



# WILSHIRE ASSOCIATES

Wilshire Consulting



The City of Grand Rapids – Police and Fire

*Executive Summary of Investment Performance*

*December 31, 2017*

Wilshire Consulting  
Contents

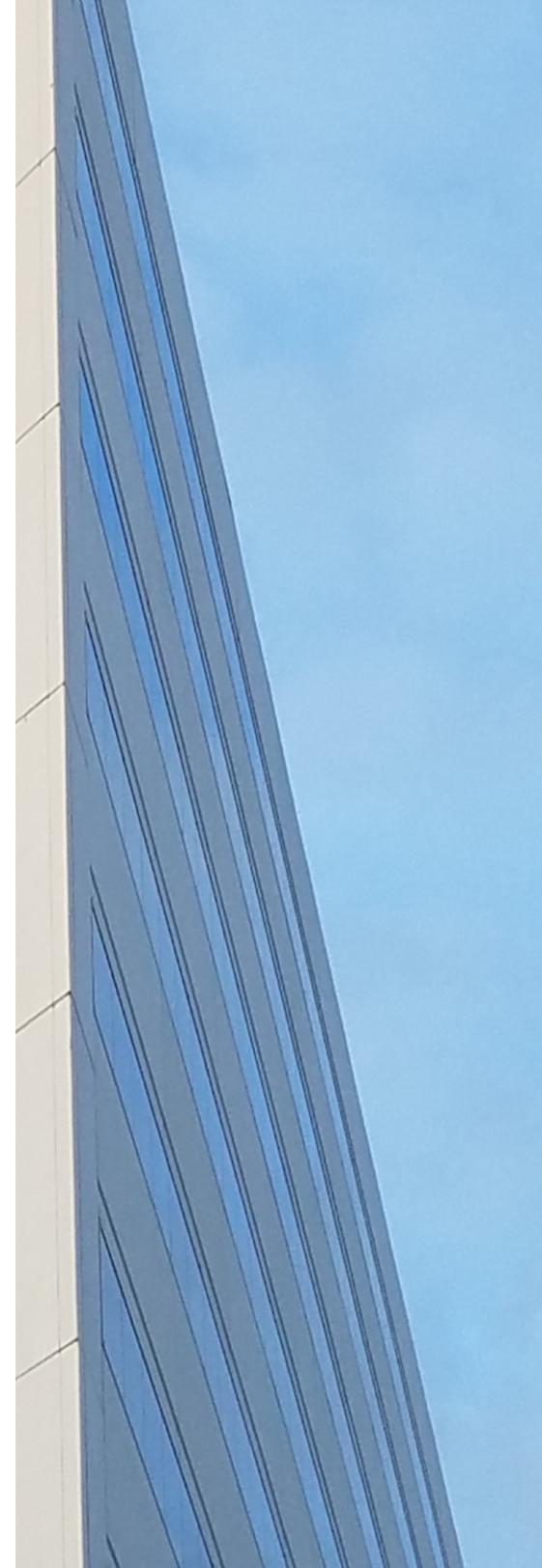
Investment Performance

Tab 1

Capital Market Review

Tab 2

Appendix

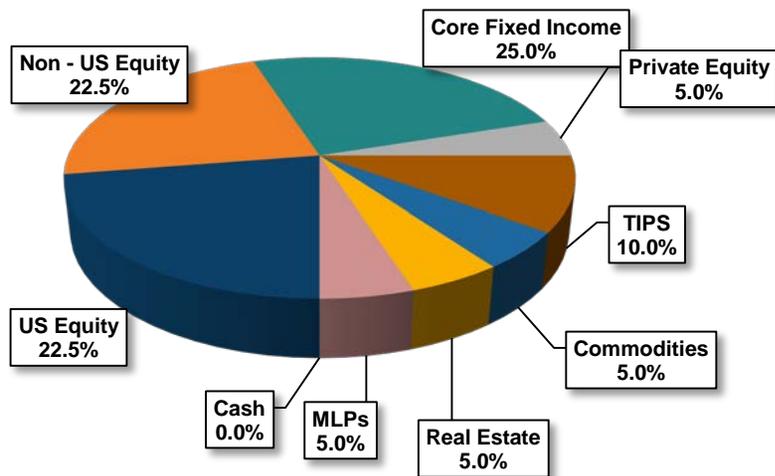


# Policy Allocation vs Actual Allocation

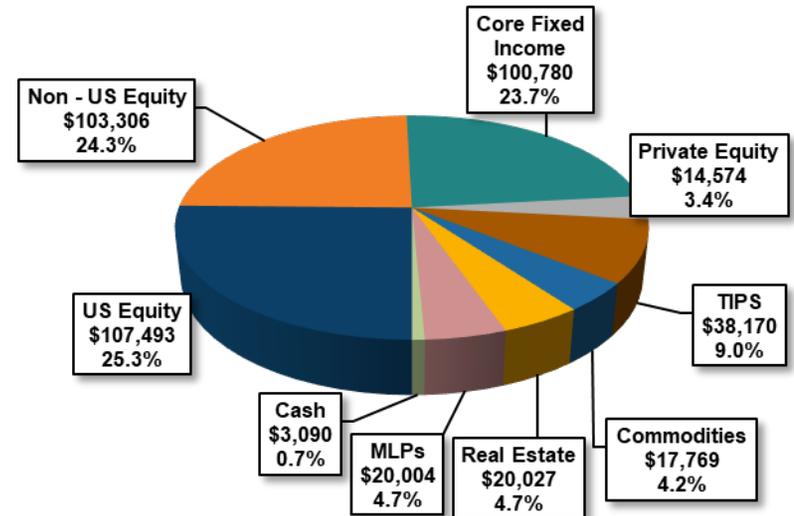
## Total Fund Composite

As of December 31, 2017

Policy Allocation<sup>1</sup>



Actual Allocation (in \$'000)



Total Assets: \$425,210,954

<sup>1</sup>Effective date: April 1, 2015  
©2017 Wilshire Associates.

# Policy Allocation vs Actual Allocation

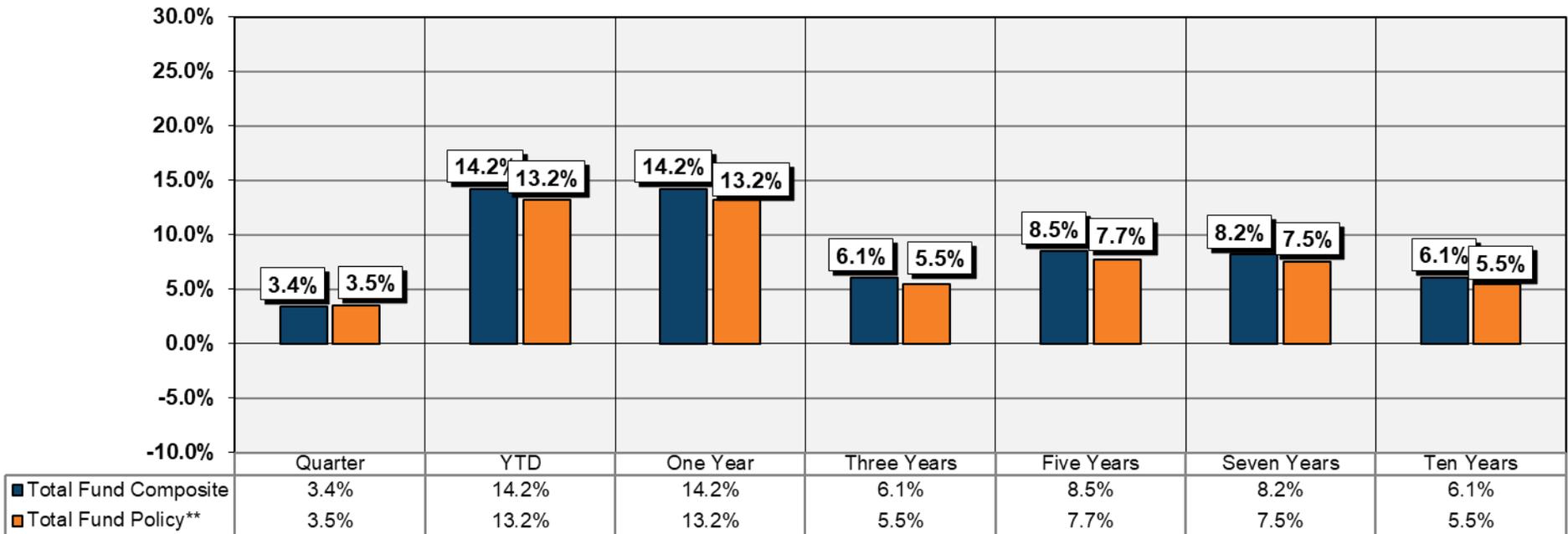
## Total Fund Composite

As of December 31, 2017

|                             | Market Value (in \$'000) | Asset Allocation |                |
|-----------------------------|--------------------------|------------------|----------------|
|                             |                          | Actual           | Policy         |
| <b>US Equity</b>            | <b>\$107,493</b>         | <b>25.28%</b>    | <b>22.50%</b>  |
| <b>Non - US Equity</b>      | <b>\$103,306</b>         | <b>24.30%</b>    | <b>22.50%</b>  |
| <b>Core Fixed Income</b>    | <b>\$100,780</b>         | <b>23.70%</b>    | <b>25.00%</b>  |
| <b>Private Equity</b>       | <b>\$14,574</b>          | <b>3.43%</b>     | <b>5.00%</b>   |
| <b>TIPS</b>                 | <b>\$38,170</b>          | <b>8.98%</b>     | <b>10.00%</b>  |
| <b>Commodities</b>          | <b>\$17,769</b>          | <b>4.18%</b>     | <b>5.00%</b>   |
| <b>Real Estate</b>          | <b>\$20,027</b>          | <b>4.71%</b>     | <b>5.00%</b>   |
| <b>MLPs</b>                 | <b>\$20,004</b>          | <b>4.70%</b>     | <b>5.00%</b>   |
| <b>Cash</b>                 | <b>\$3,090</b>           | <b>0.73%</b>     | <b>0.00%</b>   |
| <b>Total Fund Composite</b> | <b>\$425,211</b>         | <b>100.00%</b>   | <b>100.00%</b> |

