



# Board of Retirement Regular Meeting

## Sacramento County Employees' Retirement System

### Agenda Item 14

**MEETING DATE:** December 20, 2017

**SUBJECT:** Quarterly Total Fund Investment Performance Report  
Third Quarter 2017

**SUBMITTED FOR:**  Consent       **Deliberation and Action**       **Receive and File**

**RECOMMENDATION**

Staff and Verus recommend the Board receive and file the SCERS Total Fund Investment Performance Review report, prepared by Verus, for the quarter ending September 30, 2017.

**PURPOSE**

To comply with SCERS' investment policy statement reporting requirements and provide a summary of SCERS' Total Fund investment returns and market environment discussion as of the quarter ending September 30, 2017.

**SCERS TOTAL FUND RETURNS**

This item summarizes SCERS' Total Fund investment returns as presented in Verus' Investment Performance Review for the period ending September 30, 2017. Please note that returns for SCERS' private equity, private credit, non-core real estate and real assets portfolios are lagged one-quarter.

**SCERS TOTAL FUND PERFORMANCE SUMMARY**  
Quarter Reporting Periods Ending September 30, 2017

SCERS ASSET CLASS	Quarter	Year-to-Date	1-Year	3-Year	5-Year	Since Inception	Since Inception Date
<b>SCERS TOTAL FUND Return w/Overlay</b>	<b>3.8%</b>	<b>12.3%</b>	<b>13.6%</b>	<b>7.0%</b>	<b>8.5%</b>	<b>8.4%</b>	Jun-86
Policy Index	3.3%	10.5%	11.6%	6.6%	8.4%	8.6%	
InvestorForce Public DB > \$1B	3.6%	11.8%	12.9%	7.2%	8.9%	8.4%	
<b>SCERS TOTAL FUND Return w/o Overlay</b>	<b>3.7%</b>	<b>12.2%</b>	<b>13.6%</b>	<b>7.0%</b>	<b>8.5%</b>	<b>8.3%</b>	Jun-86
Policy Index	3.3%	10.5%	11.6%	6.6%	8.4%	8.6%	
<b>GROWTH ASSET CATEGORY</b>	<b>4.8%</b>					<b>9.6%</b>	Mar-17
Custom Benchmark	4.5%					8.5%	
<b>DIVERSIFYING ASSET CATEGORY</b>	<b>1.3%</b>					<b>2.8%</b>	Mar-17
Custom Benchmark	1.1%					2.4%	
<b>REAL RETURN ASSET CATEGORY</b>	<b>2.9%</b>					<b>5.4%</b>	Mar-17
Custom Benchmark	2.0%					3.1%	
<b>OPPORTUNITIES PORTFOLIO</b>	<b>0.5%</b>					<b>4.1%</b>	Mar-17
Custom Benchmark	3.3%					6.1%	

Verus' report has been reformatted to reflect SCERS' new strategic asset allocation, including the Growth, Diversifying, and Real Return asset categories. Please note that new composites were added for the asset categories and several segments of the portfolio, so the performance of these segments includes only one quarter and since inception (Mar-17) performance for this report, without a historical track record. Verus will continue to fill in historical performance for some segments in future reports, as is feasible.

SCERS' policy index benchmark includes a blended weighted average of the individual asset class benchmarks, as defined within SCERS' Master IPS, and as shown below. Several of the asset class benchmarks are carry-over benchmarks from the prior policy index benchmark, while many have been changed as part of the implementation of the new asset allocation, including those for Private Equity, Private Credit, Absolute Return, Real Estate and Real Assets. A comparison of the new and prior policy benchmarks is shown below.

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SCERS BENCHMARK SUMMARY As of September 30, 2017		
Asset Class	Prior Benchmark	New Benchmark
<b>SCERS Total Fund</b>	10% (91-Day T-Bill + 5%) + 15% (Barclays Agg. ) + 1% (BofA High Yield) + 2.4% (Citi WGBI) + 15% (CPI-U Headline + 5%) + 1% (CS Leverage Loan) + 0.6% (JPM GBI EM) + 22.5% (MSCI ACWI ex.-U.S.) + 10% (Russell 1000 + 3%) + 22.5% (Russell 3000)	Weighted Average Blend of Asset Category Benchmarks*
<b>Growth Asset Category</b>	NA	5.08% (91 Day T-Bill + 5%) + 1.7% (BofA High Yield) + 1.7% (CS Leveraged Loan) + 6.78% (CS Leveraged Loan + 2%) + 35.59% (Russell 3000) + 33.9% (MSCI ACWI ex.-U.S.) + 15.25% (Cambridge All PE)
Public Equities	MSCI ACWI	MSCI ACWI
US Equities	Russell 3000	Russell 3000
International Equities	MSCI ACWI ex.-U.S.	MSCI ACWI ex.-U.S.
Private Equity	Russell 1000 + 3%	Cambridge All PE
Public Credit	50% (BofA High Yield) + 50% (CS Leverage Loan)	50% (BofA High Yield) + 50% (CS High Yield)
Private Credit	NA	CS Leveraged Loan + 2%
Growth Absolute Return	91 Day T-Bill + 5%	HFRI FoF Composite Index +1%
<b>Diversifying Asset Category</b>	NA	40% (Barclays U.S. Agg.) + 20% (Barclays U.S. TIPS) + 9.6% (Citi WGBI ex.-U.S.) + 28% HFRI FoF Conservative + 2.4% (JPM GBI EM Diversified)
U.S. Fixed Income	Barclays U.S. Aggregate	Barclays U.S. Aggregate
U.S. Treasury	NA	Barclays U.S. Treasury Index
Global Fixed Income	80% Citi WGBI + 20% JPMorgan GBI EM	80% Citi WGBI + 20% JPMorgan GBI EM
Diversifying Absolute Return	91 Day T-Bill + 5%	HFRI FoF Conservative Index 28.4% (NFI-ODCE) + 15.3% (NFI-ODCE +1%) + 19.7% (Cambridge Infrastructure) + 15.3% (Cambridge Energy) + 4.4% (NCREIF Timber) + 4.4% (NCREIF Agriculture) + 12.5% (Bloomberg Commodity)
<b>Real Return Asset Category</b>	NA	65% (NFI-ODCE) + 35% (NFI-ODCE +1%)
Real Estate	NA	65% (NFI-ODCE) + 35% (NFI-ODCE +1%)
Core Real Estate	NFI-ODCE	NFI-ODCE
Non-Core Real Estate	NFI-ODCE + 1%	NFI-ODCE + 1%
Private Real Assets	CPI-U Headline + 5%	45% (Cambridge Infrastructure) + 35% (Cambridge Energy) + 10% (NCREIF Agriculture) + 10% (NCREIF Timber)
Commodities	Bloomberg Commodity Index	Bloomberg Commodity Index
SSgA Real Assets Proxy	20% (Barclays U.S. TIPS) + 30% (Dow Jones U.S. Select REIT) + 25% (MSCI World Natural Resources) + 25% (S&P Goldman Sachs Commodities)	20% (Barclays U.S. TIPS) + 30% (Dow Jones U.S. Select REIT) + 25% (MSCI World Natural Resources) + 25% (S&P Goldman Sachs Commodities)
<b>Opportunities Portfolio</b>	SCERS Total Fund	SCERS Total Fund

\* See Total Fund Policy Index and Benchmark History in Verus Quarterly Report for details.

## **SCERS GROWTH ASSET CATEGORY RETURNS**

<b>SCERS GROWTH Performance Summary for the periods ending 9/30/17</b>	<b>Quarter</b>	<b>Year-to- Date</b>	<b>1-Year</b>	<b>Since Inception</b>	<b>Since Inception Date</b>
<b>SCERS GROWTH ASSET CATEGORY</b>	<b>4.8%</b>			<b>9.6%</b>	Mar-17
Custom Benchmark	4.5%			8.5%	
<b>Public Equity</b>	<b>5.3%</b>	<b>18.6%</b>	<b>20.3%</b>	<b>9.4%</b>	Jun-11
MSCI ACWI	5.2%	17.3%	18.6%	8.1%	
<b>Private Equity (lagged 1 quarter)</b>	<b>3.9%</b>	<b>11.3%</b>	<b>16.5%</b>	<b>0.0%</b>	Feb-08
Cambridge All PE	3.1%	11.4%	16.8%	9.7%	
<b>Public Credit</b>	<b>1.2%</b>	<b>6.5%</b>	<b>9.1%</b>	<b>4.8%</b>	Nov-13
Custom Benchmark	1.5%	5.0%	7.2%	4.8%	
<b>Private Credit (lagged 1 quarter)</b>	<b>1.5%</b>			<b>5.0%</b>	Mar-17
Credit Suisse Leveraged Loan + 2%	1.6%			2.7%	
<b>Growth Absolute Return</b>	<b>2.7%</b>	<b>NA</b>	<b>NA</b>	<b>4.9%</b>	Mar-17
HFRI FoF Composite +1%	2.6%	5.5%	6.9%	4.0%	

### **Public Equity Portfolio Returns**

The SCERS Public Equity portfolio is comprised of a combination of U.S. and International exposures across large and small cap strategies. Over half of the U.S. Large Cap portfolio is passively managed and the remaining balance is actively managed, while the entire U.S. Small Cap portfolio is actively managed. The SCERS International Equity portfolio is a combination of developed and emerging markets exposure, with the entire portfolio actively managed across large and small cap strategies.

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<b>SCERS PUBLIC EQUITY Performance Summary for the periods ending 9/30/17</b>	<b>Quarter</b>	<b>Year-to-Date</b>	<b>1-Year</b>	<b>Since Inception</b>	<b>Since Inception Date</b>
<b>SCERS PUBLIC EQUITY PORTFOLIO</b>	<b>5.3%</b>	<b>18.6%</b>	<b>20.3%</b>	<b>9.4%</b>	Jun-11
MSCI ACWI	5.2%	17.3%	18.6%	8.1%	
<b>SCERS U.S. Equity</b>	<b>4.4%</b>	<b>14.1%</b>	<b>18.9%</b>	<b>10.1%</b>	Jun-86
Russell 3000	4.6%	13.9%	18.7%	10.2%	
<b>U.S. Large Cap</b>	<b>4.5%</b>	<b>14.9%</b>	<b>19.7%</b>	<b>6.0%</b>	Mar-98
Russell 1000	4.5%	14.2%	18.5%	6.5%	
<b>U.S. Small Cap</b>	<b>4.9%</b>	<b>13.5%</b>	<b>22.4%</b>	<b>12.1%</b>	Dec-90
Russell 2000	5.7%	10.9%	20.7%	11.0%	
<b>U.S. REIT</b>	<b>1.3%</b>	<b>3.5%</b>	<b>0.6%</b>	<b>9.0%</b>	Jan-06
FTSE NAREIT Equity REIT	0.9%	3.7%	0.7%	6.7%	
<b>SCERS International Equity</b>	<b>6.2%</b>	<b>23.5%</b>	<b>20.0%</b>	<b>6.6%</b>	Dec-87
MSCI ACWI ex.-U.S.	6.3%	21.6%	20.2%	6.5%	
<b>International Developed</b>	<b>6.1%</b>	<b>22.5%</b>	<b>20.7%</b>	<b>4.7%</b>	Mar-98
MSCI EAFE	5.5%	20.5%	19.7%	4.9%	
<b>Emerging Markets</b>	<b>7.3%</b>	<b>29.7%</b>	<b>21.7%</b>	<b>6.8%</b>	Jan-00
MSCI Emerging Markets	8.0%	28.1%	22.9%	7.4%	
<b>International REIT</b>	<b>3.5%</b>	<b>13.3%</b>	<b>4.4%</b>	<b>11.3%</b>	Oct-08
FTSE NAREIT Developed ex.-U.S.	3.2%	13.6%	4.9%	10.1%	

### Third Quarter 2017:

- SCERS Public Equity portfolio returned +5.3% versus the benchmark return of +5.2%.
- SCERS U.S. Equity portfolio returned +4.4% versus the benchmark return of +4.6%.
  - SCERS U.S. Large Cap portfolio returned +4.5% versus the benchmark return of 4.5%. Manager returns compared to their respective benchmark:
    - JP Morgan (130/30): +4.6% versus +4.5%.
    - Brown Advisory (growth): +4.9% versus +5.9%.
    - Eagle Capital (core): +4.0% versus +4.5%.
    - Huber Capital (value): +5.9% versus +3.1%.
  - SCERS U.S. Small Cap portfolio returned +4.9% versus the benchmark return of +5.7%. Manager returns compared to their respective benchmark:
    - UBS Global (growth): +3.4% versus +6.2%.
    - Weatherbie (growth): +7.7% versus +6.2%.
    - DGHM (value): +4.6% versus +5.1%.
    - Wedge Capital (value): +3.3% versus +5.1%.
  - CenterSquare U.S. REIT: +1.3% versus +0.9%.

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- SCERS International Equity portfolio returned +6.2% versus the benchmark return of +6.3%.
    - SCERS International Developed portfolio returned +6.1% versus the benchmark return of +5.5%. Manager returns compared to their respective benchmark:
      - Lazard (ACWI ex US): +5.6% versus +6.3%.
      - Walter Scott (large cap growth): +4.9% versus +5.7%.
      - LSV (large cap value): +7.0% versus +5.7%.
      - Mondrian (small cap value): +6.0% versus +7.3%.
      - William Blair (small cap growth): +8.7% versus +7.3%.
    - SCERS Emerging Markets portfolio returned +7.3% versus the benchmark return of +8.0%. Manager returns compared to their respective benchmark:
      - Baillie Gifford (all cap): +12.0% versus +8.0%.
      - Mondrian (all cap): +3.7% versus +8.0%.
      - Mondrian (small cap): -3.0% versus +5.8%.
      - William Blair (small cap): +7.8% versus +5.8%.
    - CBRE Clarion International REIT: +3.5% versus the benchmark of +3.2%.

#### Calendar YTD:

- SCERS Public Equity portfolio returned +18.6% versus the benchmark return of +17.3%.
- SCERS U.S. Equity portfolio returned +14.1% versus the benchmark return of +13.9%.
  - SCERS U.S. Large Cap portfolio returned +14.9% versus the benchmark return of +14.2%. Manager returns compared to their respective benchmark:
    - JP Morgan (130/30): +14.9% versus +14.2%.
    - Brown Advisory (growth): +21.3% versus +20.7%.
    - Eagle Capital (core): +15.9% versus +14.2%.
    - Huber Capital (value): +13.8% versus +7.9%.
  - SCERS U.S. Small Cap portfolio returned +13.5% versus the benchmark return of +10.9%. Manager returns compared to their respective benchmark:
    - UBS Global (growth): +13.2% versus +16.8%.
    - Weatherbie (growth): +32.3% versus +16.8%.
    - DGHM (value): +4.6% versus +5.7%.
    - Wedge Capital (value): +4.5% versus +5.7%.
  - CenterSquare U.S. REIT: +3.5% versus the benchmark of +3.7%.
- SCERS International Equity portfolio returned +23.5% versus the benchmark return of +21.6%.

- SCERS International Developed portfolio returned +22.5% versus the benchmark return of +20.5%. Manager returns compared to their respective benchmark:
  - Lazard (ACWI ex US): +20.4% versus +21.6%.
  - Walter Scott (large cap growth): NA (inception date March 2017).
  - LSV (large cap value): +21.2% versus +19.7%.
  - Mondrian (small cap value): +25.6% versus +24.2%
  - William Blair (small cap growth): +27.6% versus +24.2%.
- SCERS Emerging Markets portfolio returned +29.7% versus the benchmark return of +28.1%. Manager returns compared to their respective benchmark:
  - Baillie Gifford (all cap): +42.4% versus +28.1%.
  - Mondrian (all cap): +20.4% versus +28.1%.
  - Mondrian (small cap): +9.0% versus +22.8%.
  - William Blair (small cap): +29.8% versus +22.8%.
- CBRE Clarion International REIT: +13.3% versus the benchmark of +13.6%.

### Private Equity Portfolio Returns

The SCERS Private Equity portfolio remains earlier in its investments cycle (the J-curve effect) and less seasoned, so returns over the reporting periods are lower than the benchmark period returns. In order to calculate SCERS' Total Fund return, SCERS' private equity returns are time-weighted ('TWR') rather than on a typical internal rate of return ('IRR') basis. However, Cliffwater's Alternative Asset (private equity and real assets) quarterly performance report uses an IRR calculation, which accounts for the timing of investment cash flows. The Private Equity performance will be covered in greater detail in the Cliffwater private equity report, which will also be presented at the December Board meeting.

Please note that returns for SCERS' private equity portfolio is lagged one-quarter.

SCERS PRIVATE EQUITY Performance Summary for the periods ending 6/30/17	Quarter	Year-to-Date	1-Year	Since Inception	Since Inception Date
SCERS Private Equity	3.9%	11.3%	16.5%	0.0%	Feb-08
Cambridge All PE	3.1%	11.4%	16.8%	9.7%	

### Third Quarter 2017:

- SCERS Private Equity portfolio returned +3.9% versus the benchmark return of +3.1%. Notable outperformers include:
  - H.I.G Europe Capital II (buyout): +21.7%
  - Khosla Ventures IV (venture capital): +12.7%
  - Thoma Bravo XI (buyout): +8.3%

- SCERS made a \$35 million commitment to Davidson Kempner Long-Term Distressed Opportunities Fund IV in the third quarter of 2017.

#### Calendar YTD:

- SCERS Private Equity portfolio returned +11.3% versus the benchmark return of +11.4%. Notable outperformers include:
  - H.I.G Capital V (buyout): +27.5%.
  - New Enterprise Associates 15 (venture capital): +27.1%.
  - Linden Capital (buyout): +25.9%.

#### **Public/Private Credit Portfolio Returns**

<b>SCERS PUBLIC / PRIVATE CREDIT Performance Summary for the periods ending 9/30/17</b>	<b>Quarter</b>	<b>Year-to- Date</b>	<b>1-Year</b>	<b>Since Inception</b>	<b>Since Inception Date</b>
<b>SCERS Public Credit</b> (current quarter)	<b>1.2%</b>	<b>6.5%</b>	<b>9.1%</b>	<b>4.8%</b>	Nov-13
Custom Benchmark	1.5%	5.0%	7.2%	4.8%	
<b>SCERS Private Credit</b> (lagged 1 quarter)	<b>1.5%</b>			<b>5.0%</b>	Mar-17
Credit Suisse Leverage Loan + 2%	1.6%			2.7%	

#### Third Quarter 2017:

- SCERS Public Credit portfolio returned +1.2% versus the benchmark return of +1.5%.
- SCERS Private Credit portfolio returned +1.5% versus the benchmark return of +1.6% lagged one quarter. Notable outperformers include:
  - Summit Partners Credit: +3.0%.
  - Summit Partners Credit II: +2.7%.
- SCERS did not make any Public or Private Credit commitments or investments during the third quarter of 2017.

#### Calendar YTD:

- SCERS Public Credit portfolio returned +6.5% versus the benchmark return of +5.0%.
- SCERS Private Credit portfolio return was not available.



## Growth Absolute Return Portfolio Returns

SCERS GROWTH ABSOLUTE RETURN Performance Summary for the periods ending 9/30/17	Quarter	Year-to- Date	1-Year	Since Inception	Since Inception Date
<b>SCERS Growth Absolute Return</b>	<b>2.7%</b>	<b>NA</b>	<b>NA</b>	<b>4.9%</b>	Mar-17
HFRI FoF Index +1%	2.6%	5.5%	6.9%	4.0%	

### Third Quarter 2017:

- SCERS Growth Absolute Return portfolio returned +2.7% versus the benchmark return of +2.6%. Notable outperformers within the direct portfolio include:
  - Lakewood Capital Partners (equity long/short): +3.9%.
  - Third Point (event driven): +3.3%.
- Grosvenor separate account returns:
  - SCARF: +2.9%.
  - Interim SCARF B: +2.2%
- SCERS did not make any Growth Absolute Return commitments or investments during the third quarter of 2017.

### Calendar YTD:

- SCERS Growth Absolute Return portfolio return was not available. Notable outperformers within the direct portfolio versus the benchmark return of +5.5% include:
  - Third Point (event driven): +14.4%.
  - OZ Domestic Partners II (multi-strategy): +10.7%.
  - Lakewood Capital Partners (equity long/short): +8.2%.
- Grosvenor separate account returns:
  - SCARF: +9.2%.
  - Interim SCARF B: +8.5%.

## **SCERS DIVERSIFYING ASSET CATEGORY RETURNS**

<b>SCERS DIVERSIFYING Performance Summary for the periods ending 9/30/17</b>	<b>Quarter</b>	<b>Year-to-Date</b>	<b>1-Year</b>	<b>Since Inception</b>	<b>Since Inception Date</b>
<b>SCERS DIVERSIFYING ASSET CATEGORY</b>	<b>1.3%</b>			<b>2.8%</b>	Mar-17
Custom Benchmark	1.1%			2.4%	
<b>Core/Core Plus Fixed Income</b>	<b>1.0%</b>	<b>4.2%</b>	<b>1.4%</b>	<b>3.3%</b>	Jun-11
Barclays US Aggregate TR	0.8%	3.1%	0.1%	3.1%	
<b>Global Fixed Income</b>	<b>3.3%</b>	<b>13.5%</b>	<b>6.7%</b>	<b>3.3%</b>	May-13
Custom Benchmark	2.2%	7.9%	-0.7%	0.7%	
<b>Diversifying Absolute Return</b>	<b>0.9%</b>	<b>NA</b>	<b>NA</b>	<b>-0.4%</b>	Mar-17
HFRI FoF Conservative Index	1.3%	4.2%	5.6%	2.8%	

## **Fixed Income Portfolio Returns**

<b>SCERS FIXED INCOME Performance Summary for the periods ending 9/30/17</b>	<b>Quarter</b>	<b>Year-to-Date</b>	<b>1-Year</b>	<b>Since Inception</b>	<b>Since Inception Date</b>
<b>SCERS Core/Core Plus Fixed Income</b>	<b>1.0%</b>	<b>4.2%</b>	<b>1.4%</b>	<b>3.3%</b>	Jun-11
Barclays U.S. Aggregate	0.8%	3.1%	0.1%	3.1%	
<b>SCERS Global Fixed Income</b>	<b>3.3%</b>	<b>13.5%</b>	<b>6.7%</b>	<b>3.3%</b>	May-13
Custom Benchmark	2.2%	7.9%	-0.7%	0.7%	

### Third Quarter 2017:

- SCERS Core/Core Plus Fixed Income portfolio returned +1.0% versus the benchmark return of +0.8%.
  - Neuberger Berman (enhanced index): +0.8%.
  - Prudential (core plus): +1.2%.
  - TCW MetWest (core plus): +0.9%.
- SCERS Global Fixed Income portfolio returned +3.3% versus benchmark return of +2.2%.
  - Brandywine Global (global opportunistic): +3.3%.

### Calendar YTD:

- SCERS Core/Core Plus Fixed Income portfolio returned +4.2% versus the benchmark return of +3.1%.
  - Neuberger Berman (enhanced index): +3.2%.
  - Prudential (core plus): +5.7%.
  - TCW MetWest (core plus): +3.3%.

- SCERS Global Fixed Income portfolio returned +13.5% versus the benchmark return of +7.9%.
  - Brandywine Global (global opportunistic): +13.5%.

### Diversifying Absolute Return Portfolio Returns

SCERS DIVERSIFYING ABSOLUTE RETURN Performance Summary for the periods ending 9/30/17	Quarter	Year-to-Date	1-Year	Since Inception	Since Inception Date
<b>SCERS Diversifying Absolute Return</b>	<b>0.9%</b>	<b>NA</b>	<b>NA</b>	<b>-0.4%</b>	Mar-17
HFRI FoF Conservative Index	1.3%	4.2%	5.6%	2.8%	

#### Third Quarter 2017:

- SCERS Diversifying Absolute Return portfolio returned +0.9% versus the benchmark return of +1.3%. Notable outperformers within the direct portfolio include:
  - AQR Delta Fund II (multi-strategy): +3.5%.
 Notable underperformers include:
  - Graham Global Investment (systematic global macro): -1.7%.
- Grosvenor separate account returns:
  - SCARF: +0.7%.
  - SCARF B: -0.2%
- SCERS did not make any Diversifying Absolute Return commitments or investments during the third quarter of 2017.

