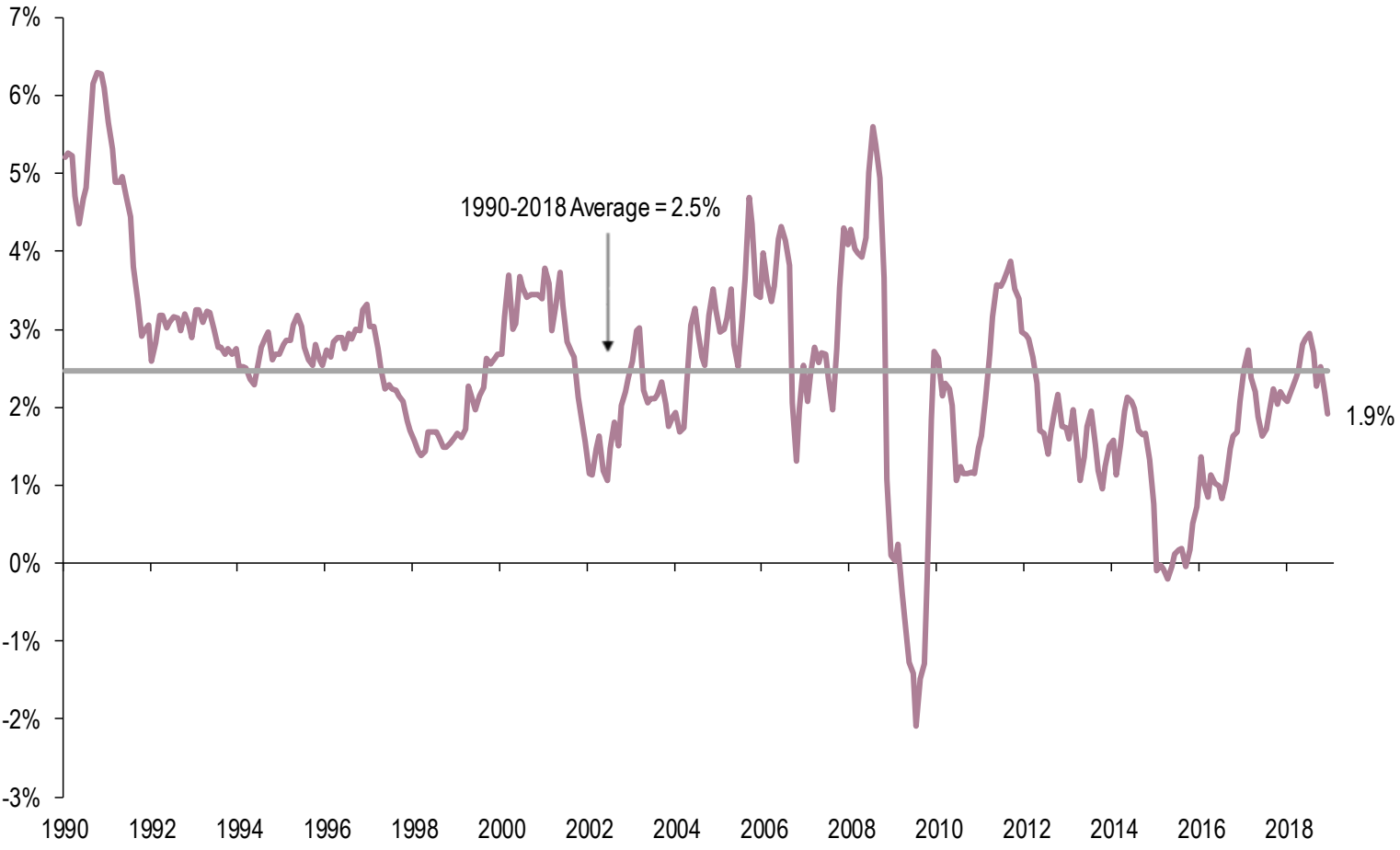
### U.S. Real Gross Domestic Product (GDP) Growth<sup>1</sup>



<sup>1</sup> Source: Bureau of Economic Analysis. Data is as of Q4 2018 and represents the first estimate.



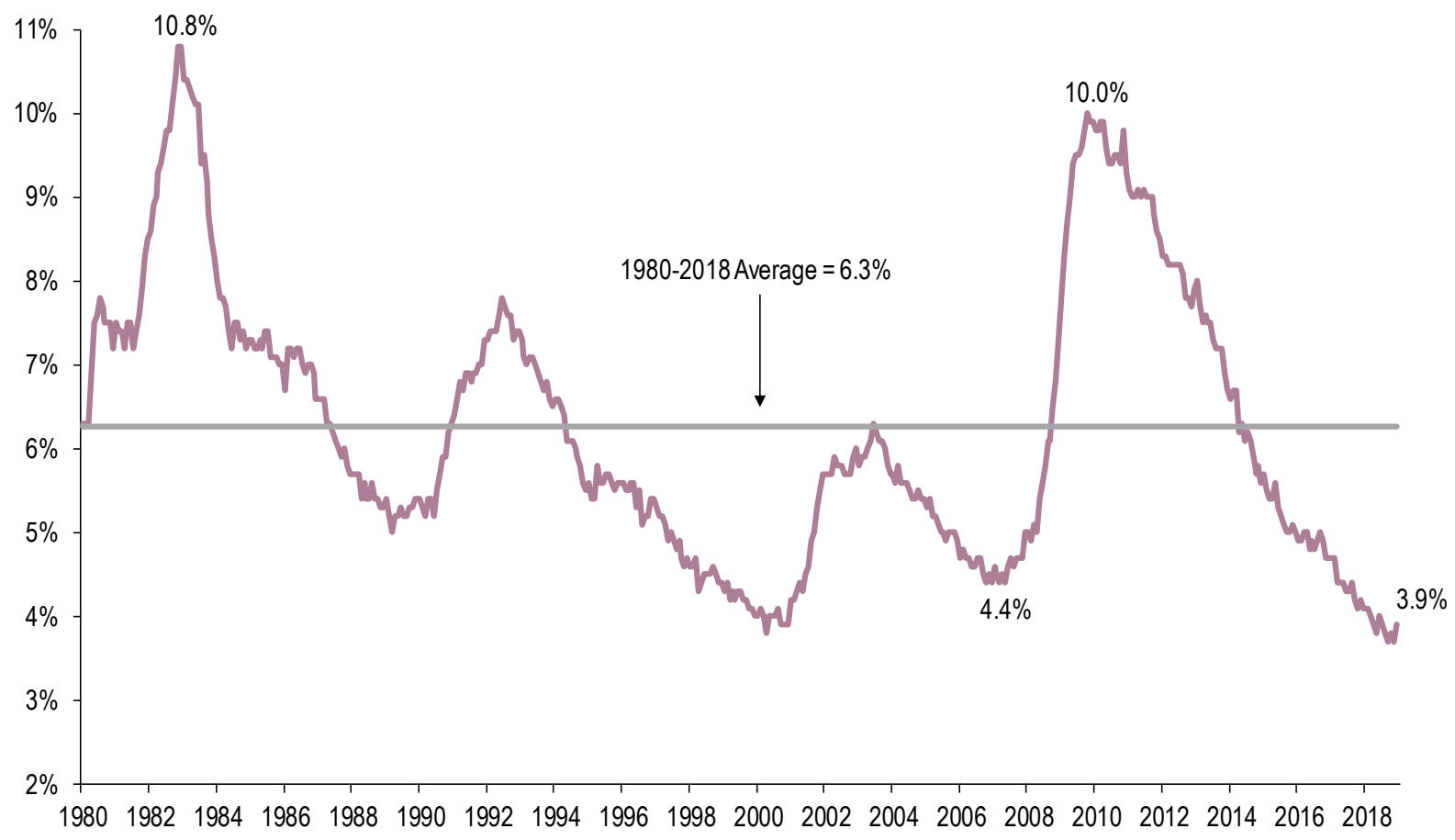
### U.S. Inflation (CPI) Trailing Twelve Months<sup>1</sup>



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



### U.S. Unemployment<sup>1</sup>



<sup>1</sup> Source: Bureau of Labor Statistics.



**Executive Summary**  
**As of December 31, 2018**

**The value of the City of San Jose Police & Fire Department Retirement Plan's assets was \$3.5 billion on December 31, 2018, a decrease of approximately \$228.4 million from the end of the prior quarter. The Plan had net cash outflows of \$54.7 million during the quarter.**

- The Retirement Plan's net of fees performance for the quarter was -4.9%, slightly underperforming the Policy Benchmark (-4.5%) and in-line with the Investable Benchmark Portfolio (-4.9%). The Retirement Plan outperformed the peer Public Defined Benefit Plans > \$1 Billion Universe's median return of -6.9%, and ranked above 89% of the other public funds in the peer universe for the quarter.
- The Retirement Plan returned -2.9% in the trailing one-year period, compared to -2.4% for the Policy Benchmark, -3.1% for the Investable Benchmark Portfolio, and -4.0% for the peer median. The Retirement Plan's standard deviation of returns was 5.6% for the same period, exhibiting lower volatility than the peer median (7.0%).
  - Growth returned -7.9% for the quarter and -4.9% over the trailing one-year period, versus -8.0% and -4.6% for the Growth Benchmark over the same periods, respectively.
  - Zero Beta returned +0.5% for the quarter and +2.9% over the trailing one-year period, versus +0.7% and -0.9% for the Zero Beta Benchmark over the same periods, respectively.
  - Other returned -0.8% for the quarter and -0.9% over the trailing one-year period, versus -0.6% and -1.8% for the Other Benchmark over the same periods, respectively.
- The Retirement Plan added three investment managers during the quarter: BlackRock 3-Month T-Bill (Short-Term Investment Grade Bonds), Lime Rock Partners VIII (Private Real Assets), and Northern Trust 0-5 Year TIPS (TIPS).
- The Retirement Plan positioned towards its new asset allocation in the quarter.

## Artisan

- Artisan Global Value returned -13.3% for the quarter, underperforming the MSCI ACWI Value NR benchmark by 260 basis points. Compared to peers, Artisan ranks in the 48th and 29th percentiles for the quarter and since inception periods, respectively. In the quarter, the Artisan portfolio suffered along with the broader stock market, as only four stocks in the portfolio generated positive returns.

## Cove Street

- Cove Street Small Cap Value returned -14.7% for the quarter and -9.5% over the one-year period, outperforming the Russell 2000 Value benchmark by 400 and 340 basis points, respectively. Compared to peers, Cove Street ranks in the 12th percentile in both the quarter and since inception periods. The portfolio benefitted in the quarter from three takeovers and an underweight to financials.

## GQG

- GQG Partners Global Emerging Markets returned -3.5% for the quarter and -14.1% over the one-year period, outperforming the MSCI Emerging Markets benchmark by 400 and 50 basis points over the same time periods, respectively. Compared to peers, GQG ranks in the 7th and 13th percentiles for the quarter and since inception periods, respectively. The portfolio benefitted in the quarter from exposure to India and Indonesia while China was the largest detractor from performance.

## Credit Suisse

- Credit Suisse Risk Parity Commodity Fund returned -5.4% for the quarter and -8.7% over the one-year period, outperforming the Bloomberg Commodity Index by 400 and 250 basis points over the same time periods, respectively. Since inception in April 2011, Credit Suisse has outperformed the index by 370 basis points.

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<sup>1</sup> Net of management fees.





Fourth Quarter Manager Summary

Investment Manager	Asset Class	Changes/ Announcements	Performance Concerns	Meketa Recommendation <sup>1</sup>	Comments
Artisan Global Opportunities	Global Equity	---	---	---	---
Artisan Global Value	Global Equity	Yes	---	Hold	Personnel Changes
Cove Street Small Cap Value	U.S. Equity	---	---	---	---
Oberweis International Opps.	International Equity	---	Yes	---	Watch List
Comgest Global EM	Emerging Markets Equity	---	Yes	---	Watch List
GQG Partners Global EM	Emerging Markets Equity	---	---	---	---
Dimensional EM Value	Emerging Markets Equity	---	---	---	---
Senator Global Opportunity	Long-Short Equity	---	Yes	---	Watch List
Sandler Plus	Long-Short Equity	---	---	---	---
Marshall Wace	Long-Short Equity	---	---	---	---
Beach Point Total Return Fund II	Non-Investment Grade Credit	---	Yes	---	Watch List
BlueBay EM Select Debt	Emerging Markets Debt	Yes	Yes	Hold	Watch List/Personnel Changes
Iguazu Partners LP Fund	Emerging Markets Debt	---	---	---	---
Credit Suisse Risk Parity	Commodities	---	---	---	---

<sup>1</sup> The Meketa Investment Group recommendations are based on the noted organizational or resource changes at each manager.



**Artisan**

- Effective October 1, 2018, the Global Value team split from the International Value team into two distinct and autonomous investment teams. The Global Value team will be led by Daniel O’Keefe while the International Value team is led by David Samra. Concurrently, each of the four Associate Portfolio Managers on the Global Value team were named Co-Portfolio Managers along with Mr. O’Keefe.

**Oberweis**

- Over the three-year period, Oberweis (+1.5%) has underperformed the MSCI World ex USA Small Cap Growth by 210 basis points. Since inception in March 2014, Oberweis has underperformance the benchmark by 20 basis points and ranked in the 35th percentile compared to peers.

**Comgest**

- Since inception in March 2017, Comgest (-7.2%) has underperformed the MSCI Emerging Markets SMID Cap by 890 basis points and ranked in the 98th percentile compared to peers.

**Senator**

- Over the three- and five-year periods, Senator (+1.8% and +2.0%) has underperformed the HFRI Equity Hedge Index by 340 and 60 basis points, respectively. Since inception in April 2013, Senator (+4.3%) has outperformed the benchmark by 60 basis points per year, on average.

## Beach Point

- Over the three- and five-year periods, Beach Point (+5.3.% and +2.6%) has underperformed the Bloomberg Barclays High Yield benchmark by 190 and 80 basis points, respectively. Since inception in October 2013, Beach Point (+3.1%) has underperformed the benchmark by 120 basis points per year, on average.

## BlueBay

- Over the three- and five-year periods, BlueBay (+3.7% and +0.0%) has underperformed the JPM Blended Emerging Markets Index by 190 and 200 basis points, respectively. Since inception in August 2013, BlueBay (-0.2%) has underperformed the benchmark by 200 basis points and ranked in the 76th percentile compared to peers.
- During the quarter, BlueBay announced that Raphael Robelin will relinquish the role of CIO to Mark Dowding.

## Kepos

- Over the three-year period, Kepos (-5.9% and -1.4%) has underperformed the HFRI Macro: Systematic Diversified Index by 380 and 170 basis points, respectively. Since inception in March 2013, Kepos (-2.2%) has underperformed the benchmark by 220 basis points per year, on average.

**Watch List<sup>1,2</sup>**

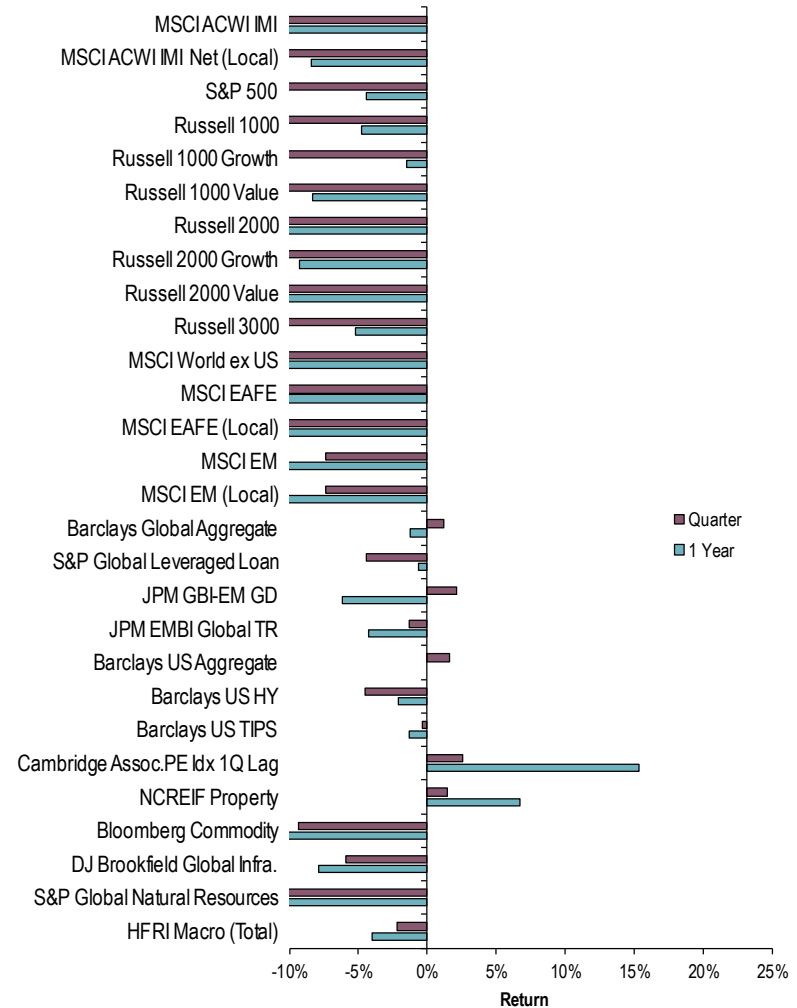
<b>Investment Manager</b>	<b>Asset Class</b>	<b>Watch List Status</b>	<b>Comments</b>
Oberweis International Opps.	International Equity	Monitoring	Underperformance
Comgest Global EM	Emerging Markets Equity	Monitoring	Underperformance
Senator Global Opportunity	Long-Short Equity	Monitoring	Underperformance
Beach Point Total Return Fund II	Non-Investment Grade Credit	Monitoring	Underperformance
BlueBay EM Select Debt	Emerging Markets Debt	Monitoring	Underperformance
DE Shaw	Absolute Return	Monitoring	Transparency Concerns
Kepos Alpha Fund	Absolute Return	Monitoring	Underperformance

<sup>1</sup> Watch List excludes Private Markets and Passive Funds.

<sup>2</sup> Placement on the Watch List includes qualitative reasons and manager underperformance versus the appropriate benchmark over a three and or five year period as outlined in the Investment Policy Statement.