# Investment Performance Total Fund Composite\*

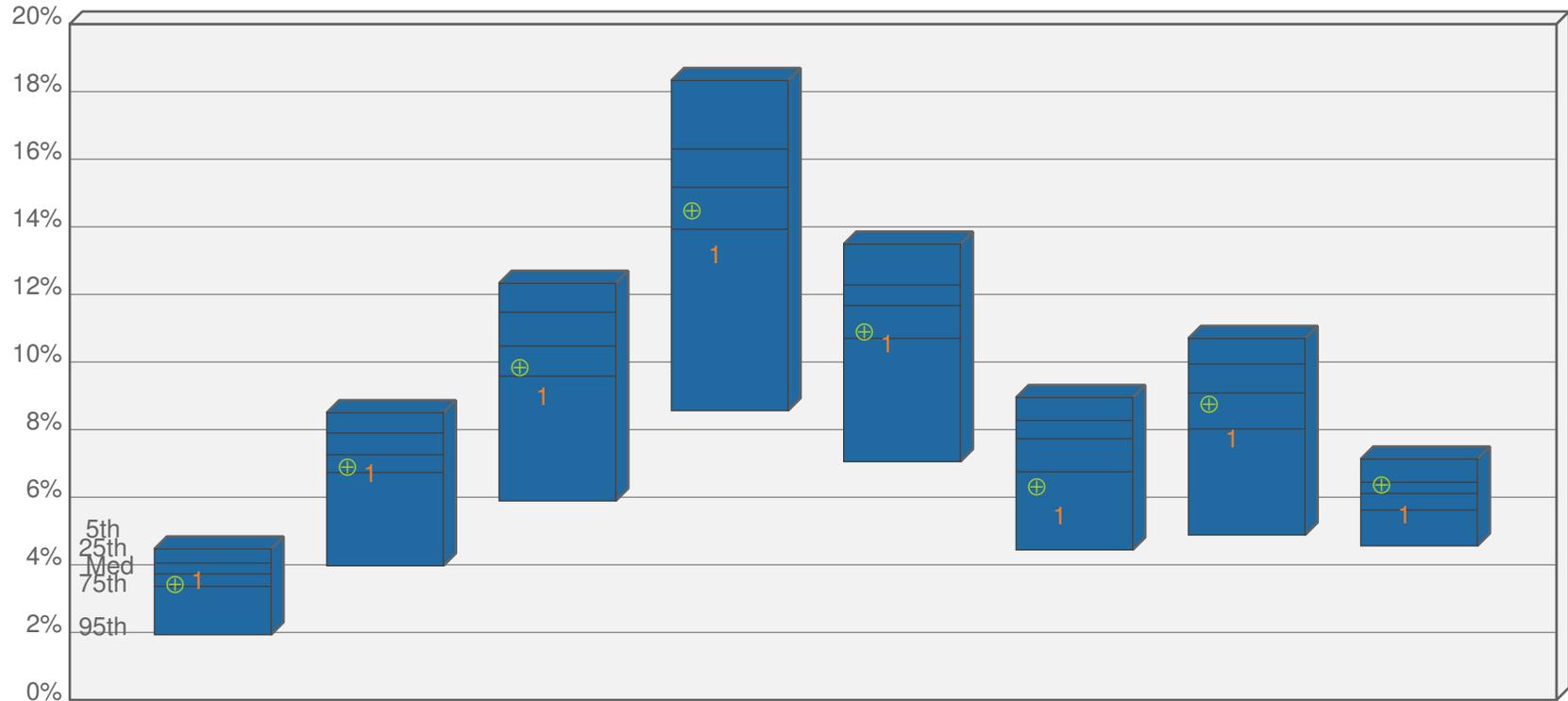
As of December 31, 2017



\*Returns are net of fees.

\*\*Policy index = Wilshire 5000 (22.50%), MSCI ACWI ex U.S. (22.50%), Bloomberg Barclays Aggregate (25.00%), Bloomberg Barclays TIPS (10.00%), FTSE EPRA NAREIT Dev RE (5.00%), Wilshire 5000 +2.5% (5.00%), Bloomberg Commodity Index (5.00%), S&P MLP Index (5.00%)

Wilshire Consulting  
**PERFORMANCE COMPARISON**  
 Total Fund Composite  
 Periods Ended December 31, 2017



|                 | 1 Quarter | 2 Quarters | 3 Quarters | 1 Year     | 2 Years    | 3 Years   | 5 Years   | 10 Years  |
|-----------------|-----------|------------|------------|------------|------------|-----------|-----------|-----------|
| ⊕ Total Fund    | 3.44 (71) | 6.91 (68)  | 9.84 (68)  | 14.49 (62) | 10.89 (73) | 6.32 (83) | 8.76 (60) | 6.38 (35) |
| 1 Policy Index  | 3.54 (66) | 6.71 (76)  | 8.99 (84)  | 13.18 (81) | 10.54 (78) | 5.46 (87) | 7.74 (81) | 5.50 (78) |
| 5th %tile       | 4.47      | 8.50       | 12.33      | 18.33      | 13.49      | 8.95      | 10.70     | 7.13      |
| 25th %tile      | 4.05      | 7.90       | 11.47      | 16.30      | 12.28      | 8.27      | 9.94      | 6.44      |
| Median          | 3.73      | 7.26       | 10.47      | 15.17      | 11.67      | 7.73      | 9.08      | 6.11      |
| 75th %tile      | 3.36      | 6.73       | 9.58       | 13.93      | 10.70      | 6.75      | 8.02      | 5.62      |
| 95th %tile      | 1.93      | 3.97       | 5.89       | 8.56       | 7.05       | 4.44      | 4.88      | 4.56      |
| Number of Funds | 154       | 154        | 154        | 154        | 149        | 145       | 144       | 119       |

\*TUCS Total Ret of Master Trusts - Public Universe - Gross of Fees

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

|                                  | 1 Qtr        | YTD          | 1 Year       | 3 Yrs        | 5 Yrs        | 7 Yrs        | 10 Yrs      | Incept Date     | Incept Ret   |
|----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|-----------------|--------------|
| <b>U.S. Equity Composite</b>     |              |              |              |              |              |              |             |                 |              |
| <b>Net of Fee Return</b>         | <b>5.94</b>  | <b>21.53</b> | <b>21.53</b> | <b>11.63</b> | <b>16.10</b> | <b>13.91</b> | <b>9.18</b> | <b>9/30/87</b>  | <b>9.73</b>  |
| DJ Wilshire 5000                 | 6.39         | 20.99        | 20.99        | 11.36        | 15.67        | 13.50        | 8.64        | 9/30/87         | 9.69         |
| Value Added                      | -0.45        | 0.54         | 0.54         | 0.27         | 0.42         | 0.41         | 0.54        | 9/30/87         | 0.04         |
| <b>Core Fixed Composite</b>      |              |              |              |              |              |              |             |                 |              |
| <b>Net of Fee Return</b>         | <b>0.68</b>  | <b>5.39</b>  | <b>5.39</b>  | <b>3.45</b>  | <b>3.25</b>  | <b>4.56</b>  | <b>5.23</b> | <b>9/30/87</b>  | <b>6.93</b>  |
| Bloomberg Aggregate              | 0.39         | 3.54         | 3.54         | 2.24         | 2.10         | 3.20         | 4.01        | 9/30/87         | 6.51         |
| Value Added                      | 0.29         | 1.85         | 1.85         | 1.21         | 1.15         | 1.35         | 1.22        | 9/30/87         | 0.42         |
| <b>Non-U.S. Equity Composite</b> |              |              |              |              |              |              |             |                 |              |
| <b>Net of Fee Return</b>         | <b>3.67</b>  | <b>27.62</b> | <b>27.62</b> | <b>8.89</b>  | <b>8.37</b>  | <b>6.54</b>  | <b>2.95</b> | <b>12/31/89</b> | <b>8.43</b>  |
| Policy Benchmark                 | 5.00         | 27.19        | 27.19        | 7.83         | 6.80         | 4.93         | 1.84        | 12/31/89        | 4.84         |
| Value Added                      | -1.33        | 0.43         | 0.43         | 1.06         | 1.57         | 1.61         | 1.11        | 12/31/89        | 3.59         |
| <b>Real Estate Composite</b>     |              |              |              |              |              |              |             |                 |              |
| <b>Net of Fee Return</b>         | <b>5.05</b>  | <b>10.68</b> | <b>10.68</b> | <b>3.21</b>  | <b>5.35</b>  | <b>6.33</b>  |             | <b>6/30/09</b>  | <b>10.44</b> |
| FTSE EPRA/NAREIT Dev (N)         | 3.60         | 10.36        | 10.36        | 4.44         | 6.32         | 7.17         |             | 6/30/09         | 11.53        |
| Value Added                      | 1.46         | 0.32         | 0.32         | -1.24        | -0.97        | -0.83        |             | 6/30/09         | -1.09        |
| <b>Commodities Composite</b>     |              |              |              |              |              |              |             |                 |              |
| <b>Net of Fee Return</b>         | <b>7.48</b>  | <b>9.05</b>  | <b>9.05</b>  | <b>-2.68</b> |              |              |             | <b>3/31/13</b>  | <b>-6.99</b> |
| Bloomberg Commodity Index        | 4.71         | 1.70         | 1.70         | -5.03        |              |              |             | 3/31/13         | -8.66        |
| Value Added                      | 2.77         | 7.35         | 7.35         | 2.35         |              |              |             | 3/31/13         | 1.67         |
| <b>MLP Composite</b>             |              |              |              |              |              |              |             |                 |              |
| <b>Net of Fee Return</b>         | <b>-0.48</b> | <b>-5.74</b> | <b>-5.74</b> |              |              |              |             | <b>3/31/15</b>  | <b>-8.10</b> |
| S&P MLP Index                    | -0.29        | -5.58        | -5.58        |              |              |              |             | 3/31/15         | -8.99        |
| Value Added                      | -0.19        | -0.15        | -0.15        |              |              |              |             | 3/31/15         | 0.89         |