#### Calendar YTD:

- SCERS Diversifying Absolute Return portfolio return was not available. Benchmark return for the calendar YTD period was +4.2%. Notable underperformers within the direct portfolio include:
  - Brevan Howard (global macro): -4.5%.
- Grosvenor separate account returns:
  - SCARF: -0.2%.
  - SCARF B: -2.7%.

## **SCERS REAL RETURN ASSET CATEGORY RETURNS**

The SCERS Real Return portfolio includes the SSgA Real Assets overlay proxy, which is used to fill the gap between SCERS' actual and target allocations within the asset category. Most of the gap between actual and target allocation is within the Real Assets asset class. As of September 30, 2017, the SSgA proxy equals \$233.8 million. The SSgA proxy is a mix of publicly traded securities, including global infrastructure stocks, global natural resource stocks, Treasury Inflation Protected Securities ('TIPS'), global REITs, and midstream energy-focused master limited partnerships ('MLPs'). As additional commitments are made over time, the gap will continue to decrease.

Similar to the Private Equity portfolio, the SCERS Real Assets portfolio, which includes mostly private market investments, remains early in its investments cycle (the J-curve effect) and less seasoned, so returns over the reporting periods are lower than the benchmark period returns. In addition, the Verus real estate and private real asset returns are measured on a time-weighted ('TWR') basis rather than on an internal rate of return ('IRR') basis. Please note that returns for SCERS' non-core real estate and real assets portfolio are lagged one quarter. The Real Assets performance will be covered in greater detail in the Cliffwater real assets report at the December Board meeting. Real Estate performance will be covered by Townsend and will also be presented at the December Board meeting.

<b>SCERS REAL RETURN Performance Summary</b>	<b>Quarter</b>	<b>Year-to-Date</b>	<b>1-Year</b>	<b>Since Inception</b>	<b>Since Inception Date</b>
<b>SCERS REAL RETURN ASSET CATEGORY</b>					
SCERS Real Return w/ SSgA Proxy	2.9%			5.4%	Mar-17
SCERS Real Return w/o SSgA Proxy	2.8%			6.2%	Mar-17
Custom Benchmark	2.0%			3.1%	
<b>SCERS Real Estate</b>	<b>3.0%</b>	<b>8.8%</b>	<b>13.4%</b>	<b>12.3%</b>	Jun-11
Custom Benchmark	2.0%	5.3%	7.2%	10.6%	
<b>Core Real Estate (as of 9/30/17)</b>					
Separate Account	2.9%	9.8%	13.4%	5.8%	Sep-08
Commingled Funds	2.0%	6.1%	9.4%	4.1%	Sep-08
NFI-ODCE	1.9%	5.4%	7.7%	5.2%	
<b>Non-Core Real Estate (as of 6/30/17)</b>					
Opportunistic	4.7%	14.3%	21.1%	33.0%	Feb-14
Value Add	5.3%	10.9%	21.8%	-3.2%	Sep-08
NFI-ODCE net +1%	2.1%	6.2%	7.9%	8.0%	Sep-08
<b>SCERS Real Assets (as of 6/30/17)</b>	<b>2.6%</b>	<b>15.2%</b>	<b>20.8%</b>	<b>2.7%</b>	Jan-13
Custom Benchmark	1.9%	5.1%	7.2%	6.2%	
<b>SCERS Commodities (as of 9/30/17)</b>					
Bloomberg Commodity Index	2.5%	-4.3%	-0.4%	-6.7%	May-08
	2.5%	-2.9%	-0.3%	-9.3%	
<b>SSgA Real Assets Proxy (as of 9/30/17)</b>	<b>3.2%</b>	<b>4.3%</b>	<b>4.7%</b>	<b>1.2%</b>	Jan-08
SSgA Real Assets	3.1%	4.0%	4.4%	NA	

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Third Quarter 2017:

- SCERS Real Return portfolio returned +2.9% with the SSgA Proxy overlay and +2.8% without the overlay, versus the benchmark return of +2.0%.
- SCERS Real Estate portfolio returned +3.0% versus the benchmark return of +2.0%.
  - SCERS Core Real Estate separate account portfolio returned +2.9% versus the benchmark return of +1.9%.
    - BlackRock: +2.0%.
    - Barings/Cornerstone: +3.3%.
  - SCERS Core Real Estate commingled fund portfolio returned +2.0% versus the benchmark return of +1.9%. Notable outperformers include:
    - Prologis Targeted Euro Logistics: +15.3%.
    - Metlife Core Property: +2.4%.
  - SCERS Non-Core Real Estate portfolio returned as follows versus the benchmark return of +2.1%:
    - Opportunistic portfolio: +4.7%.
    - Value Add portfolio: +5.3%.
    - Notable outperformers include:
      - ✓ NREP Nordic Strategies I: +19.5%.
      - ✓ NREP Nordic Strategies II: +10.2%.
      - ✓ DRC European Real Estate Debt Fund II: +10.0%.
- SCERS Real Assets portfolio returned +2.6% versus the benchmark return of +1.9%. Notable outperformers include:
  - Quantum Energy VI: +14.3%
  - EnCap Flatrock Midstream III: +7.2%.
  - Pantheon Ventures: +6.0%
- SCERS Commodities portfolio returned +2.5% versus the benchmark return of +2.5%.
  - Blackstone Resource Select: +1.4%.
  - Gresham Strategic Commodities: +4.1%.
- The SSgA Real Assets overlay proxy returned +3.2%.
- SCERS made a \$50 million commitment to Meridiam Infrastructure North America Fund III and a \$40 million commitment to Quantum Energy Partners VII during the third quarter of 2017.

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Calendar YTD:

- SCERS Real Return portfolio returns with and without the SSgA Proxy overlay was not available.
- SCERS Real Estate portfolio return was +8.8% versus the benchmark return of +5.3%.
  - SCERS Core Real Estate separate account portfolio returned +9.8% versus the benchmark return of +5.4%.
    - BlackRock: +8.3%.
    - Barings/Cornerstone: +8.3%.
  - SCERS Core Real Estate commingled fund portfolio returned +6.1% versus the benchmark return of +5.4%. Notable outperformers include:
    - Prologis Targeted Euro Logistics: +19.5%.
    - Prologis Targeted US Logistics: +8.6%.
    - Principal U.S. Property: +6.1%.
  - SCERS Non-Core Real Estate portfolio returned as follows versus the benchmark return of +6.2%:
    - Opportunistic portfolio: +14.3%.
    - Value Add portfolio: +10.9%.
    - Notable outperformers include:
      - ✓ NREP Nordic Strategies I: +29.5%.
      - ✓ Och-Ziff Real Estate III: +19.1%.
      - ✓ KKR Real Estate Partners Americas: +19.7%.
      - ✓ NREP Nordic Strategies II: +17.5%.
- SCERS Real Assets portfolio returned +15.2% versus the benchmark return of +5.1%. Notable outperformers include:
  - First Reserve Energy II: +65.6%.
  - EnCap Energy Capital X: +28.8%.
  - Quantum Energy Partners VI: +25.6%
  - EnCap Energy Capital IX: +16.7%.
- SCERS Commodities portfolio returned -4.3% versus the benchmark return of -2.9%.
  - Blackstone Resource Select: -6.4%.
  - Gresham Strategic Commodities: -0.9%.
- The SSgA Real Assets overlay proxy returned +4.3%.

## **SCERS OPPORTUNITIES PORTFOLIO RETURNS**

<b>SCERS OPPORTUNITIES Performance Summary for the periods ending 9/30/17</b>	<b>Quarter</b>	<b>Year-to-Date</b>	<b>1-Year</b>	<b>Since Inception</b>	<b>Since Inception Date</b>
<b>SCERS Opportunities</b>	<b>0.5%</b>			<b>4.1%</b>	Mar-17
Policy Index	3.3%			6.1%	

### Third Quarter 2017:

- SCERS Opportunities portfolio returned +0.5% versus the benchmark return of +3.3%.
- SCERS did not make any Opportunities commitments or investments during the second quarter of 2017.

### Calendar YTD:

- SCERS Opportunities portfolio return was not available.

## **MARKET RECAP**

The markets continued to benefit from a benign overall environment in the third quarter, punctuated by low levels of market volatility. Positive economic growth across all 45 countries tracked by the Organization for Economic Cooperation and Development (OECD) is expected in 2017, the first time this has occurred since 2007. With growth advancing at a faster rate than generally expected in the first half of 2017, upward revisions have been broad based including the EU, Japan, China, Russia, and many emerging economies. Notable pickups in investment, trade, and industrial production, coupled with strengthening business and consumer confidence, are supporting the recovery. The markets looked past increasingly tense rhetoric between the U.S. and North Korea and focused on favorable economic statistics and positive corporate earnings to push the markets higher.

In the United States, the Federal Reserve voted to leave interest rates unchanged at their September meeting, following three consecutive quarters with hikes. Despite the pause, the Fed confirmed it would start to normalize its balance sheet and reduce the securities it holds, following years of expanding the balance sheet to keep interest rates low and help support the economy following the Global Financial Crises (GFC). Despite the strengthening economic environment, inflation has continued to hold below the Fed's 2% target, which has allowed the Fed to take a measured approach to raising interest rates and normalizing monetary policy.

In international markets, economic indicators point towards a continuation in the recent advance of global growth. The International Monetary Fund (IMF) raised global GDP growth expectations for both 2017 and 2018, to 3.6% and 3.7% respectively. Economic conditions have improved across both developed and emerging markets, with even long-troubled economies such as Greece expecting positive growth in 2017. Apart from a few countries such as the U.K., inflation remains low world-wide, which provides central banks the flexibility to slowly ease back on financial stimulus and help support slower growing economies. Despite the

improving economic conditions, markets still face geopolitical risks and rising nationalist movements, as highlighted by the recent vote by Catalonia to declare independence from Spain.

Solid global economic data, as noted above, helped equity markets continue to push higher during the third quarter of 2017. Europe and emerging markets continue to lead global equity markets with the MSCI Emerging Markets Index and MSCI AC Europe Index up +7.9% and +6.6%, respectively, during the quarter. The MSCI AC World Index was up +5.2%

during the quarter, slightly ahead of the Russell 3000, which advanced +4.6%. In the U.S., small cap stocks benefited from strong performance during September (+6.2%) to outperform large cap stocks with the Russell 2000 Index up +5.7% during the quarter.

#### Broad Markets: Equities

	Total Return (%)				
	Month	QTD	CYTD	FYTD	1 Year
S&P 500 Index	2.06	4.48	14.24	4.48	18.61
Russell 2000 Index	6.24	5.67	10.94	5.67	20.74
Russell 3000 Index	2.44	4.57	13.91	4.57	18.71
MSCI AC World Index	1.93	5.18	17.25	5.18	18.65
MSCI AC Asia Pacific Index	0.56	5.17	21.75	5.17	18.07
MSCI AC Europe Index	3.13	6.58	22.49	6.58	22.40
MSCI Emerging Markets Index	-0.40	7.89	27.78	7.89	22.46

For calendar year-to-date 2017, through September 30, emerging markets led global equity markets higher, advancing +27.8%. Emerging markets outperformance in 2017 is a reversal of extended underperformance following the GFC and has been aided by recent currency movements, including a weakening of the U.S. dollar. European equity markets advanced +22.5% year-to-date slightly ahead of the Asia-Pacific region, which was up +21.8%. U.S. equity markets, as measured by the Russell 3000 Index, advanced +13.9% year-to-date. Large cap growth stocks lead the U.S. market, with the Russell 1000 Growth Index up +20.7% year-to-date.

#### **ATTACHMENT**

Verus' Investment Performance Review for SCERS for the period ending September 30, 2017.

Prepared by:

/S/

\_\_\_\_\_  
Brian Miller  
Investment Officer

Reviewed by:

/S/

\_\_\_\_\_  
Steve Davis  
Chief Investment Officer

/S/

\_\_\_\_\_  
Eric Stern  
Chief Executive Officer





**PERSPECTIVES  
THAT DRIVE  
ENTERPRISE  
SUCCESS**



**PERIOD ENDING: SEPTEMBER 30, 2017**

Investment Performance Review for

**Sacramento County Employees' Retirement System**

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Market Environment **TAB I**

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Total Fund **TAB II**

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Policy Index and  
Benchmark History **TAB III**

# 3<sup>rd</sup> quarter summary

## THE ECONOMIC CLIMATE

- Growth strengthened across developed and emerging economies. Business surveys suggest conditions are improving in both manufacturing and service industries.
- The U.S. job market tightened as unemployment dropped from 4.4 to 4.2%, despite disappointing job growth data. Unemployment has not been this low since March of 2001.
- An independence movement in Catalonia has received little attention from the financial community, and risk premiums may not reflect the negative possible knock-on effects on the EU.

## PORTFOLIO IMPACTS

- Improving economic growth, low inflation, low unemployment, and supportive monetary policy across most markets has created a positive environment for global risk assets, justifying a moderate overweight risk position.
- Within risk assets, we believe opportunities exist in emerging markets.

## THE INVESTMENT CLIMATE

- Global interest rates are still at historic lows, and very little monetary tightening is priced in across developed markets over the next few years. Even in the U.S., the market is only expecting two rate hikes through the end of next year.
- Valuations across global equities and credit are elevated, and have been so for the past few years. Further price appreciation through equity multiple expansion or credit spread contraction is unlikely.

## ASSET ALLOCATION ISSUES

- Equity performance remains strong. Year-to-date returns have been fundamentally driven, supported by earnings growth rather than valuation expansion.
- Equity volatility is near historic lows. Stable economic growth and inflation have likely contributed to the muted volatility environment. Investors should monitor leverage in strategies with a specific volatility target.

We believe a moderate overweight to risk is warranted

# U.S. economics summary

- U.S. real GDP grew 2.2% YoY in Q2, consistent with the trend of slow, but steady growth in the current expansion. Consumer spending and business investment were the primary drivers of growth.
- Purchasing manager indexes (PMIs) moved higher to above average levels, indicating a likely acceleration in economic growth over the coming quarters. The ISM Manufacturing and Services PMIs for September were 60.8 and 59.8, respectively.
- The economy added an average of 91,000 jobs per month to payrolls in the third quarter. The September employment data was heavily influenced by hurricanes Harvey and Irma, which resulted in a decline of 33,000 jobs from payrolls, the first drop since 2010. Due to the calculation methodology, a bounce back should be expected in October.
- The U3 unemployment rate (unaffected by the hurricanes) fell 0.2% to a 17-year low of 4.2% over the quarter. The broader U6 unemployment rate also tightened, dropping 0.3% to 8.3%.
- Year-over-year headline CPI accelerated from 1.6% in June to 2.2% in September, while the core inflation rate was unchanged over the quarter at 1.7%. Outside of volatile energy prices inflationary pressures still appear absent, and core inflation remains below the Fed's 2% target.
- The Fed paused from raising interest rates following three consecutive quarters with hikes. Core inflation that has persistently been below the Fed's 2% target was the primary reason given to delay further tightening. The market is expecting the Fed to raise interest rates again in December based on fed fund futures prices.

	Most Recent	12 Months Prior
GDP (YoY)	2.2% 6/30/17	1.2% 6/30/16
Inflation (CPI YoY, Headline)	2.2% 9/30/17	1.5% 9/30/16
Expected Inflation (5yr-5yr forward)	2.0% 9/30/17	1.8% 9/30/16
Fed Funds Rate	1.25% 9/30/17	0.50% 9/30/16
10 Year Rate	2.3% 9/30/17	1.6% 9/30/16
U-3 Unemployment	4.2% 9/30/17	4.9% 9/30/16
U-6 Unemployment	8.3% 9/30/17	9.7% 9/30/16

# International economics summary

- International economic growth advanced in the second quarter in both developed and emerging markets. PMIs are above 50 (indicating expansion) in nearly every country across the world, pointing towards a continuation in the recent global growth pickup.
- The IMF raised its projections for global GDP growth 0.1% for both 2017 and 2018 to 3.6% and 3.7%, respectively. For comparison, global GDP growth was 3.2% in 2016.
- Economic conditions in emerging markets have improved. Several countries, such as Brazil and Russia, are still at the beginning stages of a recovery. Lower inflation has allowed emerging central banks to pursue looser monetary policy, which should provide a tailwind to further economic growth.
- Inflation in developed countries has yet to see much pressure outside of the U.K., and remains well below central bank targets.
- Inflation in the U.K. (headline CPI) rose 3.0% YoY in September, driven partly by a weaker pound, while wages only increased by 2.2%. The Bank of England stated that a rate hike may be necessary before the end of the year to slow price increases.
- On October 1<sup>st</sup>, Catalonia passed a referendum to declare independence from Spain, which the Spanish government declared illegal. Although the Catalan prime minister accepted the vote as a mandate to declare independence, he immediately suspended this declaration with the goal of bringing the Spanish government to the negotiating table.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	2.2% <i>6/30/17</i>	2.2% <i>9/30/17</i>	4.2% <i>9/30/17</i>
Western Europe	2.0% <i>6/30/17</i>	1.5% <i>9/30/17</i>	7.9% <i>6/30/17</i>
Japan	1.4% <i>6/30/17</i>	0.7% <i>8/31/17</i>	2.8% <i>8/31/17</i>
BRICS Nations	5.6% <i>6/30/17</i>	2.0% <i>6/30/17</i>	5.8% <i>6/30/17</i>
Brazil	0.3% <i>6/30/17</i>	2.5% <i>9/30/17</i>	12.7% <i>9/30/17</i>
Russia	2.5% <i>6/30/17</i>	3.0% <i>9/30/17</i>	4.9% <i>8/31/17</i>
India	5.7% <i>6/30/17</i>	3.3% <i>9/30/17</i>	8.4% <i>12/31/16</i>
China	6.9% <i>6/30/17</i>	1.6% <i>9/30/17</i>	4.0% <i>6/30/17</i>

# Equity environment

- We maintain a moderate overweight to equities with a preference for emerging markets. Emerging markets have historically delivered outsized economic growth and performance during strong global growth environments. These markets remain attractively valued relative to developed markets, though valuations rose over the quarter.
- U.S. equities moved upward in Q3, setting record highs. Performance has been fueled by earnings growth.
- The possibility of U.S. corporate tax reform has led the market to price in greater expectations for future equity earnings growth. Significant uncertainty remains around the timing and nature of the reform, and the outcome will have a material impact on equity prices in the short-term.
- Equity volatility remains unusually low. Lower volatility has historically indicated less downside risk in equity markets.
- According to FactSet as of October 6th, the estimated Q3 earnings growth rate of the S&P 500 was 2.8% YoY, a materially weaker figure than the 7.5% which was expected as of June 30. Much of the weakness was caused by expected insurance industry losses due to hurricane damage. Excluding the insurance sector, earnings are expected to grow by 4.9% YoY.
- U.S. dollar weakness year-to-date has caused significant earnings differences between companies with greater international sales focus and companies that are more domestically-focused. Overall, U.S. dollar movement has acted as a tailwind to earnings growth.

	QTD TOTAL RETURN		YTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)	(unhedged)	(hedged)
US Large Cap (Russell 1000)	4.5%		14.2%		18.5%	
US Small Cap (Russell 2000)	5.7%		10.9%		20.7%	
US Large Value (Russell 1000 Value)	3.1%		7.9%		15.1%	
US Large Growth (Russell 1000 Growth)	5.9%		20.7%		21.9%	
International Large (MSCI EAFE)	5.4%	3.7%	20.0%	12.3%	19.1%	20.5%
Eurozone (Euro Stoxx 50)	8.5%	5.2%	25.2%	13.2%	29.2%	24.9%
U.K. (FTSE 100)	4.8%	2.1%	15.7%	7.2%	14.9%	11.9%
Japan (NIKKEI 225)	2.0%	2.7%	12.1%	9.4%	13.4%	27.0%
Emerging Markets (MSCI Emerging Markets)	7.9%	7.2%	27.8%	22.1%	22.5%	19.6%

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 9/30/17

# Domestic equity

U.S. equities moved upward over the quarter (S&P 500 +4.5%), reaching record highs, but underperformed international markets (MSCI EAFE +5.4%). Earnings growth remained the primary driver of robust equity performance, though Q3 earnings growth expectations have fallen due to hurricane-related insurance industry losses. The possibility of U.S. tax reform has likely contributed to a positive domestic equity outlook.

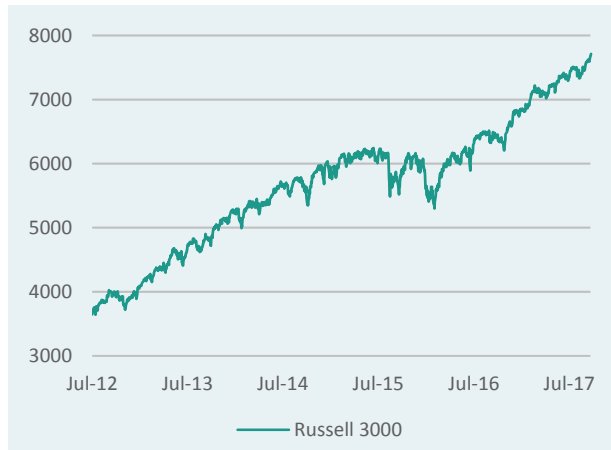
According to FactSet, as of October 6th the estimated Q3 earnings growth rate of the S&P 500 was 2.8% YoY, a

materially weaker figure than the 7.5% which was expected as of June 30. Most of the weakness was caused by insurance industry losses due to hurricane damage. Excluding this sector would result in a current estimate of 4.9% overall growth rather than 2.8%.

U.S. domestically-facing business in aggregate are expected to face flat sales and revenue growth, while externally-facing businesses are expected to produce strong growth. U.S. dollar depreciation and international growth have created a tailwind to the performance of externally-focused U.S. businesses.

We maintain a neutral weight to U.S. equities

## U.S. EQUITIES



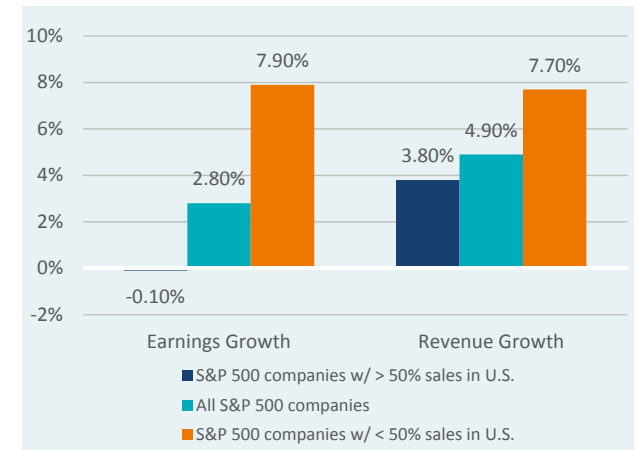
Source: Russell Investments, as of 9/29/17

## S&P 500 EPS GROWTH



Source: Bloomberg, as of 9/30/17

## Q3 EXPECTATIONS



Source: FactSet, as of 10/6/17



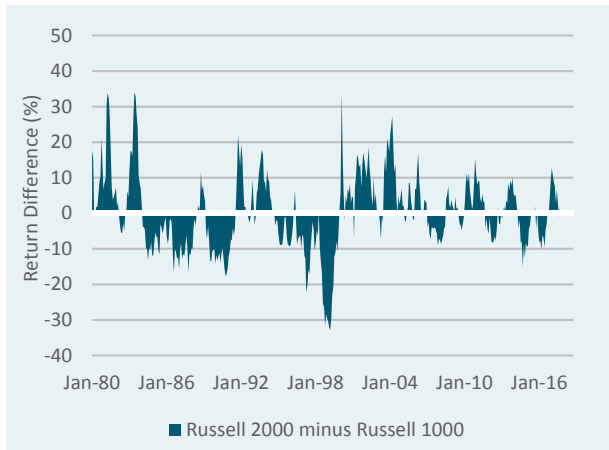
# Domestic equity size and style

Large cap equities led small cap equities through July and August. However, small cap equities rallied in September (+6.2% in the month) and outperformed large cap equities over the quarter. The move in September was partially attributed to an increased focus on U.S. tax reform. If passed, tax cuts will likely provide a greater marginal benefit to smaller companies. Expectations of lower taxes and deregulation have contributed to small cap price appreciation that has outpaced earnings. The relative P/E ratio between large and small companies is at its highest level since the financial crisis.