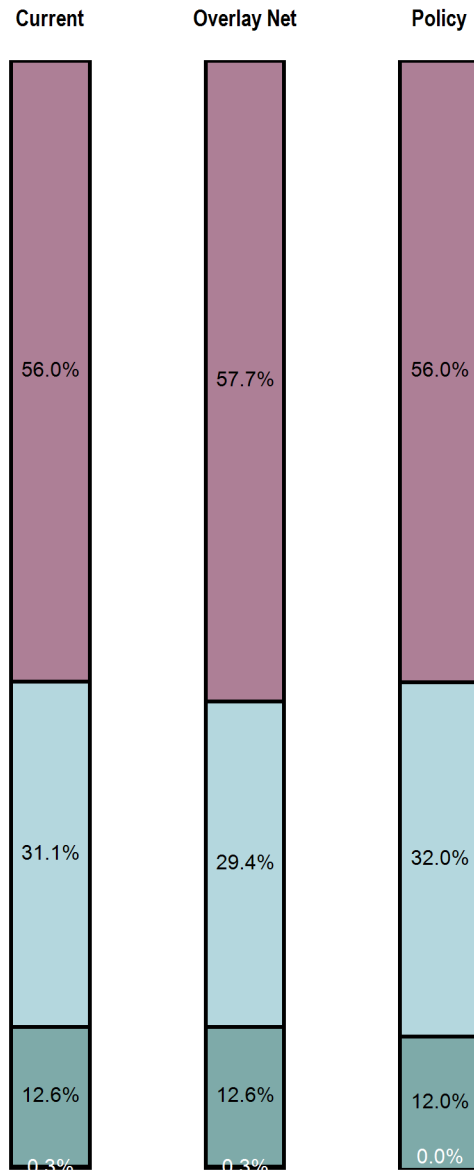


Benchmark	Scope	4Q18 (%)	1 YR (%)	3 YR (%)	5YR (%)	10 YR (%)
<b>Global Equity</b>						
MSCI ACWI IMI	World	-13.3	-10.1	6.5	4.2	9.7
MSCI ACWI IMI Net (Local)	World (Local Currency)	-13.1	-8.4	6.3	5.8	10.3
<b>Domestic Equity</b>						
S&P 500	Large Core	-13.5	-4.4	9.3	8.5	13.1
Russell 1000	Large Core	-13.8	-4.8	9.1	8.2	13.3
Russell 1000 Growth	Large Growth	-15.9	-1.5	11.2	10.4	15.3
Russell 1000 Value	Large Value	-11.7	-8.3	7.0	6.0	11.2
Russell 2000	Small Core	-20.2	-11.0	7.4	4.4	12.0
Russell 2000 Growth	Small Growth	-21.7	-9.3	7.2	5.1	13.5
Russell 2000 Value	Small Value	-18.7	-12.9	7.4	3.6	10.4
Russell 3000	All Cap Core	-14.3	-5.2	9.0	7.9	13.2
<b>International Equity</b>						
MSCI World ex US	World ex-US	-12.8	-14.1	3.1	0.3	6.2
MSCI EAFE	International Developed	-12.5	-13.8	2.9	0.5	6.3
MSCI EAFE (Local)	International Developed (Local Currency)	-12.2	-11.0	2.6	3.8	7.5
MSCI EM	Emerging Markets	-7.4	-14.7	8.9	1.9	8.6
MSCI EM (Local)	Emerging Markets (Local Currency)	-7.4	-10.1	8.8	5.0	9.6
<b>Global Fixed Income</b>						
Barclays Global Aggregate	Global Core Bonds	1.2	-1.2	2.7	1.1	2.5
S&P Global Leveraged Loan	Bank Loans	-4.4	-0.6	4.4	2.3	8.1
JPM GBI-EM GD	Emerging Markets Bonds (Local Currency)	2.1	-6.2	5.9	-1.0	3.5
JPM EMBI Global TR	Emerging Market Bonds	-1.3	-4.3	5.2	4.8	8.2
<b>Domestic Fixed Income</b>						
Barclays US Aggregate	Core Bonds	1.6	0.0	2.1	2.5	3.5
Barclays US HY	High Yield	-4.5	-2.1	7.2	3.8	11.1
Barclays US TIPS	Inflation	-0.4	-1.3	2.1	1.7	3.6
<b>Other</b>						
Cambridge Associates PE Index 1Qtr Lag	Private Equity	2.6	15.3	10.6	11.9	9.2
NCREIF Property	Real Estate	1.4	6.7	7.2	9.3	7.5
Bloomberg Commodity	Commodities	-9.4	-11.3	0.3	-8.8	-3.8
DJ Brookfield Global Infrastructure	Infrastructure	-5.9	-7.9	6.3	3.6	0.7
S&P Global Natural Resources	Natural Resources	-16.8	-12.6	12.4	-0.5	3.2
HFRI Macro	Hedge Funds	-2.2	-4.0	-0.3	0.7	1.1



## 4Q18 Review

As of December 31, 2018



Allocation vs. Targets and Policy				
	Current Balance	Current Allocation	Russell Overlay Net Position	Policy
<b>Growth</b>	<b>\$1,933,624,292</b>	<b>56.0%</b>	<b>57.7%</b>	<b>56.0%</b>
Public Equity	\$1,004,432,495	29.1%	30.8%	31.0%
Private Markets	\$773,655,517	22.4%	22.4%	22.0%
Emerging Markets Debt	\$106,003,767	3.1%	3.1%	3.0%
High Yield Debt	\$49,532,513	1.4%	1.4%	0.0%
<b>Zero Beta</b>	<b>\$1,074,949,568</b>	<b>31.1%</b>	<b>29.4%</b>	<b>32.0%</b>
Absolute Return	\$237,008,873	6.9%	6.9%	7.0%
Short-Term IG Bonds	\$502,852,542	14.6%	14.6%	20.0%
Immunized Cash Flows	\$185,419,981	5.4%	5.4%	5.0%
Cash	\$149,668,172	4.3%	2.6%	0.0%
<b>Other</b>	<b>\$435,114,250</b>	<b>12.6%</b>	<b>12.6%</b>	<b>12.0%</b>
Core Real Estate	\$179,359,511	5.2%	5.2%	5.0%
Commodities	\$70,317,654	2.0%	2.0%	2.0%
Sovereign bonds ex-US	\$0	0.0%	0.0%	3.0%
TIPS	\$71,698,578	2.1%	2.1%	2.0%
Core Bonds	\$113,738,507	3.3%	3.3%	0.0%
<b>Overlay</b>	<b>\$10,649,022</b>	<b>0.3%</b>	<b>0.3%</b>	<b>0.0%</b>
<b>Total</b>	<b>\$3,454,337,132</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

<sup>1</sup> Data in the column titled "Russel Overlay Net Position" is based on physical exposures, adjusted for synthetic positions provided by Russell Investments.

<sup>2</sup> Cash composite includes the cash account, cash collateral in the Russell Investments Overlay program, and residuals from terminated manager assets.



As of December 31, 2018

## Asset Class Net Performance Summary

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund</b>	<b>3,454,336,984</b>	<b>100.0</b>	<b>-4.9</b>	<b>-3.7</b>	<b>-2.9</b>	<b>5.0</b>	<b>3.2</b>	<b>6.8</b>	<b>8.2</b>	<b>Mar-71</b>
Policy Benchmark			-4.5	-2.9	-2.4	6.1	3.9	7.2	--	Mar-71
Investable Benchmark Portfolio			-4.9	-3.4	-3.1	5.4	3.4	6.9	--	Mar-71
InvestorForce Public DB > \$1B Net Median			-6.9	-4.7	-4.0	6.0	4.6	8.2	--	Mar-71
InvestorForce Public DB > \$1B Net Rank			11	23	29	99	99	97	--	Mar-71
<b>Growth</b>	<b>1,933,624,145</b>	<b>56.0</b>	<b>-7.9</b>	<b>-5.8</b>	<b>-4.9</b>	<b>6.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>Apr-08</b>
Growth Benchmark			-8.0	-5.3	-4.6	6.2	--	--	--	Apr-08
<b>Public Equity</b>	<b>1,004,432,348</b>	<b>29.1</b>	<b>-11.7</b>	<b>-9.8</b>	<b>-10.0</b>	<b>6.1</b>	<b>4.0</b>	<b>9.6</b>	<b>4.7</b>	<b>Apr-08</b>
Public Equity Benchmark			-11.9	-8.5	-8.6	7.1	4.5	10.0	5.0	Apr-08
<b>Global Equity</b>	<b>337,909,227</b>	<b>9.8</b>	<b>-14.3</b>	<b>-10.8</b>	<b>-9.2</b>	<b>7.7</b>	<b>6.0</b>	<b>--</b>	<b>8.9</b>	<b>Mar-13</b>
MSCI ACWI IMI Net USD			-13.3	-9.9	-10.1	6.5	4.2	--	6.5	Mar-13
eV All Global Equity Net Median			-13.5	-10.2	-9.4	5.8	4.3	9.7	6.8	Mar-13
eV All Global Equity Net Rank			61	58	49	21	21	--	16	Mar-13
<b>U.S. Equity</b>	<b>161,208,127</b>	<b>4.7</b>	<b>-14.3</b>	<b>-8.7</b>	<b>-6.1</b>	<b>8.8</b>	<b>7.5</b>	<b>13.2</b>	<b>9.0</b>	<b>Jun-95</b>
MSCI USA IMI NR USD			-14.5	-8.5	-5.7	8.4	7.3	12.6	8.7	Jun-95
eV All US Equity Net Median			-16.1	-11.2	-7.7	7.3	5.9	12.6	9.8	Jun-95
eV All US Equity Net Rank			33	33	41	30	28	39	70	Jun-95
<b>International Equity</b>	<b>122,621,458</b>	<b>3.5</b>	<b>-16.8</b>	<b>-16.3</b>	<b>-17.6</b>	<b>1.9</b>	<b>0.0</b>	<b>7.0</b>	<b>6.9</b>	<b>Jun-95</b>
MSCI World ex USA IMI NR USD			-13.3	-12.4	-14.7	3.2	0.6	6.7	--	Jun-95
eV ACWI ex-US All Cap Equity Net Median			-13.8	-13.2	-15.2	3.7	1.3	8.0	6.3	Jun-95
eV ACWI ex-US All Cap Equity Net Rank			93	84	85	75	68	61	33	Jun-95

<sup>1</sup> Fiscal Year begins July 1.<sup>2</sup> Please see the final page of the performance report for composition of the Policy Benchmark.<sup>3</sup> Allocation Benchmark consists of the individual benchmarks that comprise the Policy Benchmark weighted accordingly to actual allocations and re-adjusted monthly<sup>4</sup> Returns for the Equity Aggregate are gross of fees through June 2015 and net of fees thereafter.



As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Emerging Markets Equity</b>	<b>290,463,572</b>	<b>8.4</b>	<b>-6.9</b>	<b>-10.4</b>	<b>-18.8</b>	<b>5.2</b>	<b>0.9</b>	<b>6.1</b>	<b>8.6</b>	<b>Sep-01</b>
<i>MSCI Emerging Market IMI Net</i>			-7.4	-8.8	-15.0	8.5	1.6	8.2	9.6	Sep-01
<i>eV Emg Mkts Equity Net Median</i>			-7.6	-10.6	-16.2	7.7	1.4	8.9	10.6	Sep-01
<i>eV Emg Mkts Equity Net Rank</i>			38	50	78	82	65	98	99	Sep-01
<b>Marketable Alternative Equity</b>	<b>92,229,963</b>	<b>2.7</b>	<b>-5.4</b>	<b>-4.9</b>	<b>-1.3</b>	<b>3.5</b>	<b>--</b>	<b>--</b>	<b>4.5</b>	<b>Oct-14</b>
<i>HFRI Equity Hedge (Total) Index</i>			-8.5	-8.2	-7.1	3.5	--	--	2.2	Oct-14
<b>Private Markets</b>	<b>773,655,517</b>	<b>22.4</b>	<b>-4.2</b>	<b>-1.1</b>	<b>1.4</b>	<b>6.9</b>	<b>--</b>	<b>--</b>	<b>5.6</b>	<b>Jul-15</b>
<i>Private Markets Benchmark</i>			-4.2	-1.8	1.4	7.8	--	--	6.6	Jul-15
<i>MSCI ACWI IMI + 100bps</i>			-13.1	-9.5	-9.2	7.6	--	--	5.0	Jul-15
<b>Private Markets ex Russell 3000</b>	<b>512,067,909</b>	<b>14.8</b>	<b>1.7</b>	<b>4.6</b>	<b>7.1</b>	<b>7.6</b>	<b>--</b>	<b>--</b>	<b>6.5</b>	<b>Jul-15</b>
<i>Private Markets Benchmark</i>			-4.2	-1.8	1.4	7.8	--	--	6.6	Jul-15
<b>Total Private Equity Composite</b>	<b>476,316,310</b>	<b>13.8</b>	<b>-7.1</b>	<b>-1.5</b>	<b>3.0</b>	<b>9.3</b>	<b>9.7</b>	<b>9.1</b>	<b>8.2</b>	<b>Oct-05</b>
<i>San Jose Custom Private Equity Benchmark</i>			3.1	7.5	16.0	15.4	13.2	9.0	12.0	Oct-05
<b>Private Equity ex Russell 3000</b>	<b>214,728,702</b>	<b>6.2</b>	<b>3.7</b>	<b>9.9</b>	<b>15.0</b>	<b>13.6</b>	<b>11.8</b>	<b>10.2</b>	<b>10.1</b>	<b>Oct-05</b>
<i>San Jose Custom Private Equity Benchmark</i>			3.1	7.5	16.0	15.4	13.2	9.0	12.0	Oct-05
<b>Northern Trust Russell 3000 Index Fund</b>	<b>261,587,608</b>	<b>7.6</b>	<b>-14.3</b>	<b>-8.2</b>	<b>-5.2</b>	<b>9.0</b>	<b>--</b>	<b>--</b>	<b>8.0</b>	<b>Apr-14</b>
<i>Russell 3000</i>			-14.3	-8.2	-5.2	9.0	--	--	7.9	Apr-14
<b>Private Debt</b>	<b>180,481,348</b>	<b>5.2</b>	<b>-1.2</b>	<b>0.1</b>	<b>0.9</b>	<b>3.3</b>	<b>--</b>	<b>--</b>	<b>3.9</b>	<b>Oct-15</b>
<i>S&amp;P Global Leveraged Loan + 2%</i>			-3.0	-0.9	1.2	6.9	--	--	5.8	Oct-15
<b>Private Real Estate</b>	<b>85,916,363</b>	<b>2.5</b>	<b>2.7</b>	<b>6.0</b>	<b>11.4</b>	<b>10.9</b>	<b>--</b>	<b>--</b>	<b>9.5</b>	<b>Jul-15</b>
<i>NCREIF ODCE Equal Weighted</i>			1.6	3.7	8.3	8.4	--	--	9.3	Jul-15

<sup>1</sup> Returns for the Fixed Income, Private Debt, and Real Assets Aggregates are gross of fees through June 2015 and net of fees thereafter.

As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Private Real Assets</b>	<b>30,941,495</b>	<b>0.9</b>	<b>4.1</b>	<b>4.8</b>	<b>4.4</b>	--	--	--	<b>5.4</b>	<b>Jun-16</b>
<b>Emerging Market Debt</b>	<b>106,003,767</b>	<b>3.1</b>	<b>-0.3</b>	<b>-0.7</b>	<b>-3.2</b>	<b>4.9</b>	<b>2.0</b>	--	<b>-0.2</b>	<b>Jan-13</b>
50% JPM EMBI GD / 50% JPM GBI-EM			0.4	0.7	-5.2	5.6	2.0	--	0.4	Jan-13
eV All Emg Mkts Fixed Inc Net Median			-0.6	0.0	-5.9	5.3	2.7	7.6	1.1	Jan-13
eV All Emg Mkts Fixed Inc Net Rank			47	76	21	66	57	--	62	Jan-13
<b>High Yield Debt</b>	<b>49,532,513</b>	<b>1.4</b>	<b>-5.4</b>	<b>-4.4</b>	<b>-1.6</b>	<b>3.7</b>	--	--	<b>2.8</b>	<b>Oct-15</b>
50% Bofa Global HY/50% S&P Global Leveraged Loan			-3.6	-1.9	-2.1	5.8	--	--	4.8	Oct-15
<b>Zero Beta</b>	<b>1,074,949,568</b>	<b>31.1</b>	<b>0.5</b>	<b>1.1</b>	<b>2.9</b>	<b>1.9</b>	--	--	<b>1.5</b>	<b>Jul-15</b>
Zero Beta Benchmark			0.7	0.6	-0.9	0.7	--	--	0.4	Jul-15
<b>Absolute Return</b>	<b>237,008,873</b>	<b>6.9</b>	<b>0.0</b>	<b>0.7</b>	<b>2.8</b>	<b>2.2</b>	<b>2.2</b>	--	<b>2.4</b>	<b>Nov-12</b>
Absolute Return Benchmark			0.6	0.5	-1.3	0.7	0.7	--	1.5	Nov-12
<b>Macro</b>	<b>114,015,819</b>	<b>3.3</b>	<b>-0.4</b>	<b>-0.7</b>	<b>0.6</b>	<b>0.8</b>	--	--	<b>1.1</b>	<b>Jul-15</b>
HFRI Macro (Total) Index			-2.3	-2.3	-4.0	-0.3	--	--	-0.5	Jul-15
<b>Relative Value</b>	<b>122,993,055</b>	<b>3.6</b>	<b>0.4</b>	<b>2.0</b>	<b>4.7</b>	<b>4.0</b>	--	--	<b>3.3</b>	<b>Jul-15</b>
HFRI Relative Value (Total) Index			-3.4	-2.1	-0.5	4.1	--	--	2.6	Jul-15
<b>Short-Term IG Bonds</b>	<b>502,852,542</b>	<b>14.6</b>	<b>0.6</b>	--	--	--	--	--	<b>0.6</b>	<b>Oct-18</b>
ICE BofAML 91 Days T-Bills TR			0.6	--	--	--	--	--	0.6	Oct-18
<b>Immunized Cash Flows</b>	<b>185,419,981</b>	<b>5.4</b>	<b>1.3</b>	--	--	--	--	--	<b>1.3</b>	<b>Oct-18</b>
Immunized Cash Flow Benchmark			1.3	--	--	--	--	--	1.3	Oct-18

<sup>1</sup> Cash Composite includes the cash account, cash collateral in the Russell Investments Overlay program, and residuals from terminated manager assets.