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

|  | 1 Qtr       | YTD          | 1 Year       | 3 Yrs        | 5 Yrs        | 7 Yrs       | 10 Yrs      | Incept Date    | Incept Ret   |
|--|-------------|--------------|--------------|--------------|--------------|-------------|-------------|----------------|--------------|
| <b>TIPS Composite</b>                    |             |              |              |              |              |             |             |                |              |
| <b>Net of Fee Return</b>                 | <b>1.30</b> | <b>2.81</b>  | <b>2.81</b>  |              |              |             |             | <b>6/30/15</b> | <b>2.33</b>  |
| Barclays U.S. TIPS                       | 1.26        | 3.01         | 3.01         |              |              |             |             | 6/30/15        | 2.33         |
| Value Added                              | 0.04        | -0.20        | -0.20        |              |              |             |             | 6/30/15        | 0.00         |
| <b>Total Real Assets Composite</b>       |             |              |              |              |              |             |             |                |              |
| <b>Net of Fee Return</b>                 | <b>2.74</b> | <b>3.52</b>  | <b>3.52</b>  |              |              |             |             | <b>3/31/15</b> | <b>-0.53</b> |
| Policy Index                             | 2.11        | 2.47         | 2.47         |              |              |             |             | 3/31/15        | -0.73        |
| Value Added                              | 0.63        | 1.05         | 1.05         |              |              |             |             | 3/31/15        | 0.21         |
| <b>Alternative Investments Composite</b> |             |              |              |              |              |             |             |                |              |
| <b>Net of Fee Return</b>                 | <b>4.93</b> | <b>15.07</b> | <b>15.07</b> | <b>11.57</b> | <b>10.82</b> | <b>8.57</b> |             | <b>6/30/10</b> | <b>8.01</b>  |
| Wilshire 5000 +2.5%                      | 7.01        | 23.49        | 23.49        | 13.86        | 18.17        | 16.00       |             | 6/30/10        | 18.37        |
| Value Added                              | -2.09       | -8.42        | -8.42        | -2.29        | -7.35        | -7.44       |             | 6/30/10        | -10.36       |
| <b>Total Fund</b>                        |             |              |              |              |              |             |             |                |              |
| <b>Net of Fee Return</b>                 | <b>3.38</b> | <b>14.21</b> | <b>14.21</b> | <b>6.06</b>  | <b>8.49</b>  | <b>8.16</b> | <b>6.08</b> | <b>9/30/87</b> | <b>8.35</b>  |
| Policy Index                             | 3.54        | 13.18        | 13.18        | 5.46         | 7.74         | 7.54        | 5.50        | 9/30/87        | 8.36         |
| Value Added                              | -0.16       | 1.03         | 1.03         | 0.60         | 0.75         | 0.62        | 0.58        | 9/30/87        | -0.01        |

# CUSTOM BENCHMARK SPECIFICATION

Total Fund

December 31, 2017

|              | Quarter Start | Quarter End | Percent                  | Description         |
|--------------|---------------|-------------|--------------------------|---------------------|
| Policy Index | 12/79         | 6/98        | 55.00                    | Wilshire 5000       |
|              |               |             | 40.00                    | Bloomberg Aggregate |
|              |               |             | 5.00                     | MSCI EAFE Index (N) |
|              | 9/98          | 9/02        | 50.00                    | Wilshire 5000       |
|              |               |             | 40.00                    | Bloomberg Aggregate |
|              |               |             | 10.00                    | MSCI EAFE Index (N) |
|              | 12/02         | 3/06        | 50.00                    | Wilshire 5000       |
|              |               |             | 35.00                    | Bloomberg Aggregate |
|              |               |             | 15.00                    | MSCI EAFE Index (N) |
|              | 6/06          | 6/06        | 55.00                    | Wilshire 5000       |
| 30.00        |               |             | Bloomberg Aggregate      |                     |
| 15.00        |               |             | MSCI EAFE Index (N)      |                     |
| 9/06         | 6/09          | 55.00       | Wilshire 5000            |                     |
|              |               | 30.00       | Bloomberg Aggregate      |                     |
|              |               | 15.00       | MSCI ACWI ex US (N)      |                     |
| 9/09         | 3/10          | 5.00        | FTSE EPRA/NAREIT Dev (N) |                     |
|              |               | 15.00       | MSCI ACWI ex US (N)      |                     |
|              |               | 30.00       | Bloomberg Aggregate      |                     |
|              |               | 50.00       | Wilshire 5000            |                     |
| 6/10         | 12/12         | 5.00        | FTSE EPRA/NAREIT Dev (N) |                     |
|              |               | 5.00        | Wilshire 5000 + 2.5%     |                     |
|              |               | 30.00       | Bloomberg Aggregate      |                     |
|              |               | 15.00       | MSCI ACWI ex US (N)      |                     |
|              |               | 45.00       | Wilshire 5000            |                     |
| 3/13         | 3/15          | 5.00        | FTSE EPRA/NAREIT Dev (N) |                     |
|              |               | 40.00       | Wilshire 5000            |                     |
|              |               | 15.00       | MSCI ACWI ex US (N)      |                     |
|              |               | 30.00       | Bloomberg Aggregate      |                     |
|              |               | 5.00        | Wilshire 5000 + 2.5%     |                     |

# CUSTOM BENCHMARK SPECIFICATION

Total Fund

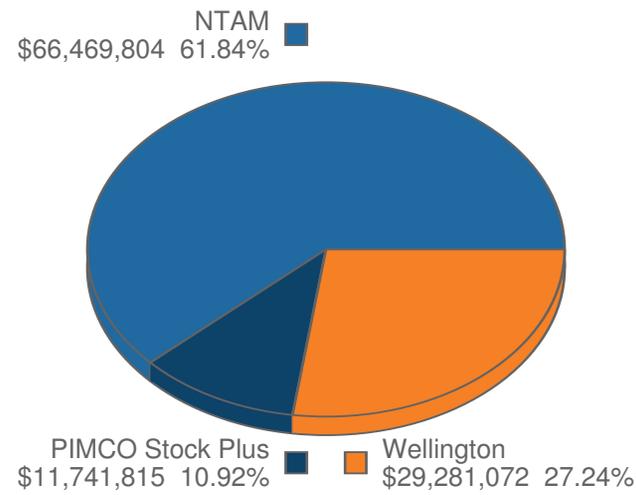
December 31, 2017

|                      | Quarter Start | Quarter End | Percent       | Description               |
|----------------------|---------------|-------------|---------------|---------------------------|
| Policy Index (cont.) |               |             | 5.00          | Bloomberg Commodity Index |
|                      | 6/15          | 12/17       | 22.50         | Wilshire 5000             |
|                      |               |             | 5.00          | Wilshire 5000 + 2.5%      |
|                      |               |             | 22.50         | MSCI ACWI ex US (N)       |
|                      |               |             | 25.00         | Bloomberg Aggregate       |
|                      |               |             | 5.00          | FTSE EPRA/NAREIT Dev (N)  |
|                      |               |             | 5.00          | Bloomberg Commodity Index |
|                      |               |             | 10.00         | Bloomberg U.S. TIPS       |
|                      |               | 5.00        | S&P MLP Index |                           |