Large cap equities were led by the technology sector, from which the strongest contributors were semiconductor and internet software companies. The top three individual contributors were Apple, Facebook and Microsoft. Small cap equities were mainly driven by producer durables companies.

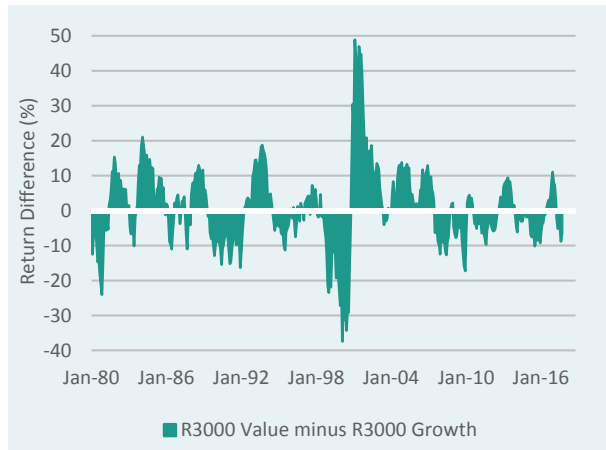
Growth outperformed value in Q3 due to a higher relative weighting to technology companies. Financial services, the most heavily weighted sector in value, returned a positive 5.0%, but still underperformed technology by 3.2%.

**SMALL CAP VS LARGE CAP (YOY)**



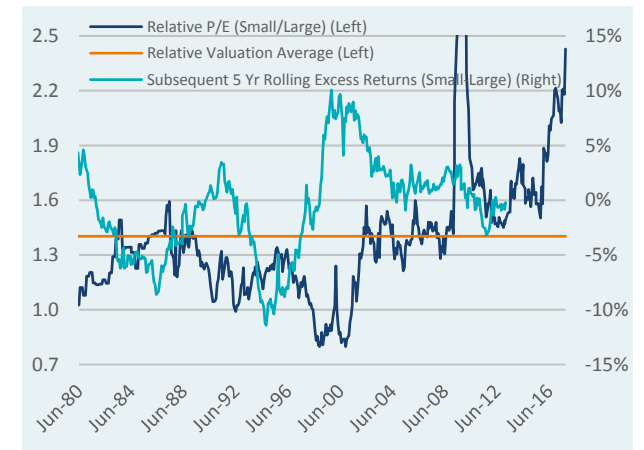
Source: Russell Investments, as of 9/30/17

**VALUE VS GROWTH (YOY)**



Source: Russell Investments, as of 9/30/17

**U.S. LARGE VS. SMALL RELATIVE VALUATIONS**



Source: Russell, Bloomberg, as of 9/30/17



# International equity

International equities outperformed domestic equities during the third quarter. The MSCI ACWI ex U.S. returned 6.2% (+4.6% hedged) while the S&P 500 returned 4.5%. Consistent with the first half of 2017, emerging markets outperformed (MSCI EM +7.9% unhedged) both the EAFE Small Cap Index (+7.5%) and the broad EAFE Index (+5.4%).

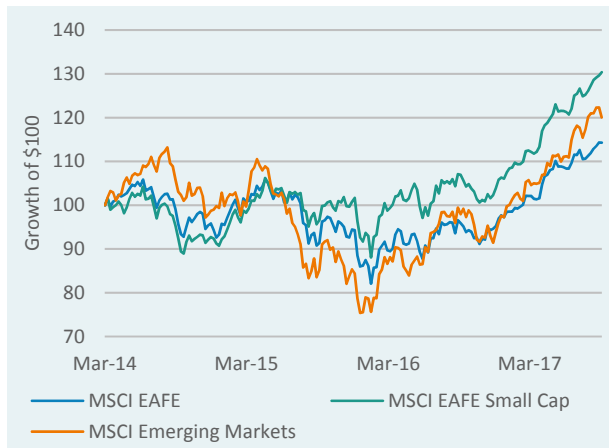
Japanese equities were the largest contributors to the EAFE index in Q3, particularly companies within the industrials and consumer discretionary sectors. Despite the positive moves, Japanese equity valuations based on earnings and

sales remain attractive relative to those in Europe and the United Kingdom.

MSCI EAFE valuations have remained relatively stable in 2017 as earnings and sales growth have kept pace with price appreciation.

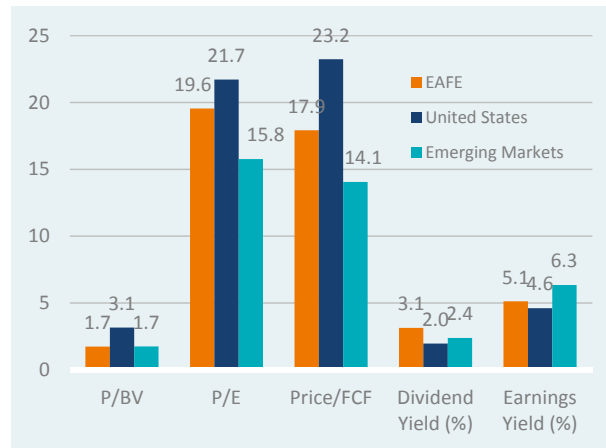
Currency effects added a positive 1.7% to the unhedged MSCI EAFE in Q3 (+7.6% year-to-date), as the U.S. dollar fell for a third consecutive quarter against a trade weighted basket of currencies.

## GLOBAL EQUITY PERFORMANCE



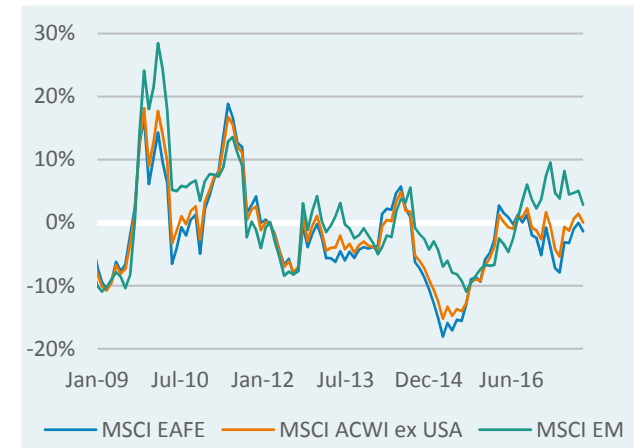
Source: Bloomberg, as of 9/30/17

## VALUATIONS



Source: Bloomberg, as of 9/30/17

## EFFECT OF CURRENCY (1 YEAR ROLLING)



Source: MSCI, as of 9/30/17

# Emerging market equity

We maintain an overweight to emerging market equities, which have historically delivered outsized economic growth and performance during stronger global growth environments.

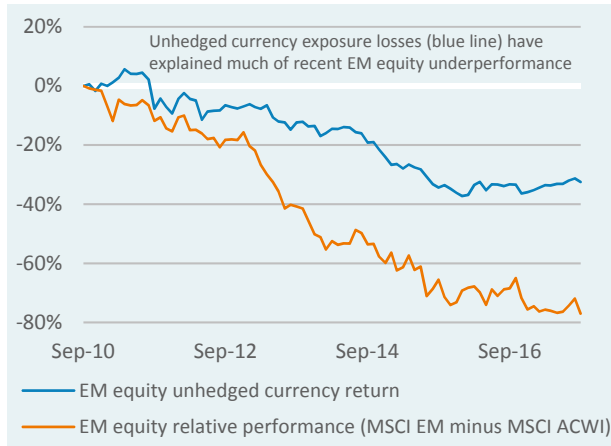
Emerging market equities have outperformed developed markets over the quarter (7.9% vs. 4.8%) and the past year (22.5% vs 18.2%), reversing an extended period of underperformance following the global financial crisis. Currency movement was a significant contributor to

emerging market underperformance during this time, and the recent reversal in currency trends has been additive to the outperformance of these markets.

Valuations have risen off of low levels, bolstering returns. These markets are no longer cheap relative to history though strong earnings growth and mean reversion of currencies could likely fuel further outsized equity gains.

Accelerating global growth should have a positive effect on emerging economies

## EMERGING MARKET FX & RELATIVE PERFORMANCE (7YR CUMULATIVE)



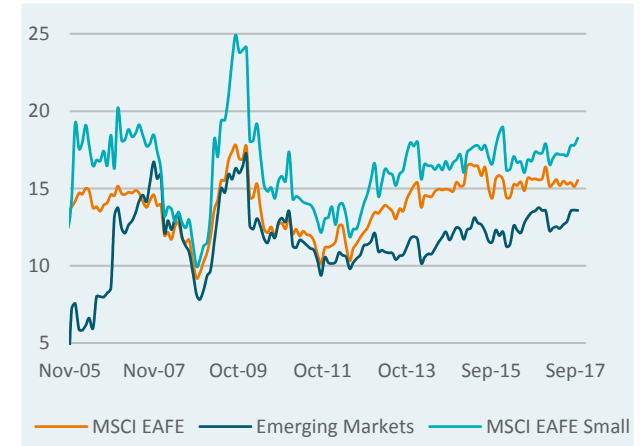
Source: MSCI, JP Morgan EM Currency Index, as of 9/30/17

## EQUITY PERFORMANCE (3YR ROLLING)



Source: Standard & Poor's, MSCI, as of 9/30/17

## FORWARD P/E RATIOS



Source: Bloomberg as of 9/30/17

# Interest rate environment

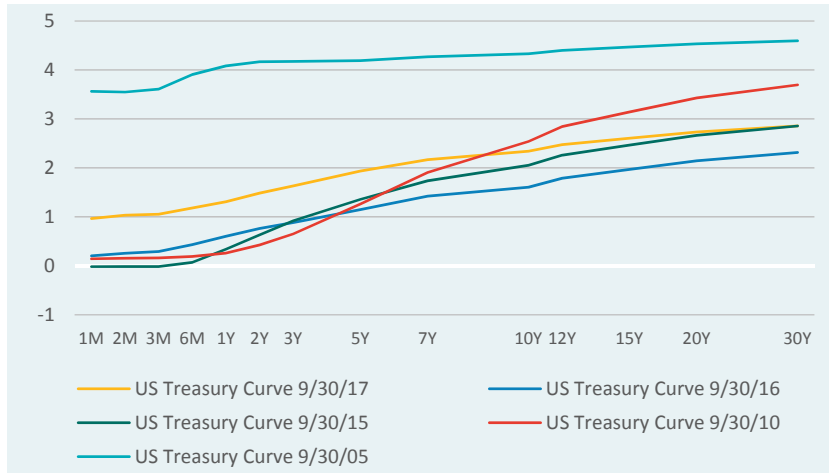
- After bottoming out to a post-election low of 2.04% on September 7<sup>th</sup> following increased tensions with North Korea, the U.S. 10-year rose to finish the quarter slightly higher at 2.33%.
- The Fed kept interest rates unchanged over the quarter, citing concerns over the lack of inflation. However, Fed officials have communicated that they believe recent low inflation is transitory. An additional rate hike in December appears likely based on market implied probabilities.
- The Fed will begin to reduce its balance sheet in October. The central bank's plan is to runoff \$6 billion of Treasuries and \$4 billion of mortgage-backed securities per month. This will be scaled up commensurately every 3 months to \$50 billion per month. At this pace it will take more than seven years to return the balance sheet to pre-crisis levels.
- U.K. sovereign yields experienced the biggest increase among developed countries after the Bank of England acknowledged that a rate hike may be necessary by the end of the year to slow inflation.
- Very little monetary tightening is priced into short-term developed market interest rates over the next few years. Although we expect central banks to be cautious, faster than expected increases in interest rates represents a potential risk.
- Our underweight position to both U.S. and developed sovereign rates (currency hedged) was unchanged over the quarter, primarily due to the low carry. However, Treasuries still play an important role in portfolios by offering equity risk diversification.

Area	Short Term (3M)	10 Year
United States	1.02%	2.33%
Germany	(0.70%)	0.46%
France	(0.59%)	0.74%
Spain	(0.45%)	1.60%
Italy	(0.39%)	2.11%
Greece	2.02%	5.66%
U.K.	0.28%	1.37%
Japan	(0.17%)	0.07%
Australia	1.71%	2.84%
China	3.04%	3.62%
Brazil	7.46%	9.77%
Russia	7.76%	7.66%

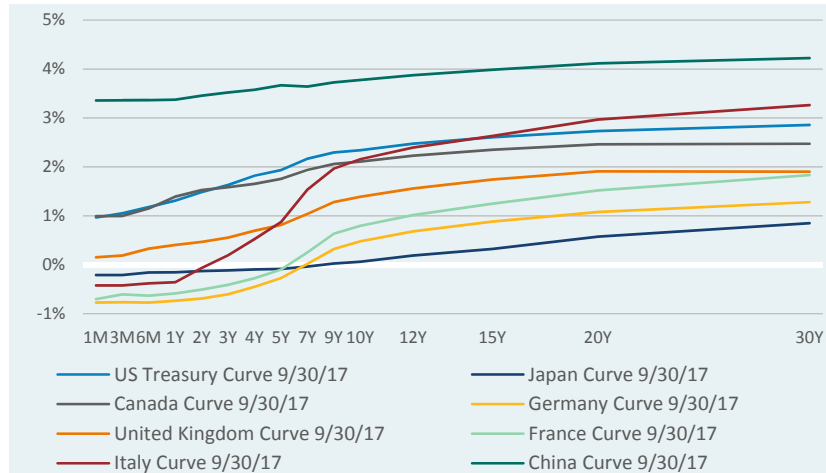
Source: Bloomberg, as of 9/30/17

# Yield environment

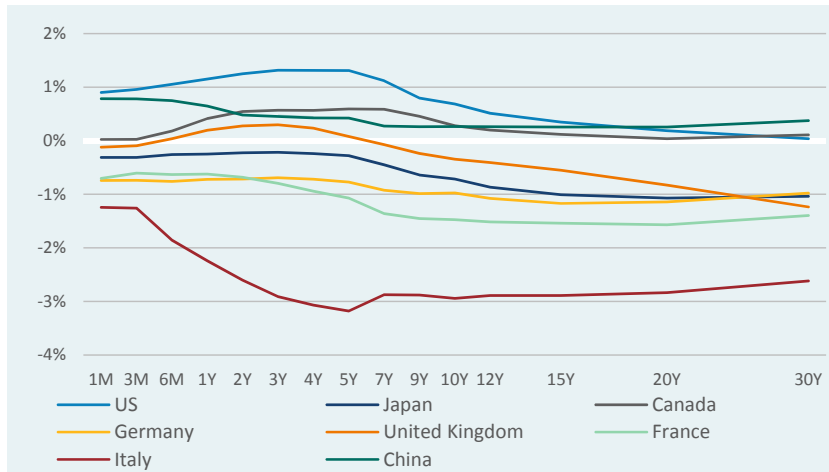
**U.S. YIELD CURVE**



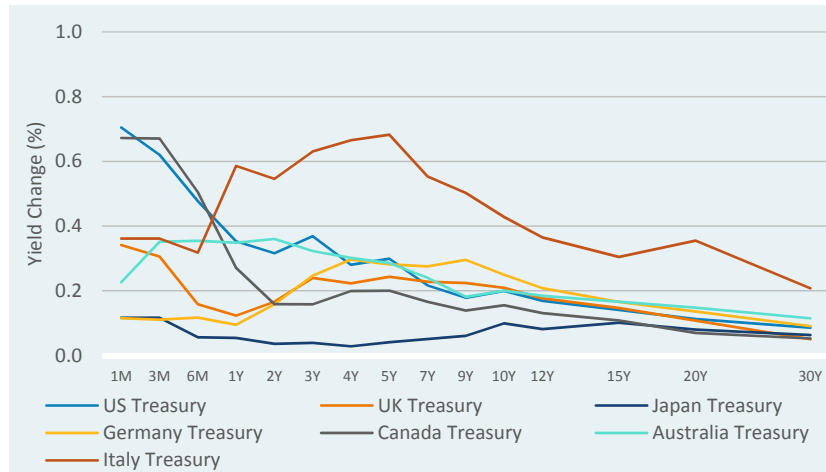
**GLOBAL GOVERNMENT YIELD CURVES**



**YIELD CURVE CHANGES OVER LAST FIVE YEARS**



**IMPLIED CHANGES OVER NEXT YEAR**



Source: Bloomberg, as of 9/30/17

# Currency

The U.S. dollar depreciated an additional 2.7% in Q3 against a trade weighted basket of developed currencies, which brought the year-to-date decline to 8.0%. The downward trend partially reversed in September after prospects of another interest rate hike in December from the Fed helped lead to the first month of dollar appreciation so far this year. The euro appreciated 3.4% against the dollar over the quarter, influenced by improving economic conditions and the possibility of ECB tightening monetary policy.

After several years of depreciation, emerging market

currencies have stabilized. Improved current account balances and economic growth conditions have provided a positive backdrop for these currencies moving forward. However, a quicker than expected rise in U.S. interest rates could represent a headwind to further appreciation.

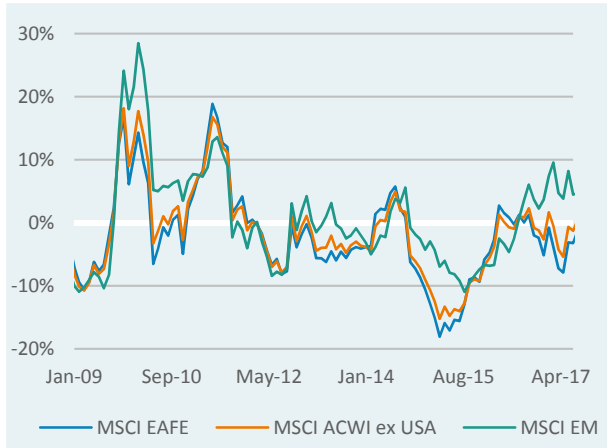
Currency losses from unhedged exposure to developed international equities has begun to reverse due to recent dollar weakness, although currency exposure has still resulted in materially higher volatility.

**U.S. DOLLAR TRADE WEIGHTED INDEX**



Source: Federal Reserve, as of 9/30/17

**EFFECT OF CURRENCY (1-YEAR ROLLING)**

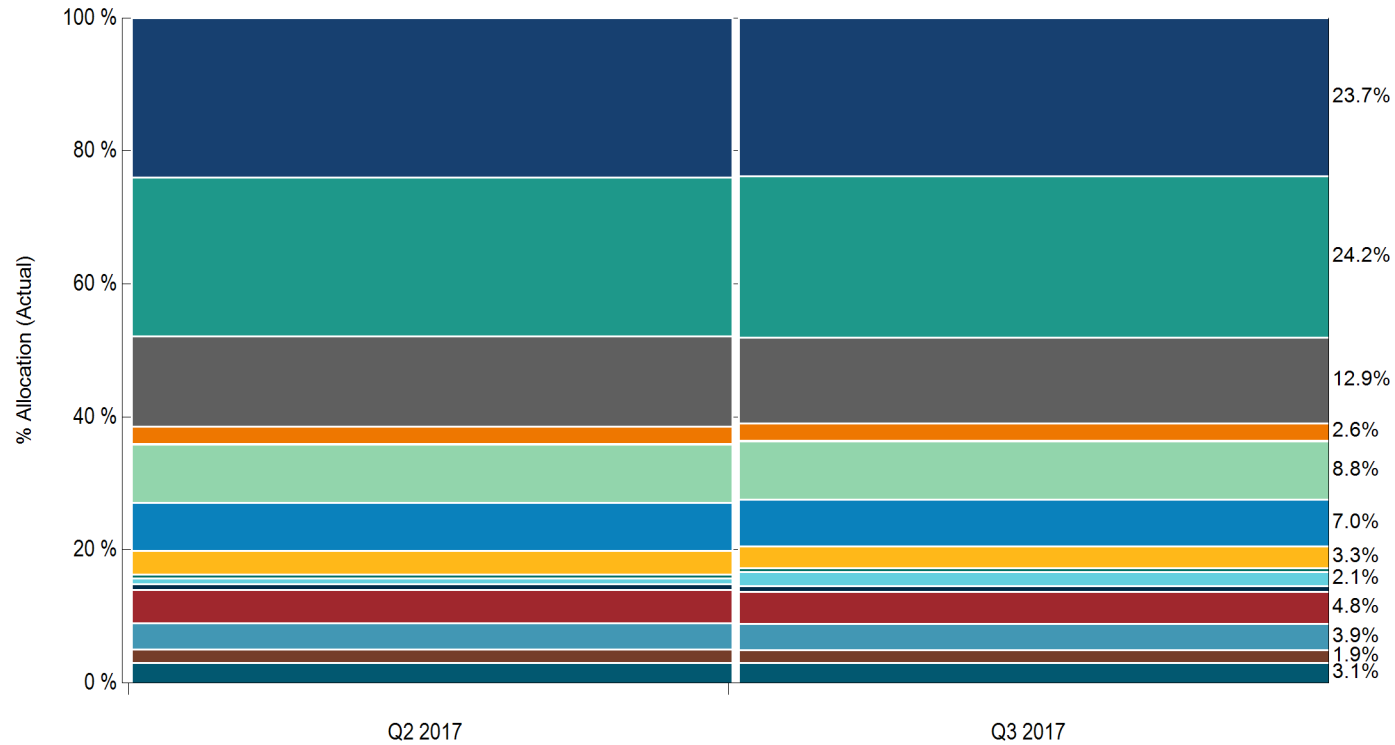


Source: MPI, as of 9/30/17

**JPM EM CURRENCY INDEX**



Source: JPMorgan, as of 9/30/17



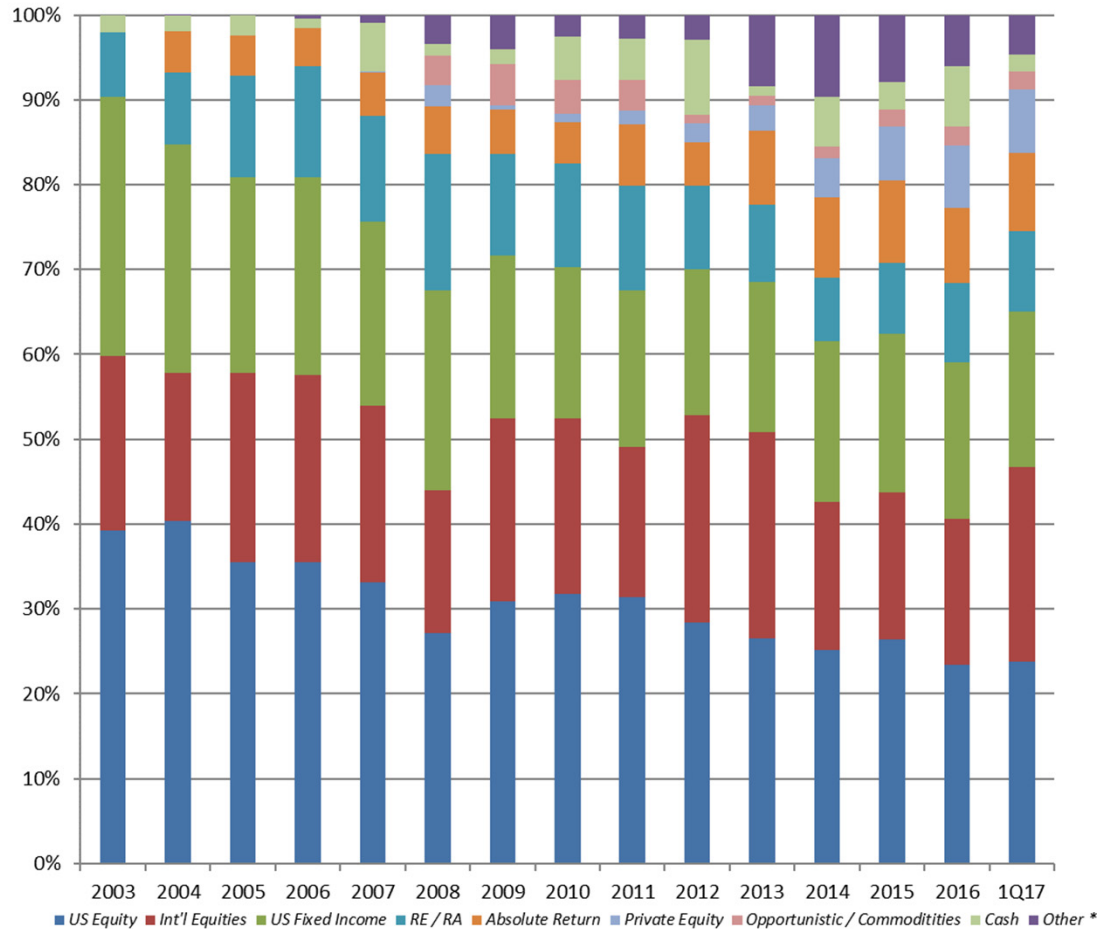
- US Equity
- Hedge Fund
- Real Assets
- Growth Hedge Fund
- International Equity
- Opportunistic
- Direct Lending
- Diversifying Hedge Fund
- US Fixed Income
- Real Estate
- Cash
- Public Credit
- Global Fixed Income
- Private Equity
- Other
- Private Real Assets

\* Other includes SSgA Overlay and closing accounts.