As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Cash</b>	<b>149,668,172</b>	<b>4.3</b>	<b>-0.1</b>	<b>0.3</b>	<b>1.4</b>	<b>0.9</b>	<b>0.5</b>	<b>0.6</b>	<b>9.0</b>	<b>Jul-02</b>
<i>ICE BofAML 91 Days T-Bills TR</i>			0.6	1.1	1.9	1.0	0.6	0.4	1.3	Jul-02
<b>Other</b>	<b>435,114,250</b>	<b>12.6</b>	<b>-0.8</b>	<b>-1.6</b>	<b>-0.9</b>	<b>3.9</b>	<b>--</b>	<b>--</b>	<b>2.0</b>	<b>Jul-15</b>
<i>Other Benchmark</i>			-0.6	-1.4	-1.8	4.2	--	--	2.0	Jul-15
<b>Core Real Estate</b>	<b>179,359,511</b>	<b>5.2</b>	<b>-0.1</b>	<b>1.8</b>	<b>5.4</b>	<b>7.2</b>	<b>8.2</b>	<b>--</b>	<b>--</b>	<b>Sep-11</b>
<i>NCREIF ODCE Equal Weighted (Net)</i>			1.4	3.3	7.3	7.5	9.6	--	--	Sep-11
<b>Commodities</b>	<b>70,317,654</b>	<b>2.0</b>	<b>-5.4</b>	<b>-8.1</b>	<b>-5.5</b>	<b>0.7</b>	<b>-4.7</b>	<b>--</b>	<b>-6.2</b>	<b>Apr-11</b>
<i>Bloomberg Commodity Index TR USD</i>			-9.4	-11.2	-11.2	0.3	-8.8	--	-9.3	Apr-11
<b>Sovereign Bonds ex-US</b>	<b>0</b>	<b>0.0</b>	<b>0.0</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>0.0</b>	<b>Oct-18</b>
<i>FTSE WGBI ex US TR</i>			1.3	--	--	--	--	--	1.3	Oct-18
<b>TIPS</b>	<b>71,698,578</b>	<b>2.1</b>	<b>-0.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-0.5</b>	<b>Oct-18</b>
<i>BBgBarc US Treasury TIPS 0-5 Yr TR</i>			-0.2	--	--	--	--	--	-0.2	Oct-18
<b>Core Bonds</b>	<b>113,738,507</b>	<b>3.3</b>	<b>0.7</b>	<b>0.0</b>	<b>-0.5</b>	<b>3.8</b>	<b>--</b>	<b>--</b>	<b>3.6</b>	<b>Oct-15</b>
<i>BBgBarc Global Aggregate TR</i>			1.2	0.3	-1.2	2.7	--	--	2.2	Oct-15
<b>Overlay</b>	<b>10,649,022</b>	<b>0.3</b>								

Total Fund Aggregate

As of December 31, 2018

Trailing Net Performance

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Fund</b>	<b>3,454,336,984</b>	<b>100.0</b>	<b>-4.9</b>	<b>-3.7</b>	<b>-2.9</b>	<b>5.0</b>	<b>3.2</b>	<b>6.8</b>	<b>8.2</b>	<b>Mar-71</b>
Policy Benchmark			-4.5	-2.9	-2.4	6.1	3.9	7.2	--	Mar-71
Investable Benchmark Portfolio			-4.9	-3.4	-3.1	5.4	3.4	6.9	--	Mar-71
InvestorForce Public DB > \$1B Net Median			-6.9	-4.7	-4.0	6.0	4.6	8.2	--	Mar-71
InvestorForce Public DB > \$1B Net Rank			11	23	29	99	99	97	--	Mar-71
<b>Growth</b>	<b>1,933,624,145</b>	<b>56.0</b>	<b>-7.9</b>	<b>-5.8</b>	<b>-4.9</b>	<b>6.1</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>Apr-08</b>
Growth Benchmark			-8.0	-5.3	-4.6	6.2	--	--	--	Apr-08
<b>Public Equity</b>	<b>1,004,432,348</b>	<b>29.1</b>	<b>-11.7</b>	<b>-9.8</b>	<b>-10.0</b>	<b>6.1</b>	<b>4.0</b>	<b>9.6</b>	<b>4.7</b>	<b>Apr-08</b>
Public Equity Benchmark			-11.9	-8.5	-8.6	7.1	4.5	10.0	5.0	Apr-08
<b>Global Equity</b>	<b>337,909,227</b>	<b>9.8</b>	<b>-14.3</b>	<b>-10.8</b>	<b>-9.2</b>	<b>7.7</b>	<b>6.0</b>	<b>--</b>	<b>8.9</b>	<b>Mar-13</b>
MSCI ACWI IMI Net USD			-13.3	-9.9	-10.1	6.5	4.2	--	6.5	Mar-13
eV All Global Equity Net Median			-13.5	-10.2	-9.4	5.8	4.3	9.7	6.8	Mar-13
eV All Global Equity Net Rank			61	58	49	21	21	--	16	Mar-13
Artisan Global Value	184,306,514	5.3	-13.3	-9.7	-11.5	6.6	4.5	--	7.9	Mar-13
MSCI ACWI Value NR USD			-10.7	-7.2	-10.8	5.9	2.7	--	5.1	Mar-13
eV All Global Equity Net Median			-13.5	-10.2	-9.4	5.8	4.3	9.7	6.8	Mar-13
eV All Global Equity Net Rank			48	47	65	33	47	--	29	Mar-13
Artisan Global Opportunities	153,602,714	4.4	-15.4	-12.4	-8.6	8.0	7.0	--	8.6	May-13
MSCI ACWI Growth NR USD			-14.7	-10.8	-8.1	7.2	5.7	--	7.3	May-13
eV All Global Equity Net Median			-13.5	-10.2	-9.4	5.8	4.3	9.7	6.0	May-13
eV All Global Equity Net Rank			72	70	44	19	13	--	12	May-13

<sup>1</sup> Please see final page of the performance report for composition of the Policy Benchmark.

<sup>2</sup> Allocation Benchmark consists of the individual benchmarks that comprise the Policy Benchmark weighted accordingly to actual allocations and re-adjusted monthly.



As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>U.S. Equity</b>	<b>161,208,127</b>	<b>4.7</b>	<b>-14.3</b>	<b>-8.7</b>	<b>-6.1</b>	<b>8.8</b>	<b>7.5</b>	<b>13.2</b>	<b>9.0</b>	<b>Jun-95</b>
MSCI USA IMI NR USD			-14.5	-8.5	-5.7	8.4	7.3	12.6	8.7	Jun-95
eV All US Equity Net Median			-16.1	-11.2	-7.7	7.3	5.9	12.6	9.8	Jun-95
eV All US Equity Net Rank			33	33	41	30	28	39	70	Jun-95
NT Russell 1000 Index Fund	122,700,899	3.6	-13.6	-7.2	-4.4	9.2	--	--	8.3	Apr-14
Russell 1000			-13.8	-7.4	-4.8	9.1	--	--	8.2	Apr-14
Cove Street Small Cap Value	21,157,712	0.6	-14.7	-9.8	-9.5	--	--	--	-8.8	Dec-17
Russell 2000 Value			-18.7	-17.4	-12.9	--	--	--	-12.7	Dec-17
eV US Small Cap Value Equity Net Median			-19.2	-18.3	-15.0	5.5	3.1	11.9	-14.0	Dec-17
eV US Small Cap Value Equity Net Rank			12	3	13	--	--	--	12	Dec-17
Northern Trust Russell 2000 Value	17,349,517	0.5	-18.7	-17.4	-12.8	--	--	--	-12.8	Jan-18
Russell 2000 Value			-18.7	-17.4	-12.9	--	--	--	-12.9	Jan-18
<b>International Equity</b>	<b>122,621,458</b>	<b>3.5</b>	<b>-16.8</b>	<b>-16.3</b>	<b>-17.6</b>	<b>1.9</b>	<b>0.0</b>	<b>7.0</b>	<b>6.9</b>	<b>Jun-95</b>
MSCI World ex USA IMI NR USD			-13.3	-12.4	-14.7	3.2	0.6	6.7	--	Jun-95
eV ACWI ex-US All Cap Equity Net Median			-13.8	-13.2	-15.2	3.7	1.3	8.0	6.3	Jun-95
eV ACWI ex-US All Cap Equity Net Rank			93	84	85	75	68	61	33	Jun-95
NT Russell MSCI World ex US Index Fund	80,350,897	2.3	-12.9	-11.7	-13.6	3.4	--	--	0.4	Apr-14
MSCI World ex USA			-12.8	-11.6	-14.1	3.1	--	--	0.2	Apr-14
Oberweis International Opportunities	42,270,562	1.2	-21.9	-23.8	-23.1	1.5	--	--	2.2	Mar-14
MSCI World ex USA Small Cap Growth NR USD			-17.5	-18.6	-17.8	3.6	--	--	2.4	Mar-14
eV ACWI ex-US All Cap Equity Net Median			-13.8	-13.2	-15.2	3.7	1.3	8.0	1.1	Mar-14
eV ACWI ex-US All Cap Equity Net Rank			99	99	99	85	--	--	35	Mar-14

As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Emerging Markets Equity</b>	<b>290,463,572</b>	<b>8.4</b>	<b>-6.9</b>	<b>-10.4</b>	<b>-18.8</b>	<b>5.2</b>	<b>0.9</b>	<b>6.1</b>	<b>8.6</b>	<b>Sep-01</b>
<i>MSCI Emerging Market IMI Net</i>			-7.4	-8.8	-15.0	8.5	1.6	8.2	9.6	Sep-01
<i>eV Emg Mkts Equity Net Median</i>			-7.6	-10.6	-16.2	7.7	1.4	8.9	10.6	Sep-01
<i>eV Emg Mkts Equity Net Rank</i>			38	50	78	82	65	98	99	Sep-01
Northern Trust MSCI EM IMI	186,077,950	5.4	-7.3	--	--	--	--	--	-7.3	Sep-18
<i>MSCI Emerging Market IMI Net</i>			-7.4	--	--	--	--	--	-8.2	Sep-18
GQG Partners Global Emerging Markets	43,133,732	1.2	-3.5	-8.7	-14.1	--	--	--	0.2	Jul-17
<i>MSCI Emerging Markets</i>			-7.5	-8.5	-14.6	--	--	--	-0.7	Jul-17
<i>eV Emg Mkts Equity Net Median</i>			-7.6	-10.6	-16.2	7.7	1.4	8.9	-2.4	Jul-17
<i>eV Emg Mkts Equity Net Rank</i>			7	36	25	--	--	--	13	Jul-17
Dimensional Fund Advisors EM Value	30,773,922	0.9	-7.2	-5.1	-11.9	12.2	--	--	3.5	Jul-15
<i>MSCI Emerging Markets Value NR USD</i>			-6.7	-3.5	-10.7	9.5	--	--	1.3	Jul-15
<i>eV Emg Mkts Equity Net Median</i>			-7.6	-10.6	-16.2	7.7	1.4	8.9	1.7	Jul-15
<i>eV Emg Mkts Equity Net Rank</i>			41	11	15	8	--	--	18	Jul-15
Comgest Global Emerging Markets	30,477,967	0.9	-8.6	-15.9	-28.3	--	--	--	-7.2	Mar-17
<i>MSCI Emerging Markets SMID Cap</i>			-6.0	-9.1	-15.7	--	--	--	1.7	Mar-17
<i>eV Emg Mkts Small Cap Equity Net Median</i>			-8.1	-13.0	-18.1	5.6	2.3	12.5	1.2	Mar-17
<i>eV Emg Mkts Small Cap Equity Net Rank</i>			66	82	98	--	--	--	98	Mar-17

As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Marketable Alternative Equity</b>	<b>92,229,963</b>	<b>2.7</b>	<b>-5.4</b>	<b>-4.9</b>	<b>-1.3</b>	<b>3.5</b>	<b>--</b>	<b>--</b>	<b>4.5</b>	<b>Oct-14</b>
<i>HFRI Equity Hedge (Total) Index</i>			-8.5	-8.2	-7.1	3.5	--	--	2.2	Oct-14
Marshall Wace Eureka Fund	42,823,029	1.2	-5.6	-5.2	0.2	4.4	--	--	7.1	Apr-14
<i>HFRI Equity Hedge (Total) Index</i>			-8.5	-8.2	-7.1	3.5	--	--	2.1	Apr-14
Senator Global Opportunity Offshore Fund	27,025,545	0.8	-9.8	-9.1	-10.0	1.8	2.0	--	4.3	Apr-13
<i>HFRI Event-Driven (Total) Index</i>			-4.8	-4.1	-2.2	5.2	2.6	--	3.7	Apr-13
Sandler Plus Offshore Fund Ltd	22,381,389	0.6	1.0	1.6	8.7	8.0	8.5	--	8.5	May-13
<i>HFRI Equity Hedge (Total) Index</i>			-8.5	-8.2	-7.1	3.5	2.3	--	3.5	May-13
<b>Private Markets</b>	<b>773,655,517</b>	<b>22.4</b>	<b>-4.2</b>	<b>-1.1</b>	<b>1.4</b>	<b>6.9</b>	<b>--</b>	<b>--</b>	<b>5.6</b>	<b>Jul-15</b>
<i>Private Markets Benchmark</i>			-4.2	-1.8	1.4	7.8	--	--	6.6	Jul-15
MSCI ACWI IMI + 100bps			-13.1	-9.5	-9.2	7.6	--	--	5.0	Jul-15
<b>Private Markets ex Russell 3000</b>	<b>512,067,909</b>	<b>14.8</b>	<b>1.7</b>	<b>4.6</b>	<b>7.1</b>	<b>7.6</b>	<b>--</b>	<b>--</b>	<b>6.5</b>	<b>Jul-15</b>
<i>Private Markets Benchmark</i>			-4.2	-1.8	1.4	7.8	--	--	6.6	Jul-15
<b>Total Private Equity Composite</b>	<b>476,316,310</b>	<b>13.8</b>	<b>-7.1</b>	<b>-1.5</b>	<b>3.0</b>	<b>9.3</b>	<b>9.7</b>	<b>9.1</b>	<b>8.2</b>	<b>Oct-05</b>
<i>San Jose Custom Private Equity Benchmark</i>			3.1	7.5	16.0	15.4	13.2	9.0	12.0	Oct-05
<b>Private Equity ex Russell 3000</b>	<b>214,728,702</b>	<b>6.2</b>	<b>3.7</b>	<b>9.9</b>	<b>15.0</b>	<b>13.6</b>	<b>11.8</b>	<b>10.2</b>	<b>10.1</b>	<b>Oct-05</b>
<i>San Jose Custom Private Equity Benchmark</i>			3.1	7.5	16.0	15.4	13.2	9.0	12.0	Oct-05
PE Strategic Partnership, LP	34,646,420	1.0	7.5	13.3	13.0	--	--	--	4.7	Aug-17
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	--	--	--	18.5	Aug-17
57 Stars	29,067,669	0.8	-0.6	-1.3	-0.8	7.2	--	--	0.5	Jan-14
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	--	--	13.0	Jan-14

## Total Fund Aggregate

As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
CCMP Capital Investors III	19,741,240	0.6	3.6	11.2	16.2	12.9	--	--	9.5	Aug-14
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	--	--	12.2	Aug-14
Industry Ventures III	18,891,965	0.5	14.5	22.9	29.4	17.2	--	--	17.5	Oct-14
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	--	--	11.2	Oct-14
Warburg	18,887,559	0.5	1.0	7.6	18.2	13.6	12.2	--	12.8	May-13
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	12.7	--	13.5	May-13
Francisco Partners IV	18,589,002	0.5	7.3	19.8	38.6	22.6	--	--	16.4	May-15
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	--	--	13.0	May-15
Harbourvest IX	16,281,319	0.5	1.7	10.6	23.7	--	--	--	46.5	Jan-17
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	--	--	--	16.9	Jan-17
Harbourvest VIII	10,387,990	0.3	-1.3	5.0	13.3	11.3	--	--	12.8	Jul-15
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	--	--	13.6	Jul-15
TPG Opportunity III	9,632,800	0.3	3.8	9.3	20.3	14.1	--	--	4.3	Mar-14
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	--	--	13.2	Mar-14
Pantheon Ventures	9,480,104	0.3	1.1	5.2	8.5	6.8	7.0	7.4	5.9	Oct-05
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	12.7	11.0	13.1	Oct-05
Crescent Mezzanine Partners VI, LP	8,432,800	0.2	2.3	5.0	9.1	8.7	7.5	--	6.6	Feb-13
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	12.7	--	13.5	Feb-13
Crestline Portfolio Financing	5,419,609	0.2	3.8	5.0	--	--	--	--	5.0	Jun-18
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	--	--	--	--	10.3	Jun-18



## Total Fund Aggregate

As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Siguler Guff Dist Opp Fund III	5,307,601	0.2	0.3	4.2	10.7	9.3	9.3	9.3	9.3	Nov-08
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	12.7	11.0	9.7	Nov-08
Portfolio Advisors	4,625,326	0.1	0.2	1.7	4.0	3.6	8.4	6.0	6.4	Nov-05
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	12.7	11.0	13.2	Nov-05
TPG Opportunity II	2,383,545	0.1	0.9	17.7	20.0	12.6	15.3	--	16.0	Oct-12
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	12.7	--	13.5	Oct-12
TCW Mezz Fd V	1,335,698	0.0	1.0	0.9	2.4	6.8	9.0	9.0	9.0	Dec-08
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	12.7	11.0	11.0	Dec-08
Harbourvest VII	1,078,397	0.0	-5.3	-1.5	-1.5	3.4	8.2	9.1	9.1	Dec-05
<i>Cambridge Glob Priv Eq Qtr Lag</i>			3.1	7.5	16.0	14.5	12.7	11.0	13.3	Dec-05
Innovation Endeavors III, L.P.	539,658	0.0								
<b>Northern Trust Russell 3000 Index Fund</b>	<b>261,587,608</b>	<b>7.6</b>	<b>-14.3</b>	<b>-8.2</b>	<b>-5.2</b>	<b>9.0</b>	<b>--</b>	<b>--</b>	<b>8.0</b>	<b>Apr-14</b>
<i>Russell 3000</i>			-14.3	-8.2	-5.2	9.0	--	--	7.9	Apr-14
<b>Private Debt</b>	<b>180,481,348</b>	<b>5.2</b>	<b>-1.2</b>	<b>0.1</b>	<b>0.9</b>	<b>3.3</b>	<b>--</b>	<b>--</b>	<b>3.9</b>	<b>Oct-15</b>
<i>S&amp;P Global Leveraged Loan + 2%</i>			-3.0	-0.9	1.2	6.9	--	--	5.8	Oct-15
Cross Ocean II	57,355,759	1.7	-0.5	1.7	6.2	--	--	--	11.5	May-16
<i>S&amp;P Global Leveraged Loan +2%</i>			-2.9	-0.9	1.3	--	--	--	5.9	May-16
Park Square	44,027,987	1.3	1.9	2.2	4.4	4.4	--	--	5.7	Nov-14
<i>S&amp;P Global Leveraged Loan +2%</i>			-2.9	-0.9	1.3	6.9	--	--	4.7	Nov-14
Medley Capital	25,125,398	0.7	-7.1	-8.3	-13.2	-3.5	0.3	--	3.0	Mar-11
<i>S&amp;P Global Leveraged Loan +2%</i>			-2.9	-0.9	1.3	6.9	4.4	--	5.5	Mar-11

As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Shoreline China Value III	13,269,343	0.4	-0.4	-5.3	-1.3	6.3	--	--	7.7	Jul-15
<i>S&amp;P Global Leveraged Loan +2%</i>			-2.9	-0.9	1.3	6.9	--	--	5.3	Jul-15
White Oak	10,419,916	0.3	-9.7	-19.9	-2.9	-16.0	-7.9	--	-3.1	Nov-10
<i>S&amp;P Global Leveraged Loan +2%</i>			-2.9	-0.9	1.3	6.9	4.4	--	5.9	Nov-10
ArrowMark Co-Investment	10,304,754	0.3	3.6	6.9	13.4	--	--	--	12.3	Dec-17
<i>S&amp;P Global Leveraged Loan +2%</i>			-2.9	-0.9	1.3	--	--	--	1.6	Dec-17
Cross Ocean	9,297,835	0.3	-2.7	0.2	-2.0	8.2	--	--	7.3	Apr-14
<i>S&amp;P Global Leveraged Loan +2%</i>			-2.9	-0.9	1.3	6.9	--	--	4.3	Apr-14
GSO	8,473,784	0.2	1.6	12.0	13.3	1.8	3.8	--	10.3	Dec-10
<i>S&amp;P Global Leveraged Loan +2%</i>			-2.9	-0.9	1.3	6.9	4.4	--	5.9	Dec-10
Marathon	2,206,638	0.1	6.2	19.1	25.5	14.6	10.8	--	11.2	Oct-12
<i>S&amp;P Global Leveraged Loan +2%</i>			-2.9	-0.9	1.3	6.9	4.4	--	5.3	Oct-12
<b>Private Real Estate</b>	<b>85,916,363</b>	<b>2.5</b>	<b>2.7</b>	<b>6.0</b>	<b>11.4</b>	<b>10.9</b>	<b>--</b>	<b>--</b>	<b>9.5</b>	<b>Jul-15</b>
<i>NCREIF ODCE Equal Weighted</i>			1.6	3.7	8.3	8.4	--	--	9.3	Jul-15
Brookfield II	16,736,996	0.5	1.7	4.5	11.9	--	--	--	10.0	Jun-16
<i>NCREIF Property Index</i>			1.4	3.1	6.7	--	--	--	6.9	Jun-16
Tristan IV	14,460,627	0.4	-1.8	1.5	5.7	5.0	--	--	5.0	Dec-15
<i>NCREIF Property Index</i>			1.4	3.1	6.7	7.2	--	--	7.2	Dec-15
KSL Capital Partners IV	10,468,339	0.3	3.1	11.2	36.6	--	--	--	-6.4	Apr-16
<i>NCREIF Property Index</i>			1.4	3.1	6.7	--	--	--	7.0	Apr-16