# U.S. EQUITY

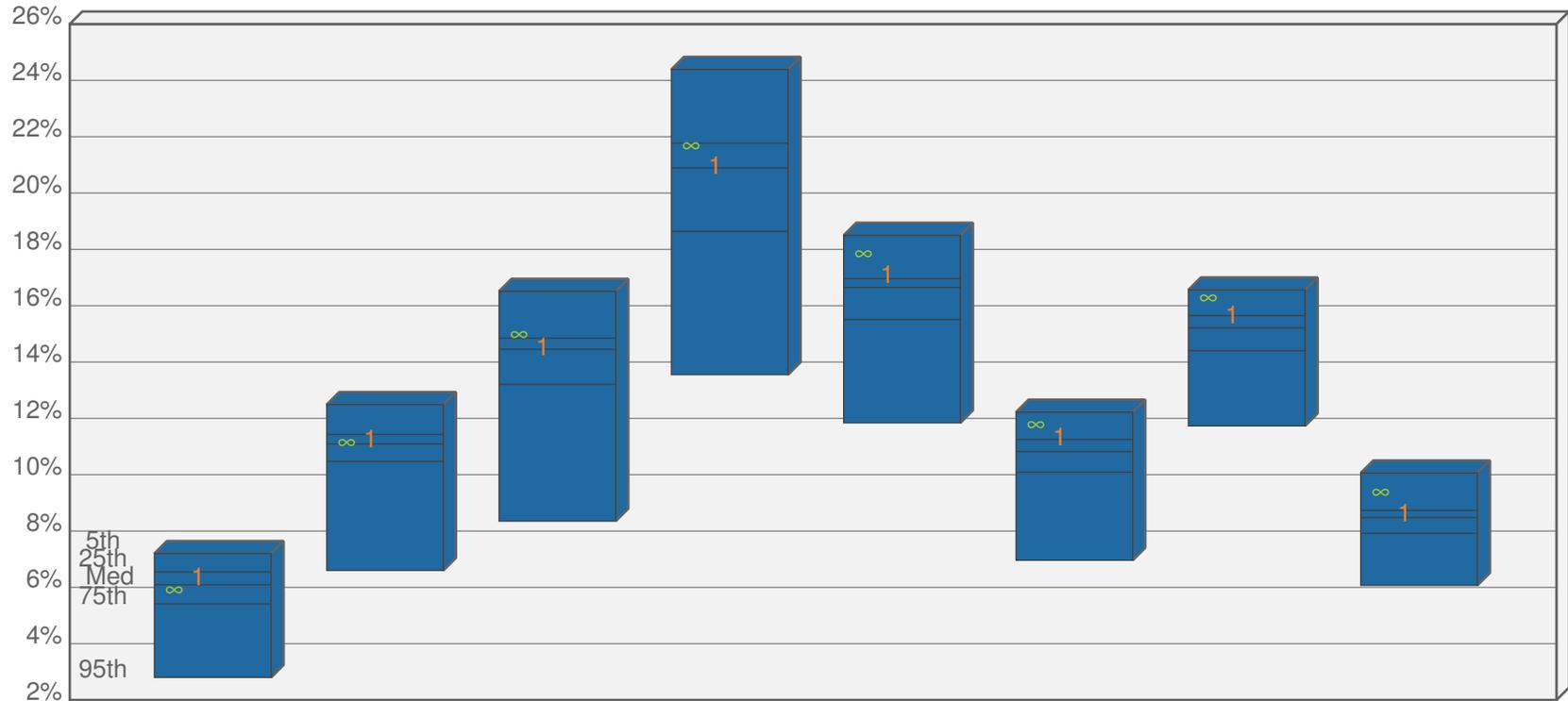
Wilshire Consulting  
MANAGER ALLOCATION  
U.S. Equity Composite  
As of December 31, 2017



# PERFORMANCE COMPARISON

## U.S. Equity Composite

Periods Ended December 31, 2017



|                         | 1 Quarter | 2 Quarters | 3 Quarters | 1 Year     | 2 Years    | 3 Years    | 5 Years    | 10 Years  |
|-------------------------|-----------|------------|------------|------------|------------|------------|------------|-----------|
| ∞ U.S. Equity Composite | 5.98 (58) | 11.23 (37) | 15.04 (21) | 21.74 (26) | 17.92 ( 6) | 11.84 ( 6) | 16.35 ( 6) | 9.45 ( 9) |
| 1 DJ Wilshire 5000      | 6.39 (32) | 11.28 (34) | 14.56 (43) | 20.99 (48) | 17.12 (22) | 11.36 (19) | 15.67 (22) | 8.64 (35) |
| 5th %tile               | 7.20      | 12.49      | 16.51      | 24.39      | 18.50      | 12.22      | 16.56      | 10.06     |
| 25th %tile              | 6.55      | 11.43      | 14.85      | 21.77      | 16.96      | 11.25      | 15.65      | 8.73      |
| Median                  | 6.09      | 11.09      | 14.45      | 20.89      | 16.65      | 10.82      | 15.21      | 8.48      |
| 75th %tile              | 5.41      | 10.47      | 13.21      | 18.64      | 15.51      | 10.09      | 14.40      | 7.92      |
| 95th %tile              | 2.80      | 6.60       | 8.35       | 13.55      | 11.84      | 6.96       | 11.73      | 6.07      |
| Number of Funds         | 128       | 125        | 122        | 117        | 115        | 107        | 103        | 83        |

\*TUCS Total Ret of US Equity Investment Pools Universe - Gross of Fees Police & Fire

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

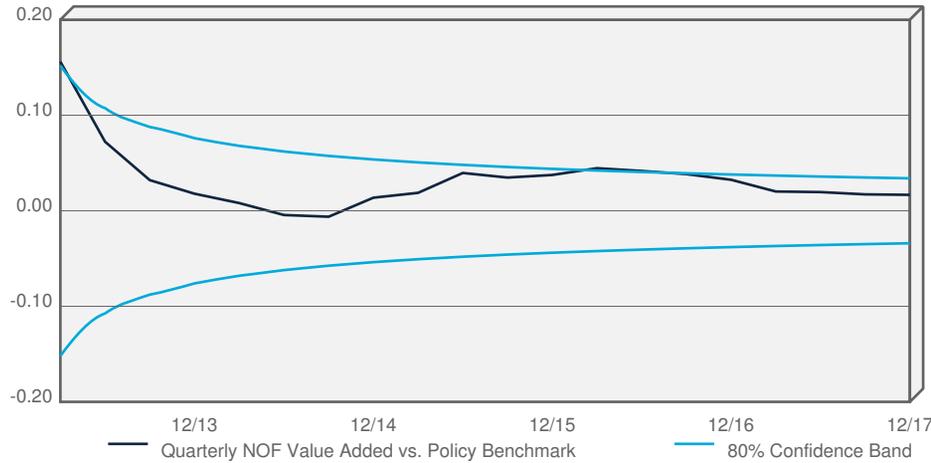
|                              | 1 Qtr       | YTD          | 1 Year       | 3 Yrs        | 5 Yrs        | 7 Yrs        | 10 Yrs       | Incept Date    | Incept Ret   |
|------------------------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|--------------|
| <b>NTAM</b>                  |             |              |              |              |              |              |              |                |              |
| <b>Net of Fee Return</b>     | <b>6.65</b> | <b>21.78</b> | <b>21.78</b> | <b>11.43</b> | <b>15.81</b> | <b>13.78</b> | <b>8.43</b>  | <b>9/30/98</b> | <b>7.41</b>  |
| Policy Benchmark             | 6.64        | 21.83        | 21.83        | 11.41        | 15.79        | 13.76        | 8.49         | 9/30/98        | 7.40         |
| Value Added                  | 0.00        | -0.06        | -0.06        | 0.02         | 0.02         | 0.02         | -0.06        | 9/30/98        | 0.00         |
| <b>PIMCO Stock Plus</b>      |             |              |              |              |              |              |              |                |              |
| <b>Net of Fee Return</b>     | <b>6.84</b> | <b>22.80</b> | <b>22.80</b> | <b>11.32</b> | <b>15.99</b> | <b>14.70</b> | <b>9.36</b>  | <b>9/30/00</b> | <b>6.32</b>  |
| Standard & Poor's 500        | 6.64        | 21.83        | 21.83        | 11.41        | 15.79        | 13.76        | 8.49         | 9/30/00        | 5.73         |
| Value Added                  | 0.19        | 0.97         | 0.97         | -0.09        | 0.20         | 0.94         | 0.87         | 9/30/00        | 0.59         |
| <b>Wellington</b>            |             |              |              |              |              |              |              |                |              |
| <b>Net of Fee Return</b>     | <b>3.84</b> | <b>20.38</b> | <b>20.38</b> | <b>12.11</b> | <b>17.25</b> | <b>14.44</b> | <b>11.73</b> | <b>9/30/99</b> | <b>11.89</b> |
| Russell 2000                 | 3.34        | 14.65        | 14.65        | 9.96         | 14.12        | 11.62        | 8.71         | 9/30/99        | 8.70         |
| Value Added                  | 0.50        | 5.73         | 5.73         | 2.15         | 3.13         | 2.83         | 3.02         | 9/30/99        | 3.19         |
| <b>U.S. Equity Composite</b> |             |              |              |              |              |              |              |                |              |
| <b>Net of Fee Return</b>     | <b>5.94</b> | <b>21.53</b> | <b>21.53</b> | <b>11.63</b> | <b>16.10</b> | <b>13.91</b> | <b>9.18</b>  | <b>9/30/87</b> | <b>9.73</b>  |
| DJ Wilshire 5000             | 6.39        | 20.99        | 20.99        | 11.36        | 15.67        | 13.50        | 8.64         | 9/30/87        | 9.69         |
| Value Added                  | -0.45       | 0.54         | 0.54         | 0.27         | 0.42         | 0.41         | 0.54         | 9/30/87        | 0.04         |