# Total Fund

## Actual Yearly and Quarterly Asset Allocation

Period Ending: September 30, 2017



	2003	2004	2005	2006	2007	2008
US Equity	39.2	40.4	35.4	35.5	33.1	27.2
International Equity	20.6	17.5	22.3	22.0	20.9	16.8
US Fixed Income	30.6	26.9	23.1	23.3	21.7	23.5
Real Estate	7.5	8.5	11.9	13.1	12.4	16.1
Absolute Return	-	4.9	4.8	4.4	5.1	5.6
Private Equity	-	-	-	-	0.1	2.5
Opportunistic / Commodities	-	-	-	-	-	3.5
Cash	2.1	1.8	2.4	1.2	5.8	1.4
Other *	-	0.1	-	0.4	0.9	3.4

	2009	2010	2011	2012	2013	2014
US Equity	30.9	31.7	31.4	28.4	26.5	25.2
International Equity	21.5	20.7	17.6	24.5	24.3	17.5
US Fixed Income	19.3	17.8	18.4	17.1	17.7	18.9
Real Assets	11.9	12.2	12.4	9.9	9.0	7.6
Absolute Return	5.3	4.9	7.3	5.2	8.8	9.4
Private Equity	0.5	0.9	1.6	2.2	3.0	4.6
Opportunistic / Commodities	4.8	4.1	3.7	1.1	1.0	1.4
Cash	1.7	5.0	4.9	8.8	1.2	5.9
Other *	4.1	2.6	2.7	2.9	8.4	9.6

	2015	2016	2017 1Q+
US Equity	26.4	23.4	23.8
International Equity	17.3	17.2	22.9
US Fixed Income	18.7	18.5	18.2
Real Assets	8.3	9.3	9.5
Absolute Return	9.7	8.8	9.2
Private Equity	6.3	7.4	7.5
Opportunistic / Commodities	2.1	2.2	2.1
Cash	3.2	7.1	2.0
Other *	7.9	6.0	4.7

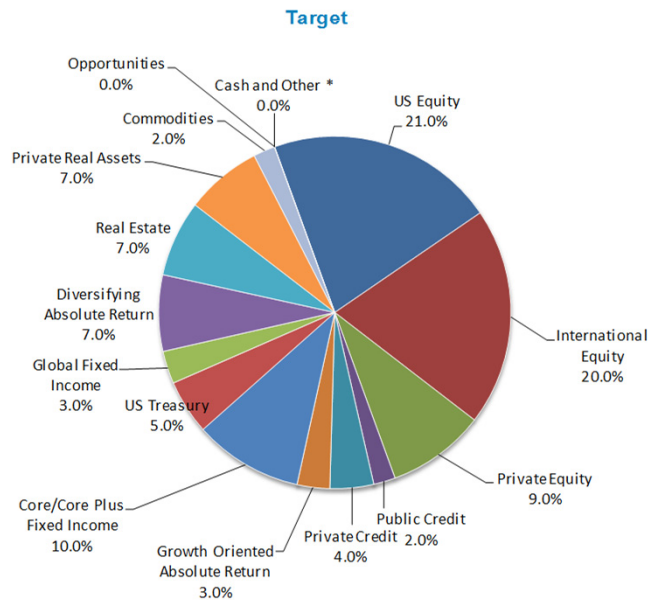
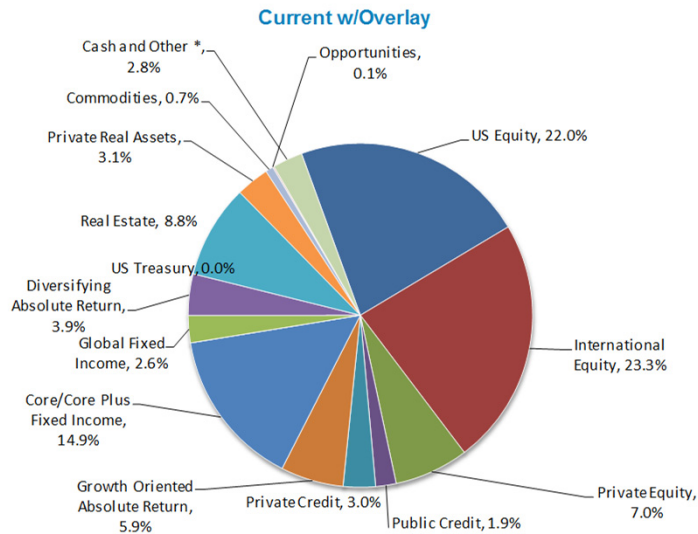
\* Allocations without overlay.

\* Other includes SSgA Overlay, SSgA Real Assets and closing accounts.

# Total Fund

## Asset Allocation Analysis

Period Ending: September 30, 2017



ASSET ALLOCATION	W/OVERLAY	W/OVERLAY	W/O OVERLAY
US Equity	1,975,321,314	22.0%	23.7%
International Equity	2,091,775,165	23.3%	24.2%
Private Equity	626,710,265	7.0%	7.0%
Public Credit	173,198,859	1.9%	1.9%
Private Credit	271,732,203	3.0%	0.6%
Growth Oriented Absolute Return	530,750,185	5.9%	4.8%
Core/Core Plus Fixed Income	1,340,733,668	14.9%	12.9%
US Treasury	0	0.0%	0.0%
Global Fixed Income	229,273,626	2.6%	2.6%
Diversifying Absolute Return	350,697,903	3.9%	3.9%
Real Estate	790,085,469	8.8%	8.8%
Private Real Assets	279,783,335	3.1%	3.1%
Commodities	65,334,644	0.7%	0.7%
Opportunities	11,841,681	0.1%	0.1%
Cash and Other *	252,618,523	2.8%	5.6%
<b>TOTAL</b>	<b>8,989,856,839</b>	<b>100.0%</b>	<b>100.0%</b>

ASSET ALLOCATION	ACTUAL	TARGET	DIFF
US Equity	22.0%	21.0%	1.0%
International Equity	23.3%	20.0%	3.3%
Private Equity	7.0%	9.0%	-2.0%
Public Credit	1.9%	2.0%	-0.1%
Private Credit	3.0%	4.0%	-1.0%
Growth Oriented Absolute Return	5.9%	3.0%	2.9%
Core/Core Plus Fixed Income	14.9%	10.0%	4.9%
US Treasury	0.0%	5.0%	-5.0%
Global Fixed Income	2.6%	3.0%	-0.4%
Diversifying Absolute Return	3.9%	7.0%	-3.1%
Real Estate	8.8%	7.0%	1.8%
Private Real Assets	3.1%	7.0%	-3.9%
Commodities	0.7%	2.0%	-1.3%
Opportunities	0.1%	0.0%	0.1%
Cash and Other *	2.8%	0.0%	2.8%

\* Other includes closing accounts (Heitman), SSgA Overlay of \$79 million and SSgA Real Asset of \$233.8 million, which serve as overlay proxy for Real Assets.



- The Total Plan returned 3.7% net in the third quarter of 2017 and ranked in the 46<sup>th</sup> percentile among other public funds greater than \$1 billion (3.7% median). The fund exceeded its policy index (3.3%) during this time period. The Total Plan w/o Overlay net returned 3.7% for the quarter. Longer term, the three and five-year returns of 6.7% and 8.2% net ranked below median among large public plans (7.2% and 8.9%, respectively).
- Third quarter results (net) were enhanced by the following factors:
  1. Baillie Gifford Emerging All Cap continued to outperform, gaining 12.0% and ranking in the top decile of its peers. Baillie Gifford had strong performance in China during the quarter. Stock selection in financials and information technology also contributed to relative performance.
  2. Huber Capital (5.7%) outperformed the Russell 1000 Value index (3.1%), and ranked in the top decile of large cap value managers. Outperformance was driven by positive stock selection in durables, financial services, health care, and energy.
  3. LSV topped the MSCI World ex US (7.0% vs 5.7%) and ranked in the top third of its universe. Stock selection in industrials and consumer staples contributed to relative performance.
  4. William Blair Emerging Small Cap gained 7.5%, beating the MSCI Emerging Markets Small Cap (5.8%). Stock selection in industrials and financials were the primary contributors to relative performance.
  5. Weatherbie beat the Russell 2000 growth (7.6% vs 6.2%), and ranked in the top quartile of small cap growth managers. Positive developments in a number of holdings within business services, biotech, and technology drove Q3 performance.
  6. Brandywine outperformed its custom benchmark by 1.1% gaining 3.3% for the quarter. Two-thirds of the quarterly return came from currencies due to the weak U.S. dollar.
  7. William Blair Developed Small Cap rose 8.4% beating the MSCI World ex US Small Cap 7.3%. Performance was broadly supported by favorable style tailwinds during Q3 as higher quality growth oriented companies outperformed.

— Third quarter results (net) were hindered by the following factors:

1. All of Mondrian's strategies lagged their respective benchmarks. Mondrian Emerging Small Cap underperformed the MSCI EM Small Cap by 9.1%, losing 3.3%, Mondrian Emerging All Cap underperformed the MSCI Emerging Markets index (3.5% vs 8%), and Mondrian Developed Small Cap lagged the MSCI world ex US Small cap (6.0 vs 7.3). Strong outperformance of cyclical sectors continued to hurt Mondrian's defensive positioning. Underweight in China's growth oriented information technology sector also weighed on relative performance.
2. UBS gained 3.4%, trailing the Russell 2000 Growth which was up 6.2%. Stock selection within industrials and information technology were the main drivers of relative underperformance.
3. Wedge Capital trailed the Russell 2000 Value (3.0% vs 5.1%). Stock selection detracted from performance as growth-oriented higher P/E, high beta, low ROE companies outperformed value stocks.

# Total Fund Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception	
													Return (%)	Since <sup>+</sup>
<b>Total Fund- Gross*</b>	<b>8,989,856,839</b>	<b>100.0</b>	<b>3.8</b>	<b>44</b>	<b>12.3</b>	<b>33</b>	<b>13.6</b>	<b>25</b>	<b>7.0</b>	<b>54</b>	<b>8.5</b>	<b>63</b>	<b>8.4</b>	<b>Jun-86</b>
<b>Total Fund- Net</b>			<b>3.7</b>	<b>46</b>	<b>12.1</b>	<b>44</b>	<b>13.4</b>	<b>33</b>	<b>6.7</b>	<b>67</b>	<b>8.2</b>	<b>71</b>	<b>8.2</b>	
<i>Policy Index<sup>1</sup></i>			3.3	78	10.5	79	11.6	75	6.6	73	8.4	68	8.6	Jun-86
<i>InvestorForce Public DB &gt; \$1B Gross Median</i>			3.7		11.8		12.8		7.2		8.9		8.4	Jun-86
<b>Total Fund ex Overlay- Gross**</b>	<b>8,676,842,362</b>	<b>96.5</b>	<b>3.7</b>	<b>46</b>	<b>12.2</b>	<b>40</b>	<b>13.6</b>	<b>26</b>	<b>7.0</b>	<b>55</b>	<b>8.5</b>	<b>63</b>	<b>8.3</b>	<b>Jun-86</b>
<b>Total Fund ex Overlay- Net</b>			<b>3.7</b>	<b>47</b>	<b>12.0</b>	<b>47</b>	<b>13.3</b>	<b>34</b>	<b>6.7</b>	<b>68</b>	<b>8.2</b>	<b>71</b>	<b>8.1</b>	
<i>Policy Index<sup>1</sup></i>			3.3	78	10.5	79	11.6	75	6.6	73	8.4	68	8.6	Jun-86
<i>Allocation ex Overlay Index</i>			3.4	73	--	--	--	--	--	--	--	--	--	Jun-86
<b>Growth Asset Category- Gross</b>	<b>5,598,927,667</b>	<b>62.3</b>	<b>4.8</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>9.6</b>	<b>Mar-17</b>
<b>Growth Asset Category- Net</b>			<b>4.7</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>9.5</b>	
<i>Growth Custom<sup>1</sup></i>			4.5	--	--	--	--	--	--	--	--	--	8.5	Mar-17
<b>Equities- Gross Public</b>	<b>4,311,645,374</b>	<b>48.0</b>	<b>5.3</b>	<b>--</b>	<b>18.6</b>	<b>--</b>	<b>20.3</b>	<b>--</b>	<b>8.9</b>	<b>--</b>	<b>11.4</b>	<b>--</b>	<b>9.4</b>	<b>Jun-11</b>
<b>Equities- Net</b>			<b>5.2</b>	<b>--</b>	<b>18.3</b>	<b>--</b>	<b>19.9</b>	<b>--</b>	<b>8.6</b>	<b>--</b>	<b>11.1</b>	<b>--</b>	<b>9.1</b>	
<i>MSCI ACWI</i>			5.2	--	17.3	--	18.6	--	7.4	--	10.2	--	8.1	Jun-11
<b>US Equity- Gross</b>	<b>2,133,237,554</b>	<b>23.7</b>	<b>4.4</b>	<b>63</b>	<b>14.1</b>	<b>39</b>	<b>18.9</b>	<b>43</b>	<b>10.7</b>	<b>51</b>	<b>14.1</b>	<b>53</b>	<b>10.1</b>	<b>Jun-86</b>
<b>US Equity- Net</b>			<b>4.4</b>	<b>69</b>	<b>13.8</b>	<b>50</b>	<b>18.6</b>	<b>59</b>	<b>10.4</b>	<b>67</b>	<b>13.7</b>	<b>70</b>	<b>9.9</b>	
<i>Russell 3000<sup>1</sup></i>			4.6	50	13.9	46	18.7	55	10.7	48	14.2	44	10.2	Jun-86
<i>InvestorForce All DB US Eq Gross Median</i>			4.6		13.8		18.8		10.7		14.1		10.1	Jun-86
<b>Large Cap- Gross</b>	<b>1,691,386,697</b>	<b>18.8</b>	<b>4.5</b>	<b>--</b>	<b>14.9</b>	<b>--</b>	<b>19.7</b>	<b>--</b>	<b>10.5</b>	<b>--</b>	<b>14.2</b>	<b>--</b>	<b>6.0</b>	<b>Mar-98</b>
<b>Large Cap- Net</b>			<b>4.5</b>	<b>--</b>	<b>14.6</b>	<b>--</b>	<b>19.4</b>	<b>--</b>	<b>10.3</b>	<b>--</b>	<b>13.9</b>	<b>--</b>	<b>5.8</b>	
<i>Russell 1000</i>			4.5	--	14.2	--	18.5	--	10.6	--	14.3	--	6.5	Mar-98

\*Total Fund and asset class composites are ranked against InvestorForce universes. Managers are ranked against eVest manager universes. Net Returns are ranked against gross universe. Ranking of 1 is a top ranking and ranking of 100 is a bottom rating.

\*\*Total Fund ex Overlay returns from 2/1/2006-12/31/2010 were calculated using the overlay impact provided by SSgA.

+ Since inception date denotes last day of the month.

1. See Policy Index and Benchmark History

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
Large Cap - Index- Gross	1,108,529,098	12.3	4.4	--	14.1	--	18.5	--	10.6	--	14.2	--	11.5	Sep-08
Large Cap - Index- Net			4.4	--	14.1	--	18.5	--	10.6	--	14.2	--	11.4	
<i>Russell 1000</i>			4.5	--	14.2	--	18.5	--	10.6	--	14.3	--	11.5	Sep-08
AB- Gross	1,108,529,098	12.3	4.4	64	14.1	54	18.5	53	10.6	65	14.2	55	10.0	Apr-89
AB- Net			4.4	64	14.1	54	18.5	54	10.6	66	14.2	64	10.0	
<i>Russell 1000<sup>1</sup></i>			4.5	50	14.2	48	18.5	50	10.6	62	14.3	35	--	Apr-89
<i>eA US Passive Large Cap Equity Gross Median</i>			4.5		14.2		18.5		10.8		14.2		10.0	Apr-89
Equity Active (130/30)- Gross	113,565,896	1.3	4.6	--	14.9	--	21.2	--	10.8	--	15.8	--	12.4	Sep-08
Equity Active (130/30)- Net			4.3	--	14.3	--	20.3	--	10.1	--	15.0	--	11.7	
<i>Russell 1000</i>			4.5	--	14.2	--	18.5	--	10.6	--	14.3	--	11.5	Sep-08
JP Morgan 130/30- Gross	113,565,896	1.3	4.6	74	14.9	25	21.2	50	10.8	64	15.8	53	12.0	Jul-08
JP Morgan 130/30- Net			4.3	84	14.3	33	20.3	69	10.1	81	15.0	67	11.2	
<i>Russell 1000</i>			4.5	80	14.2	34	18.5	80	10.6	70	14.3	89	10.2	Jul-08
<i>eA Extended US 130/30 Equity Gross Median</i>			5.5		13.3		21.2		11.9		16.0		11.2	Jul-08
Large Cap Growth- Gross	117,984,586	1.3	4.9	--	21.3	--	15.8	--	10.3	--	12.1	--	10.4	Sep-08
Large Cap Growth- Net			4.9	--	21.1	--	15.6	--	10.1	--	11.9	--	10.0	
<i>Russell 1000 Growth</i>			5.9	--	20.7	--	21.9	--	12.7	--	15.3	--	13.0	Sep-08
Brown Advisory- Gross	117,984,586	1.3	4.9	69	21.3	42	15.8	94	10.3	76	12.1	95	11.4	Feb-12
Brown Advisory- Net			4.9	69	21.1	43	15.6	94	10.1	78	11.9	96	11.2	
<i>Russell 1000 Growth</i>			5.9	38	20.7	46	21.9	41	12.7	32	15.3	41	14.6	Feb-12
<i>eA US Large Cap Growth Equity Gross Median</i>			5.4		20.2		21.2		11.7		14.9		14.0	Feb-12
Large Cap Value- Gross	351,307,118	3.9	4.6	--	15.2	--	23.9	--	10.2	--	14.3	--	11.1	Sep-08
Large Cap Value- Net			4.4	--	14.3	--	22.9	--	9.4	--	13.4	--	10.5	
<i>Russell 1000 Value</i>			3.1	--	7.9	--	15.1	--	8.5	--	13.2	--	9.8	Sep-08
Eagle Capital- Gross	234,862,959	2.6	4.0	57	15.9	5	25.0	4	11.4	10	15.6	12	15.3	Feb-12
Eagle Capital- Net			3.8	62	14.9	8	24.0	6	10.5	19	14.7	27	14.5	
<i>Russell 1000</i>			4.5	40	14.2	11	18.5	39	10.6	18	14.3	34	13.9	Feb-12

1. See Policy Index and Benchmark History.

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
<i>Russell 1000 Value</i>			3.1	81	7.9	85	15.1	77	8.5	61	13.2	58	13.2	Feb-12
<i>eA US Large Cap Value Equity Gross Median</i>			4.2		10.4		17.6		8.9		13.5		13.2	Feb-12
Huber Capital- Gross	116,444,159	1.3	5.9	7	13.8	13	21.6	15	7.6	76	11.5	87	11.7	Feb-12
Huber Capital- Net			5.7	8	13.0	19	20.7	20	6.9	84	10.8	95	11.0	
<i>Russell 1000 Value</i>			3.1	81	7.9	85	15.1	77	8.5	61	13.2	58	13.2	Feb-12
<i>eA US Large Cap Value Equity Gross Median</i>			4.2		10.4		17.6		8.9		13.5		13.2	Feb-12
<b>Small Cap- Gross</b>	<b>345,220,663</b>	<b>3.8</b>	<b>4.9</b>	<b>--</b>	<b>13.5</b>	<b>--</b>	<b>22.4</b>	<b>--</b>	<b>11.9</b>	<b>--</b>	<b>13.9</b>	<b>--</b>	<b>12.1</b>	<b>Dec-90</b>
<b>Small Cap- Net</b>			<b>4.8</b>	<b>--</b>	<b>13.0</b>	<b>--</b>	<b>21.8</b>	<b>--</b>	<b>11.2</b>	<b>--</b>	<b>13.1</b>	<b>--</b>	<b>11.4</b>	
<i>Russell 2000</i>			5.7	--	10.9	--	20.7	--	12.2	--	13.8	--	11.0	Dec-90
<b>Small Cap - Growth- Gross</b>	<b>174,581,598</b>	<b>1.9</b>	<b>5.9</b>	<b>--</b>	<b>24.1</b>	<b>--</b>	<b>27.4</b>	<b>--</b>	<b>11.7</b>	<b>--</b>	<b>13.7</b>	<b>--</b>	<b>11.4</b>	<b>Sep-08</b>
<b>Small Cap - Growth- Net</b>			<b>5.9</b>	<b>--</b>	<b>23.8</b>	<b>--</b>	<b>27.1</b>	<b>--</b>	<b>11.2</b>	<b>--</b>	<b>13.0</b>	<b>--</b>	<b>10.7</b>	
<i>Russell 2000 Growth</i>			6.2	--	16.8	--	21.0	--	12.2	--	14.3	--	11.8	Sep-08
UBS- Gross	68,696,185	0.8	3.4	89	13.2	82	16.9	83	--	--	--	--	4.1	Jul-15
UBS- Net			3.4	89	12.9	83	16.6	84	--	--	--	--	4.0	
<i>Russell 2000 Growth</i>			6.2	49	16.8	62	21.0	60	12.2	55	14.3	58	7.7	Jul-15
<i>eA US Small Cap Growth Equity Gross Median</i>			6.1		18.5		21.8		12.7		14.7		8.7	Jul-15
Weatherbie- Gross	105,885,413	1.2	7.7	18	32.3	3	35.4	1	16.8	9	17.5	15	12.8	Dec-02
Weatherbie- Net			7.6	19	32.0	4	35.1	2	16.1	13	16.6	24	11.9	
<i>Russell 2000 Growth</i>			6.2	49	16.8	62	21.0	60	12.2	55	14.3	58	11.4	Dec-02
<i>eA US Small Cap Growth Equity Gross Median</i>			6.1		18.5		21.8		12.7		14.7		12.4	Dec-02
<b>Small Cap - Value- Gross</b>	<b>170,639,065</b>	<b>1.9</b>	<b>3.9</b>	<b>--</b>	<b>4.5</b>	<b>--</b>	<b>17.6</b>	<b>--</b>	<b>11.8</b>	<b>--</b>	<b>14.1</b>	<b>--</b>	<b>10.9</b>	<b>Sep-08</b>
<b>Small Cap - Value- Net</b>			<b>3.7</b>	<b>--</b>	<b>3.7</b>	<b>--</b>	<b>16.7</b>	<b>--</b>	<b>10.9</b>	<b>--</b>	<b>13.1</b>	<b>--</b>	<b>10.0</b>	
<i>Russell 2000 Value</i>			5.1	--	5.7	--	20.5	--	12.1	--	13.3	--	9.5	Sep-08
Dalton, Greiner- Gross	80,603,663	0.9	4.6	63	4.6	75	18.4	68	11.4	62	13.6	69	11.0	Dec-00
Dalton, Greiner- Net			4.4	65	4.0	79	17.8	75	10.7	69	12.8	79	10.2	
<i>Russell 2000 Value</i>			5.1	54	5.7	66	20.5	49	12.1	48	13.3	75	9.4	Dec-00
<i>eA US Small Cap Value Equity Gross Median</i>			5.2		7.0		20.4		11.9		14.8		11.5	Dec-00