## Total Fund Aggregate

As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
DRA Growth & Income Fund IX	9,841,654	0.3	4.9	12.1	21.2	--	--	--	15.9	Feb-17
<i>NCREIF Property Index</i>			1.4	3.1	6.7	--	--	--	7.2	Feb-17
Brookfield	7,969,084	0.2	8.7	13.5	26.4	29.2	23.7	--	23.4	Sep-13
<i>NCREIF Property Index</i>			1.4	3.1	6.7	7.2	9.3	--	9.8	Sep-13
Och Ziff Real Estate	7,520,518	0.2	4.9	12.9	37.4	26.2	--	--	13.7	Oct-14
<i>NCREIF Property Index</i>			1.4	3.1	6.7	7.2	--	--	8.9	Oct-14
Tristan	6,090,820	0.2	1.9	3.7	3.1	19.9	10.1	--	10.1	Dec-13
<i>NCREIF Property Index</i>			1.4	3.1	6.7	7.2	9.3	--	9.7	Dec-13
TA Realty	5,660,666	0.2	3.9	6.6	12.4	12.4	12.5	--	11.6	Mar-13
<i>NCREIF Property Index</i>			1.4	3.1	6.7	7.2	9.3	--	9.9	Mar-13
Orion	3,303,992	0.1	-12.1	-10.6	-11.5	2.6	--	--	-3.6	Apr-14
<i>NCREIF Property Index</i>			1.4	3.1	6.7	7.2	--	--	9.2	Apr-14
Torchlight Debt Opportunity VI	1,990,528	0.1	18.0	15.5	--	--	--	--	15.5	Apr-18
<i>NCREIF Property Index</i>			1.4	3.1	--	--	--	--	4.9	Apr-18
BlackStone REDS II	988,164	0.0	2.7	-2.7	2.0	7.2	8.4	--	9.3	Sep-13
<i>NCREIF Property Index</i>			1.4	3.1	6.7	7.2	9.3	--	9.8	Sep-13
GEM Realty Fund VI	884,977	0.0								
<b>Private Real Assets</b>	<b>30,941,495</b>	<b>0.9</b>	<b>4.1</b>	<b>4.8</b>	<b>4.4</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>5.4</b>	<b>Jun-16</b>
Global Infrastructure Partners III	15,349,141	0.4	7.9	14.3	14.2	--	--	--	0.8	Sep-16
<i>DJ Brookfield Global Infrastructure Net TR USD</i>			-5.9	-6.7	-7.9	--	--	--	0.5	Sep-16

As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Brookfield III	12,064,937	0.3	-0.9	0.5	9.6	--	--	--	8.9	Jun-16
<i>DJ Brookfield Global Infrastructure Net TR USD</i>			-5.9	-6.7	-7.9	--	--	--	3.2	Jun-16
Lime Rock Partners VIII	3,523,949	0.1	--	--	--	--	--	--	0.0	Dec-18
Rhumblin Brookfield Global Infrastructure	3,468	0.0								
<b>Emerging Market Debt</b>	<b>106,003,767</b>	<b>3.1</b>	<b>-0.3</b>	<b>-0.7</b>	<b>-3.2</b>	<b>4.9</b>	<b>2.0</b>	<b>--</b>	<b>-0.2</b>	<b>Jan-13</b>
<i>50% JPM EMBI GD / 50% JPM GBI-EM</i>			0.4	0.7	-5.2	5.6	2.0	--	0.4	Jan-13
<i>eV All Emg Mkts Fixed Inc Net Median</i>			-0.6	0.0	-5.9	5.3	2.7	7.6	1.1	Jan-13
<i>eV All Emg Mkts Fixed Inc Net Rank</i>			47	76	21	66	57	--	62	Jan-13
Iguazu	67,701,800	2.0	0.1	-1.4	5.1	6.7	--	--	6.4	Feb-14
<i>50% JPM EMBI GD + 50% JPM GBI EM GD</i>			0.4	0.7	-5.2	5.6	--	--	2.5	Feb-14
<i>eV All Emg Mkts Fixed Inc Net Median</i>			-0.6	0.0	-5.9	5.3	2.7	7.6	3.0	Feb-14
<i>eV All Emg Mkts Fixed Inc Net Rank</i>			38	86	1	13	--	--	1	Feb-14
BlueBay	38,301,967	1.1	-0.9	-0.5	-8.5	3.7	0.0	--	-0.2	Aug-13
<i>50% JPM EMBI GD + 50% JPM GBI EM GD</i>			0.4	0.7	-5.2	5.6	2.0	--	1.8	Aug-13
<i>eV All Emg Mkts Fixed Inc Net Median</i>			-0.6	0.0	-5.9	5.3	2.7	7.6	2.7	Aug-13
<i>eV All Emg Mkts Fixed Inc Net Rank</i>			61	68	87	94	76	--	76	Aug-13
<b>High Yield Debt</b>	<b>49,532,513</b>	<b>1.4</b>	<b>-5.4</b>	<b>-4.4</b>	<b>-1.6</b>	<b>3.7</b>	<b>--</b>	<b>--</b>	<b>2.8</b>	<b>Oct-15</b>
<i>50% Bofa Global HY/50% S&amp;P Global Leveraged Loan</i>			-3.6	-1.9	-2.1	5.8	--	--	4.8	Oct-15
Beach Point	49,532,513	1.4	-5.0	-4.0	-2.1	5.3	2.6	--	3.1	Oct-13
<i>BBgBarc US High Yield TR</i>			-4.5	-2.2	-2.1	7.2	3.8	--	4.3	Oct-13
Davidson Kempner	0	0.0	-0.2	1.4	3.6	5.5	4.5	--	5.1	Feb-13
<i>HFRI Event-Driven (Total) Index</i>			-4.8	-4.1	-2.2	5.2	2.6	--	3.8	Feb-13

Total Fund Aggregate

As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Symphony	0	0.0	-7.5	-6.8	-3.0	1.4	--	--	2.2	Feb-14
<i>BbgBarc US High Yield TR</i>			-4.5	-2.2	-2.1	7.2	--	--	3.7	Feb-14
<b>Zero Beta</b>	<b>1,074,949,568</b>	<b>31.1</b>	<b>0.5</b>	<b>1.1</b>	<b>2.9</b>	<b>1.9</b>	<b>--</b>	<b>--</b>	<b>1.5</b>	<b>Jul-15</b>
<i>Zero Beta Benchmark</i>			0.7	0.6	-0.9	0.7	--	--	0.4	Jul-15
<b>Absolute Return</b>	<b>237,008,873</b>	<b>6.9</b>	<b>0.0</b>	<b>0.7</b>	<b>2.8</b>	<b>2.2</b>	<b>2.2</b>	<b>--</b>	<b>2.4</b>	<b>Nov-12</b>
<i>Absolute Return Benchmark</i>			0.6	0.5	-1.3	0.7	0.7	--	1.5	Nov-12
<b>Macro</b>	<b>114,015,819</b>	<b>3.3</b>	<b>-0.4</b>	<b>-0.7</b>	<b>0.6</b>	<b>0.8</b>	<b>--</b>	<b>--</b>	<b>1.1</b>	<b>Jul-15</b>
<i>HFRI Macro (Total) Index</i>			-2.3	-2.3	-4.0	-0.3	--	--	-0.5	Jul-15
Pharo Management	30,478,368	0.9	2.4	-0.3	5.6	--	--	--	9.4	Apr-16
<i>HFRI Macro (Total) Index</i>			-2.3	-2.3	-4.0	--	--	--	-0.9	Apr-16
Dymon Asia	27,537,115	0.8	-0.6	-2.5	-1.6	1.0	--	--	0.6	Sep-15
<i>HFRI Macro (Total) Index</i>			-2.3	-2.3	-4.0	-0.3	--	--	-0.3	Sep-15
Systematica	15,618,840	0.5	0.5	3.3	-1.6	--	--	--	2.5	Jul-17
<i>BARCLAY HEDGE BTOP 50</i>			-2.1	-0.9	-4.5	--	--	--	-0.2	Jul-17
AHL Partners	14,839,709	0.4	-4.8	-0.9	-3.0	--	--	--	5.6	Jul-16
<i>BARCLAY HEDGE BTOP 50</i>			-2.1	-0.9	-4.5	--	--	--	-4.0	Jul-16
Wadhvani	14,596,076	0.4	3.1	-0.4	0.5	-0.2	--	--	-0.2	Jan-16
<i>BARCLAY HEDGE BTOP 50</i>			-2.1	-0.9	-4.5	-3.2	--	--	-3.2	Jan-16

Total Fund Aggregate

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	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Kepos	10,945,711	0.3	-6.9	-3.3	4.3	-5.9	-1.4	--	-2.2	Mar-13
<i>HFRI Macro: Systematic Diversified Index</i>			-3.2	-2.8	-6.7	-2.1	0.3	--	0.0	Mar-13
<b>Relative Value</b>	<b>122,993,055</b>	<b>3.6</b>	<b>0.4</b>	<b>2.0</b>	<b>4.7</b>	<b>4.0</b>	<b>--</b>	<b>--</b>	<b>3.3</b>	<b>Jul-15</b>
<i>HFRI Relative Value (Total) Index</i>			-3.4	-2.1	-0.5	4.1	--	--	2.6	Jul-15
Hudson Bay	40,355,427	1.2	1.6	3.4	5.9	--	--	--	5.2	Aug-17
<i>HFRI Relative Value (Total) Index</i>			-3.4	-2.1	-0.5	--	--	--	0.8	Aug-17
DE Shaw	33,722,822	1.0	0.2	1.9	7.2	7.8	10.8	--	10.7	Apr-13
<i>HFRI Fund Weighted Composite Index</i>			-6.0	-5.5	-4.8	2.9	2.1	--	2.8	Apr-13
Pine River Volatility Arbitrage	23,994,850	0.7	-2.4	-0.4	-2.6	--	--	--	-2.2	Mar-17
<i>HFRI Relative Value (Total) Index</i>			-3.4	-2.1	-0.5	--	--	--	1.5	Mar-17
JD Capital	22,877,140	0.7	1.5	2.8	8.3	--	--	--	6.1	Oct-16
<i>HFRI Relative Value (Total) Index</i>			-3.4	-2.1	-0.5	--	--	--	2.9	Oct-16
Pine River	2,042,815	0.1	3.5	-1.0	-1.7	-0.9	-0.2	--	1.4	Jan-13
<i>HFRI Relative Value (Total) Index</i>			-3.4	-2.1	-0.5	4.1	3.2	--	3.8	Jan-13
<b>Short-Term IG Bonds</b>	<b>502,852,542</b>	<b>14.6</b>	<b>0.6</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>0.6</b>	<b>Oct-18</b>
<i>ICE BofAML 91 Days T-Bills TR</i>			0.6	--	--	--	--	--	0.6	Oct-18
BlackRock 3-Month T-Bill	502,852,542	14.6	0.6	--	--	--	--	--	0.6	Oct-18
<i>ICE BofAML 91 Days T-Bills TR</i>			0.6	--	--	--	--	--	0.6	Oct-18
<b>Immunized Cash Flows</b>	<b>185,419,981</b>	<b>5.4</b>	<b>1.3</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>1.3</b>	<b>Oct-18</b>
<i>Immunized Cash Flow Benchmark</i>			1.3	--	--	--	--	--	1.3	Oct-18



As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Northern Trust 1-3 Year US Govt Bond	185,419,981	5.4	1.3	--	--	--	--	--	1.3	Sep-18
<i>BBgBarc US Govt 1-3 Yr TR</i>			1.3	--	--	--	--	--	1.2	Sep-18
<b>Cash</b>	<b>149,668,172</b>	<b>4.3</b>	<b>-0.1</b>	<b>0.3</b>	<b>1.4</b>	<b>0.9</b>	<b>0.5</b>	<b>0.6</b>	<b>9.0</b>	<b>Jul-02</b>
<i>ICE BofAML 91 Days T-Bills TR</i>			0.6	1.1	1.9	1.0	0.6	0.4	1.3	Jul-02
<b>Other</b>	<b>435,114,250</b>	<b>12.6</b>	<b>-0.8</b>	<b>-1.6</b>	<b>-0.9</b>	<b>3.9</b>	<b>--</b>	<b>--</b>	<b>2.0</b>	<b>Jul-15</b>
<i>Other Benchmark</i>			-0.6	-1.4	-1.8	4.2	--	--	2.0	Jul-15
<b>Core Real Estate</b>	<b>179,359,511</b>	<b>5.2</b>	<b>-0.1</b>	<b>1.8</b>	<b>5.4</b>	<b>7.2</b>	<b>8.2</b>	<b>--</b>	<b>--</b>	<b>Sep-11</b>
<i>NCREIF ODCE Equal Weighted (Net)</i>			1.4	3.3	7.3	7.5	9.6	--	--	Sep-11
American Realty Core Realty Fund	131,215,489	3.8	2.0	3.9	7.6	8.0	9.2	--	9.7	Sep-11
<i>NCREIF ODCE Equal Weighted</i>			1.6	3.7	8.3	8.4	10.5	--	11.4	Sep-11
Russell Overlay Real Estate	48,144,022	1.4	-5.2	-3.4	-3.4	4.3	3.8	--	4.9	Dec-12
<i>50% MSCI ACWI &amp; 50% Barclays Global</i>			-5.9	-4.3	-5.2	4.8	2.8	--	4.0	Dec-12
<b>Commodities</b>	<b>70,317,654</b>	<b>2.0</b>	<b>-5.4</b>	<b>-8.1</b>	<b>-5.5</b>	<b>0.7</b>	<b>-4.7</b>	<b>--</b>	<b>-6.2</b>	<b>Apr-11</b>
<i>Bloomberg Commodity Index TR USD</i>			-9.4	-11.2	-11.2	0.3	-8.8	--	-9.3	Apr-11
Credit Suisse Risk Parity Commodity Fund	70,317,654	2.0	-5.4	-8.3	-8.7	2.7	-4.8	--	-5.6	Apr-11
<i>Bloomberg Commodity Index TR USD</i>			-9.4	-11.2	-11.2	0.3	-8.8	--	-9.3	Apr-11
<b>Sovereign Bonds ex-US</b>	<b>0</b>	<b>0.0</b>	<b>0.0</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>0.0</b>	<b>Oct-18</b>
<i>FTSE WGBI ex US TR</i>			1.3	--	--	--	--	--	1.3	Oct-18
Northern Trust FTSE WGBI ex US	0	0.0	--	--	--	--	--	--	--	Oct-18

As of December 31, 2018

	Market Value (\$)	% of Portfolio	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>TIPS</b>	<b>71,698,578</b>	<b>2.1</b>	<b>-0.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>-0.5</b>	<b>Oct-18</b>
<i>BBgBarc US Treasury TIPS 0-5 Yr TR</i>			-0.2	--	--	--	--	--	-0.2	Oct-18
Northern Trust 0-5 Year TIPS	71,698,578	2.1	-0.5	--	--	--	--	--	-0.5	Oct-18
<i>BBgBarc U.S. TIPS 0-5 Years</i>			-0.2	--	--	--	--	--	-0.2	Oct-18
<b>Core Bonds</b>	<b>113,738,507</b>	<b>3.3</b>	<b>0.7</b>	<b>0.0</b>	<b>-0.5</b>	<b>3.8</b>	<b>--</b>	<b>--</b>	<b>3.6</b>	<b>Oct-15</b>
<i>BBgBarc Global Aggregate TR</i>			1.2	0.3	-1.2	2.7	--	--	2.2	Oct-15
BlackRock Global Agg ex US Hedged	112,272,399	3.3	1.9	1.7	3.0	--	--	--	3.2	Aug-17
<i>BBgBarc Global Aggregate ex US TR</i>			0.9	-0.8	-1.8	--	--	--	-0.3	Aug-17
<i>BBgBarc Global Aggregate ex US Tres Hedged TR</i>			1.9	1.7	3.2	--	--	--	3.4	Aug-17
Russell Currency Hedge FI	1,136,121	0.0								
Voya	329,987	0.0	-1.8	-0.5	1.3	5.4	--	--	4.6	Jul-15
<i>Barclays Global Aggregate - Securitized</i>			1.5	1.3	0.0	1.8	--	--	1.7	Jul-15
<b>Overlay</b>	<b>10,649,022</b>	<b>0.3</b>								
Russell Overlay	10,555,822	0.3								

<sup>1</sup> Cash composite includes the cash account, cash collateral in the Russell Investments Overlay program, and residuals from terminated manager assets.





As of December 31, 2018

**Cash Flow Summary**  
**Quarter Ending December 31, 2018**

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
57 Stars	\$29,497,658	\$0	-\$298,477	-\$298,477	-\$131,512	\$29,067,669
AHL Partners	\$15,593,395	\$0	\$0	\$0	-\$753,686	\$14,839,709
American Realty Core Realty Fund	\$130,313,401	\$0	-\$1,954,656	-\$1,954,656	\$2,856,744	\$131,215,489
American Realty/Kennedy Combined	--	\$0	-\$5,428	-\$5,428	\$5,428	\$0
ArrowMark Co-Investment	\$10,264,754	\$0	-\$320,492	-\$320,492	\$360,492	\$10,304,754
Artisan Global Opportunities	\$181,487,270	\$0	\$0	\$0	-\$27,884,557	\$153,602,714
Artisan Global Value	\$212,675,446	\$24,379,439	-\$24,379,439	\$0	-\$28,368,933	\$184,306,514
Beach Point	\$69,476,445	\$0	-\$16,746,440	-\$16,746,440	-\$3,197,491	\$49,532,513
BlackRock 3-Month T-Bill	\$0	\$500,000,000	\$0	\$500,000,000	\$2,852,542	\$502,852,542
BlackRock Global Agg ex US	\$110,217,927	\$0	\$0	\$0	\$2,054,472	\$112,272,399
BlackStone REDS II	\$1,147,859	\$0	-\$191,515	-\$191,515	\$31,820	\$988,164
BlueBay	\$38,655,053	\$0	\$0	\$0	-\$353,086	\$38,301,967
Brookfield	\$10,627,468	\$116,952	-\$3,764,646	-\$3,647,694	\$989,310	\$7,969,084
Brookfield II	\$16,393,266	\$207,538	-\$211,148	-\$3,610	\$347,340	\$16,736,996
Brookfield III	\$10,119,426	\$2,066,725	-\$85,225	\$1,981,501	-\$35,990	\$12,064,937
Cash	\$599,890,852	\$320,830,897	-\$770,891,624	-\$450,060,727	-\$161,954	\$149,668,172
CCMP Capital Investors III	\$19,055,088	\$0	-\$148,302	-\$148,302	\$834,453	\$19,741,240
Comgest Global Emerging Markets	\$33,351,720	\$0	\$0	\$0	-\$2,873,753	\$30,477,967
Cove Street Small Cap Value	\$24,804,416	\$0	\$0	\$0	-\$3,646,704	\$21,157,712
Credit Suisse	\$74,328,896	\$0	-\$77,486	-\$77,486	-\$3,933,757	\$70,317,654
Crescent Mezzanine Partners VI, LP	\$8,247,129	\$0	-\$32,862	-\$32,862	\$218,533	\$8,432,800
Crestline Portfolio Financing	\$7,375,320	\$0	-\$2,237,509	-\$2,237,509	\$281,797	\$5,419,609
Cross Ocean	\$15,374,265	\$0	-\$5,718,635	-\$5,718,635	-\$357,795	\$9,297,835
Cross Ocean II	\$58,252,727	\$0	-\$728,015	-\$728,015	-\$168,953	\$57,355,759