# INVESTMENT MANAGER ANALYSIS

NTAM

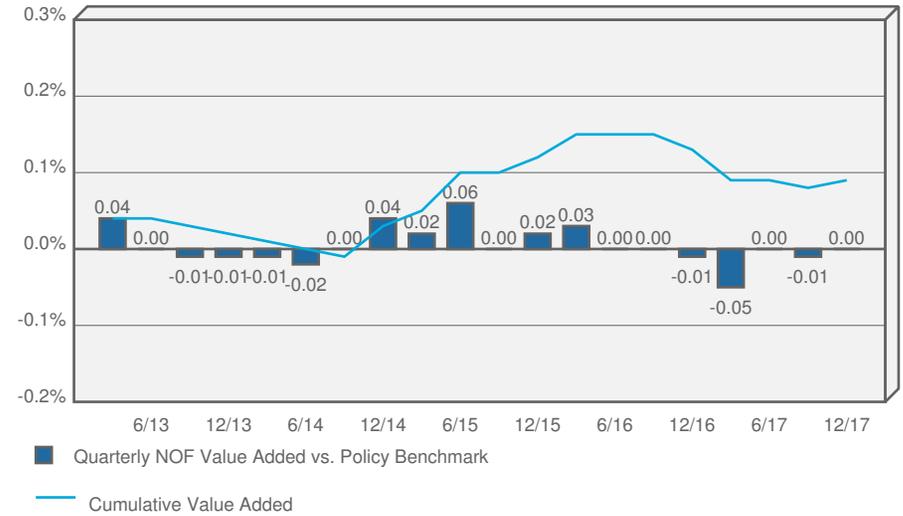
December 31, 2017

Cumulative Skill Analysis vs Benchmark

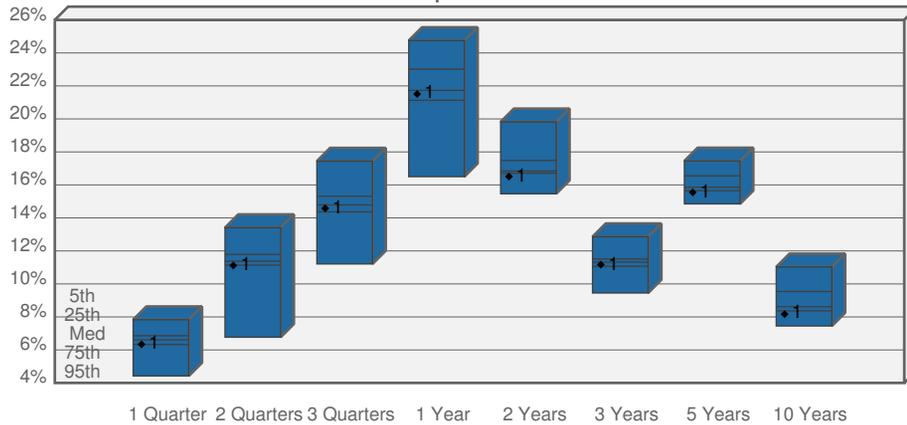


|                |      |                    |      |
|----------------|------|--------------------|------|
| Excess Return: | 0.02 | Information Ratio: | 0.36 |
| Excess Risk:   | 0.05 | T-Stat:            | 0.81 |

Value-Added Analysis vs Benchmark

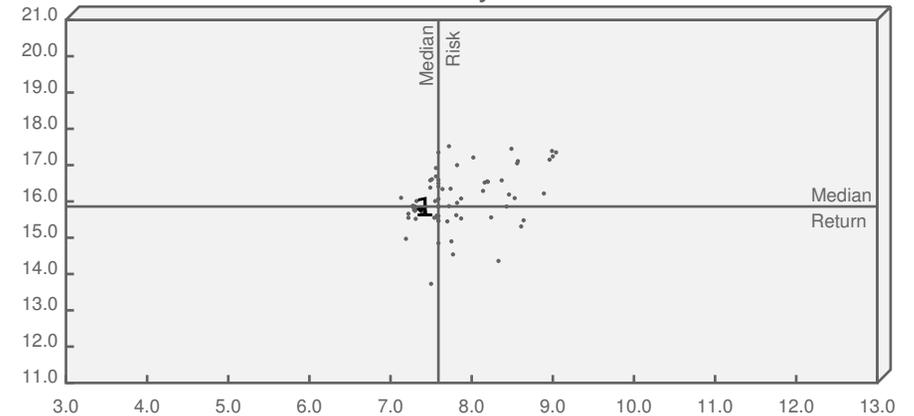


Performance Comparison vs Peer Universe\*



|                    | 1 Quarter | 2 Quarters | 3 Quarters | 1 Year     | 2 Years    | 3 Years    | 5 Years    | 10 Years  |
|--------------------|-----------|------------|------------|------------|------------|------------|------------|-----------|
| ◆ NTAM             | 6.66 (35) | 11.44 (38) | 14.90 (32) | 21.83 (38) | 16.83 (58) | 11.49 (27) | 15.87 (48) | 8.49 (65) |
| 1 Policy Benchmark | 6.64 (46) | 11.42 (42) | 14.86 (40) | 21.83 (38) | 16.79 (65) | 11.41 (41) | 15.79 (61) | 8.49 (65) |
| Median             | 6.61      | 11.38      | 14.79      | 21.73      | 16.84      | 11.32      | 15.86      | 8.62      |
| Number of Funds    | 90        | 89         | 89         | 88         | 86         | 86         | 83         | 52        |

Five Year Risk/Return Analysis vs Peer Universe\*



| Description      | Legend | Gross Fee Ret |      | Standard Deviation |      |
|------------------|--------|---------------|------|--------------------|------|
|                  |        | Value         | Rank | Value              | Rank |
| NTAM             | ◆      | 15.87         | 48   | 7.50               | 63   |
| Policy Benchmark | 1      | 15.79         | 61   | 7.49               | 65   |
| Median           |        | 15.86         |      | 7.59               |      |

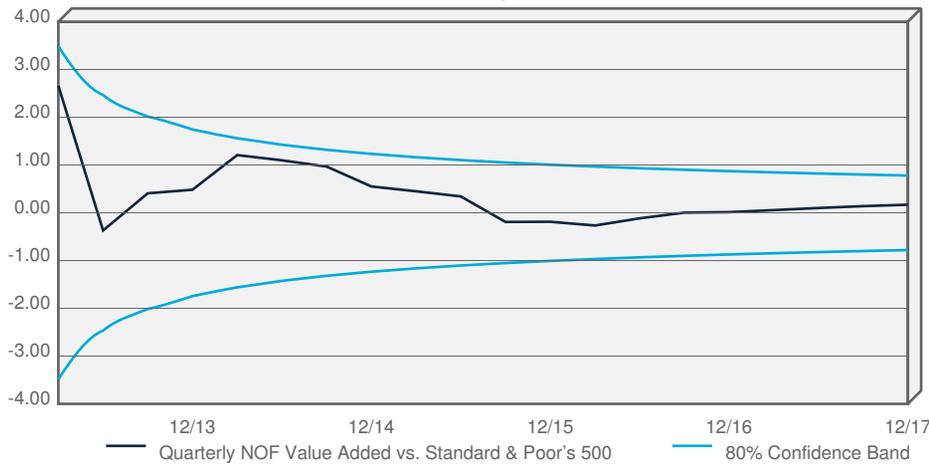
\*TUCS Total Returns of Large Neutral Equity Portfolios Universe - Gross of Fees & Fire