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
WEDGE Capital- Gross	90,035,402	1.0	3.3	85	4.5	76	16.9	79	12.1	48	15.4	38	10.6	Apr-08
WEDGE Capital- Net			3.0	88	3.5	85	15.8	85	11.0	68	14.3	59	9.6	
<i>Russell 2000 Value</i>			5.1	54	5.7	66	20.5	49	12.1	48	13.3	75	8.9	Apr-08
<i>eA US Small Cap Value Equity Gross Median</i>			5.2		7.0		20.4		11.9		14.8		10.6	Apr-08
CenterSquare- Gross	96,484,754	1.1	1.3	22	3.5	59	0.6	58	11.3	17	11.0	19	9.0	Jan-06
CenterSquare- Net			1.3	27	3.2	64	0.4	63	10.7	31	10.5	28	8.5	
<i>FTSE NAREIT Equity REIT</i>			0.9	46	3.7	57	0.7	57	9.9	61	9.7	62	6.7	Jan-06
<i>eA US REIT Gross Median</i>			0.8		3.9		1.1		10.2		10.1		7.7	Jan-06
International Equity- Gross	2,178,407,820	24.2	6.2	54	23.5	40	20.0	54	6.0	52	8.0	60	6.6	Dec-87
International Equity- Net			6.1	56	23.1	46	19.6	63	5.6	61	7.6	71	6.3	
<i>MSCI ACWI ex US<sup>1</sup></i>			6.3	50	21.6	74	20.2	52	5.2	75	7.5	77	6.5	Dec-87
<i>InvestorForce All DB ex-US Eq Gross Median</i>			6.2		23.0		20.2		6.1		8.4		7.0	Dec-87
International - Developed- Gross	1,702,941,954	18.9	6.1	42	22.5	38	20.7	40	6.8	42	9.1	50	4.7	Mar-98
International - Developed- Net			6.0	43	22.1	41	20.3	44	6.4	52	8.7	62	4.3	
<i>MSCI EAFE Gross</i>			5.5	63	20.5	78	19.7	51	5.5	66	8.9	57	4.9	Mar-98
<i>InvestorForce All DB Dev Mkt ex-US Eq Gross Median</i>			5.9		21.6		19.7		6.4		9.1		5.7	Mar-98
Lazard- Gross	471,042,382	5.2	5.6	74	20.4	82	16.1	86	6.2	68	9.6	48	10.7	Jun-12
Lazard- Net			5.5	76	20.1	84	15.7	88	5.9	71	9.3	55	10.4	
<i>MSCI ACWI ex USA Gross</i>			6.3	60	21.6	71	20.2	54	5.2	80	7.5	85	8.6	Jun-12
<i>eA All ACWI ex-US Equity Gross Median</i>			6.7		24.6		20.9		7.1		9.5		10.6	Jun-12
Walter Scott & Partners Limited- Gross	468,121,960	5.2	4.9	73	--	--	--	--	--	--	--	--	13.3	Mar-17
Walter Scott & Partners Limited- Net			4.9	73	--	--	--	--	--	--	--	--	13.3	
<i>MSCI World ex US</i>			5.7	60	19.7	87	19.3	34	5.1	79	8.3	68	11.9	Mar-17
<i>eA EAFE Large Cap Growth Gross Median</i>			6.0		22.7		18.2		6.2		9.2		13.6	Mar-17

1. See Policy Index and Benchmark History.

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
LSV- Gross	529,020,610	5.9	7.0	32	21.2	40	24.8	19	7.4	23	10.8	22	5.4	Dec-04
LSV- Net			7.0	32	20.8	41	24.4	23	7.0	28	10.3	26	4.9	
<i>MSCI World ex US<sup>1</sup></i>			5.7	51	19.7	57	19.3	66	5.1	67	8.3	75	4.8	Dec-04
<i>MSCI EAFE Value Gross</i>			5.9	45	18.2	61	23.2	40	4.1	88	8.4	74	4.9	Dec-04
<i>eA EAFE Large Cap Value Gross Median</i>			5.7		19.8		22.4		5.6		9.5		5.9	Dec-04
Mondrian Dev Small Cap- Gross	107,771,534	1.2	6.0	76	25.6	65	17.5	76	9.2	63	9.5	85	10.7	Aug-10
Mondrian Dev Small Cap- Net			6.0	76	25.0	69	16.9	77	8.5	74	8.9	88	10.1	
<i>MSCI World ex US Small Cap GD</i>			7.3	60	24.2	79	20.9	58	10.0	48	11.6	64	10.8	Aug-10
<i>eA ACWI ex-US Small Cap Equity Gross Median</i>			8.3		28.1		22.9		10.0		12.6		11.8	Aug-10
William Blair Dev Small Cap- Gross	126,973,029	1.4	8.7	48	27.6	53	19.3	67	10.9	37	11.9	60	11.4	Sep-08
William Blair Dev Small Cap- Net			8.4	49	26.8	55	18.6	74	10.0	48	11.0	68	10.4	
<i>MSCI World ex US Small Cap GD</i>			7.3	60	24.2	79	20.9	58	10.0	48	11.6	64	10.1	Sep-08
<i>eA ACWI ex-US Small Cap Equity Gross Median</i>			8.3		28.1		22.9		10.0		12.6		11.8	Sep-08
<b>International - Emerging- Gross</b>	<b>389,519,351</b>	<b>4.3</b>	<b>7.3</b>	<b>42</b>	<b>29.7</b>	<b>19</b>	<b>21.7</b>	<b>44</b>	<b>4.1</b>	<b>80</b>	<b>3.8</b>	<b>77</b>	<b>6.8</b>	<b>Jan-00</b>
<b>International - Emerging- Net</b>			<b>7.2</b>	<b>45</b>	<b>29.1</b>	<b>24</b>	<b>21.1</b>	<b>50</b>	<b>3.8</b>	<b>84</b>	<b>3.6</b>	<b>80</b>	<b>6.3</b>	
<i>MSCI Emerging Markets Gross</i>			8.0	22	28.1	33	22.9	34	5.3	42	4.4	53	7.4	Jan-00
<i>InvestorForce All DB Emg Mkt Eq Gross Median</i>			7.0		26.7		20.6		4.9		4.4		7.2	Jan-00
Baillie Gifford Emg All Cap- Gross	182,705,264	2.0	12.0	7	42.4	1	32.0	5	--	--	--	--	30.5	Mar-16
Baillie Gifford Emg All Cap- Net			12.0	7	42.4	1	32.0	5	--	--	--	--	30.5	
<i>MSCI Emerging Markets Gross</i>			8.0	45	28.1	54	22.9	52	5.3	65	4.4	80	22.3	Mar-16
<i>eA Emg Mkts Equity Gross Median</i>			7.8		28.5		23.1		6.3		5.8		23.0	Mar-16
Mondrian Emg All Cap- Gross	150,788,466	1.7	3.7	93	20.4	93	16.1	86	--	--	--	--	14.9	Mar-16
Mondrian Emg All Cap- Net			3.5	95	19.6	96	15.3	89	--	--	--	--	14.2	
<i>MSCI Emerging Markets Gross</i>			8.0	45	28.1	54	22.9	52	5.3	65	4.4	80	22.3	Mar-16
<i>eA Emg Mkts Equity Gross Median</i>			7.8		28.5		23.1		6.3		5.8		23.0	Mar-16

1. See Policy Index and Benchmark History.

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
Mondrian Emg Small Cap- Gross	25,182,681	0.3	-3.0	99	9.0	99	-0.3	99	-1.9	99	--	--	3.3	Jan-14
Mondrian Emg Small Cap- Net			-3.3	99	7.6	99	-1.6	99	-3.2	99	--	--	2.1	
MSCI Emerging Markets Small Cap Gross			5.8	51	22.8	81	15.2	77	3.4	82	4.9	85	5.7	Jan-14
eA Emg Mkts Small Cap Equity Gross Median			5.8		27.0		19.3		6.4		7.8		8.4	Jan-14
William Blair Emg Small Cap- Gross	30,842,939	0.3	7.8	30	29.8	31	15.9	73	6.1	57	--	--	8.2	Dec-13
William Blair Emg Small Cap- Net			7.5	33	28.5	34	14.4	81	5.2	72	--	--	7.3	
MSCI Emerging Markets Small Cap Gross			5.8	51	22.8	81	15.2	77	3.4	82	4.9	85	4.8	Dec-13
eA Emg Mkts Small Cap Equity Gross Median			5.8		27.0		19.3		6.4		7.8		6.8	Dec-13
CBRE Clarion- Gross	85,946,515	1.0	3.5	73	13.3	60	4.4	50	4.5	74	6.5	60	11.3	Oct-08
CBRE Clarion- Net			3.4	77	13.1	79	4.2	65	4.2	92	6.2	69	11.1	
FTSE NAREIT Developed ex US Gross			3.2	86	13.6	47	4.9	43	4.5	74	5.9	99	10.1	Oct-08
eA EAFE REIT Gross Median			3.8		13.4		4.4		4.9		6.7		9.5	Oct-08
<b>Private Equity- Gross***++</b>	<b>626,710,265</b>	<b>7.0</b>	<b>3.9</b>	<b>25</b>	<b>11.3</b>	<b>30</b>	<b>16.5</b>	<b>20</b>	<b>9.9</b>	<b>35</b>	<b>12.8</b>	<b>31</b>	<b>0.0</b>	<b>Feb-08</b>
<b>Private Equity- Net</b>			<b>3.9</b>	<b>25</b>	<b>11.3</b>	<b>30</b>	<b>16.5</b>	<b>20</b>	<b>9.9</b>	<b>35</b>	<b>12.8</b>	<b>31</b>	<b>0.2</b>	
Thomson Reuters CJA All PE 1 Qtr Lag <sup>1</sup>			3.1	44	11.4	29	16.8	19	10.8	28	16.7	3	9.7	Feb-08
Russell 3000 +3% 1Q Lag			3.1	44	15.2	6	21.5	5	12.1	21	17.6	3	10.8	Feb-08
InvestorForce All DB Private Eq Net Median			2.8		9.2		12.4		8.6		9.9		7.3	Feb-08
Abbott VI- Gross	61,475,520	0.7	5.2	--	12.6	--	17.5	--	14.3	--	13.6	--	2.5	Jul-08
Abbott VI- Net			5.2	--	12.6	--	17.5	--	14.3	--	13.6	--	--	
Thomson Reuters CJA All PE 1 Qtr Lag			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	10.8	Jul-08
Accel-KKR IV- Gross	9,246,820	0.1	5.7	--	23.4	--	27.3	--	15.2	--	--	--	-11.0	Jun-13
Accel-KKR IV- Net			5.7	--	23.4	--	27.3	--	15.2	--	--	--	-11.0	
Thomson Reuters CJA All PE 1 Qtr Lag			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	14.8	Jun-13
Accel-KKR V- Gross	4,255,162	0.0	0.5	--	--	--	--	--	--	--	--	--	10.4	Jan-17
Accel-KKR V- Net			0.5	--	--	--	--	--	--	--	--	--	10.4	
Thomson Reuters CJA All PE 1 Qtr Lag			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	13.3	Jan-17

\*\*\* Private Equity Composite includes the historical returns of Summit Credit and Athyrium Opportunities up to 4/1/17.

++ Returns are one-quarter lag.

1. See Policy Index and Benchmark History.



Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
Accel-KKR Growth Partners II- Gross	4,521,125	0.1	3.3	--	4.7	--	4.9	--	--	--	--	--	-12.8	Feb-15
Accel-KKR Growth Partners II- Net			3.3	--	4.7	--	4.9	--	--	--	--	--	-12.8	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	9.9	Feb-15
Atalaya Special Opp VI- Gross	16,406,454	0.2	2.0	--	5.4	--	18.0	--	--	--	--	--	4.3	Apr-16
Atalaya Special Opp VI- Net			2.0	--	5.4	--	18.0	--	--	--	--	--	4.3	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	19.8	Apr-16
Dyal Capital Partners II- Gross	8,498,732	0.1	-0.9	--	-0.3	--	2.6	--	--	--	--	--	-7.1	Dec-14
Dyal Capital Partners II- Net			-0.9	--	-0.3	--	2.6	--	--	--	--	--	-7.1	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	11.2	Dec-14
Dyal Capital Partners III- Gross	10,539,943	0.1	0.6	--	9.6	--	--	--	--	--	--	--	9.6	Dec-16
Dyal Capital Partners III- Net			0.6	--	9.6	--	--	--	--	--	--	--	9.6	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	11.4	Dec-16
Garrison Investment Group- Gross	13,770,218	0.2	-0.2	--	-2.6	--	-5.1	--	-7.8	--	0.0	--	-0.3	May-12
Garrison Investment Group- Net			-0.2	--	-2.6	--	-5.1	--	-7.8	--	0.0	--	-0.3	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	15.8	May-12
Harbourvest VIII- Gross	24,582,623	0.3	4.7	--	13.0	--	17.1	--	13.8	--	14.3	--	9.2	Dec-07
Harbourvest VIII- Net			4.7	--	13.0	--	17.1	--	13.8	--	14.3	--	--	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	9.3	Dec-07
Harbourvest Intl VI- Gross	35,303,696	0.4	7.9	--	12.5	--	17.2	--	11.3	--	12.4	--	-10.9	Mar-09
Harbourvest Intl VI- Net			7.9	--	12.5	--	17.2	--	11.3	--	12.4	--	--	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	16.8	Mar-09
H.I.G. Bayside Loan III- Gross	21,738,941	0.2	0.6	--	10.1	--	11.1	--	11.9	--	--	--	5.4	Jan-13
H.I.G. Bayside Loan III- Net			0.6	--	10.1	--	11.1	--	11.9	--	--	--	5.4	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	16.7	Jan-13
H.I.G. Capital V- Gross	3,600,160	0.0	-6.1	--	27.5	--	25.0	--	-1.9	--	--	--	-2.8	Jul-13
H.I.G. Capital V- Net			-6.1	--	27.5	--	25.0	--	-1.9	--	--	--	-2.8	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	14.6	Jul-13

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
H.I.G. Europe Capital II - Gross*	4,236,378	0.0	21.7	--	-1.9	--	-72.3	--	--	--	--	--	--	Jan-14
H.I.G. Europe Capital II - Net			21.7	--	-1.9	--	-72.3	--	--	--	--	--	--	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	13.0	Jan-14
Khosla IV- Gross	15,783,888	0.2	12.7	--	6.5	--	16.3	--	16.5	--	16.9	--	13.8	Jul-11
Khosla IV- Net			12.7	--	6.5	--	16.3	--	16.5	--	16.9	--	13.8	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	14.3	Jul-11
Khosla V- Gross	12,603,758	0.1	2.0	--	13.4	--	9.5	--	--	--	--	--	4.6	Nov-14
Khosla V- Net			2.0	--	13.4	--	9.5	--	--	--	--	--	4.6	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	10.3	Nov-14
Linden Capital- Gross	27,028,837	0.3	6.7	--	25.9	--	23.7	--	--	--	--	--	1.6	Jun-16
Linden Capital- Net			6.7	--	25.9	--	23.7	--	--	--	--	--	1.6	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	16.0	Jun-16
Marlin Equity IV- Gross	14,676,186	0.2	2.7	--	-1.6	--	9.3	--	5.5	--	--	--	1.0	Nov-13
Marlin Equity IV- Net			2.7	--	-1.6	--	9.3	--	5.5	--	--	--	1.0	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	14.8	Nov-13
Marlin Heritage- Gross	6,187,533	0.1	4.0	--	33.2	--	38.6	--	14.0	--	--	--	13.3	Jul-14
Marlin Heritage- Net			4.0	--	33.2	--	38.6	--	14.0	--	--	--	13.3	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	11.8	Jul-14
Marlin Heritage Europe- Gross*	3,025,426	0.0	--	--	--	--	--	--	--	--	--	--	0.0	Aug-17
Marlin Heritage Europe- Net			--	--	--	--	--	--	--	--	--	--	0.0	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	3.1	Aug-17
New Enterprise 14- Gross	36,550,074	0.4	2.4	--	14.2	--	19.0	--	18.1	--	14.7	--	13.1	May-12
New Enterprise 14- Net			2.4	--	14.2	--	19.0	--	18.1	--	14.7	--	13.1	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	15.8	May-12
New Enterprise 15- Gross	30,496,783	0.3	6.8	--	27.1	--	31.3	--	--	--	--	--	12.7	Apr-15
New Enterprise 15- Net			6.8	--	27.1	--	31.3	--	--	--	--	--	12.7	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	11.7	Apr-15

\* Funded in August 2017.

\* Unable to calculate a since inception return due to system limitations when HIG Europe Capital II experienced 2 quarters of negative fund values in 2016.

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
New Enterprise 16- Gross	2,368,338	0.0	-7.8	--	--	--	--	--	--	--	--	--	-7.8	May-17
New Enterprise 16- Net			-7.8	--	--	--	--	--	--	--	--	--	-7.8	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	6.6	May-17
Private Equity X- Gross <sup>+++</sup>	39,999,442	0.4	0.0	--	8.6	--	16.1	--	1.4	--	12.3	--	-4.5	Jun-08
Private Equity X- Net			0.0	--	8.6	--	16.1	--	1.4	--	12.3	--	--	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	11.2	Jun-08
RRJ Capital Master Fund II- Gross	19,848,314	0.2	1.0	--	3.7	--	2.3	--	7.4	--	--	--	11.6	May-13
RRJ Capital Master Fund II- Net			1.0	--	3.7	--	2.3	--	7.4	--	--	--	11.6	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	15.6	May-13
RRJ Capital Master Fund III- Gross	13,796,878	0.2	3.9	--	6.1	--	13.6	--	--	--	--	--	-31.6	Dec-15
RRJ Capital Master Fund III- Net			3.9	--	6.1	--	13.6	--	--	--	--	--	-31.6	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	16.9	Dec-15
Spectrum Equity- Gross	18,315,404	0.2	6.4	--	24.6	--	29.0	--	--	--	--	--	-10.4	Dec-14
Spectrum Equity- Net			6.4	--	24.6	--	29.0	--	--	--	--	--	-10.4	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	11.2	Dec-14
Summit Ventures III- Gross	24,088,938	0.3	3.2	--	3.0	--	21.8	--	19.6	--	11.2	--	9.5	Jun-12
Summit Ventures III- Net			3.2	--	3.0	--	21.8	--	19.6	--	11.2	--	9.5	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	15.3	Jun-12
Summit Ventures IV- Gross	9,848,438	0.1	7.1	--	11.2	--	7.5	--	--	--	--	--	20.9	May-16
Summit Ventures IV- Net			7.1	--	11.2	--	7.5	--	--	--	--	--	20.9	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	21.0	May-16
Thoma Bravo XI- Gross	34,741,875	0.4	8.3	--	16.9	--	17.0	--	9.4	--	--	--	8.0	Jun-14
Thoma Bravo XI- Net			8.3	--	16.9	--	17.0	--	9.4	--	--	--	8.0	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	11.8	Jun-14
Thoma Bravo XII- Gross	12,163,303	0.1	4.9	--	3.1	--	-0.9	--	--	--	--	--	-9.7	May-16
Thoma Bravo XII- Net			4.9	--	3.1	--	-0.9	--	--	--	--	--	-9.7	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	21.0	May-16

<sup>+++</sup> Preliminary quarterly returns as of 09/30/2017 (Returns are not available at reporting period.)

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
TPG Opp Partners III- Gross	18,742,021	0.2	2.2	--	7.2	--	13.5	--	6.2	--	--	--	-26.5	Mar-14
TPG Opp Partners III- Net			2.2	--	7.2	--	13.5	--	6.2	--	--	--	-26.5	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	11.8	Mar-14
Trinity Ventures XI- Gross	24,721,828	0.3	5.8	--	20.3	--	17.9	--	15.5	--	--	--	1.3	Apr-13
Trinity Ventures XI- Net			5.8	--	20.3	--	17.9	--	15.5	--	--	--	1.3	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	15.7	Apr-13
Trinity Ventures XII- Gross	8,838,861	0.1	0.2	--	21.7	--	13.1	--	--	--	--	--	2.6	Apr-16
Trinity Ventures XII- Net			0.2	--	21.7	--	13.1	--	--	--	--	--	2.6	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	19.8	Apr-16
TSG7 A LP- Gross	5,163,973	0.1	0.6	--	-3.9	--	-8.6	--	--	--	--	--	--	Mar-16
TSG7 A LP- Net			0.6	--	-3.9	--	-8.6	--	--	--	--	--	--	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	14.6	Mar-16
TSG7 B LP- Gross	296,446	0.0	-7.9	--	-28.2	--	-32.3	--	--	--	--	--	-28.5	Jan-16
TSG7 B LP- Net			-7.9	--	-28.2	--	-32.3	--	--	--	--	--	-28.5	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	12.4	Jan-16
Waterland V- Gross	11,527,023	0.1	0.8	--	8.2	--	60.0	--	47.1	--	51.5	--	19.2	Aug-11
Waterland V- Net			0.8	--	8.2	--	60.0	--	47.1	--	51.5	--	19.2	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	14.7	Aug-11
Waterland VI- Gross	9,768,942	0.1	4.0	--	7.2	--	23.0	--	--	--	--	--	-26.5	Jul-15
Waterland VI- Net			4.0	--	7.2	--	23.0	--	--	--	--	--	-26.5	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	10.2	Jul-15
Waterland VI Over- Gross	628	0.0	-11.3	--	-48.5	--	-53.7	--	--	--	--	--	-77.8	Dec-15
Waterland VI Over- Net			-11.3	--	-48.5	--	-53.7	--	--	--	--	--	-77.8	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	16.9	Dec-15

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
Wayzata Opportunities III- Gross	7,951,356	0.1	-1.5	--	4.4	--	9.4	--	0.5	--	--	--	-5.8	Feb-13
Wayzata Opportunities III- Net			-1.5	--	4.4	--	9.4	--	0.5	--	--	--	-5.8	
<i>Thomson Reuters CJA All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	16.8	Feb-13
<b>Public Credit- Gross</b>	<b>173,198,859</b>	<b>1.9</b>	<b>1.2</b>	<b>--</b>	<b>6.5</b>	<b>--</b>	<b>9.1</b>	<b>--</b>	<b>4.8</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>4.8</b>	<b>Nov-13</b>
<b>Public Credit- Net</b>			<b>1.2</b>	<b>--</b>	<b>6.5</b>	<b>--</b>	<b>9.1</b>	<b>--</b>	<b>4.8</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>4.8</b>	
<i>Brigade Custom<sup>1</sup></i>			1.5	--	5.0	--	7.2	--	4.9	--	--	--	4.8	Nov-13
Brigade Capital- Gross	173,198,859	1.9	1.2	90	6.5	62	9.1	36	4.8	76	--	--	4.8	Nov-13
Brigade Capital- Net			1.2	90	6.5	62	9.1	36	4.8	76	--	--	4.8	
<i>Brigade Custom<sup>1</sup></i>			1.5	81	5.0	86	7.2	79	4.9	71	--	--	4.8	Nov-13
<i>eA US High Yield Fixed Inc Gross Median</i>			2.0		6.8		8.5		5.5		6.3		5.4	Nov-13
<b>Private Credit- Gross<sup>++</sup></b>	<b>53,781,660</b>	<b>0.6</b>	<b>1.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>5.0</b>	<b>Mar-17</b>
<b>Private Credit- Net</b>			<b>1.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>5.0</b>	
<i>Credit Suisse Leveraged Loan + 2%</i>			1.6	--	4.5	--	7.4	--	--	--	--	--	2.7	Mar-17
Athyrium Opp II- Gross	22,340,780	0.2	1.2	--	5.6	--	11.4	--	--	--	--	--	4.4	Jun-15
Athyrium Opp II- Net			1.2	--	5.6	--	11.4	--	--	--	--	--	4.4	
<i>Credit Suisse Leveraged Loan + 2%</i>			1.6	--	4.5	--	7.4	--	--	--	--	--	--	Jun-15
Athyrium Opp III- Gross	3,272,097	0.0	-8.9	--	--	--	--	--	--	--	--	--	-8.9	May-17
Athyrium Opp III- Net			-8.9	--	--	--	--	--	--	--	--	--	-8.9	
<i>Credit Suisse Leveraged Loan + 2%</i>			1.6	--	4.5	--	7.4	--	--	--	--	--	1.7	May-17
Summit Credit- Gross	6,068,890	0.1	3.0	--	10.1	--	14.7	--	13.6	--	10.1	--	8.6	Oct-11
Summit Credit- Net			3.0	--	10.1	--	14.7	--	13.6	--	10.1	--	8.6	
<i>Credit Suisse Leveraged Loan + 2%</i>			1.6	--	4.5	--	7.4	--	--	--	--	--	--	Oct-11

1. See Policy Index and Benchmark History.

++ Returns are one-quarter lag.