## Total Fund Aggregate

As of December 31, 2018

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
Davidson Kempner	\$26,894,642	\$0	-\$26,951,450	-\$26,951,450	\$56,808	\$0
DE Shaw	\$33,665,708	\$0	-\$219,656	-\$219,656	\$276,770	\$33,722,822
Dimensional Fund Advisors EM Value	\$33,149,234	\$0	\$0	\$0	-\$2,375,312	\$30,773,922
DRA Growth & Income Fund IX	\$8,525,703	\$1,522,843	-\$663,678	\$859,165	\$456,785	\$9,841,654
Dymon Asia	\$25,722,144	\$2,000,000	\$0	\$2,000,000	-\$185,029	\$27,537,115
Francisco Partners IV	\$20,051,231	\$0	-\$2,971,068	-\$2,971,068	\$1,508,839	\$18,589,002
GEM Realty Fund VI	\$906,595	\$0	-\$50,625	-\$50,625	\$29,007	\$884,977
Global Infrastructure Partners III	\$14,745,154	\$0	-\$734,439	-\$734,439	\$1,338,426	\$15,349,141
GQG Partners Global Emerging Markets	\$44,687,336	\$0	-\$53,311	-\$53,311	-\$1,500,292	\$43,133,732
GSO	\$12,821,565	\$0	-\$4,645,589	-\$4,645,589	\$297,809	\$8,473,784
Harbourvest IX	\$13,098,329	\$3,111,597	-\$309,389	\$2,802,208	\$380,782	\$16,281,319
Harbourvest VII	\$1,138,683	\$0	-\$11,250	-\$11,250	-\$49,036	\$1,078,397
Harbourvest VIII	\$11,383,980	\$0	-\$943,140	-\$943,140	-\$52,850	\$10,387,990
Hudson Bay	\$31,725,023	\$8,000,000	\$0	\$8,000,000	\$630,404	\$40,355,427
Iguazu	\$67,624,950	\$0	\$0	\$0	\$76,850	\$67,701,800
Industry Ventures III	\$16,358,329	\$143,155	\$0	\$143,155	\$2,390,481	\$18,891,965
Innovation Endeavors III, L.P.	\$236,028	\$293,748	\$0	\$293,748	\$9,882	\$539,658
JD Capital	\$22,533,863	\$0	-\$86,328	-\$86,328	\$429,605	\$22,877,140
Kepos	\$11,754,243	\$0	-\$55,833	-\$55,833	-\$752,700	\$10,945,711
KSL Capital Partners IV	\$10,286,248	\$0	-\$224,439	-\$224,439	\$406,530	\$10,468,339
Lime Rock Partners VIII	--	\$118,040	-\$30,000	\$88,040	\$3,435,909	\$3,523,949
Liquidating - Russell MSCI EAFE + CAD Small Cap	\$114	\$0	\$0	\$0	-\$2	\$111
Marathon	\$2,078,682	\$0	\$0	\$0	\$127,956	\$2,206,638
Marshall Wace Eureka Fund	\$45,364,914	\$0	-\$41,368	-\$41,368	-\$2,500,517	\$42,823,029
Medley Capital	\$27,905,534	\$0	-\$935,341	-\$935,341	-\$1,844,795	\$25,125,398

## Total Fund Aggregate

As of December 31, 2018

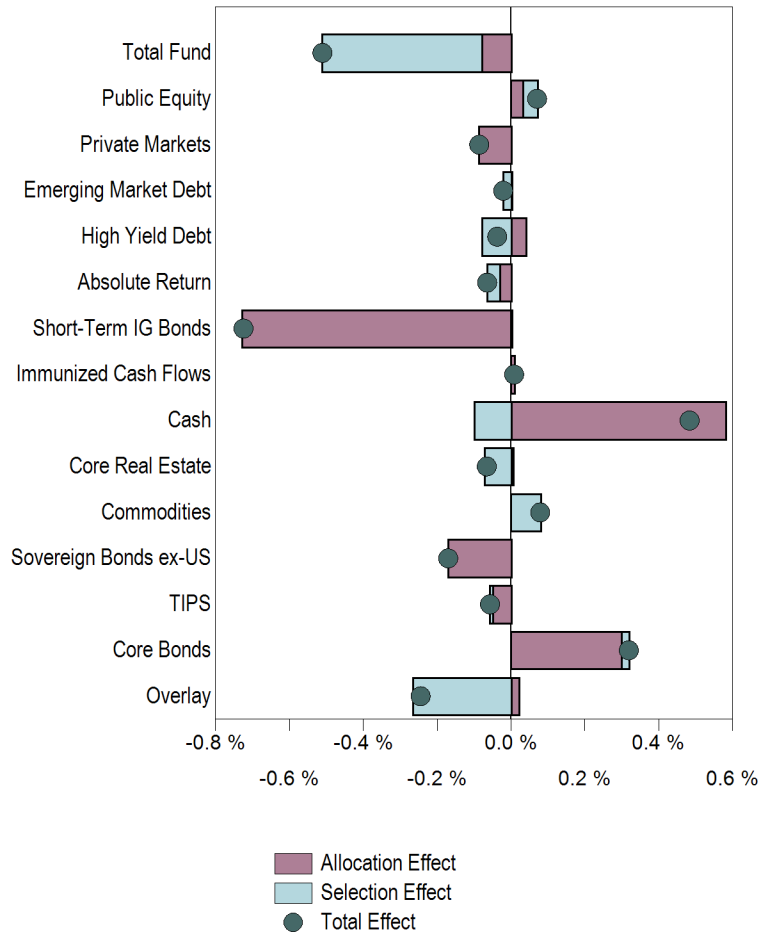
	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
Northern Trust 0-5 Year TIPS	\$0	\$72,000,000	\$0	\$72,000,000	-\$301,422	\$71,698,578
Northern Trust 1-3 Year US Govt Bond	\$183,000,000	\$0	\$0	\$0	\$2,419,981	\$185,419,981
Northern Trust MSCI EM IMI	\$170,000,000	\$30,000,000	\$0	\$30,000,000	-\$13,922,049	\$186,077,950
Northern Trust Russell 2000 Value	\$23,756,998	\$0	-\$2,400,000	-\$2,400,000	-\$4,007,481	\$17,349,517
NT Russell 1000 Index Fund	\$159,060,936	\$10,000,000	-\$27,600,000	-\$17,600,000	-\$18,760,038	\$122,700,899
NT Russell 3000 Index Fund	\$305,161,053	\$0	\$0	\$0	-\$43,573,445	\$261,587,608
NT Russell MSCI World ex US Index Fund	\$64,916,371	\$25,000,000	\$0	\$25,000,000	-\$9,565,475	\$80,350,897
Oberweis International Opportunities	\$74,134,411	\$33,274,285	-\$53,303,439	-\$20,029,154	-\$11,834,696	\$42,270,562
Och Ziff Real Estate	\$8,937,652	\$831,732	-\$2,575,512	-\$1,743,780	\$326,646	\$7,520,518
Orion	\$3,664,909	\$147,373	-\$59,091	\$88,281	-\$449,199	\$3,303,992
Pantheon Ventures	\$10,011,006	\$0	-\$682,997	-\$682,997	\$152,095	\$9,480,104
Park Square	\$43,399,759	\$470,070	-\$645,034	-\$174,964	\$803,192	\$44,027,987
PE Strategic Partnership, LP	\$22,563,546	\$10,000,000	-\$105,000	\$9,895,000	\$2,187,874	\$34,646,420
Pharo Management	\$29,770,285	\$0	\$0	\$0	\$708,084	\$30,478,368
Pine River	\$2,192,298	\$0	-\$225,677	-\$225,677	\$76,194	\$2,042,815
Pine River Volatility Arbitrage	\$24,592,425	\$0	-\$30,793	-\$30,793	-\$566,782	\$23,994,850
Portfolio Advisors	\$4,767,054	\$0	-\$152,601	-\$152,601	\$10,874	\$4,625,326
Rhumblin Brookfield Global Infrastructure	\$40,217	\$9,021,598	-\$9,142,430	-\$120,832	\$84,083	\$3,468
Russell Currency Hedge FI	-\$1,290,907	\$912,093,175	-\$908,650,172	\$3,443,003	-\$1,015,975	\$1,136,121
Russell Overlay	\$16,652,516	\$122,815,941	-\$120,815,941	\$2,000,000	-\$8,096,694	\$10,555,822
Russell Overlay Private Debt	\$27,595	\$43,359,631	-\$43,366,125	-\$6,494	-\$21,167	-\$67
Russell Overlay Real Estate	\$50,807,935	\$27,665,862	-\$27,665,862	\$0	-\$2,663,914	\$48,144,022
Sandler Plus Offshore Fund Ltd	\$22,169,793	\$0	\$0	\$0	\$211,595	\$22,381,389
Senator Global Opportunity Offshore Fund	\$29,962,746	\$0	\$0	\$0	-\$2,937,201	\$27,025,545
Shoreline China Value III	\$13,869,621	\$0	-\$583,873	-\$583,873	-\$16,405	\$13,269,343
Siguler Guff Dist Opp Fund III	\$5,295,939	\$0	-\$2,292	-\$2,292	\$13,953	\$5,307,601

## Total Fund Aggregate

As of December 31, 2018

	Beginning Market Value	Contributions	Withdrawals	Net Cash Flow	Net Investment Change	Ending Market Value
Symphony	\$74,176,968	\$0	-\$68,887,012	-\$68,887,012	-\$5,289,956	\$0
Systematica	\$12,451,993	\$3,000,000	\$0	\$3,000,000	\$166,848	\$15,618,840
TA Realty	\$6,242,904	\$0	-\$829,061	-\$829,061	\$246,823	\$5,660,666
TCW Mezz Fd V	\$1,322,985	\$0	-\$4,578	-\$4,578	\$17,291	\$1,335,698
Terminated Manager Assets	\$98,731	\$1,242	-\$2,484	-\$1,242	-\$4,289	\$93,200
Torchlight Debt Opportunity VI	\$1,854,454	\$0	-\$281,507	-\$281,507	\$417,581	\$1,990,528
TPG Opportunity II	\$2,363,295	\$0	-\$9,559	-\$9,559	\$29,809	\$2,383,545
TPG Opportunity III	\$8,568,558	\$738,202	-\$57,015	\$681,187	\$383,055	\$9,632,800
Tristan	\$5,846,776	\$125,880	-\$23,121	\$102,759	\$141,286	\$6,090,820
Tristan IV	\$12,515,256	\$2,181,907	-\$64,335	\$2,117,571	-\$172,201	\$14,460,627
Voya	\$87,642,786	\$0	-\$87,336,953	-\$87,336,953	\$24,154	\$329,987
Wadhwani	\$9,161,330	\$5,000,000	-\$25,745	\$4,974,255	\$460,491	\$14,596,076
Warburg	\$18,929,551	\$0	-\$225,864	-\$225,864	\$183,872	\$18,887,559
White Oak	\$14,230,816	\$0	-\$2,750,699	-\$2,750,699	-\$1,060,201	\$10,419,916
<b>Total</b>	<b>\$3,682,678,574</b>	<b>\$2,170,517,833</b>	<b>-\$2,225,223,575</b>	<b>-\$54,705,742</b>	<b>-\$173,635,701</b>	<b>\$3,454,337,132</b>

**Attribution Effects**  
3 Months Ending December 31, 2018



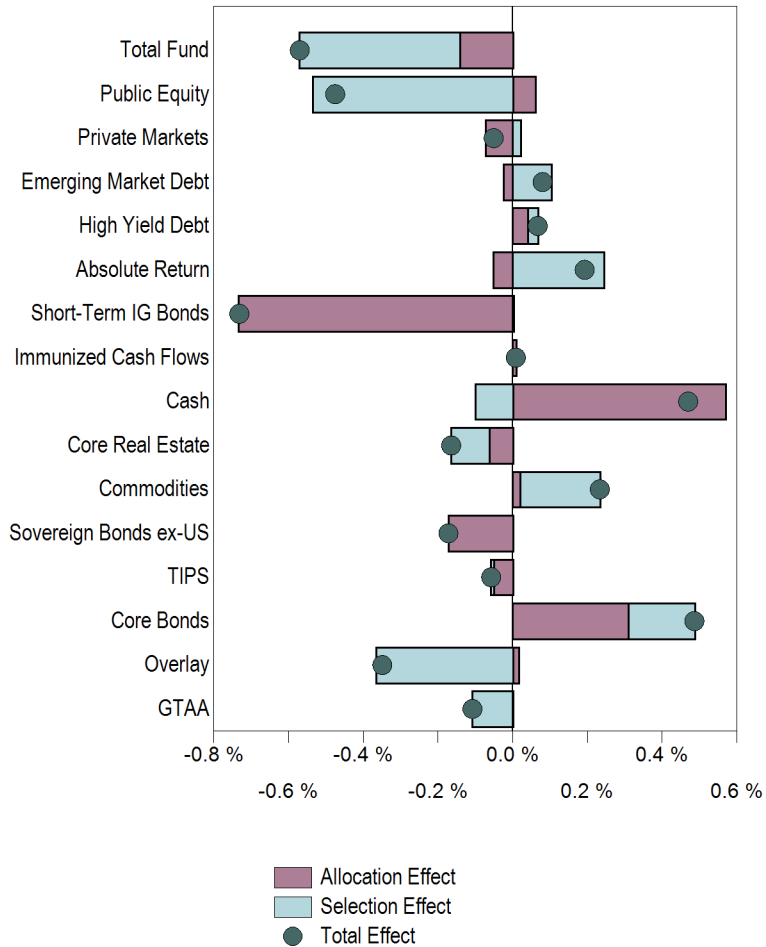
**Attribution Summary**  
3 Months Ending December 31, 2018

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Public Equity	-11.7%	-11.9%	0.1%	0.0%	0.0%	0.1%
Private Markets	-4.2%	-4.2%	0.0%	0.0%	-0.1%	-0.1%
Emerging Market Debt	-0.3%	0.4%	-0.7%	0.0%	0.0%	0.0%
High Yield Debt	-5.4%	-3.6%	-1.7%	-0.1%	0.0%	0.0%
Absolute Return	0.0%	0.6%	-0.5%	0.0%	0.0%	-0.1%
Short-Term IG Bonds	0.6%	0.6%	0.0%	0.0%	-0.7%	-0.7%
Immunized Cash Flows	1.3%	1.3%	0.0%	0.0%	0.0%	0.0%
Cash	-0.1%	0.6%	-0.6%	-0.1%	0.6%	0.5%
Core Real Estate	-0.1%	1.4%	-1.4%	-0.1%	0.0%	-0.1%
Commodities	-5.4%	-9.4%	4.0%	0.1%	0.0%	0.1%
Sovereign Bonds ex-US	0.0%	1.3%	-1.3%	0.0%	-0.2%	-0.2%
TIPS	-0.5%	-0.2%	-0.2%	0.0%	-0.1%	-0.1%
Core Bonds	0.7%	1.2%	-0.5%	0.0%	0.3%	0.3%
Overlay	-58.1%	0.6%	-58.7%	-0.3%	0.0%	-0.2%
<b>Total</b>	<b>-5.0%</b>	<b>-4.5%</b>	<b>-0.5%</b>	<b>-0.4%</b>	<b>-0.1%</b>	<b>-0.5%</b>

Difference in attribution returns and returns in the performance summary may occur as a result of the different calculation methodologies that are applied by InvestorForce.



**Attribution Effects**  
1 Year Ending December 31, 2018

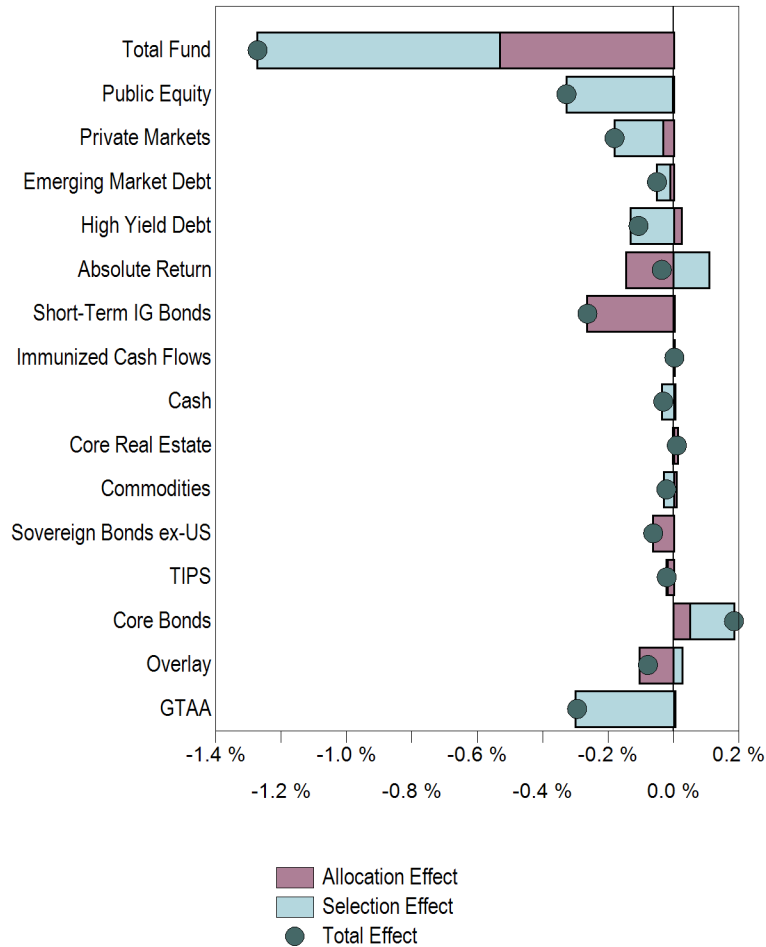


**Attribution Summary**  
1 Year Ending December 31, 2018

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Public Equity	-10.0%	-8.6%	-1.4%	-0.5%	0.1%	-0.5%
Private Markets	1.4%	1.4%	0.0%	0.0%	-0.1%	-0.1%
Emerging Market Debt	-3.2%	-5.2%	1.9%	0.1%	0.0%	0.1%
High Yield Debt	-1.6%	-2.1%	0.4%	0.0%	0.0%	0.1%
Absolute Return	2.8%	-1.3%	4.0%	0.2%	-0.1%	0.2%
Short-Term IG Bonds	--	0.6%	--	0.0%	-0.7%	-0.7%
Immunized Cash Flows	--	--	--	0.0%	0.0%	0.0%
Cash	1.4%	1.9%	-0.5%	-0.1%	0.6%	0.5%
Core Real Estate	5.4%	7.3%	-1.9%	-0.1%	-0.1%	-0.2%
Commodities	-5.5%	-11.2%	5.8%	0.2%	0.0%	0.2%
Sovereign Bonds ex-US	--	1.3%	--	0.0%	-0.2%	-0.2%
TIPS	--	-0.2%	--	0.0%	-0.1%	-0.1%
Core Bonds	-0.5%	-1.2%	0.7%	0.2%	0.3%	0.5%
Overlay	-64.7%	1.9%	-66.6%	-0.4%	0.0%	-0.3%
GTAA	--	--	--	-0.1%	0.0%	-0.1%
<b>Total</b>	<b>-3.0%</b>	<b>-2.5%</b>	<b>-0.6%</b>	<b>-0.4%</b>	<b>-0.1%</b>	<b>-0.6%</b>