# INVESTMENT MANAGER ANALYSIS

## PIMCO Stock Plus

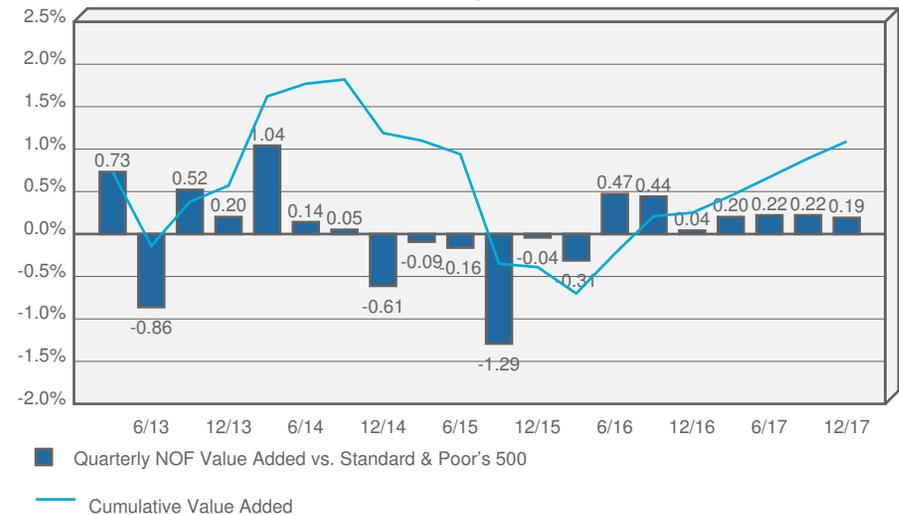
December 31, 2017

Cumulative Skill Analysis vs Benchmark

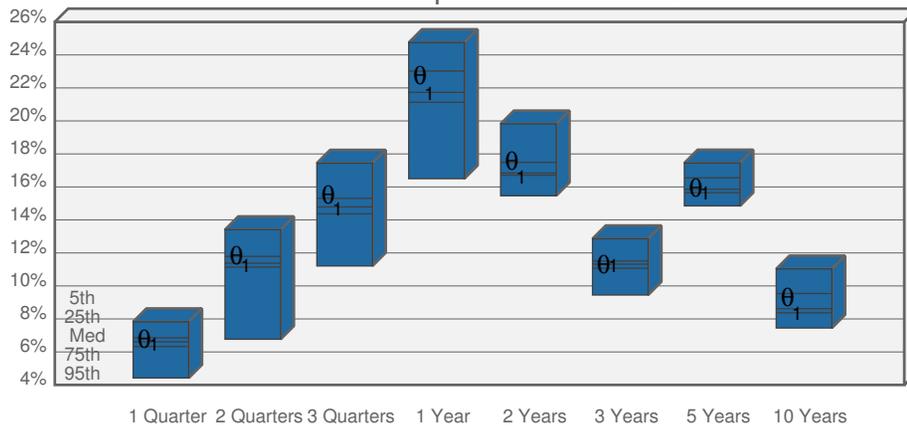


|                |      |                    |      |
|----------------|------|--------------------|------|
| Excess Return: | 0.17 | Information Ratio: | 0.16 |
| Excess Risk:   | 1.06 | T-Stat:            | 0.36 |

Value-Added Analysis vs Benchmark

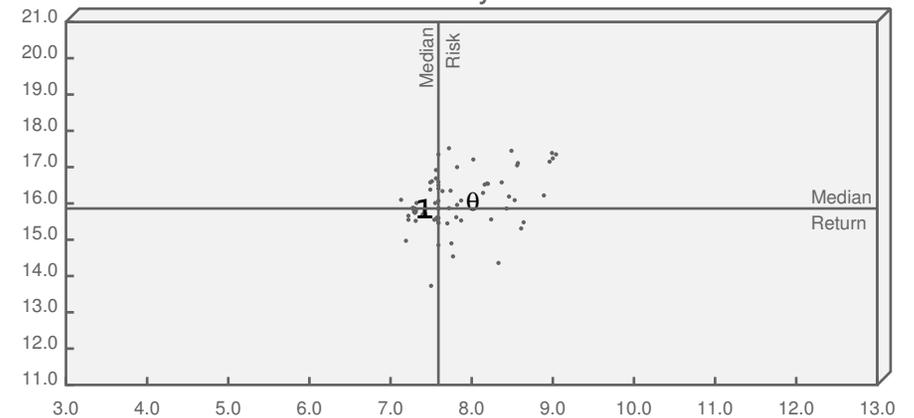


Performance Comparison vs Peer Universe\*



|                                | 1 Quarter | 2 Quarters | 3 Quarters | 1 Year     | 2 Years    | 3 Years    | 5 Years    | 10 Years  |
|--------------------------------|-----------|------------|------------|------------|------------|------------|------------|-----------|
| $\theta$ PIMCO Stock Plus      | 6.84 (25) | 11.86 (23) | 15.56 (23) | 22.80 (26) | 17.62 (22) | 11.32 (50) | 15.99 (44) | 9.36 (28) |
| <b>1</b> Standard & Poor's 500 | 6.64 (46) | 11.42 (42) | 14.86 (40) | 21.83 (38) | 16.79 (65) | 11.41 (41) | 15.79 (61) | 8.49 (65) |
| Median Number of Funds         | 6.61      | 11.38      | 14.79      | 21.73      | 16.84      | 11.32      | 15.86      | 8.62      |
|                                | 90        | 89         | 89         | 88         | 86         | 86         | 83         | 52        |

Five Year Risk/Return Analysis vs Peer Universe\*



| Description           | Legend   | Gross Fee Ret |      | Standard Deviation |      |
|-----------------------|----------|---------------|------|--------------------|------|
|                       |          | Value         | Rank | Value              | Rank |
| PIMCO Stock Plus      | $\theta$ | 15.99         | 44   | 8.11               | 32   |
| Standard & Poor's 500 | <b>1</b> | 15.79         | 61   | 7.49               | 65   |
| Median                |          | 15.86         |      | 7.59               |      |

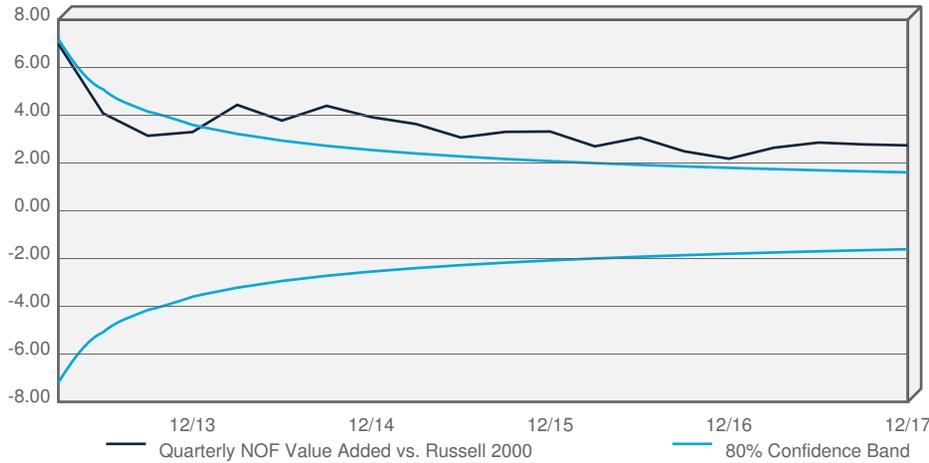
\*TUCS Total Returns of Large Neutral Equity Portfolios Universe - Gross of Fees & Fire

# INVESTMENT MANAGER ANALYSIS

Wellington

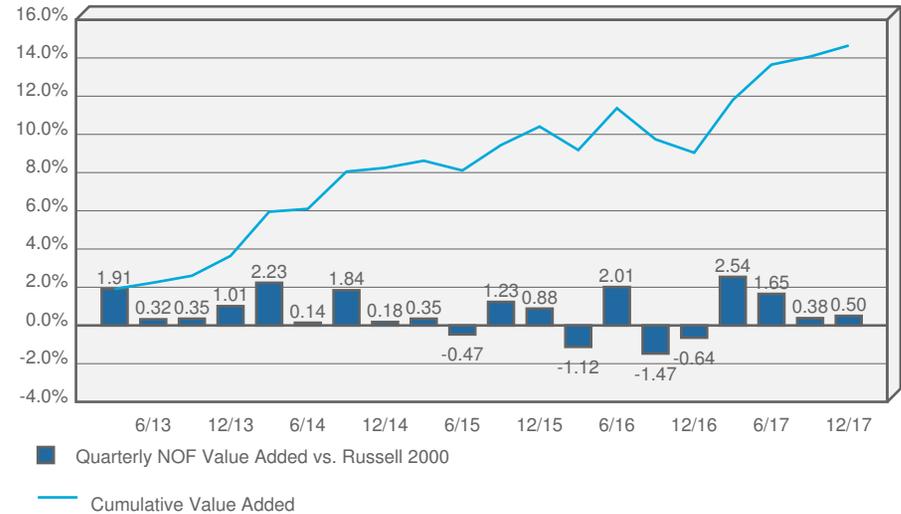
December 31, 2017

Cumulative Skill Analysis vs Benchmark

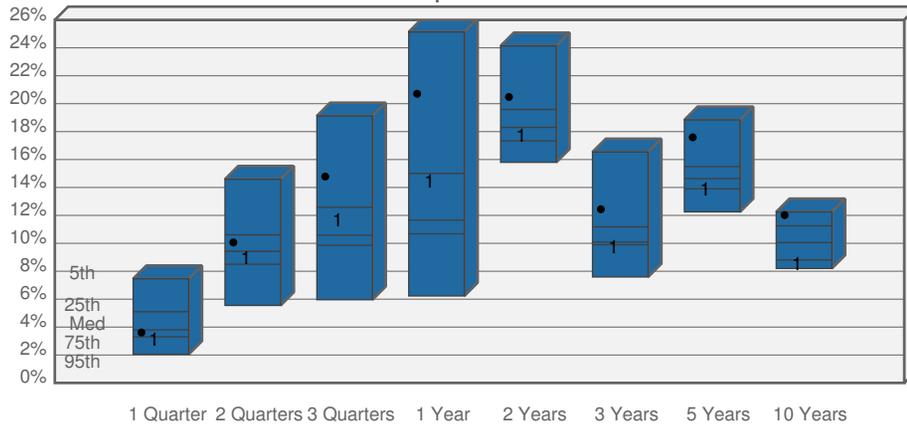


|                |      |                    |      |
|----------------|------|--------------------|------|
| Excess Return: | 2.74 | Information Ratio: | 1.25 |
| Excess Risk:   | 2.19 | T-Stat:            | 2.80 |