# Total Fund Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
Summit Credit II- Gross	22,099,893	0.2	2.7	--	10.2	--	14.8	--	--	--	--	--	6.2	Nov-14
Summit Credit II- Net			2.7	--	10.2	--	14.8	--	--	--	--	--	6.2	
<i>Credit Suisse Leveraged Loan + 2%</i>			1.6	--	4.5	--	7.4	--	--	--	--	--	--	Nov-14
<b>Growth Oriented Absolute Return- Gross<sup>++</sup></b>	<b>433,591,509</b>	<b>4.8</b>	<b>2.7</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>4.9</b>	<b>Mar-17</b>
<b>Growth Oriented Absolute Return- Net</b>			<b>2.7</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>4.9</b>	
<i>HFRI FoF Composite Index + 1%<sup>1</sup></i>			2.6	--	5.5	--	6.9	--	5.7	--	5.4	--	4.0	Mar-17
Claren Road Credit- Gross	1,847,958	0.0	-2.4	91	4.9	60	24.2	3	-3.7	99	-0.5	99	-0.5	Jan-12
Claren Road Credit- Net			-2.4	91	4.9	60	24.2	3	-3.7	99	-0.5	99	-0.5	
<i>HFRI FoF Composite Index + 1%</i>			2.6	22	5.5	55	6.9	60	5.7	36	5.4	59	5.4	Jan-12
<i>eV Alt Fundamental - Long/Short Credit Median</i>			1.6		6.0		7.6		4.9		6.3		6.8	Jan-12
Elliot Associates- Gross <sup>+++</sup>	51,754,537	0.6	2.6	39	6.2	47	10.8	48	6.7	29	8.4	35	8.1	Apr-12
Elliot Associates- Net			2.6	39	6.2	47	10.8	48	6.7	29	8.4	35	8.1	
<i>HFRI FoF Composite Index + 1%</i>			2.6	40	5.5	52	6.9	60	5.7	38	5.4	63	5.4	Apr-12
<i>eV Alt All Event Driven Median</i>			2.0		5.6		10.7		4.3		6.8		6.5	Apr-12
Grosvenor- Gross	409,328	0.0	1.9	53	0.1	97	73.9	1	15.1	1	11.8	4	6.5	Aug-04
Grosvenor- Net			1.9	53	0.1	97	73.9	1	15.1	1	11.8	4	6.2	
<i>HFRI FoF Composite Index + 1%</i>			2.6	41	5.5	49	6.9	49	5.7	15	5.4	47	6.4	Aug-04
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>			2.1		5.3		6.5		2.6		5.3		4.7	Aug-04
Grosvenor SCARF Growth- Gross	161,039,074	1.8	2.9	30	9.2	22	11.8	17	3.1	44	6.1	34	6.5	Nov-11
Grosvenor SCARF Growth- Net			2.9	30	9.2	22	11.8	17	3.1	44	6.1	34	6.5	
<i>HFRI FoF Composite Index + 1%</i>			2.6	41	5.5	49	6.9	49	5.7	15	5.4	47	5.4	Nov-11
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>			2.1		5.3		6.5		2.6		5.3		5.6	Nov-11
Grosvenor SCARF B Growth- Gross	37,666,637	0.4	2.2	48	8.5	23	10.3	25	3.2	43	--	--	5.1	Jan-13
Grosvenor SCARF B Growth- Net			2.2	48	8.5	23	10.3	25	3.2	43	--	--	5.1	
<i>HFRI FoF Composite Index + 1%</i>			2.6	41	5.5	49	6.9	49	5.7	15	5.4	47	5.5	Jan-13
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>			2.1		5.3		6.5		2.6		5.3		4.7	Jan-13

<sup>++</sup> Absolute Return managers are ranked in the eVest net of fee universe.

<sup>+++</sup> Preliminary quarterly returns as of 9/30/2017 (Returns are not available at reporting period.)

1. See Policy Index and Benchmark History.

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
JANA Partners- Gross	41,356,826	0.5	0.8	67	7.5	42	11.5	42	1.9	72	--	--	3.8	Jul-13
JANA Partners- Net			0.8	67	7.5	42	11.5	42	1.9	72	--	--	3.8	
<i>HFRI FoF Composite Index + 1%</i>			2.6	40	5.5	52	6.9	60	5.7	38	5.4	63	5.5	Jul-13
<i>eV Alt All Event Driven Median</i>			2.0		5.6		10.7		4.3		6.8		5.3	Jul-13
Lakewood- Gross	45,434,049	0.5	3.9	42	8.2	57	15.0	39	8.4	33	--	--	8.3	Jun-13
Lakewood- Net			3.9	42	8.2	57	15.0	39	8.4	33	--	--	8.3	
<i>HFRI FoF Composite Index + 1%</i>			2.6	57	5.5	70	6.9	71	5.7	49	5.4	73	5.5	Jun-13
<i>eV Alt Fundamental - Long/Short Equity Median</i>			3.2		9.3		12.0		5.5		8.2		6.9	Jun-13
OZ Domestic II- Gross	46,185,424	0.5	2.4	44	10.7	22	13.5	21	5.3	41	7.2	43	7.9	Dec-11
OZ Domestic II- Net			2.4	44	10.7	22	13.5	21	5.3	41	7.2	43	7.8	
<i>HFRI FoF Composite Index + 1%</i>			2.6	40	5.5	48	6.9	48	5.7	40	5.4	49	5.4	Dec-11
<i>eV Alt All Multi-Strategy Median</i>			2.0		5.2		6.4		4.0		5.2		5.8	Dec-11
Third Point Offshore Fund- Gross	47,897,675	0.5	3.3	33	14.4	15	13.4	34	6.5	29	11.7	16	11.5	Apr-12
Third Point Offshore Fund- Net			3.3	33	14.4	15	13.4	34	6.5	29	11.7	16	11.5	
<i>HFRI FoF Composite Index + 1%</i>			2.6	40	5.5	52	6.9	60	5.7	38	5.4	63	5.4	Apr-12
<i>eV Alt All Event Driven Median</i>			2.0		5.6		10.7		4.3		6.8		6.5	Apr-12
<b>Diversifying Asset Category- Gross</b>	<b>1,743,305,954</b>	<b>19.4</b>	<b>1.3</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2.8</b>	<b>Mar-17</b>
<b>Diversifying Asset Category- Net</b>			<b>1.2</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2.8</b>	
<i>Diversifying Custom<sup>1</sup></i>			1.1	--	--	--	--	--	--	--	--	--	2.4	Mar-17
<b>Core/Core Plus Fixed Income- Gross</b>	<b>1,163,334,424</b>	<b>12.9</b>	<b>1.0</b>	<b>--</b>	<b>4.2</b>	<b>--</b>	<b>1.4</b>	<b>--</b>	<b>3.5</b>	<b>--</b>	<b>2.7</b>	<b>--</b>	<b>3.3</b>	<b>Jun-11</b>
<b>Core/Core Plus Fixed Income- Net</b>			<b>1.0</b>	<b>--</b>	<b>4.1</b>	<b>--</b>	<b>1.3</b>	<b>--</b>	<b>3.4</b>	<b>--</b>	<b>2.5</b>	<b>--</b>	<b>3.2</b>	
<i>BBgBarc US Aggregate TR</i>			0.8	--	3.1	--	0.1	--	2.7	--	2.1	--	3.1	Jun-11
Neuberger Berman Fixed- Gross	354,236,660	3.9	0.8	71	3.2	71	0.2	78	2.9	70	2.2	73	6.6	Jun-88
Neuberger Berman Fixed- Net			0.8	71	3.2	75	0.2	80	2.8	74	2.2	78	6.6	
<i>BBgBarc US Aggregate TR</i>			0.8	69	3.1	79	0.1	86	2.7	82	2.1	87	6.3	Jun-88
<i>eA US Core Fixed Inc Gross Median</i>			0.9		3.5		0.6		3.1		2.5		6.7	Jun-88

1. See Policy Index and Benchmark History.

# Total Fund Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
Prudential- Gross	434,537,426	4.8	1.2	8	5.7	2	2.9	3	4.6	2	--	--	4.5	Jul-14
Prudential- Net			1.1	11	5.5	2	2.6	3	4.4	3	--	--	4.3	
<i>BBgBarc US Aggregate TR</i>			0.8	69	3.1	79	0.1	86	2.7	82	2.1	87	2.7	Jul-14
<i>eA US Core Fixed Inc Gross Median</i>			0.9		3.5		0.6		3.1		2.5		3.0	Jul-14
TCW MetWest Fixed- Gross	374,560,337	4.2	0.9	54	3.3	66	0.9	30	2.9	64	2.8	30	6.1	Dec-01
TCW MetWest Fixed- Net			0.9	54	3.3	69	0.9	33	2.8	80	2.6	42	5.9	
<i>BBgBarc US Aggregate TR</i>			0.8	69	3.1	79	0.1	86	2.7	82	2.1	87	4.6	Dec-01
<i>eA US Core Fixed Inc Gross Median</i>			0.9		3.5		0.6		3.1		2.5		5.0	Dec-01
<b>U.S. Treasury- Gross</b>	--	--	--	--	--	--	--	--	--	--	--	--	--	Mar-17
<b>U.S. Treasury- Net</b>			--	--	--	--	--	--	--	--	--	--	--	
<i>BBgBarc US TIPS TR</i>			0.9	--	1.7	--	-0.7	--	1.6	--	0.0	--	0.5	Mar-17
<b>Global Fixed Income- Gross</b>	229,273,626	2.6	3.3	--	13.5	--	6.7	--	3.4	--	--	--	3.3	May-13
<b>Global Fixed Income- Net</b>			3.3	--	13.4	--	6.5	--	3.1	--	--	--	3.0	
<i>Brandywine Custom</i>			2.2	--	7.9	--	-0.7	--	0.8	--	--	--	0.7	May-13
Brandywine Global- Gross	229,273,626	2.6	3.3	15	13.5	7	6.7	30	3.4	42	--	--	3.3	May-13
Brandywine Global- Net			3.3	15	13.4	7	6.5	31	3.1	49	--	--	3.0	
<i>Brandywine Custom</i>			2.2	39	7.9	35	-0.7	89	0.8	85	--	--	0.7	May-13
<i>eA All Global Fixed Inc Gross Median</i>			1.9		6.8		4.1		3.0		3.1		3.0	May-13
<b>Diversifying Absolute Return- Gross**</b>	350,697,903	3.9	0.9	--	--	--	--	--	--	--	--	--	-0.4	Mar-17
<b>Diversifying Absolute Return- Net</b>			0.9	--	--	--	--	--	--	--	--	--	-0.4	
<i>HFRI FoF Conservative Index<sup>1</sup></i>			1.3	--	4.2	--	5.6	--	5.3	--	5.2	--	2.8	Mar-17
AQR DELTA II- Gross AQR	71,808,438	0.8	3.5	30	3.4	65	6.1	52	7.1	31	--	--	6.2	May-13
DELTA II- Net			3.5	30	3.4	65	6.1	52	7.1	31	--	--	6.2	
<i>HFRI FoF Conservative Index</i>			1.3	64	4.2	59	5.6	55	5.3	41	5.2	51	5.2	May-13
<i>eV Alt All Multi-Strategy Median</i>			2.0		5.2		6.4		4.0		5.2		4.6	May-13

1. See Policy Index and Benchmark History.

\*\* Absolute Return managers are ranked in the eVest net of fee universe.



Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
Brevan Howard US- Gross	34,222,430	0.4	0.7	57	-4.5	76	1.7	45	-1.5	71	--	--	-0.6	Feb-14
Brevan Howard US- Net			0.7	57	-4.5	76	1.7	45	-1.5	71	--	--	-0.6	
<i>HFRI FoF Conservative Index</i>			1.3	48	4.2	29	5.6	25	5.3	20	5.2	19	5.2	Feb-14
<i>HFRI Fund of Funds Composite Index</i>			2.3	33	5.6	24	6.5	21	2.2	45	3.8	31	2.2	Feb-14
<i>eV Alt All Macro Median</i>			1.1		-0.6		0.9		1.7		2.1		1.9	Feb-14
Graham Global Inv II- Gross	32,256,098	0.4	-1.7	75	--	--	--	--	--	--	--	--	-6.8	Feb-17
Graham Global Inv II- Net			-1.7	75	--	--	--	--	--	--	--	--	-6.8	
<i>HFRI FoF Conservative Index</i>			1.3	39	4.2	24	5.6	22	5.3	26	5.2	29	3.3	Feb-17
<i>eV Alt All Managed Futures Median</i>			0.4		-1.3		-0.4		0.5		2.3		-1.4	Feb-17
Grosvenor SCARF Diversifying- Gross	103,113,020	1.1	0.7	90	-0.2	97	2.3	92	-0.8	96	2.1	92	2.1	Nov-11
Grosvenor SCARF Diversifying- Net			0.7	90	-0.2	97	2.3	92	-0.8	96	2.1	92	2.1	
<i>HFRI FoF Conservative Index</i>			1.3	74	4.2	61	5.6	56	5.3	18	5.2	55	5.2	Nov-11
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>			2.1		5.3		6.5		2.6		5.3		5.6	Nov-11
Grosvenor SCARF B Diversifying- Gross	33,037,325	0.4	-0.2	99	-2.7	99	-1.9	98	-2.0	98	--	--	0.9	Jan-13
Grosvenor SCARF B Diversifying- Net			-0.2	99	-2.7	99	-1.9	98	-2.0	98	--	--	0.9	
<i>HFRI FoF Conservative Index</i>			1.3	74	4.2	61	5.6	56	5.3	18	5.2	55	5.2	Jan-13
<i>eV Alt Fund of Funds - Multi-Strategy Median</i>			2.1		5.3		6.5		2.6		5.3		4.7	Jan-13
Laurion Capital- Gross	41,516,694	0.5	0.4	74	-0.9	83	1.8	80	6.8	43	--	--	4.9	Mar-14
Laurion Capital- Net			0.4	74	-0.9	83	1.8	80	6.8	43	--	--	4.9	
<i>HFRI FoF Conservative Index</i>			1.3	56	4.2	57	5.6	51	5.3	62	5.2	66	5.2	Mar-14
<i>eV Alt Relative Value - Equity Relative Value Median</i>			1.5		5.0		5.7		5.8		6.6		6.6	Mar-14
Winton Diversified Futures- Gross	34,743,900	0.4	0.7	45	-0.7	47	--	--	--	--	--	--	-0.7	Dec-16
Winton Diversified Futures- Net			0.7	45	-0.7	47	--	--	--	--	--	--	-0.7	
<i>HFRI FoF Conservative Index</i>			1.3	39	4.2	24	5.6	22	5.3	26	5.2	29	4.2	Dec-16
<i>eV Alt All Managed Futures Median</i>			0.4		-1.3		-0.4		0.5		2.3		-1.3	Dec-16

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
Real Return (with SSgA RA Overlay Proxy)- Gross	1,369,033,415	15.2	2.9	--	--	--	--	--	--	--	--	--	5.4	Mar-17
Real Return (with SSgA RA Overlay Proxy)- Net			2.9	--	--	--	--	--	--	--	--	--	5.3	
Real Return Custom <sup>1</sup>			2.0	--	--	--	--	--	--	--	--	--	3.1	Mar-17
Real Return Asset Category- Gross	1,135,203,449	12.6	2.8	--	--	--	--	--	--	--	--	--	6.2	Mar-17
Real Return Asset Category- Net			2.8	--	--	--	--	--	--	--	--	--	6.1	
Real Return Custom <sup>1</sup>			2.0	--	--	--	--	--	--	--	--	--	3.1	Mar-17
Real Estate- Gross	790,085,469	8.8	3.0	2	8.8	3	13.4	1	11.9	6	11.7	15	12.3	Jun-11
Real Estate- Net			3.0	2	8.5	3	13.0	1	10.8	23	10.8	47	11.3	
Real Estate Custom <sup>1</sup>			2.0	24	5.3	31	7.2	39	9.9	45	10.4	57	10.6	Jun-11
InvestorForce All DB Real Estate Priv Net Median			1.5		4.5		6.6		9.6		10.6		10.6	Jun-11
Core RE -Separate- Gross	244,146,170	2.7	2.9	--	9.8	--	13.4	--	10.4	--	10.8	--	5.8	Sep-08
Core RE -Separate- Net			2.9	--	9.2	--	12.8	--	9.1	--	9.7	--	4.9	
NFI-ODCE			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	5.2	Sep-08
BlackRock RE Leveraged- Gross	171,648,425	1.9	2.3	--	9.2	--	11.7	--	12.8	--	12.4	--	9.9	Dec-98
BlackRock RE Leveraged- Net			2.3	--	8.6	--	11.1	--	11.4	--	11.3	--	--	
NFI-ODCE			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	8.6	Dec-98
BlackRock RE II Leveraged- Gross*	1,593,939	0.0												
BlackRock RE II Leveraged- Net														
NFI-ODCE														
Cornerstone Leveraged- Gross	70,903,806	0.8	4.6	--	11.4	--	20.7	--	10.8	--	11.5	--	8.1	May-04
Cornerstone Leveraged- Net			4.6	--	11.0	--	20.1	--	9.6	--	10.5	--	--	
NFI-ODCE			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	8.3	May-04
BlackRock RE Unleveraged- Gross	--	--	2.0	--	8.3	--	10.6	--	12.1	--	11.5	--	10.3	Oct-95
BlackRock RE Unleveraged- Net			1.7	--	7.4	--	9.4	--	10.7	--	10.2	--	--	
NFI-ODCE			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	9.3	Oct-95

1. See Policy Index and Benchmark History.  
\* Liquidating as of January 2017.

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
Cornerstone Unleveraged- Gross	--	--	3.3	--	8.3	--	14.2	--	7.8	--	8.7	--	6.9	Jun-04
Cornerstone Unleveraged- Net			3.2	--	8.0	--	13.7	--	7.2	--	8.3	--	--	
<i>NFI-ODCE</i>			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	8.3	Jun-04
<b>Core RE -Limited Partnership- Gross</b>	<b>356,881,487</b>	<b>4.0</b>	<b>2.0</b>	<b>--</b>	<b>6.1</b>	<b>--</b>	<b>9.4</b>	<b>--</b>	<b>11.3</b>	<b>--</b>	<b>11.4</b>	<b>--</b>	<b>4.1</b>	<b>Sep-08</b>
<b>Core RE -Limited Partnership- Net</b>			<b>2.0</b>	<b>--</b>	<b>5.9</b>	<b>--</b>	<b>9.2</b>	<b>--</b>	<b>10.8</b>	<b>--</b>	<b>10.8</b>	<b>--</b>	<b>3.4</b>	
<i>NFI-ODCE</i>			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	5.2	Sep-08
Jamestown Premier Property - Gross	19,925,087	0.2	1.5	--	5.5	--	5.2	--	10.4	--	--	--	10.6	Dec-13
Jamestown Premier Property - Net			1.5	--	5.5	--	5.2	--	10.4	--	--	--	10.6	
<i>NFI-ODCE</i>			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	11.1	Dec-13
Metlife Core Property - Gross	53,474,656	0.6	2.4	--	5.0	--	8.2	--	11.3	--	--	--	12.8	Dec-13
Metlife Core Property - Net			2.3	--	4.6	--	7.7	--	10.7	--	--	--	12.3	
<i>NFI-ODCE</i>			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	11.1	Dec-13
Prime Property- Gross***	53,488,655	0.6	0.0	--	4.8	--	7.6	--	11.9	--	--	--	12.5	Sep-13
Prime Property- Net			0.0	--	4.2	--	6.7	--	10.8	--	--	--	11.4	
<i>NFI-ODCE</i>			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	11.2	Sep-13
Principal US Property- Gross	41,617,465	0.5	2.1	--	6.1	--	8.8	--	--	--	--	--	9.5	Oct-15
Principal US Property- Net			2.1	--	6.1	--	8.8	--	--	--	--	--	9.5	
<i>NFI-ODCE</i>			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	9.3	Oct-15
Prologis Targeted Euro Logistics- Gross	34,480,738	0.4	15.3	--	19.5	--	15.9	--	--	--	--	--	11.6	Oct-15
Prologis Targeted Euro Logistics- Net			15.3	--	19.5	--	15.9	--	--	--	--	--	11.6	
<i>NFI-ODCE</i>			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	9.3	Oct-15
Prologis Targeted US Logistics- Gross***	56,046,340	0.6	0.0	--	8.6	--	13.4	--	--	--	--	--	13.9	Jul-15
Prologis Targeted US Logistics- Net			0.0	--	8.6	--	13.4	--	--	--	--	--	13.9	
<i>NFI-ODCE</i>			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	10.0	Jul-15
Townsend Real Estate- Gross***	97,820,495	1.1	0.0	--	5.2	--	7.9	--	--	--	--	--	8.9	Mar-16
Townsend Real Estate- Net			0.0	--	5.2	--	7.9	--	--	--	--	--	8.9	
<i>NFI-ODCE</i>			1.9	--	5.4	--	7.7	--	10.8	--	11.6	--	8.0	Mar-16

\*\*\* Preliminary quarterly returns as of 09/30/2017 (Returns are not available at reporting period.)

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
<b>Non-Core RE -Opportunistic- Gross**</b>	<b>118,441,767</b>	<b>1.3</b>	<b>4.7</b>	<b>--</b>	<b>14.3</b>	<b>--</b>	<b>21.1</b>	<b>--</b>	<b>29.5</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>33.0</b>	<b>Feb-14</b>
<b>Non-Core RE -Opportunistic- Net</b>			<b>4.7</b>	<b>--</b>	<b>14.3</b>	<b>--</b>	<b>20.8</b>	<b>--</b>	<b>28.3</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>31.6</b>	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.3	--	--	--	12.1	Feb-14
Carlyle China Realty- Gross	3,506,928	0.0	-16.1	--	--	--	--	--	--	--	--	--	-16.1	Jun-17
Carlyle China Realty- Net			-16.1	--	--	--	--	--	--	--	--	--	-16.1	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.3	--	--	--	2.1	Jun-17
Carlyle China Rome Logistics- Gross	10,315,769	0.1	-9.0	--	--	--	--	--	--	--	--	--	-9.0	Jun-17
Carlyle China Rome Logistics- Net			-9.0	--	--	--	--	--	--	--	--	--	-9.0	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.3	--	--	--	2.1	Jun-17
CIM Opportunity VIII- Gross	28,064,230	0.3	0.1	--	3.4	--	4.9	--	--	--	--	--	6.3	Feb-15
CIM Opportunity VIII- Net			0.1	--	3.4	--	4.4	--	--	--	--	--	4.1	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.3	--	--	--	12.0	Feb-15
Kohlberg Kravis Roberts - Gross	34,824,244	0.4	4.9	--	19.7	--	38.6	--	37.8	--	--	--	40.1	Feb-14
Kohlberg Kravis Roberts - Net			4.9	--	19.7	--	38.5	--	37.7	--	--	--	39.6	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.3	--	--	--	12.1	Feb-14
NREP Nordic Strat FCP-FIS- Gross	15,297,462	0.2	19.5	--	29.5	--	35.6	--	--	--	--	--	27.2	Dec-14
NREP Nordic Strat FCP-FIS- Net			19.5	--	29.5	--	35.6	--	--	--	--	--	27.2	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.3	--	--	--	11.3	Dec-14
NREP Nordic Strat II- Gross	13,499,928	0.2	10.2	--	17.5	--	2.3	--	--	--	--	--	1.8	Jun-16
NREP Nordic Strat II- Net			10.2	--	17.5	--	2.3	--	--	--	--	--	1.8	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.3	--	--	--	8.4	Jun-16
OZ RE III- Gross	12,933,206	0.1	6.4	--	19.1	--	22.4	--	-1.7	--	--	--	-1.7	Sep-14
OZ RE III- Net			6.4	--	19.1	--	21.0	--	-7.8	--	--	--	-7.8	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.3	--	--	--	11.3	Sep-14

\*\* Returns are one-quarter lag.