As of December 31, 2018

**Attribution Effects**  
3 Years Ending December 31, 2018



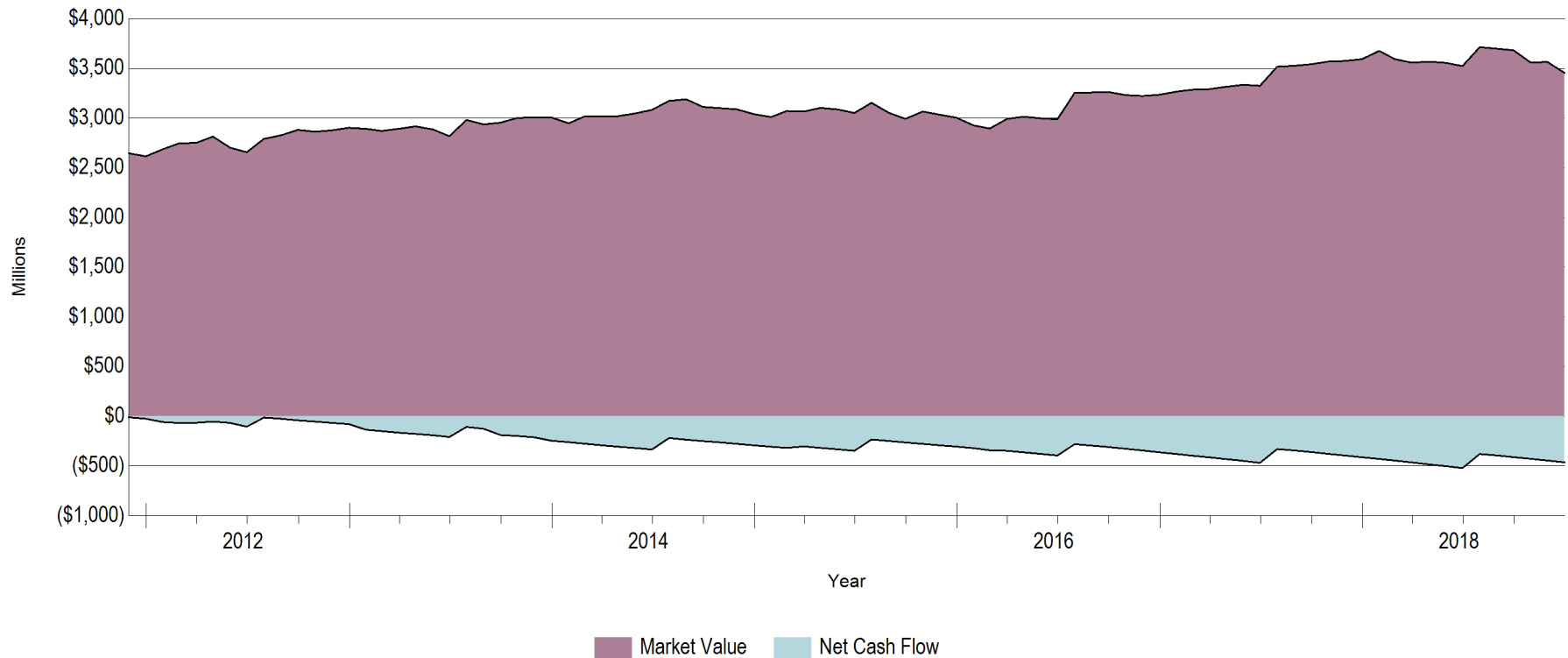
**Attribution Summary**  
3 Years Ending December 31, 2018

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Total Effects
Public Equity	6.1%	7.1%	-1.0%	-0.3%	0.0%	-0.3%
Private Markets	6.9%	7.8%	-0.9%	-0.1%	0.0%	-0.2%
Emerging Market Debt	4.9%	5.6%	-0.7%	0.0%	0.0%	-0.1%
High Yield Debt	3.7%	5.8%	-2.1%	-0.1%	0.0%	-0.1%
Absolute Return	2.2%	0.7%	1.5%	0.1%	-0.1%	0.0%
Short-Term IG Bonds	--	0.2%	--	0.0%	-0.3%	-0.3%
Immunized Cash Flows	--	--	--	0.0%	0.0%	0.0%
Cash	0.9%	1.0%	-0.1%	0.0%	0.0%	0.0%
Core Real Estate	7.2%	7.5%	-0.3%	0.0%	0.0%	0.0%
Commodities	0.7%	0.3%	0.4%	0.0%	0.0%	0.0%
Sovereign Bonds ex-US	--	0.4%	--	0.0%	-0.1%	-0.1%
TIPS	--	-0.1%	--	0.0%	0.0%	0.0%
Core Bonds	3.8%	2.7%	1.1%	0.1%	0.1%	0.2%
Overlay	-23.5%	1.1%	-24.6%	0.0%	-0.1%	-0.1%
GTAA	--	--	--	-0.3%	0.0%	-0.3%
<b>Total</b>	<b>5.0%</b>	<b>6.3%</b>	<b>-1.3%</b>	<b>-0.7%</b>	<b>-0.5%</b>	<b>-1.3%</b>

Total Fund Asset Growth Summary

As of December 31, 2018

**Market Value History**  
7 Years 2 Months Ending December 31, 2018

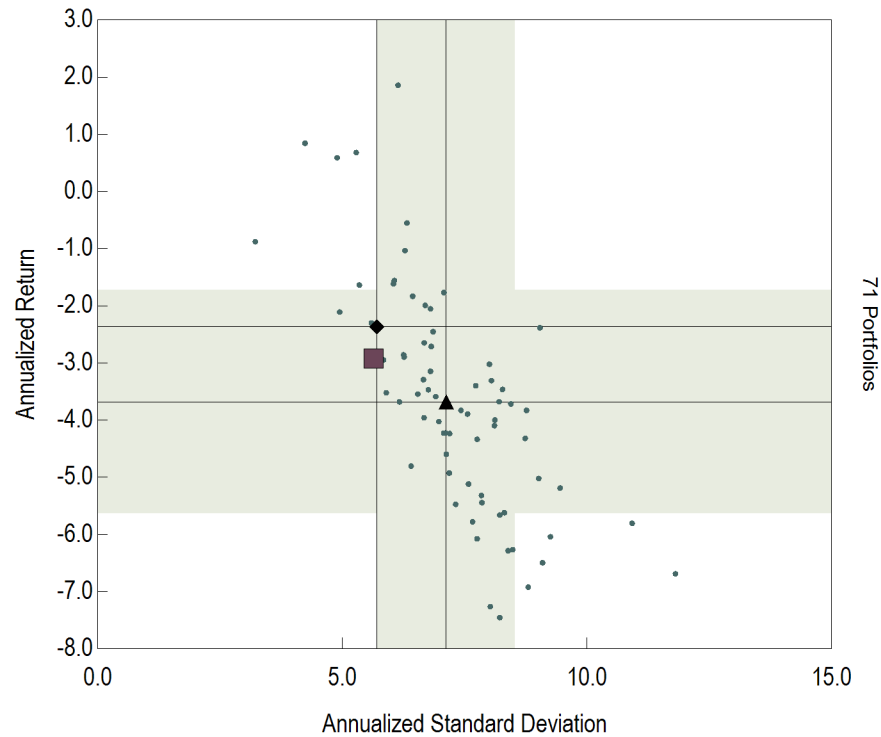


	Fourth Quarter	One Year	Three Years	Five Years
Beginning Market Value	\$3,682,678,461	\$3,593,922,037	\$3,003,671,006	\$3,006,083,447
Net Cash Flow	-\$51,666,642	-\$50,408,417	-\$157,894,190	-\$217,187,173
Net Investment Change	-\$176,674,834	-\$89,176,635	\$608,560,168	\$665,440,710
Ending Market Value	\$3,454,336,984	\$3,454,336,984	\$3,454,336,984	\$3,454,336,984



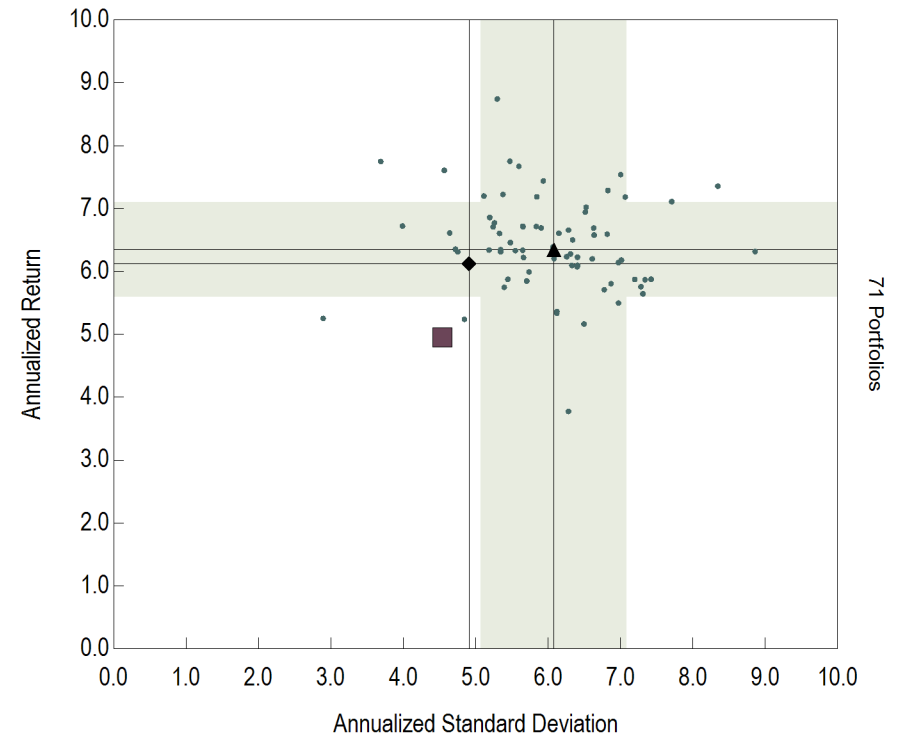


Annualized Return vs. Annualized Standard Deviation  
1 Year Ending December 31, 2018



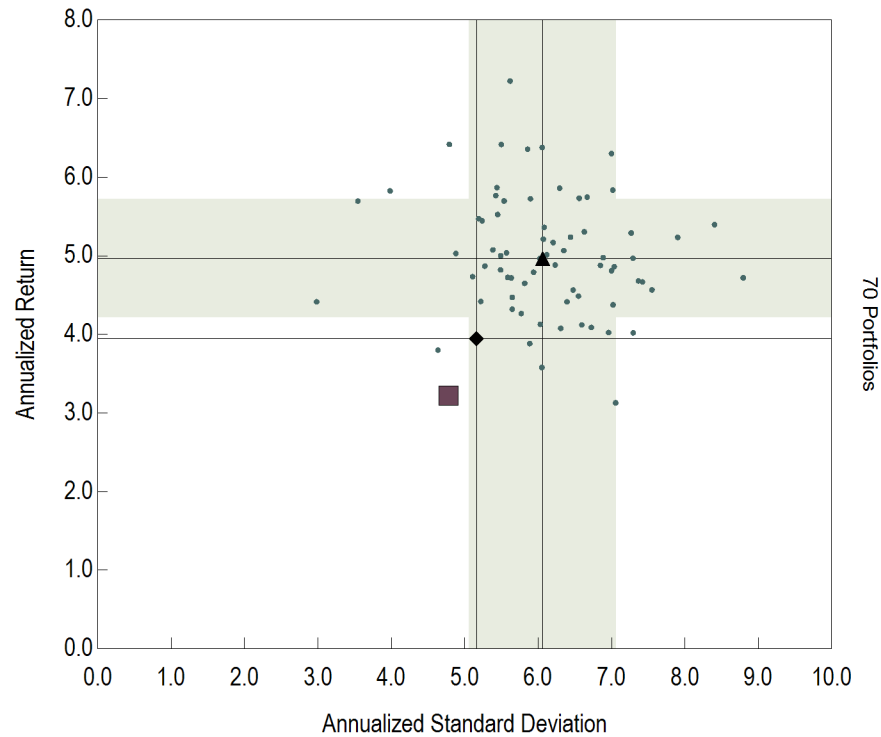
- Total Fund
- ◆ Policy Benchmark
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross

Annualized Return vs. Annualized Standard Deviation  
3 Years Ending December 31, 2018



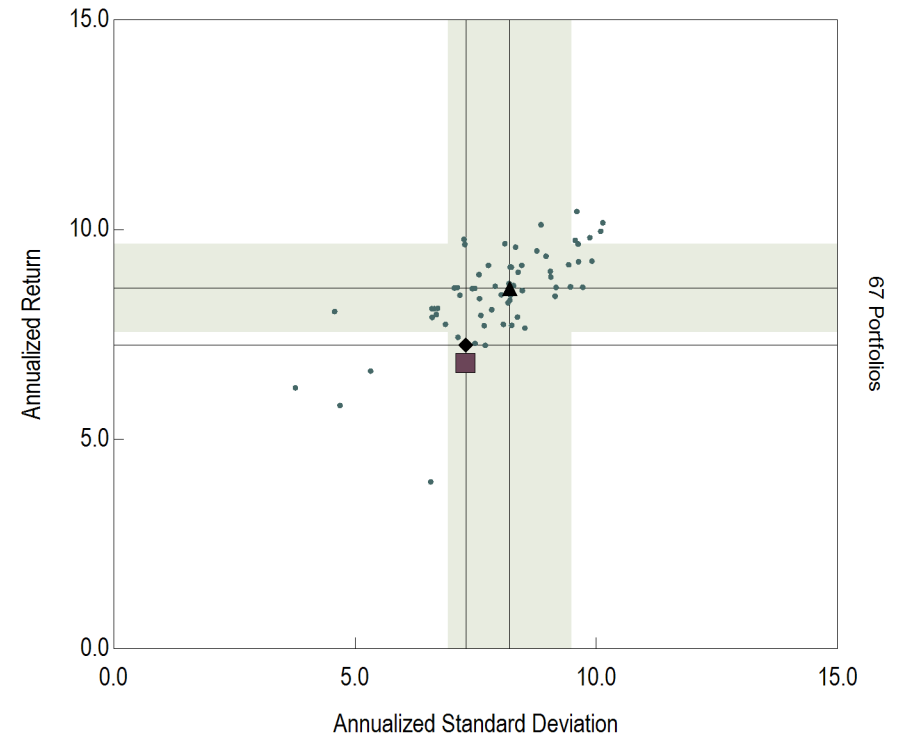
- Total Fund
- ◆ Policy Benchmark
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross

Annualized Return vs. Annualized Standard Deviation  
5 Years Ending December 31, 2018



- Total Fund
- ◆ Policy Benchmark
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross

Annualized Return vs. Annualized Standard Deviation  
10 Years Ending December 31, 2018

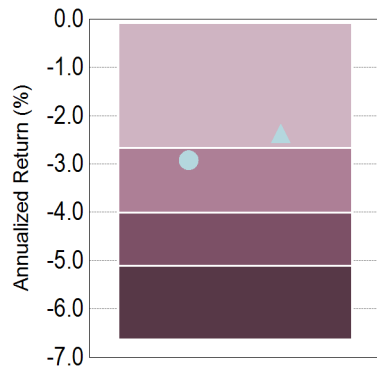


- Total Fund
- ◆ Policy Benchmark
- ▲ Universe Median
- 68% Confidence Interval
- InvestorForce Public DB > \$1B Gross

Total Fund Risk Statistics vs. Peer Universe (Trailing 1 Year)

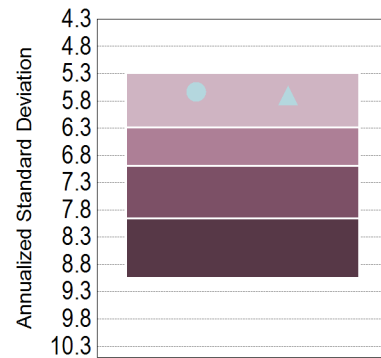
As of December 31, 2018

**Annualized Return (%)**  
vs. InvestorForce Public DB > \$1B Net



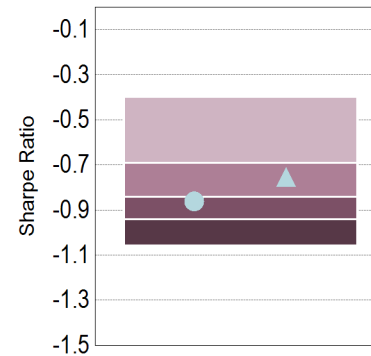
● Total Fund	
Value	-2.9
Rank	29
▲ Policy Benchmark	
Value	-2.4
Rank	20
Universe	
5th %tile	-0.1
25th %tile	-2.7
Median	-4.0
75th %tile	-5.1
95th %tile	-6.6

**Annualized Standard Deviation**  
vs. InvestorForce Public DB > \$1B Net



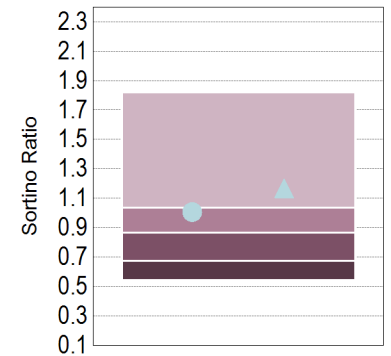
● Total Fund	
Value	5.6
Rank	11
▲ Policy Benchmark	
Value	5.7
Rank	12
Universe	
5th %tile	5.3
25th %tile	6.3
Median	7.0
75th %tile	7.9
95th %tile	9.0

**Sharpe Ratio**  
vs. InvestorForce Public DB > \$1B Net



● Total Fund	
Value	-0.9
Rank	56
▲ Policy Benchmark	
Value	-0.8
Rank	34
Universe	
5th %tile	-0.4
25th %tile	-0.7
Median	-0.8
75th %tile	-0.9
95th %tile	-1.1

**Sortino Ratio**  
vs. InvestorForce Public DB > \$1B Net

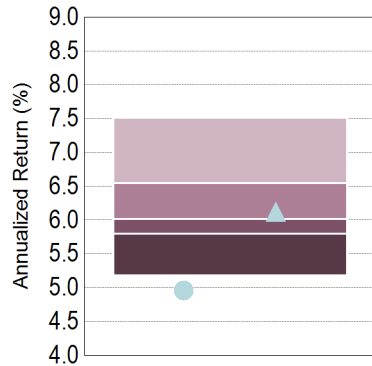


● Total Fund	
Value	1.0
Rank	35
▲ Policy Benchmark	
Value	1.2
Rank	20
Universe	
5th %tile	1.8
25th %tile	1.0
Median	0.9
75th %tile	0.7
95th %tile	0.5

Total Fund Risk Statistics vs. Peer Universe (Trailing 3 Years)

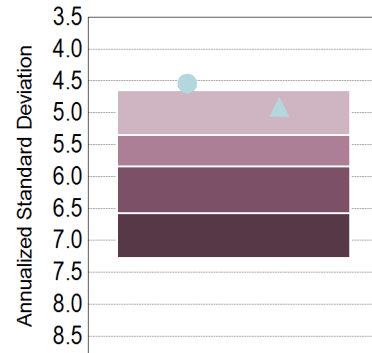
As of December 31, 2018

**Annualized Return (%)**  
vs. InvestorForce Public DB > \$1B Net



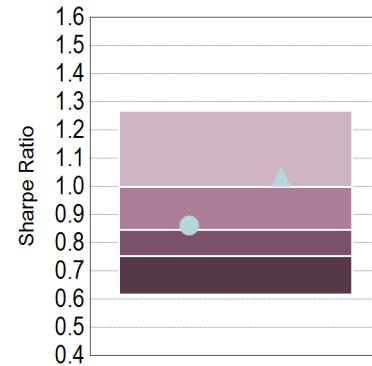
● Total Fund	
Value	5.0
Rank	99
▲ Policy Benchmark	
Value	6.1
Rank	47
Universe	
5th %tile	7.5
25th %tile	6.6
Median	6.0
75th %tile	5.8
95th %tile	5.2