Value-Added Analysis vs Benchmark

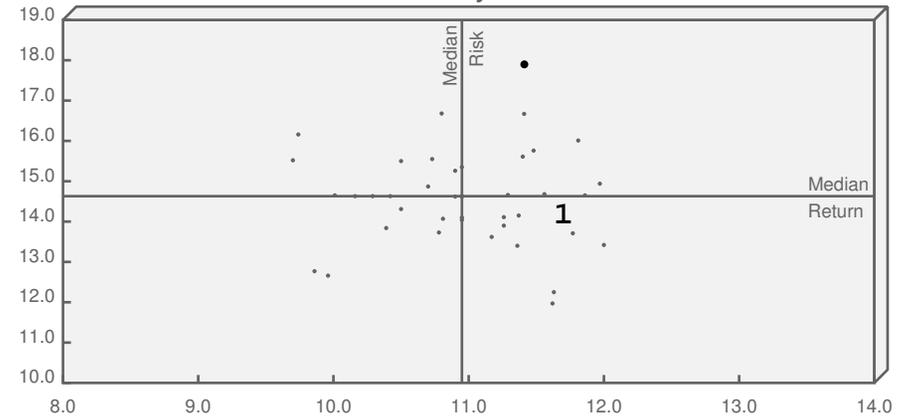


Performance Comparison vs Peer Universe\*



|                 | 1 Quarter | 2 Quarters | 3 Quarters | 1 Year     | 2 Years    | 3 Years    | 5 Years    | 10 Years   |
|-----------------|-----------|------------|------------|------------|------------|------------|------------|------------|
| ● Wellington    | 3.99 (44) | 10.44 (26) | 15.16 (11) | 21.09 ( 9) | 20.86 (15) | 12.82 (11) | 17.97 ( 5) | 12.40 ( 1) |
| 1 Russell 2000  | 3.34 (71) | 9.20 (59)  | 11.89 (32) | 14.65 (28) | 17.93 (54) | 9.96 (72)  | 14.12 (62) | 8.71 (90)  |
| Median          | 3.80      | 9.43       | 10.58      | 11.66      | 18.30      | 10.09      | 14.63      | 10.05      |
| Number of Funds | 52        | 52         | 52         | 52         | 50         | 47         | 42         | 21         |

Five Year Risk/Return Analysis vs Peer Universe\*



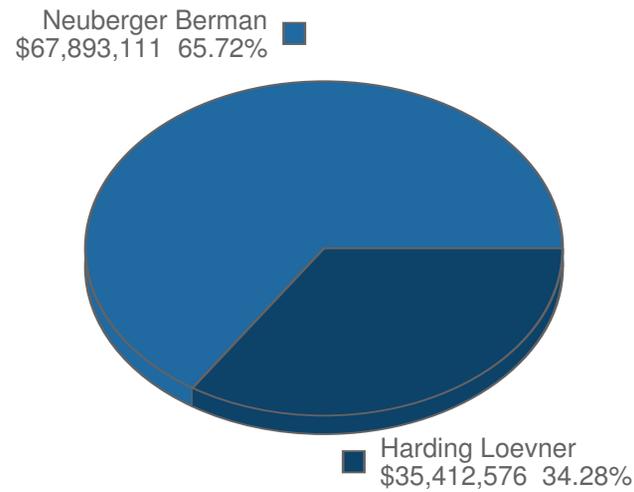
| Description  | Legend | Gross Fee Ret |      | Standard Deviation |      |
|--------------|--------|---------------|------|--------------------|------|
|              |        | Value         | Rank | Value              | Rank |
| Wellington   | ●      | 17.97         | 5    | 11.49              | 22   |
| Russell 2000 | 1      | 14.12         | 62   | 11.74              | 16   |
| Median       |        | 14.63         |      | 10.95              |      |

\*TUCS Total Returns of Small Neutral Equity Portfolios Universe - Gross of Fees & Fire



# NON-U.S. EQUITY

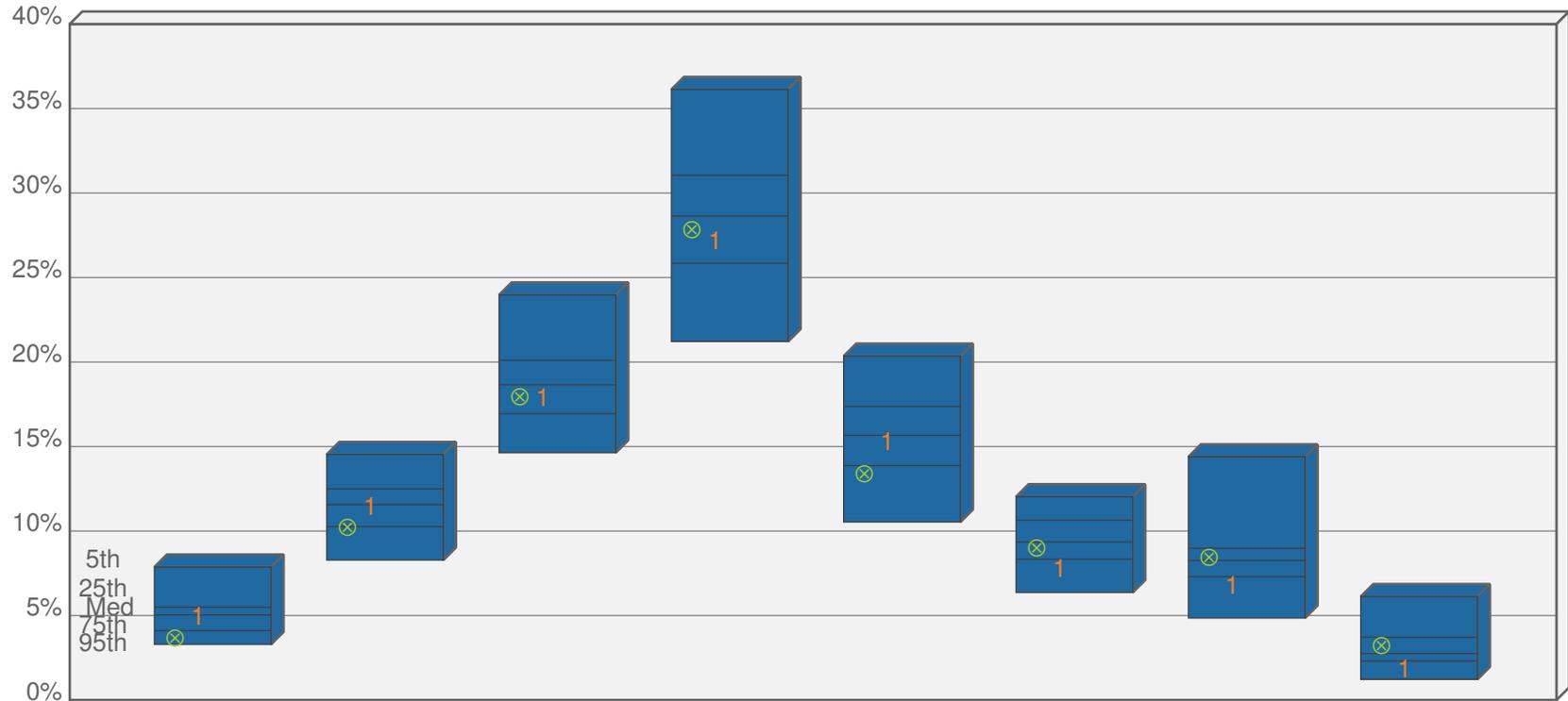
Wilshire Consulting  
MANAGER ALLOCATION  
Non-U.S. Equity Composite  
*As of December 31, 2017*



# PERFORMANCE COMPARISON

## Non-U.S. Equity Composite

Periods Ended December 31, 2017



|                             | 1 Quarter | 2 Quarters | 3 Quarters | 1 Year     | 2 Years    | 3 Years   | 5 Years   | 10 Years  |
|-----------------------------|-----------|------------|------------|------------|------------|-----------|-----------|-----------|
| ⊗ Non-U.S. Equity Composite | 3.72 (85) | 10.27 (74) | 17.98 (59) | 27.84 (56) | 13.44 (77) | 9.04 (59) | 8.46 (42) | 3.24 (31) |
| 1 Policy Benchmark          | 5.00 (52) | 11.47 (54) | 17.92 (59) | 27.19 (63) | 15.29 (60) | 7.83 (87) | 6.80 (85) | 1.84 (89) |
| 5th %tile                   | 7.87      | 14.53      | 23.97      | 36.13      | 20.35      | 12.03     | 14.39     | 6.12      |
| 25th %tile                  | 5.49      | 12.49      | 20.10      | 31.05      | 17.37      | 10.64     | 8.98      | 3.71      |
| Median                      | 5.03      | 11.56      | 18.65      | 28.64      | 15.66      | 9.35      | 8.26      | 2.75      |
| 75th %tile                  | 4.10      | 10.26      | 16.94      | 25.84      | 13.87      | 8.33      | 7.30      | 2.31      |
| 95th %tile                  | 3.29      | 8.28       | 14.63      | 21.21      | 10.53      | 6.36      | 4.85      | 1.22      |
| Number of Funds             | 115       | 114        | 112        | 111        | 109        | 100       | 95        | 74        |