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
<b>Non-Core RE -Value Added- Gross**</b>	<b>70,616,046</b>	<b>0.8</b>	<b>5.3</b>	<b>--</b>	<b>10.9</b>	<b>--</b>	<b>21.8</b>	<b>--</b>	<b>13.6</b>	<b>--</b>	<b>12.2</b>	<b>--</b>	<b>-3.2</b>	<b>Sep-08</b>
<b>Non-Core RE -Value Added- Net</b>			<b>5.3</b>	<b>--</b>	<b>10.9</b>	<b>--</b>	<b>21.4</b>	<b>--</b>	<b>12.5</b>	<b>--</b>	<b>11.0</b>	<b>--</b>	<b>-4.7</b>	
<i>NFI-ODCE net +1% 1Q Lag<sup>1</sup></i>			2.1	--	6.2	--	7.9	--	11.8	--	12.3	--	8.0	Sep-08
AEW II- Gross	321,592	0.0	-4.7	--	-18.5	--	-29.3	--	0.7	--	8.7	--	0.4	May-07
AEW II- Net			-4.7	--	-18.5	--	-29.5	--	-0.2	--	7.6	--	-1.2	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.8	--	12.3	--	--	May-07
ECE Euro Prime Shopping II- Gross	9,249,416	0.1	4.8	--	9.6	--	22.7	--	--	--	--	--	19.9	Jul-15
ECE Euro Prime Shopping II- Net			4.8	--	9.6	--	21.0	--	--	--	--	--	17.6	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.8	--	12.3	--	11.2	Jul-15
European RE Debt II- Gross	23,153,169	0.3	10.0	--	15.2	--	33.5	--	9.7	--	--	--	4.1	Nov-13
European RE Debt II- Net			10.0	--	15.2	--	33.5	--	9.7	--	--	--	4.1	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.8	--	12.3	--	12.6	Nov-13
Hammes II- Gross	20,896,833	0.2	2.1	--	6.6	--	8.9	--	--	--	--	--	17.3	Jul-15
Hammes II- Net			2.1	--	6.6	--	8.0	--	--	--	--	--	12.2	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.8	--	12.3	--	11.2	Jul-15
Hines US Office II- Gross	650,323	0.0												
Hines US Office II- Net														
<i>NFI-ODCE net +1% 1Q Lag</i>														
UBS RE- Gross	16,344,712	0.2	2.1	--	3.4	--	6.2	--	10.2	--	8.7	--	0.3	Sep-06
UBS RE- Net			2.1	--	3.4	--	6.1	--	9.8	--	8.2	--	-1.2	
<i>NFI-ODCE net +1% 1Q Lag</i>			2.1	--	6.2	--	7.9	--	11.8	--	12.3	--	--	Sep-06
<b>Private Real Assets- Gross**</b>	<b>279,783,335</b>	<b>3.1</b>	<b>2.6</b>	<b>--</b>	<b>15.2</b>	<b>--</b>	<b>20.8</b>	<b>--</b>	<b>13.7</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2.7</b>	<b>Jan-13</b>
<b>Private Real Assets- Net</b>			<b>2.6</b>	<b>--</b>	<b>15.2</b>	<b>--</b>	<b>20.8</b>	<b>--</b>	<b>13.7</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>2.7</b>	
<i>Private Real Assets Custom<sup>1</sup></i>			1.9	--	5.1	--	7.2	--	5.8	--	--	--	6.2	Jan-13
<i>CPI-U Headline +5%</i>			1.9	--	5.1	--	7.2	--	5.8	--	5.9	--	6.2	Jan-13

1. See Policy Index and Benchmark History.  
 \*\* Returns are one-quarter lag.

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
ACM II- Gross	2,944,899	0.0	-2.9	--	-5.9	--	-9.2	--	--	--	--	--	-9.2	Sep-16
ACM II- Net			-2.9	--	-5.9	--	-9.2	--	--	--	--	--	-9.2	
<i>NCREIF Farmland 1 Qtr Lag</i>			1.6	--	5.1	--	6.6	--	9.3	--	12.9	--	6.6	Sep-16
ArcLight Energy VI- Gross	24,593,280	0.3	1.0	--	5.9	--	10.7	--	--	--	--	--	3.8	Aug-15
ArcLight Energy VI- Net			1.0	--	5.9	--	10.7	--	--	--	--	--	3.8	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			4.0	--	10.3	--	12.4	--	9.3	--	9.9	--	14.7	Aug-15
Atalaya SMA- Gross	13,186,349	0.1	1.7	--	0.8	--	4.2	--	--	--	--	--	6.1	May-15
Atalaya SMA- Net			1.7	--	0.8	--	4.2	--	--	--	--	--	6.1	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			4.0	--	10.3	--	12.4	--	9.3	--	9.9	--	12.0	May-15
Brookfield Infra III- Gross	10,825,666	0.1	0.3	--	0.6	--	3.2	--	--	--	--	--	13.1	May-16
Brookfield Infra III- Net			0.3	--	0.6	--	3.2	--	--	--	--	--	13.1	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			4.0	--	10.3	--	12.4	--	9.3	--	9.9	--	15.0	May-16
Carlyle Power II- Gross	15,502,049	0.2	2.4	--	5.7	--	9.6	--	--	--	--	--	-11.8	Oct-15
Carlyle Power II- Net			2.4	--	5.7	--	9.6	--	--	--	--	--	-11.8	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			4.0	--	10.3	--	12.4	--	9.3	--	9.9	--	12.8	Oct-15
EnCap Energy IX- Gross	23,358,898	0.3	-5.3	--	16.7	--	20.5	--	4.7	--	--	--	-2.1	Jan-13
EnCap Energy IX- Net			-5.3	--	16.7	--	20.5	--	4.7	--	--	--	-2.1	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			-0.4	--	10.0	--	14.4	--	-6.2	--	1.0	--	0.7	Jan-13
EnCap Energy X- Gross	21,132,689	0.2	-2.4	--	28.8	--	31.4	--	--	--	--	--	-6.8	Apr-15
EnCap Energy X- Net			-2.4	--	28.8	--	31.4	--	--	--	--	--	-6.8	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			-0.4	--	10.0	--	14.4	--	-6.2	--	1.0	--	-1.8	Apr-15
EnCap Flatrock Midstream III- Gross	9,383,995	0.1	7.2	--	13.3	--	13.1	--	4.9	--	--	--	4.6	Jul-14
EnCap Flatrock Midstream III- Net			7.2	--	13.3	--	13.1	--	4.9	--	--	--	4.6	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			4.0	--	10.3	--	12.4	--	9.3	--	9.9	--	10.2	Jul-14
First Reserve- Gross	7,959,429	0.1	-0.8	--	65.6	--	85.7	--	--	--	--	--	-8.8	Dec-14
First Reserve- Net			-0.8	--	65.6	--	85.7	--	--	--	--	--	-8.8	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			4.0	--	10.3	--	12.4	--	9.3	--	9.9	--	10.7	Dec-14

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
IFM Global Infrastructure US LP- Gross	74,082,846	0.8	2.7	--	--	--	--	--	--	--	--	--	2.7	Apr-17
IFM Global Infrastructure US LP- Net			2.7	--	--	--	--	--	--	--	--	--	2.7	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			4.0	--	10.3	--	12.4	--	9.3	--	9.9	--	9.9	Apr-17
Meridiam Infra N America III- Gross**	647,249	0.0	--	--	--	--	--	--	--	--	--	--	--	Sep-17
Meridiam Infra N America III- Net			--	--	--	--	--	--	--	--	--	--	--	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			4.0	--	10.3	--	12.4	--	9.3	--	9.9	--	--	Sep-17
Pantheon Ventures- Gross	45,987,810	0.5	6.0	--	7.7	--	9.5	--	31.8	--	--	--	29.9	Jul-14
Pantheon Ventures- Net			6.0	--	7.7	--	9.5	--	31.8	--	--	--	29.9	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			4.0	--	10.3	--	12.4	--	9.3	--	9.9	--	10.2	Jul-14
Quantum Energy VI- Gross	22,691,746	0.3	14.3	--	25.6	--	75.4	--	--	--	--	--	24.7	Nov-14
Quantum Energy VI- Net			14.3	--	25.6	--	75.4	--	--	--	--	--	24.7	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			-0.4	--	10.0	--	14.4	--	-6.2	--	1.0	--	-6.5	Nov-14
Quantum Energy VII- Gross*	2,536,450	0.0	--	--	--	--	--	--	--	--	--	--	0.0	Aug-17
Quantum Energy VII- Net			--	--	--	--	--	--	--	--	--	--	0.0	
<i>Cambridge Associates Private Energy 1 Qtr Lag</i>			-0.4	--	10.0	--	14.4	--	-6.2	--	1.0	--	-0.4	Aug-17
Wastewater Opportunity- Gross	4,949,981	0.1	-2.6	--	-11.1	--	-14.8	--	--	--	--	--	-44.2	Dec-15
Wastewater Opportunity- Net			-2.6	--	-11.1	--	-14.8	--	--	--	--	--	-44.2	
<i>Cambridge Associates Private Infrastructure 1 Qtr Lag</i>			4.0	--	10.3	--	12.4	--	9.3	--	9.9	--	13.1	Dec-15
<b>Commodities- Gross</b>	<b>65,334,644</b>	<b>0.7</b>	<b>2.5</b>	<b>--</b>	<b>-4.3</b>	<b>--</b>	<b>-0.4</b>	<b>--</b>	<b>-10.8</b>	<b>--</b>	<b>-9.6</b>	<b>--</b>	<b>-6.7</b>	<b>May-08</b>
<b>Commodities- Net</b>			<b>2.4</b>	<b>--</b>	<b>-4.5</b>	<b>--</b>	<b>-0.8</b>	<b>--</b>	<b>-11.4</b>	<b>--</b>	<b>-10.3</b>	<b>--</b>	<b>--</b>	
<i>Bloomberg Commodity Index TR USD</i>			2.5	--	-2.9	--	-0.3	--	-10.4	--	-10.5	--	-9.3	May-08
Blackstone- Gross	39,689,979	0.4	1.4	--	-6.4	--	-2.9	--	-11.1	--	-9.7	--	-4.6	May-08
Blackstone- Net			1.4	--	-6.4	--	-3.1	--	-11.8	--	-10.4	--	--	
<i>Bloomberg Commodity Index TR USD</i>			2.5	--	-2.9	--	-0.3	--	-10.4	--	-10.5	--	-9.3	May-08
Gresham- Gross	25,644,665	0.3	4.1	--	-0.9	--	3.7	--	-10.2	--	-9.4	--	-8.6	Apr-08
Gresham- Net			3.9	--	-1.4	--	3.0	--	-10.9	--	-10.0	--	--	
<i>Bloomberg Commodity Index TR USD</i>			2.5	--	-2.9	--	-0.3	--	-10.4	--	-10.5	--	-8.9	Apr-08

\*Funded in August 2017.

\*\*Funded in September 2017

Total Fund  
Performance Summary

Period Ending: September 30, 2017

	Market Value (\$)	% of Portfolio	3 Mo (%)	Rank	YTD (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	Inception Return (%)	Since
<b>Opportunities Asset Category- Gross<sup>++</sup></b>	11,841,681	0.1	0.5	--	--	--	--	--	--	--	--	--	4.1	Mar-17
<b>Opportunities Asset Category- Net</b>			0.5	--	--	--	--	--	--	--	--	--	4.1	
<i>Policy Index<sup>1</sup></i>			3.3	--	10.5	--	11.6	--	6.6	--	8.4	--	6.1	Mar-17
Atalaya Special Opportunities V- Gross	11,841,681	0.1	0.5	--	5.8	--	8.6	--	9.6	--	--	--	6.5	Jul-13
Atalaya Special Opportunities V- Net			0.5	--	5.8	--	8.6	--	9.6	--	--	--	6.5	
<i>Thomson Reuters C A All PE 1 Qtr Lag</i>			3.1	--	11.4	--	16.8	--	10.8	--	16.7	--	14.6	Jul-13
<b>SSgA Real Asset Overlay Proxy- Gross</b>	233,829,966	2.6	3.2	--	4.3	--	4.7	--	0.4	--	1.2	--	1.2	Jan-08
<b>SSgA Real Asset Overlay Proxy- Net</b>			3.2	--	4.1	--	4.5	--	0.2	--	1.0	--	1.0	
<i>SSgA Real Asset<sup>1</sup></i>			3.1	--	4.0	--	4.4	--	0.1	--	1.1	--	--	Jan-08
<b>Cash - Gross</b>	187,555,221	2.1	0.6	--	1.9	--	2.3	--	1.7	--	1.1	--	3.2	Jun-92
<b>Cash - Net</b>			0.6	--	1.9	--	2.3	--	1.7	--	1.1	--	--	
<i>91 Day T-Bills</i>			0.3	--	0.6	--	0.7	--	0.3	--	0.2	--	2.5	Jun-92
Cash Account- Gross	187,555,221	2.1	0.6	--	1.9	--	2.3	--	1.7	--	1.1	--	3.3	Jun-92
Cash Account- Net			0.6	--	1.9	--	2.3	--	1.7	--	1.1	--	--	
<i>91 Day T-Bills</i>			0.3	--	0.6	--	0.7	--	0.3	--	0.2	--	2.5	Jun-92

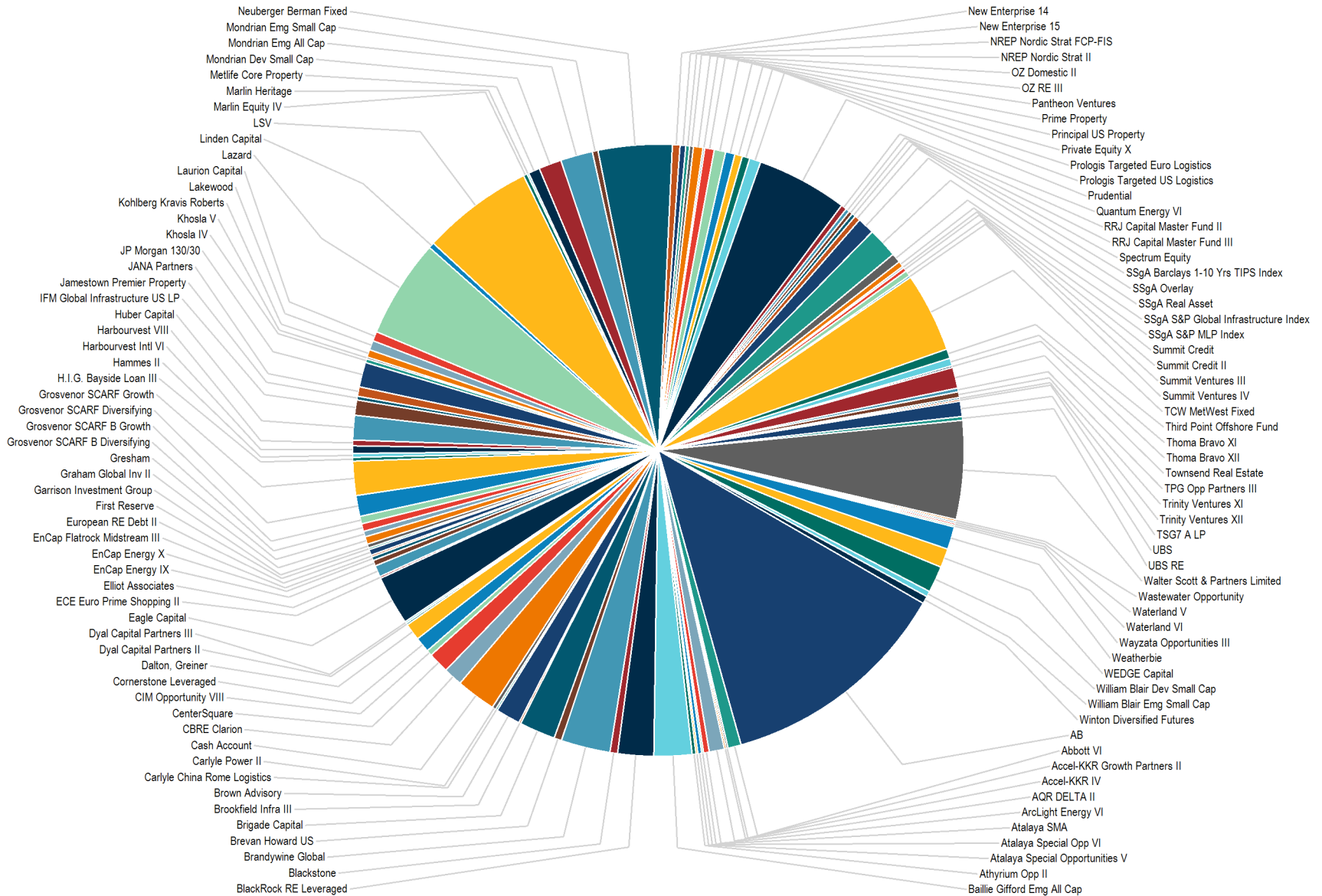
1. See Policy Index and Benchmark History.

++Returns are one-quarter lag.



# Total Fund Manager Allocation Analysis

Period Ending: September 30, 2017



Total Fund  
 Manager Allocation Analysis

Period Ending: September 30, 2017

	Current	%
AB	\$1,108,529,098	12.3%
JP Morgan 130/30	\$113,565,896	1.3%
Brown Advisory	\$117,984,586	1.3%
Eagle Capital	\$234,862,959	2.6%
Huber Capital	\$116,444,159	1.3%
UBS	\$68,696,185	0.8%
Weatherbie	\$105,885,413	1.2%
Dalton, Greiner	\$80,603,663	0.9%
WEDGE Capital	\$90,035,402	1.0%
CenterSquare	\$96,484,754	1.1%
Principal Global Inv	\$145,439	0.0%
Lazard	\$471,042,382	5.2%
Walter Scott & Partners Limited	\$468,121,960	5.2%
LSV	\$529,020,610	5.9%
Mondrian Dev Small Cap	\$107,771,534	1.2%
William Blair Dev Small Cap	\$126,973,029	1.4%
Baring	\$12,439	0.0%
Baillie Gifford Emg All Cap	\$182,705,264	2.0%
Mondrian Emg All Cap	\$150,788,466	1.7%
Mondrian Emg Small Cap	\$25,182,681	0.3%
William Blair Emg Small Cap	\$30,842,939	0.3%
CBRE Clarion	\$85,946,515	1.0%
Abbott VI	\$61,475,520	0.7%
Accel-KKR IV	\$9,246,820	0.1%
Accel-KKR V	\$4,255,162	0.0%
Accel-KKR Growth Partners II	\$4,521,125	0.1%
Atalaya Special Opp VI	\$16,406,454	0.2%
Dyal Capital Partners II	\$8,498,732	0.1%

Total Fund  
 Manager Allocation Analysis

Period Ending: September 30, 2017

	Current	%
Dyal Capital Partners III	\$10,539,943	0.1%
Garrison Investment Group	\$13,770,218	0.2%
Harbourvest VIII	\$24,582,623	0.3%
Harbourvest Intl VI	\$35,303,696	0.4%
H.I.G. Bayside Loan III	\$21,738,941	0.2%
H.I.G. Capital V	\$3,600,160	0.0%
H.I.G. Europe Capital II	\$4,236,378	0.0%
Khosla IV	\$15,783,888	0.2%
Khosla V	\$12,603,758	0.1%
Linden Capital	\$27,028,837	0.3%
Marlin Equity IV	\$14,676,186	0.2%
Marlin Heritage	\$6,187,533	0.1%
Marlin Heritage Europe	\$3,025,426	0.0%
New Enterprise 14	\$36,550,074	0.4%
New Enterprise 15	\$30,496,783	0.3%
New Enterprise 16	\$2,368,338	0.0%
Private Equity X	\$39,999,442	0.4%
RRJ Capital Master Fund II	\$19,848,314	0.2%
RRJ Capital Master Fund III	\$13,796,878	0.2%
Spectrum Equity	\$18,315,404	0.2%
Summit Ventures III	\$24,088,938	0.3%
Summit Ventures IV	\$9,848,438	0.1%
Thoma Bravo XI	\$34,741,875	0.4%
Thoma Bravo XII	\$12,163,303	0.1%
TPG Opp Partners III	\$18,742,021	0.2%
Trinity Ventures XI	\$24,721,828	0.3%
Trinity Ventures XII	\$8,838,861	0.1%
TSG7 A LP	\$5,163,973	0.1%

Total Fund  
 Manager Allocation Analysis

Period Ending: September 30, 2017

	Current	%
TSG7 B LP	\$296,446	0.0%
Waterland V	\$11,527,023	0.1%
Waterland VI	\$9,768,942	0.1%
Waterland VI Over	\$628	0.0%
Wayzata Opportunities III	\$7,951,356	0.1%
Brigade Capital	\$173,198,859	1.9%
Athyrium Opp II	\$22,340,780	0.2%
Athyrium Opp III	\$3,272,097	0.0%
Summit Credit	\$6,068,890	0.1%
Summit Credit II	\$22,099,893	0.2%
Claren Road Credit	\$1,847,958	0.0%
Elliot Associates	\$51,754,537	0.6%
Grosvenor	\$409,328	0.0%
Grosvenor SCARF Growth	\$161,039,074	1.8%
Grosvenor SCARF B Growth	\$37,666,637	0.4%
JANA Partners	\$41,356,826	0.5%
Lakewood	\$45,434,049	0.5%
OZ Domestic II	\$46,185,424	0.5%
Third Point Offshore Fund	\$47,897,675	0.5%
Neuberger Berman Fixed	\$354,236,660	3.9%
Prudential	\$434,537,426	4.8%
TCW MetWest Fixed	\$374,560,337	4.2%
Brandywine Global	\$229,273,626	2.6%
AQR DELTA II	\$71,808,438	0.8%
Brevan Howard US	\$34,222,430	0.4%
Graham Global Inv II	\$32,256,098	0.4%
Grosvenor SCARF Diversifying	\$103,113,020	1.1%
Grosvenor SCARF B Diversifying	\$33,037,325	0.4%

Total Fund  
 Manager Allocation Analysis

Period Ending: September 30, 2017

	Current	%
Laurion Capital	\$41,516,694	0.5%
Winton Diversified Futures	\$34,743,900	0.4%
BlackRock RE Leveraged	\$171,648,425	1.9%
BlackRock RE II Leveraged	\$1,593,939	0.0%
Cornerstone Leveraged	\$70,903,806	0.8%
Jamestown Premier Property	\$19,925,087	0.2%
Metlife Core Property	\$53,474,656	0.6%
Prime Property	\$53,488,655	0.6%
Principal US Property	\$41,617,465	0.5%
Prologis Targeted Euro Logistics	\$34,480,738	0.4%
Prologis Targeted US Logistics	\$56,046,340	0.6%
Townsend Real Estate	\$97,820,495	1.1%
Transition Account	\$28,052	0.0%
Carlyle China Realty	\$3,506,928	0.0%
Carlyle China Rome Logistics	\$10,315,769	0.1%
CIM Opportunity VIII	\$28,064,230	0.3%
Kohlberg Kravis Roberts	\$34,824,244	0.4%
NREP Nordic Strat FCP-FIS	\$15,297,462	0.2%
NREP Nordic Strat II	\$13,499,928	0.2%
OZ RE III	\$12,933,206	0.1%
AEW II	\$321,592	0.0%
ECE Euro Prime Shopping II	\$9,249,416	0.1%
European RE Debt II	\$23,153,169	0.3%
Hammes II	\$20,896,833	0.2%
Hines US Office II	\$650,323	0.0%
UBS RE	\$16,344,712	0.2%
ACM II	\$2,944,899	0.0%
ArcLight Energy VI	\$24,593,280	0.3%