**Annualized Standard Deviation**  
vs. InvestorForce Public DB > \$1B Net



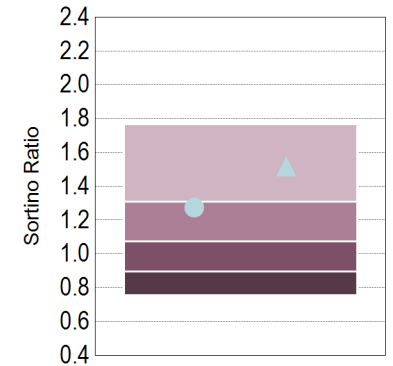
● Total Fund	
Value	4.5
Rank	4
▲ Policy Benchmark	
Value	4.9
Rank	12
Universe	
5th %tile	4.6
25th %tile	5.3
Median	5.8
75th %tile	6.6
95th %tile	7.3

**Sharpe Ratio**  
vs. InvestorForce Public DB > \$1B Net



● Total Fund	
Value	0.9
Rank	49
▲ Policy Benchmark	
Value	1.0
Rank	21
Universe	
5th %tile	1.3
25th %tile	1.0
Median	0.8
75th %tile	0.8
95th %tile	0.6

**Sortino Ratio**  
vs. InvestorForce Public DB > \$1B Net

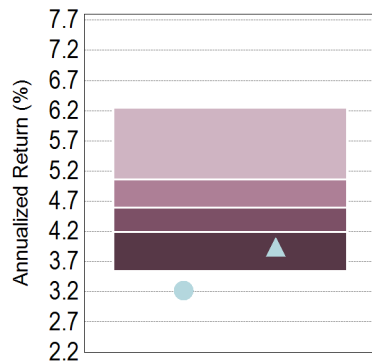


● Total Fund	
Value	1.3
Rank	29
▲ Policy Benchmark	
Value	1.5
Rank	14
Universe	
5th %tile	1.8
25th %tile	1.3
Median	1.1
75th %tile	0.9
95th %tile	0.8

Total Fund Risk Statistics vs. Peer Universe (Trailing 5 Years)

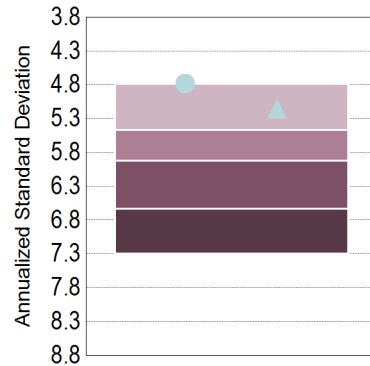
As of December 31, 2018

**Annualized Return (%)**  
vs. InvestorForce Public DB > \$1B Net



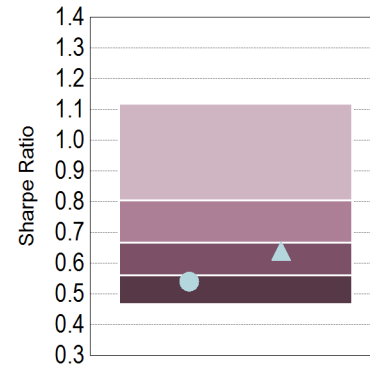
● Total Fund	
Value	3.2
Rank	99
▲ Policy Benchmark	
Value	3.9
Rank	89
Universe	
5th %tile	6.3
25th %tile	5.1
Median	4.6
75th %tile	4.2
95th %tile	3.6

**Annualized Standard Deviation**  
vs. InvestorForce Public DB > \$1B Net



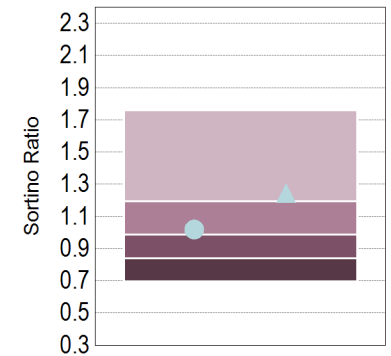
● Total Fund	
Value	4.8
Rank	5
▲ Policy Benchmark	
Value	5.2
Rank	11
Universe	
5th %tile	4.8
25th %tile	5.5
Median	5.9
75th %tile	6.6
95th %tile	7.3

**Sharpe Ratio**  
vs. InvestorForce Public DB > \$1B Net



● Total Fund	
Value	0.5
Rank	81
▲ Policy Benchmark	
Value	0.6
Rank	57
Universe	
5th %tile	1.1
25th %tile	0.8
Median	0.7
75th %tile	0.6
95th %tile	0.5

**Sortino Ratio**  
vs. InvestorForce Public DB > \$1B Net

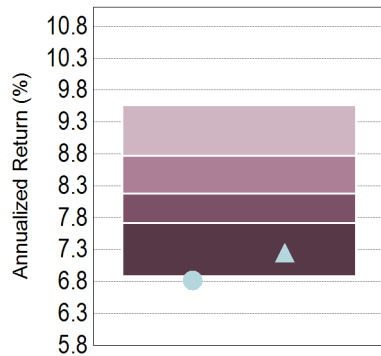


● Total Fund	
Value	1.0
Rank	46
▲ Policy Benchmark	
Value	1.2
Rank	24
Universe	
5th %tile	1.8
25th %tile	1.2
Median	1.0
75th %tile	0.8
95th %tile	0.7

Total Fund Risk Statistics vs. Peer Universe (Trailing 10 Years)

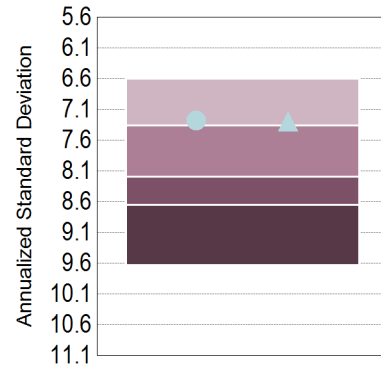
As of December 31, 2018

**Annualized Return (%)**  
vs. InvestorForce Public DB > \$1B Net



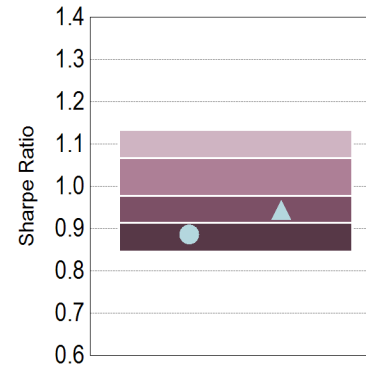
● Total Fund	
Value	6.8
Rank	97
▲ Policy Benchmark	
Value	7.2
Rank	92
Universe	
5th %tile	9.6
25th %tile	8.8
Median	8.2
75th %tile	7.7
95th %tile	6.9

**Annualized Standard Deviation**  
vs. InvestorForce Public DB > \$1B Net



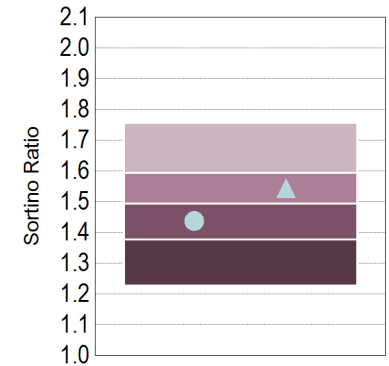
● Total Fund	
Value	7.3
Rank	25
▲ Policy Benchmark	
Value	7.3
Rank	25
Universe	
5th %tile	6.6
25th %tile	7.4
Median	8.2
75th %tile	8.6
95th %tile	9.6

**Sharpe Ratio**  
vs. InvestorForce Public DB > \$1B Net



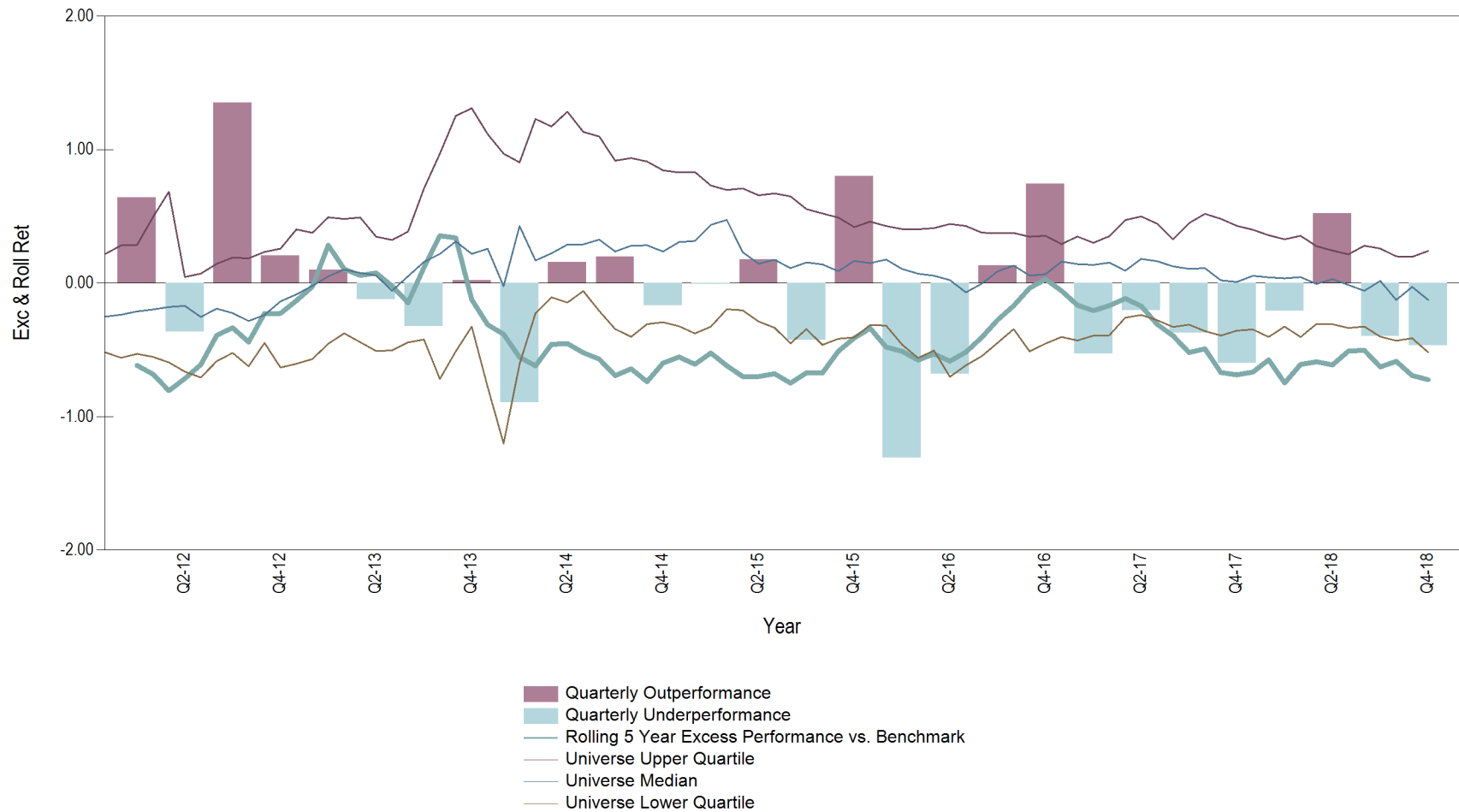
● Total Fund	
Value	0.9
Rank	84
▲ Policy Benchmark	
Value	0.9
Rank	61
Universe	
5th %tile	1.1
25th %tile	1.1
Median	1.0
75th %tile	0.9
95th %tile	0.8

**Sortino Ratio**  
vs. InvestorForce Public DB > \$1B Net

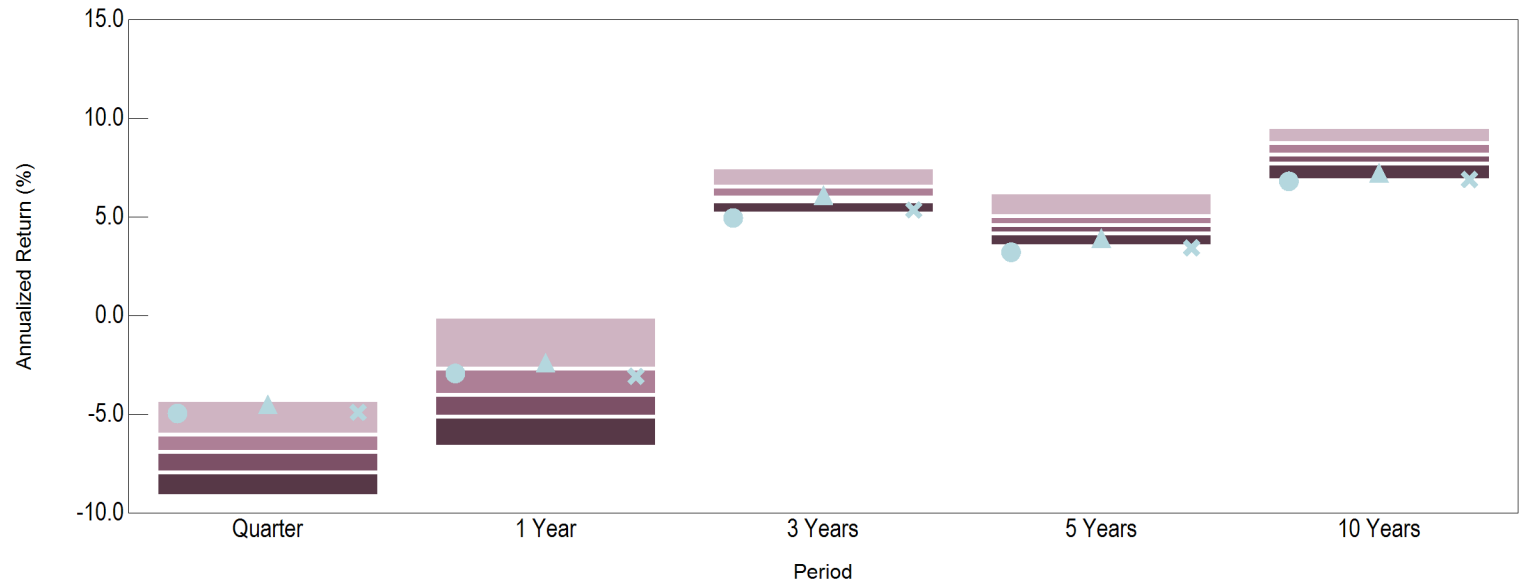


● Total Fund	
Value	1.4
Rank	61
▲ Policy Benchmark	
Value	1.5
Rank	33
Universe	
5th %tile	1.8
25th %tile	1.6
Median	1.5
75th %tile	1.4
95th %tile	1.2

Rolling Annualized Excess Performance



InvestorForce Public DB > \$1B Net Return Comparison  
Ending December 31, 2018



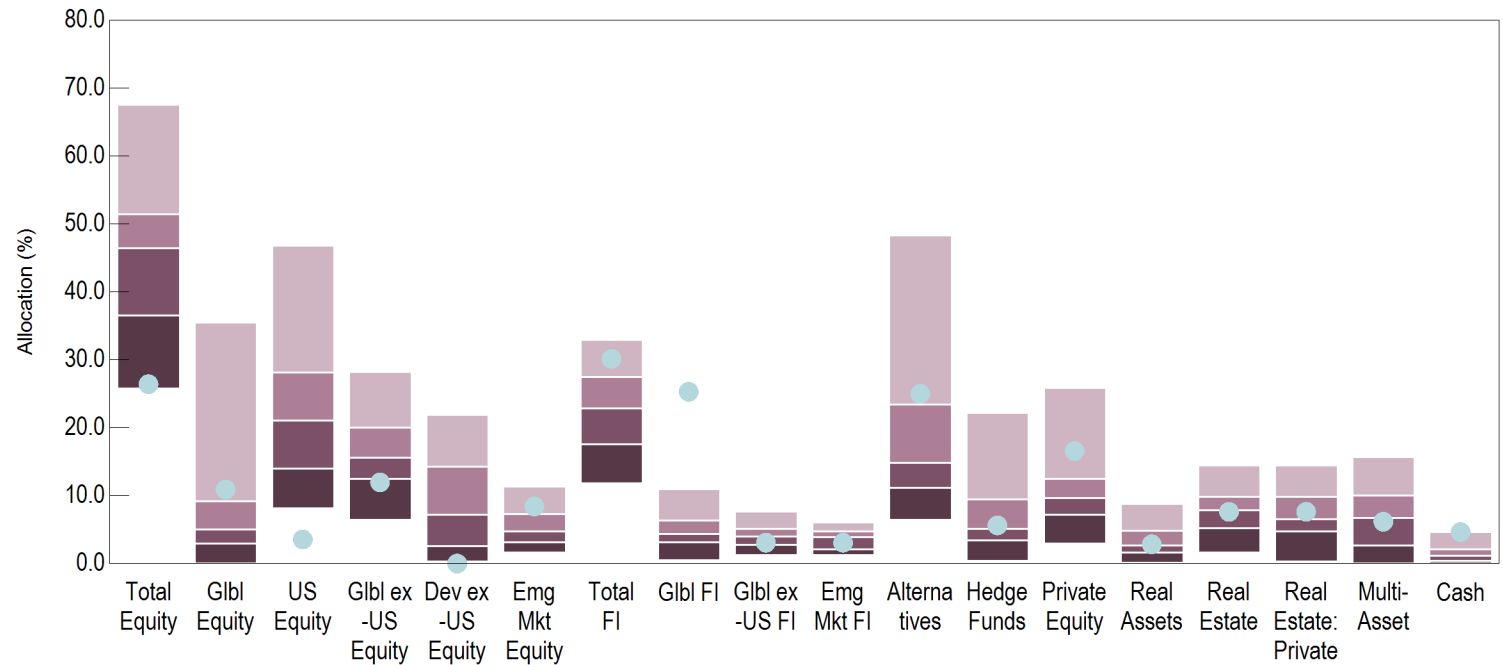
	Quarter		1 Year		3 Years		5 Years		10 Years	
<b>Return (Rank)</b>										
5th Percentile	-4.3	(11)	-0.1	(29)	7.5	(99)	6.3	(99)	9.6	(97)
25th Percentile	-6.0	(10)	-2.7	(20)	6.6	(47)	5.1	(89)	8.8	(92)
Median	-6.9	(11)	-4.0	(32)	6.0	(88)	4.6	(98)	8.2	(95)
75th Percentile	-7.9		-5.1		5.8		4.2		7.7	
95th Percentile	-9.1		-6.6		5.2		3.6		6.9	
# of Portfolios	64		63		63		62		59	
● Total Fund	-4.9	(11)	-2.9	(29)	5.0	(99)	3.2	(99)	6.8	(97)
▲ Policy Benchmark	-4.5	(10)	-2.4	(20)	6.1	(47)	3.9	(89)	7.2	(92)
× Investable Benchmark Portfolio	-4.9	(11)	-3.1	(32)	5.4	(88)	3.4	(98)	6.9	(95)

<sup>1</sup> Fiscal Year begins July 1.





Total Plan Allocation vs. InvestorForce Public DB > \$1B Net  
As of December 31, 2018



	Allocation																		
5th Percentile	67.5	35.5	46.8	28.3	21.9	11.3	32.9	11.0	7.7	6.0	48.3	22.2	25.9	8.8	14.4	14.4	15.7	4.7	--
25th Percentile	51.5	9.2	28.3	20.1	14.4	7.4	27.6	6.5	5.3	4.8	23.5	9.6	12.6	4.9	10.0	9.9	10.2	2.2	--
Median	46.5	5.1	21.2	15.7	7.3	4.9	22.9	4.5	4.1	3.9	14.9	5.2	9.7	2.8	7.9	6.6	6.8	1.3	--
75th Percentile	36.6	3.0	14.1	12.6	2.7	3.2	17.6	3.2	2.8	2.2	11.3	3.5	7.3	1.7	5.3	4.8	2.7	0.5	--
95th Percentile	25.9	0.1	8.2	6.5	0.4	1.7	11.9	0.6	1.3	1.3	6.5	0.5	3.0	0.2	1.7	0.4	0.1	0.1	--
# of Portfolios	50	20	43	49	27	41	50	23	25	23	47	33	46	23	45	42	33	50	--
● Total Fund	26.4	10.9	3.6	12.0	0.0	8.4	30.2	25.3	3.1	3.1	25.0	5.6	16.6	2.8	7.6	7.6	6.2	4.6	--
Rank	95	20	99	81	99	19	11	1	69	63	22	48	16	50	54	46	52	6	--

As of December 31, 2018

Major Benchmark Returns					
Periods Ending December 31, 2018					
Name	Q4-18	1 Yr	3 Yrs	5 Yrs	10 Yrs
<b>US Equity</b>					
Russell 3000	-14.3	-5.2	9.0	7.9	13.2
S&P 500	-13.5	-4.4	9.3	8.5	13.1
Russell 1000	-13.8	-4.8	9.1	8.2	13.3
Russell 1000 Growth	-15.9	-1.5	11.1	10.4	15.3
Russell 1000 Value	-11.7	-8.3	7.0	5.9	11.2
Russell MidCap	-15.4	-9.1	7.0	6.3	14.0
Russell 2000	-20.2	-11.0	7.4	4.4	12.0
Russell 2000 Growth	-21.7	-9.3	7.2	5.1	13.5
Russell 2000 Value	-18.7	-12.9	7.4	3.6	10.4
<b>International Equity</b>					
MSCI ACWI	-12.8	-9.4	6.6	4.3	9.5
MSCI World ex USA	-12.8	-14.1	3.1	0.3	6.2
MSCI EAFE	-12.5	-13.8	2.9	0.5	6.3
MSCI Emerging Markets	-7.5	-14.6	9.2	1.6	8.0
<b>Fixed Income</b>					
91 Day T-Bills	0.6	1.9	1.1	0.6	0.4
BBgBarc US Aggregate TR	1.6	0.0	2.1	2.5	3.5
BBgBarc US Govt/Credit TR	1.5	-0.4	2.2	2.5	3.5
BBgBarc US Municipal TR	1.7	1.3	2.3	3.8	4.9
BBgBarc US High Yield TR	-4.5	-2.1	7.2	3.8	11.1
FTSE WGBI TR	1.8	-0.8	2.7	0.8	1.5
FTSE WGBI ex US TR	1.3	-1.8	3.3	0.3	1.3
<b>Real Estate</b>					
FTSE NAREIT All REIT	-6.1	-4.4	4.5	8.2	12.4
NCREIF Property Index	1.4	6.7	7.2	9.3	7.5
<b>Alternatives</b>					
HFRI Fund of Funds Composite Index	-4.9	-4.0	1.3	1.4	3.1
<b>Inflation</b>					
Consumer Price Index	-0.5	1.9	2.0	1.5	1.8

## Total Fund Risk Statistics (Net of Fees)

As of December 31, 2018

**Statistics Summary**  
3 Years Ending December 31, 2018

	% of Total MV	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Anlzd Alpha J	Anlzd Alpha J Rank	Tracking Error	Information Ratio	Information Ratio Rank	Beta	Sharpe Ratio
Total Fund	100.00%	4.96%	99	4.54%	4	-0.62%	82	1.32%	-0.88	93	0.89	0.86
Policy Benchmark	--	6.12%	47	4.91%	12	0.00%	51	0.00%	--	--	1.00	1.03
Growth	55.98%	6.10%	--	6.40%	--	0.34%	--	1.23%	-0.10	--	0.91	0.79
Growth Benchmark	--	6.23%	--	6.92%	--	0.00%	--	0.00%	--	--	1.00	0.75
Public Equity	29.08%	6.11%	--	9.91%	--	-0.49%	--	1.69%	-0.56	--	0.92	0.51
Public Equity Benchmark	--	7.06%	--	10.63%	--	0.00%	--	0.00%	--	--	1.00	0.57
Global Equity	9.78%	7.72%	21	11.30%	55	1.20%	26	3.20%	0.38	15	1.00	0.59
MSCI ACWI IMI Net USD	--	6.49%	37	10.79%	41	0.00%	43	0.00%	--	--	1.00	0.50
U.S. Equity	4.67%	8.78%	30	11.78%	31	0.23%	31	2.07%	0.20	23	1.02	0.66
MSCI USA IMI NR USD	--	8.37%	35	11.32%	24	0.00%	34	0.00%	--	--	1.00	0.65
International Equity	3.55%	1.92%	75	11.69%	38	-1.32%	77	2.18%	-0.59	97	1.01	0.07
MSCI World ex USA IMI NR USD	--	3.21%	58	11.37%	26	0.00%	58	0.00%	--	--	1.00	0.19
Emerging Markets Equity	8.41%	5.22%	82	12.90%	12	-2.17%	77	4.04%	-0.81	89	0.85	0.32
MSCI Emerging Market IMI Net	--	8.51%	38	14.63%	57	0.00%	45	0.00%	--	--	1.00	0.51
Marketable Alternative Equity	2.67%	3.53%	--	4.12%	--	1.25%	--	4.16%	0.00	--	0.50	0.60
HFRI Equity Hedge (Total) Index	--	3.53%	--	6.13%	--	0.00%	--	0.00%	--	--	1.00	0.40
Private Markets	22.40%	6.92%	--	3.95%	--	1.05%	--	2.87%	-0.32	--	0.71	1.49
Private Markets Benchmark	--	7.84%	--	4.19%	--	0.00%	--	0.00%	--	--	1.00	1.62
Private Markets ex Russell 3000	14.82%	7.63%	--	2.59%	--	5.34%	--	4.23%	-0.05	--	0.18	2.54
Private Markets Benchmark	--	7.84%	--	4.19%	--	0.00%	--	0.00%	--	--	1.00	1.62
Total Private Equity Composite	13.79%	9.33%	--	5.76%	--	10.57%	--	9.46%	-0.64	--	-0.16	1.44
San Jose Custom Private Equity Benchmark	--	15.39%	--	6.53%	--	0.00%	--	0.00%	--	--	1.00	2.19
Private Equity ex Russell 3000	6.22%	13.58%	--	3.73%	--	14.32%	--	8.20%	-0.22	--	-0.12	3.36
San Jose Custom Private Equity Benchmark	--	15.39%	--	6.53%	--	0.00%	--	0.00%	--	--	1.00	2.19
Northern Trust Russell 3000 Index Fund	7.57%	9.05%	--	11.34%	--	0.07%	--	0.04%	1.80	--	1.00	0.70
Russell 3000	--	8.97%	--	11.34%	--	0.00%	--	0.00%	--	--	1.00	0.70

## Total Fund Risk Statistics (Net of Fees)

As of December 31, 2018

	% of Total MV	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Anlzd Alpha J	Anlzd Alpha J Rank	Tracking Error	Information Ratio	Information Ratio Rank	Beta	Sharpe Ratio
Private Debt	5.22%	3.27%	--	3.64%	--	1.35%	--	4.68%	-0.77	--	0.15	0.61
S&P Global Leveraged Loan + 2%	--	6.86%	--	3.53%	--	0.00%	--	0.00%	--	--	1.00	1.65
Private Real Estate	2.49%	10.86%	--	4.09%	--	11.87%	--	5.91%	0.41	--	-0.28	2.40
NCREIF ODCE Equal Weighted	--	8.44%	--	3.42%	--	0.00%	--	0.00%	--	--	1.00	2.16
Emerging Market Debt	3.07%	4.88%	66	5.46%	24	1.07%	39	4.07%	-0.18	65	0.60	0.70
50% JPM EMBI GD / 50% JPM GBI-EM	--	5.61%	41	7.95%	64	0.00%	61	0.00%	--	--	1.00	0.57
High Yield Debt	1.43%	3.66%	--	3.93%	--	0.50%	--	4.15%	-0.51	--	0.45	0.67
50% Bofa Global HY/50% S&P Global Leveraged Loan	--	5.80%	--	4.10%	--	0.00%	--	0.00%	--	--	1.00	1.16
Zero Beta	31.12%	1.87%	--	1.37%	--	0.90%	--	2.91%	0.41	--	0.21	0.60
Zero Beta Benchmark	--	0.68%	--	3.39%	--	0.00%	--	0.00%	--	--	1.00	-0.11
Absolute Return	6.86%	2.19%	--	1.97%	--	1.24%	--	3.36%	0.45	--	0.26	0.58
Absolute Return Benchmark	--	0.68%	--	3.94%	--	0.00%	--	0.00%	--	--	1.00	-0.09
Macro	3.30%	0.83%	--	4.05%	--	0.76%	--	2.99%	0.38	--	0.72	-0.05
HFRI Macro (Total) Index	--	-0.31%	--	4.12%	--	0.00%	--	0.00%	--	--	1.00	-0.33
Relative Value	3.56%	3.96%	--	2.26%	--	2.72%	--	3.44%	-0.03	--	0.07	1.29
HFRI Relative Value (Total) Index	--	4.06%	--	2.78%	--	0.00%	--	0.00%	--	--	1.00	1.08
Cash	4.33%	0.87%	--	0.41%	--	-0.16%	--	0.42%	-0.35	--	0.47	-0.44
ICE BofAML 91 Days T-Bills TR	--	1.02%	--	0.20%	--	0.00%	--	0.00%	--	--	1.00	-0.16
Other	12.60%	3.90%	--	2.78%	--	1.14%	--	2.45%	-0.10	--	0.55	1.02
Other Benchmark	--	4.16%	--	4.13%	--	0.00%	--	0.00%	--	--	1.00	0.75
Core Real Estate	5.19%	7.25%	--	3.78%	--	10.11%	--	5.92%	-0.05	--	-0.60	1.64
NCREIF ODCE Equal Weighted (Net)	--	7.53%	--	3.07%	--	0.00%	--	0.00%	--	--	1.00	2.11
Commodities	2.04%	0.71%	--	5.79%	--	0.00%	--	6.61%	0.06	--	0.45	-0.06
Bloomberg Commodity Index TR USD	--	0.30%	--	9.73%	--	0.00%	--	0.00%	--	--	1.00	-0.08

Total Fund Risk Statistics (Net of Fees)

As of December 31, 2018

	% of Total MV	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Anlzd Alpha J	Anlzd Alpha J Rank	Tracking Error	Information Ratio	Information Ratio Rank	Beta	Sharpe Ratio
Core Bonds	3.29%	3.81%	--	3.90%	--	1.67%	--	2.68%	0.42	--	0.66	0.71
BBgBarc Global Aggregate TR	--	2.70%	--	4.98%	--	0.00%	--	0.00%	--	--	1.00	0.33
Overlay	0.31%	-23.52%	--	41.75%	--	-24.57%	--	41.82%	-0.59	--	-65.83	-0.59
91 Day T-Bills	--	1.05%	--	0.21%	--	0.00%	--	0.00%	--	--	1.00	0.00

**Benchmark History**  
As of December 31, 2018

<b>Total Fund</b>		
10/1/2018	Present	13% MSCI USA IMI NR USD / 8% MSCI World ex USA IMI NR USD / 10% MSCI Emerging Market IMI Net / 22% Private Markets Benchmark / 3% 50% JPM EMBI GD / 50% JPM GBI-EM / 20% ICE BofAML 91 Days T-Bills TR / 5% Immunized Cash Flow Benchmark / 7% Absolute Return Benchmark / 5% NCREIF-ODCE / 2% Bloomberg Commodity Index TR USD / 3% FTSE WGBI ex US TR / 2% BBgBarc US Treasury TIPS 0-5 Yr TR
5/1/2018	9/30/2018	34% MSCI ACWI IMI (Net) / 8% San Jose Custom Total Private Equity Index / 22.4% BBgBarc Global Aggregate TR / 1.4% S&P Global Leveraged Loan / 1.4% JP Morgan EMBI Global Diversified / 1.4% JP Morgan GBI EM Global Diversified TR USD / 6% HFRI Macro (Total) Index / 2% DJ Brookfield Global Infrastructure Net TR USD / 6% Bloomberg Commodity Index TR USD / 8% S&P Global Leveraged Loan + 2% / 8% NCREIF Property Index / 1.4% ICE BofAML Global High Yield TR
11/1/2016	4/30/2018	31% MSCI ACWI IMI (Net) / 8% San Jose Custom Total Private Equity Index / 16% Fixed Income Blended Benchmark / 11% S&P Global Leveraged Loan + 2% / 7% Custom Commodity Risk Parity Index / 3% CPI + 5% (Unadjusted) / 10% 60% MSCI World & 40% Citigroup WGBI / 1% 91 Day T-Bills / 7% San Jose Custom Total Real Estate BM / 6% Absolute Return Benchmark
<b>Growth</b>		
10/1/2018	Present	51.73% Public Equity Benchmark / 43.1% Private Markets Benchmark / 5.17% 50% JPM EMBI GD / 50% JPM GBI-EM
5/1/2018	9/30/2018	55.18% MSCI ACWI IMI Net USD / 12.99% S&P Global Leveraged Loan +2% / 12.99% Private Markets Benchmark / 6.49% NCREIF Property Index / 4.55% 50% JPM EMBI GD / 50% JPM GBI-EM / 4.55% 50% BAML Global HY / 50% S&P Global Leveraged Loan / 3.25% DJ Brookfield Global Infrastructure Net TR USD
7/1/2015	4/30/2018	51.92% MSCI ACWI IMI Net USD / 18.43% S&P Global Leveraged Loan +2% / 13.4% Private Markets Benchmark / 2.68% 50% JPM EMBI GD / 50% JPM GBI-EM / 2.68% 50% BAML Global HY / 50% S&P Global Leveraged Loan
<b>Public Equity</b>		
10/1/2018	Present	41.93% MSCI USA IMI NR USD / 25.81% MSCI World ex USA IMI NR USD / 32.26% MSCI Emerging Market IMI Net
4/1/2008	9/30/2018	MSCI ACWI IMI (Net)
<b>Global Equity</b>		
3/1/2013	Present	MSCI ACWI IMI Net USD
<b>U.S. Equity</b>		
6/1/1995	Present	MSCI USA IMI NR USD
<b>International Equity</b>		
6/1/1995	Present	MSCI World ex USA IMI NR USD
<b>Emerging Markets Equity</b>		
9/1/2001	Present	MSCI Emerging Market IMI Net
<b>Marketable Alternative Equity</b>		
10/1/2014	Present	HFRI Equity Hedge (Total) Index

Private Markets		
10/1/2018	Present	Private Markets
5/1/2018	9/30/2018	36.36% Cambridge Associates PE Composite BM / 36.36% S&P Global Leveraged Loan +2% / 18.18% NCREIF Property Index / 9.1% DJ Brookfield Global Infrastructure Net TR USD
7/1/2015	4/30/2018	19.61% Cambridge Associates PE Composite BM / 11.76% Russell 3000 / 43.14% S&P Global Leveraged Loan +2% / 13.73% NCREIF Property Index / 11.76% DJ Brookfield Global Infrastructure Net TR USD
Private Markets ex Russell 3000		
10/1/2018	Present	Private Markets
5/1/2018	9/30/2018	36.36% Cambridge Associates PE Composite BM / 36.36% S&P Global Leveraged Loan +2% / 18.18% NCREIF Property Index / 9.1% DJ Brookfield Global Infrastructure Net TR USD
7/1/2015	4/30/2018	19.61% Cambridge Associates PE Composite BM / 11.76% Russell 3000 / 43.14% S&P Global Leveraged Loan +2% / 13.73% NCREIF Property Index / 11.76% DJ Brookfield Global Infrastructure Net TR USD
Total Private Equity Composite		
11/1/2016	Present	Cambridge Glob Priv Eq Qtr Lag
10/1/2005	10/31/2016	Cambridge Associates US All PE (1 Qtr Lag)
Private Equity ex Russell 3000		
11/1/2016	Present	Cambridge Glob Priv Eq Qtr Lag
10/1/2005	10/31/2016	Cambridge Associates US All PE (1 Qtr Lag)
Northern Trust Russell 3000 Index Fund		
4/1/2014	Present	Russell 3000
Private Debt		
10/1/2015	Present	S&P Global Leveraged Loan + 0.17
Private Real Estate		
7/1/2015	Present	NCREIF ODCE Equal Weighted
Private Real Assets		
		No Benchmark Selected
Emerging Market Debt		
1/1/2013	Present	50% JP Morgan GBI EM Global Diversified TR USD / 50% JP Morgan EMBI Global Diversified
High Yield Debt		
10/1/2015	Present	50% ICE BofAML Global High Yield TR / 50% S&P Global Leveraged Loan

<b>Zero Beta</b>		
10/1/2018	Present	62.5% ICE BofAML 91 Days T-Bills TR / 15.62% Immunized Cash Flow Benchmark / 21.88% Absolute Return Benchmark
5/1/2018	9/30/2018	HFRI Macro (Total) Index
7/1/2015	4/30/2018	85.71% HFRI Macro (Total) Index / 14.29% ICE BofAML 91 Days T-Bills TR
<b>Absolute Return</b>		
10/1/2018	Present	ICE BofAML 91 Days T-Bills TR
11/1/2012	9/30/2018	HFRI Macro (Total) Index
<b>Macro</b>		
7/1/2015	Present	HFRI Macro (Total) Index
<b>Relative Value</b>		
7/1/2015	Present	HFRI Relative Value (Total) Index
<b>Short-Term IG Bonds</b>		
10/1/2018	Present	ICE BofAML 91 Days T-Bills TR
<b>Immunized Cash Flows</b>		
10/1/2018	Present	Immunized Cash Flows
<b>Cash</b>		
7/1/2002	Present	ICE BofAML 91 Days T-Bills TR
<b>Other</b>		
10/1/2018	Present	41.67% NCREIF ODCE Equal Weighted / 16.67% Bloomberg Commodity Index TR USD / 25% FTSE WGBI ex US TR / 16.66% BBgBarc US Treasury TIPS 0-5 Yr TR
5/1/2018	9/30/2018	69.14% BBgBarc Global Aggregate TR / 18.52% Bloomberg Commodity Index TR USD / 12.34% NCREIF Property Index
7/1/2015	4/30/2018	38.44% BBgBarc Global Aggregate TR / 30.03% 60% MSCI World & 40% Citigroup WGBI / 21.02% Bloomberg Commodity Index TR USD / 10.51% NCREIF Property Index
<b>Core Real Estate</b>		
9/1/2011	Present	NCREIF ODCE Equal Weighted (Net)
<b>Commodities</b>		
4/1/2011	Present	Bloomberg Commodity Index TR USD
<b>Sovereign Bonds ex-US</b>		
10/1/2018	Present	FTSE WGBI ex US TR



TIPS		
10/1/2018	Present	BBgBarc US Treasury TIPS 0-5 Yr TR
Core Bonds		
10/1/2015	Present	BBgBarc Global Aggregate TR
Overlay		
	Present	91 Day T-Bills

## **Glossary and Notes**

**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.

**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.

**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.

**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.

**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%.

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

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.