Total Fund  
 Manager Allocation Analysis

Period Ending: September 30, 2017

	Current	%
Atalaya SMA	\$13,186,349	0.1%
Brookfield Infra III	\$10,825,666	0.1%
Carlyle Power II	\$15,502,049	0.2%
EnCap Energy IX	\$23,358,898	0.3%
EnCap Energy X	\$21,132,689	0.2%
EnCap Flatrock Midstream III	\$9,383,995	0.1%
First Reserve	\$7,959,429	0.1%
IFM Global Infrastructure US LP	\$74,082,846	0.8%
Meridiam Infra N America III	\$647,249	0.0%
Pantheon Ventures	\$45,987,810	0.5%
Quantum Energy VI	\$22,691,746	0.3%
Quantum Energy VII	\$2,536,450	0.0%
Wastewater Opportunity	\$4,949,981	0.1%
Blackstone	\$39,689,979	0.4%
Gresham	\$25,644,665	0.3%
Atalaya Special Opportunities V	\$11,841,681	0.1%
Cash Account	\$187,555,221	2.1%
Heitman Adv JMB V	\$8,390	0.0%
SSgA Overlay	\$79,184,511	0.9%
SSgA Barclays 1-10 Yrs TIPS Index	\$23,332,383	0.3%
SSgA Real Asset	\$140,291,801	1.6%
SSgA S&P Global Infrastructure Index	\$46,851,931	0.5%
SSgA S&P MLP Index	\$23,353,851	0.3%
<b>Total</b>	<b>\$8,989,856,839</b>	<b>100.0%</b>

**Statistics Summary**

**3 Years**

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	7.0%	54	5.7%	48	1.2	50	0.2	69	1.9%	90
Policy Index	6.6%	73	4.9%	18	1.3	34	--	--	0.0%	1
Total Fund ex Overlay	7.0%	55	5.3%	32	1.2	36	0.2	61	1.5%	83
Policy Index	6.6%	73	4.9%	18	1.3	34	--	--	0.0%	1

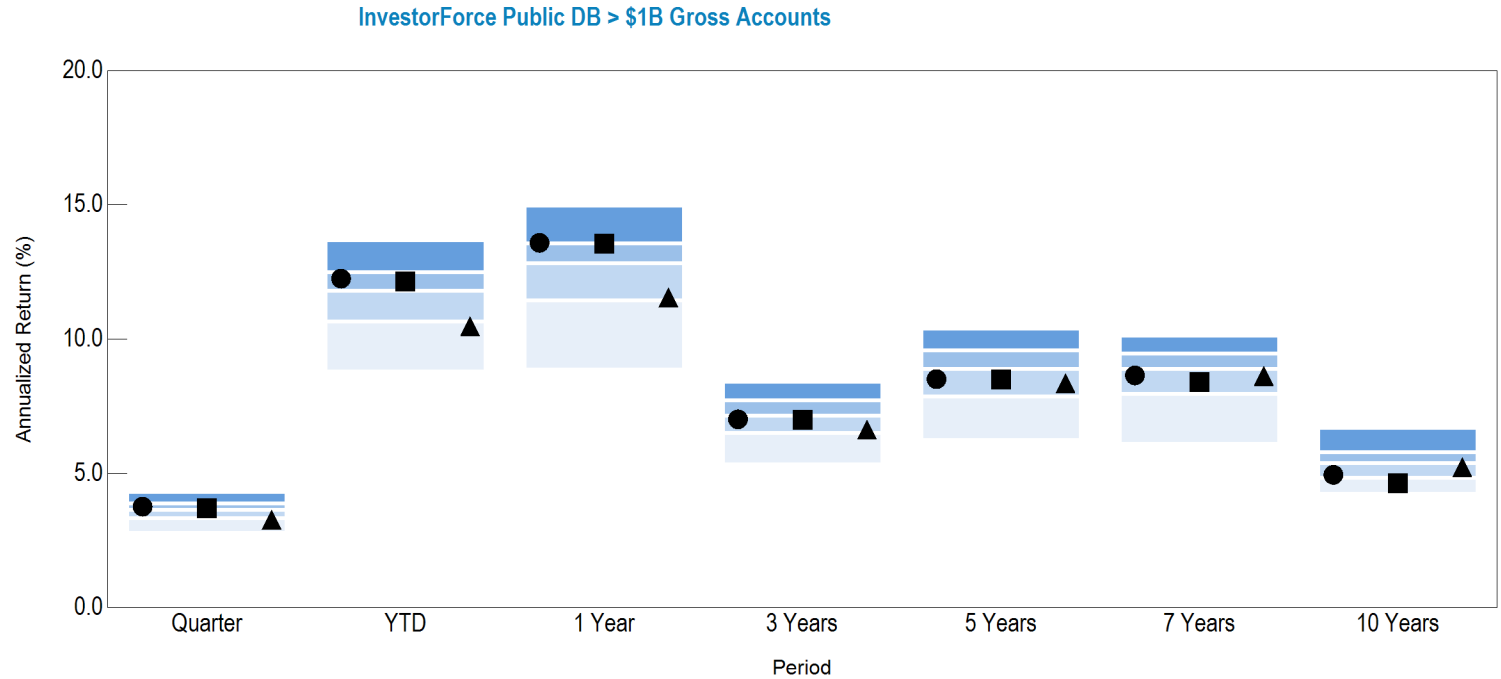
**Statistics Summary**

**5 Years**

	Anlzd Return	Anlzd Return Rank	Anlzd Standard Deviation	Anlzd Standard Deviation Rank	Sharpe Ratio	Sharpe Ratio Rank	Information Ratio	Information Ratio Rank	Tracking Error	Tracking Error Rank
Total Fund	8.5%	63	5.7%	48	1.5	47	0.1	83	1.9%	90
Policy Index	8.4%	68	4.7%	11	1.7	18	--	--	0.0%	1
Total Fund ex Overlay	8.5%	63	5.3%	28	1.6	33	0.1	83	1.5%	83
Policy Index	8.4%	68	4.7%	11	1.7	18	--	--	0.0%	1

Total Fund  
Peer Universe Comparison

Period Ending: September 30, 2017

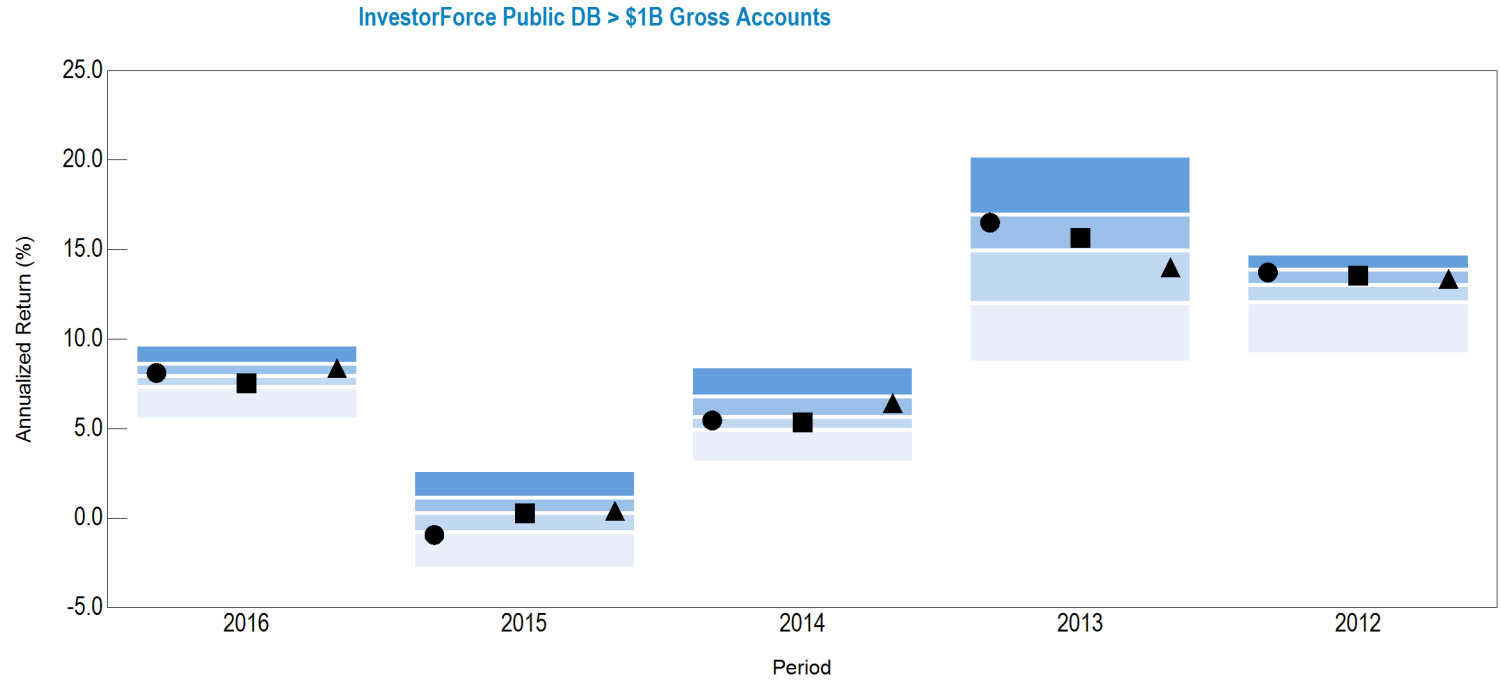


	Quarter		YTD		1 Year		3 Years		5 Years		7 Years		10 Years	
<b>5th Percentile</b>	4.3		13.7		15.0		8.4		10.4		10.1		6.7	
<b>25th Percentile</b>	3.9		12.5		13.6		7.7		9.6		9.5		5.8	
<b>Median</b>	3.7		11.8		12.8		7.2		8.9		8.9		5.4	
<b>75th Percentile</b>	3.4		10.7		11.5		6.5		7.9		8.0		4.9	
<b>95th Percentile</b>	2.8		8.8		8.9		5.3		6.3		6.1		4.3	
<b># of Portfolios</b>	98		98		98		81		78		67		66	
<b>● Total Fund</b>	3.8	(44)	12.3	(33)	13.6	(25)	7.0	(54)	8.5	(63)	8.7	(60)	4.9	(74)
<b>■ Total Fund ex Overlay</b>	3.7	(46)	12.2	(40)	13.6	(26)	7.0	(55)	8.5	(63)	8.4	(68)	4.6	(82)
<b>▲ Policy Index</b>	3.3	(78)	10.5	(79)	11.6	(75)	6.6	(73)	8.4	(68)	8.6	(60)	5.2	(61)



Total Fund  
Peer Universe Comparison (Calendar Years)

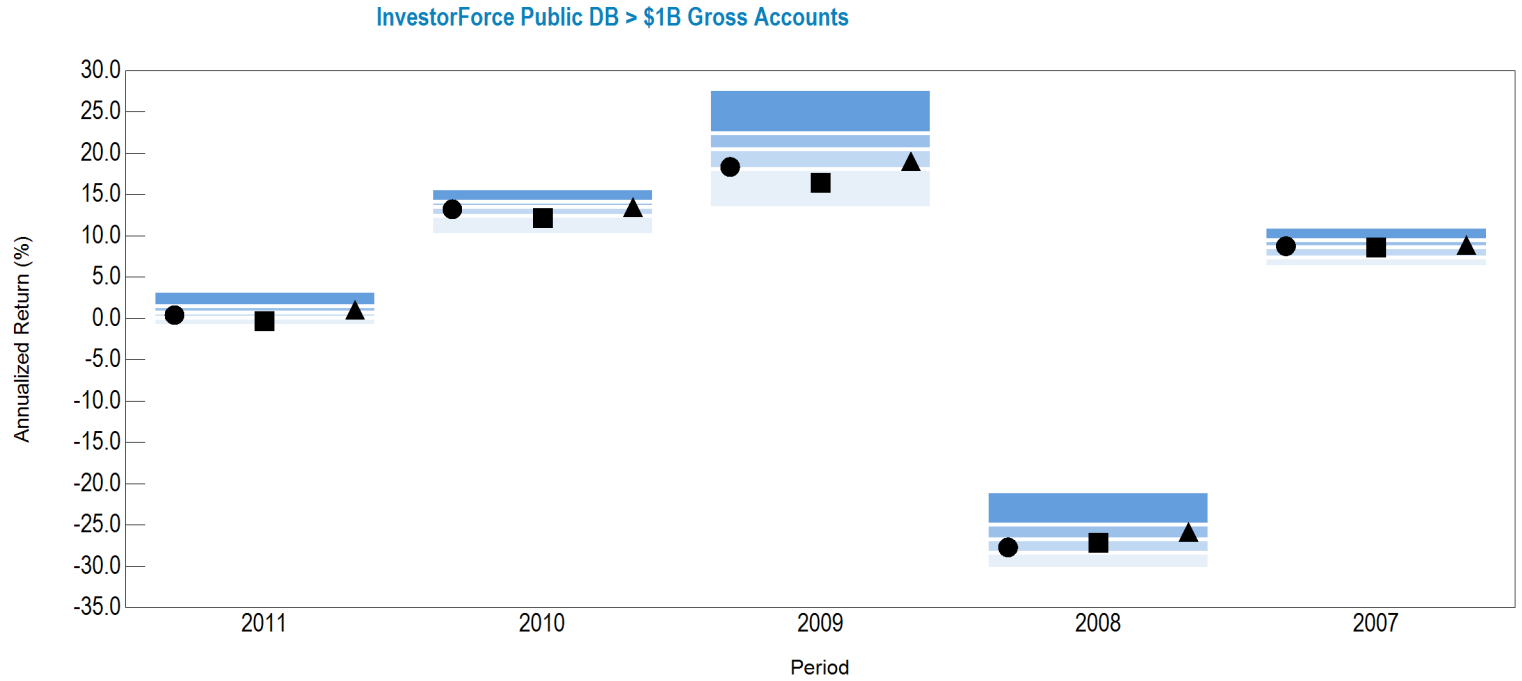
Period Ending: September 30, 2017



	2016		2015		2014		2013		2012	
<b>Return (Rank)</b>	9.7	(43)	2.7	(83)	8.5	(61)	20.2	(31)	14.7	(36)
5th Percentile	9.7		2.7		8.5		20.2		14.7	
25th Percentile	8.6		1.1		6.8		17.0		13.9	
Median	8.0		0.3		5.7		15.0		13.0	
75th Percentile	7.4		-0.7		4.9		12.0		12.1	
95th Percentile	5.5		-2.8		3.1		8.7		9.2	
# of Portfolios	92		98		79		67		74	
● Total Fund	8.1	(43)	-0.9	(83)	5.5	(61)	16.5	(31)	13.7	(36)
■ Total Fund ex Overlay	7.5	(69)	0.3	(51)	5.3	(65)	15.6	(43)	13.6	(41)
▲ Policy Index	8.4	(34)	0.4	(46)	6.4	(34)	14.0	(64)	13.4	(42)

Total Fund  
Peer Universe Comparison (Calendar Years)

Period Ending: September 30, 2017



	Return (Rank)									
5th Percentile	3.3		15.7		27.7		-21.0		11.0	
25th Percentile	1.6		14.2		22.5		-24.9		9.5	
Median	0.8		13.5		20.5		-26.7		8.6	
75th Percentile	0.1		12.5		18.1		-28.3		7.4	
95th Percentile	-0.9		10.2		13.4		-30.2		6.2	
# of Portfolios	68		66		66		65		64	
● Total Fund	0.4	(60)	13.2	(62)	18.3	(73)	-27.7	(65)	8.7	(50)
■ Total Fund ex Overlay	-0.3	(86)	12.2	(81)	16.4	(86)	-27.2	(53)	8.6	(51)
▲ Policy Index	1.0	(38)	13.5	(53)	19.0	(62)	-25.8	(42)	8.9	(42)

Total Fund  
Policy Index and Benchmark History

Period Ending: September 30, 2017

Total Plan Policy Index	As of:								
	7/1/17	4/1/17	1/1/14	1/1/12	1/1/08	2/1/06	9/1/04	1/1/00	7/1/86
91-day UST Bill +5% (AR)		10.0%	10.0%	10.0%	5.0%	5.0%	5.0%		
BBgBarc Aggregate	10.0%	10.0%	15.0%	20.0%	20.0%	25.0%	25.0%	30.0%	
BBgBarc US TIPS	5.0%	5.0%							
BofA ML High Yield II	1.0%	1.0%	1.0%						
Bloomberg Commodity	2.0%	2.0%			5.0%				
Cambridge Associates Private Energy 1 Qtr Lag	2.5%								
Cambridge Associates Private Infrastructure 1 Qtr Lag	3.2%								
Citigroup BIG									23.0%
Citigroup WGBI ex US Unhedged	2.4%	2.4%	2.4%						
CPI-U +5% (PRA)		7.0%	15.0%	15.0%					
Credit Suisse Leveraged Loans	1.0%	1.0%	1.0%						
Credit Suisse Leveraged Loans +2%	4.0%	4.0%							
JPM GBI EM Diversified	0.6%	0.6%	0.6%						
HFRI FoF Composite Index + 1%	3.0%								
HFRI FoF Conservative Index	7.0%								
MSCI ACWI ex US	20.0%	20.0%	22.5%	22.5%	20.0%				
MSCI EAFE						15.0%	15.0%	15.0%	15.0%
MSCI Emerging Markets						5.0%	5.0%	5.0%	
NAREIT					3.0%	3.0%			
NFI-ODCE	4.6%								
NFI-ODCE net +1% 1Q Lag	2.5%								
NCREIF		7.0%			12.0%	12.0%	15.0%	10.0%	15.0%
NCREIF Farmland 1 Qtr Lag	0.7%								
NCREIF Timberland Index Lagged	0.7%								
Russell 1000						30.0%	30.0%	35.0%	
Russell 1000 +3% 1QL (PE)			10.0%	10.0%					
Russell 2000						5.0%	5.0%	5.0%	
Russell 3000	21.0%	21.0%	22.5%	22.5%	30.0%				47.0%
S&P 500 +2% 1QL (PE)					5.0%				
Thomson Reuters CJA All PE 1 Qtr Lag	9.0%	9.0%							
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

# Total Fund Policy Index and Benchmark History

Period Ending: September 30, 2017

Growth Benchmark	As of:	
	7/1/17	4/1/17
91 Day T-Bill +5%		5.08%
BofA ML High Yield II	1.70%	1.70%
Credit Suisse Leveraged Loans	1.70%	1.70%
Credit Suisse Leveraged Loan + 2%	6.78%	6.78%
HFRI FoF Composite Index + 1%	5.08%	
MSCI ACWI ex US	33.90%	33.90%
Russell 3000	35.59%	35.59%
Thomson Reuters CJA All PE 1 Qtr Lag	15.25%	15.25%
	<b>100.0%</b>	<b>100.0%</b>

US Equity Benchmark	As of:			
	1/1/08	9/1/04	1/1/00	7/1/86
Russell 1000		85.71%	87.5%	
Russell 2000		14.29%	12.5%	
Russell 3000	100.0%			100.0%
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

International Equity Benchmark	As of:		
	1/1/08	1/1/00	7/1/86
MSCI ACWI ex US	100.0%		
MSCI EAFE		75.0%	100.0%
MSCI Emerging Markets		25.0%	
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Private Equity Benchmark	As of:		
	4/1/17	1/1/12	1/1/08
Russell 1000 +3% 1QL		100.0%	
S&P 500 +2% 1QL			100.0%
Thomson Reuters CJA All PE 1 Qtr Lag	100.0%		
	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Public Credit Benchmark	As of:	
	4/1/17	
BofA ML High Yield II	50.0%	
Credit Suisse Leveraged Loans	50.0%	
	<b>100.0%</b>	

Private Credit Benchmark	As of:	
	4/1/17	
Credit Suisse Leveraged Loan + 2%	100.0%	
	<b>100.0%</b>	

Growth Oriented Absolute Return Benchmark	As of:	
	7/1/17	4/1/17
91-day UST Bill +5%		100.0%
HFRI FoF Composite Index + 1%	100.0%	
	<b>100.0%</b>	<b>100.0%</b>

Diversifying Benchmark	As of:	
	7/1/17	4/1/17
91 Day T-Bill +5%		28.0%
BBgBarc US Aggregate	40.0%	40.0%
BBgBarc US TIPS	20.0%	20.0%
Citigroup WGBI ex US Unhedged	9.6%	9.6%
HFRI FoF Conservative Index	28.0%	
JPM GBI EM Diversified	2.4%	2.4%
	<b>100.0%</b>	<b>100.0%</b>

Global Fixed Income Benchmark	As of:	
	6/1/13	
Citigroup WGBI ex US Unhedged	80.0%	
JPM GBI EM Diversified	20.0%	
	<b>100.0%</b>	

Diversifying Absolute Return Benchmark	As of:	
	7/1/17	4/1/17
91-day UST Bill +5%		100.0%
HFRI FoF Conservative Index	100.0%	
	<b>100.0%</b>	<b>100.0%</b>

Real Return Benchmark	As of:	
	4/1/17	
Real Estate Benchmark	43.75%	
Private Real Assets Benchmark	43.75%	
Bloomberg Commodity	12.50%	
	<b>100.0%</b>	

Real Estate Benchmark	As of:	
	7/1/17	7/1/2011
NCREIF		100.0%
NFI-ODCE	65.0%	
NFI-ODCE net +1% 1Q Lag	35.0%	
	<b>100.0%</b>	<b>100.0%</b>

RE-Value Added Benchmark	As of:	
	7/1/16	10/1/08
NCREIF +2% 1Q Lag		100.0%
NFI-ODCE net +1% 1Q Lag	100.0%	
	<b>100.0%</b>	<b>100.0%</b>

Private Real Assets Benchmark	As of:	
	7/1/17	4/1/17
CPI-U Headline +5%		100.0%
Cambridge Associates Private Energy 1 Qtr Lag	35.0%	
Cambridge Associates Private Infrastructure 1 Qtr Lag	45.0%	
NCREIF Farmland 1 Qtr Lag	10.0%	
NCREIF Timberland Index Lagged	10.0%	
	<b>100.0%</b>	<b>100.0%</b>

Total Fund  
Policy Index and Benchmark History

Period Ending: September 30, 2017

AllianceBernstein Benchmark	As of:		
	1/1/01	1/1/98	5/1/89
Russell 1000	100.0%		
Russell 3000		100.0%	
Wilshire 2500			100.0%
	100.0%	100.0%	100.0%

LSV Benchmark	As of:	
	7/1/12	1/1/05
MSCI EAFE Value		100.0%
MSCI World ex US	100.0%	
	100.0%	100.0%

Brandywine Benchmark	As of:	
	6/1/13	
Citigroup WGBI ex US Unhedged	80.0%	
JPM GBI EM Diversified	20.0%	
	100.0%	

Brigade Benchmark	As of:	
	12/1/13	
BofA ML High Yield II	50.0%	
Credit Suisse Leveraged Loans	50.0%	
	100.0%	

SSgA Real Asset Benchmark	As of:	
	10/1/15	2/1/08
BBgBarc US Govt Inflation-Linked 1-10 Yrs	10.0%	
BBgBarc US TIPS	10.0%	20.0%
BBgBarc Roll Select Commodity TR	20.0%	
DJ US Select REIT		30.0%
FTSE EPRA/NAREIT Developed Liquid	10.0%	
MSCI World Natural Resources	20.0%	25.0%
S&P Global Infrastructure	20.0%	
S&P GS Commodities		25.0%
S&P MLP	10.0%	
	100.0%	100.0%

# Glossary

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**Allocation Effect:** An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

**Alpha:** The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as:  $\text{Portfolio Return} - [\text{Risk-free Rate} + \text{Portfolio Beta} \times (\text{Market Return} - \text{Risk-free Rate})]$ .

**Benchmark R-squared:** Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

**Beta:** A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

**Book-to-Market:** The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

**Capture Ratio:** A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

**Correlation:** A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

**Excess Return:** A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

**Information Ratio:** A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

**Interaction Effect:** An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

**Portfolio Turnover:** The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

**Price-to-Earnings Ratio (P/E):** Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

**R-Squared:** Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

**Selection Effect:** An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

**Sharpe Ratio:** A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as:  $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$ .

**Sortino Ratio:** Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

**Standard Deviation:** A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

**Style Analysis:** A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

**Style Map:** A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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