\*TUCS Total Ret of Non-US Equity Investment Pools Universe - Gross of Fees, Expense & Fire

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

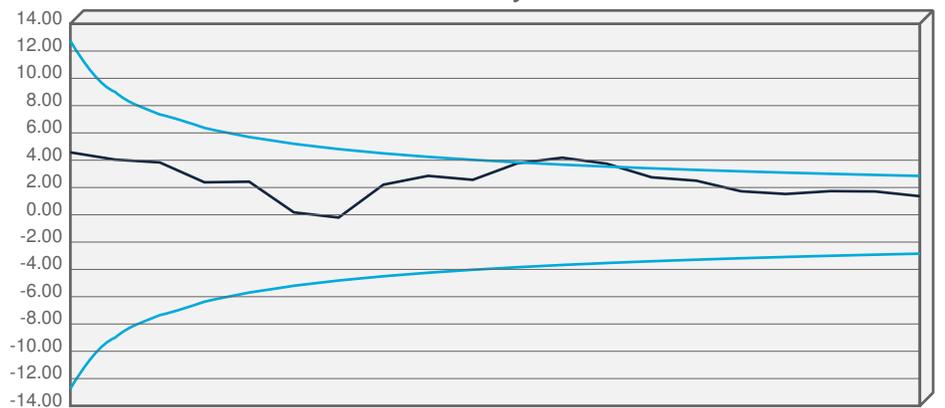
|                                  | 1 Qtr       | YTD          | 1 Year       | 3 Yrs       | 5 Yrs       | 7 Yrs       | 10 Yrs      | Incept Date     | Incept Ret  |
|----------------------------------|-------------|--------------|--------------|-------------|-------------|-------------|-------------|-----------------|-------------|
| <b>Neuberger Berman</b>          |             |              |              |             |             |             |             |                 |             |
| <b>Net of Fee Return</b>         | <b>3.66</b> | <b>27.10</b> | <b>27.10</b> | <b>8.70</b> | <b>8.26</b> | <b>6.44</b> | <b>2.88</b> | <b>6/30/06</b>  | <b>4.06</b> |
| MSCI ACWI X US (N)               | 5.00        | 27.19        | 27.19        | 7.83        | 6.80        | 4.93        | 1.84        | 6/30/06         | 4.26        |
| Value Added                      | -1.34       | -0.09        | -0.09        | 0.87        | 1.46        | 1.50        | 1.04        | 6/30/06         | -0.21       |
| <b>Harding Loevner</b>           |             |              |              |             |             |             |             |                 |             |
| <b>Net of Fee Return</b>         | <b>3.70</b> | <b>28.65</b> | <b>28.65</b> |             |             |             |             | <b>3/31/15</b>  | <b>8.57</b> |
| MSCI ACWI X US (N)               | 5.00        | 27.19        | 27.19        |             |             |             |             | 3/31/15         | 7.23        |
| Value Added                      | -1.30       | 1.47         | 1.47         |             |             |             |             | 3/31/15         | 1.34        |
| <b>Non-U.S. Equity Composite</b> |             |              |              |             |             |             |             |                 |             |
| <b>Net of Fee Return</b>         | <b>3.67</b> | <b>27.62</b> | <b>27.62</b> | <b>8.89</b> | <b>8.37</b> | <b>6.54</b> | <b>2.95</b> | <b>12/31/89</b> | <b>8.43</b> |
| Policy Benchmark                 | 5.00        | 27.19        | 27.19        | 7.83        | 6.80        | 4.93        | 1.84        | 12/31/89        | 4.84        |
| Value Added                      | -1.33       | 0.43         | 0.43         | 1.06        | 1.57        | 1.61        | 1.11        | 12/31/89        | 3.59        |

# INVESTMENT MANAGER ANALYSIS

Neuberger Berman

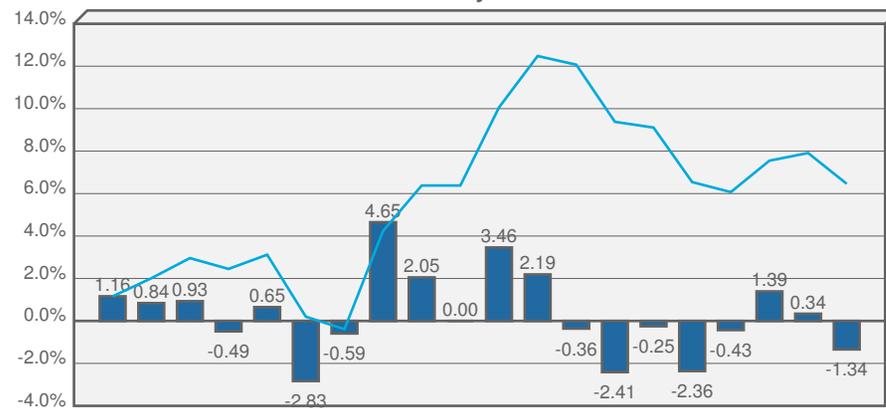
December 31, 2017

Cumulative Skill Analysis vs Benchmark



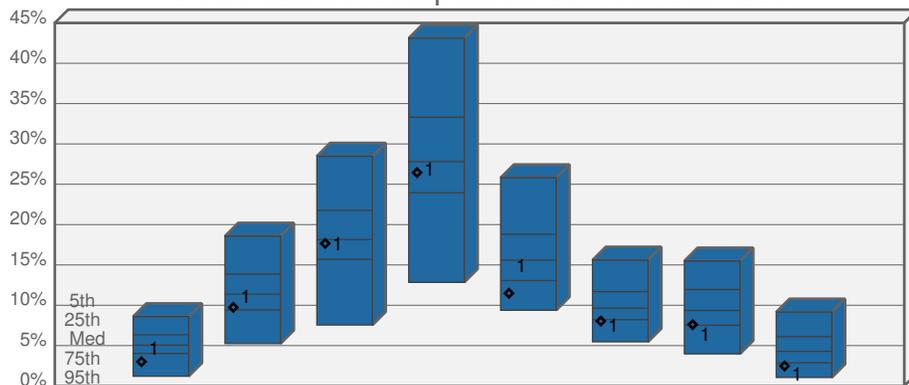
|                |      |                    |      |
|----------------|------|--------------------|------|
| Excess Return: | 1.36 | Information Ratio: | 0.35 |
| Excess Risk:   | 3.87 | T-Stat:            | 0.79 |

Value-Added Analysis vs Benchmark



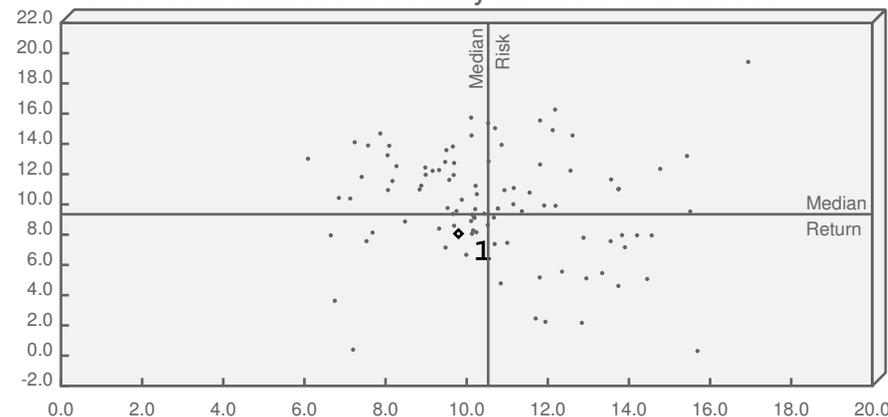
■ Quarterly NOF Value Added vs. MSCI ACWI X US (N)  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



|                  | 1 Quarter | 2 Quarters | 3 Quarters | 1 Year     | 2 Years    | 3 Years   | 5 Years   | 10 Years  |
|------------------|-----------|------------|------------|------------|------------|-----------|-----------|-----------|
| ◆ Neuberger Berm | 3.66 (80) | 10.40 (62) | 18.32 (48) | 27.10 (55) | 12.14 (82) | 8.70 (67) | 8.26 (66) | 3.13 (70) |
| 1 MSCI ACWI X US | 5.00 (51) | 11.47 (48) | 17.92 (52) | 27.19 (54) | 15.29 (52) | 7.83 (80) | 6.80 (81) | 1.84 (90) |
| Median           | 5.05      | 11.37      | 18.16      | 27.80      | 15.59      | 9.64      | 9.35      | 4.29      |
| Number of Funds  | 1198      | 1180       | 1169       | 1155       | 1129       | 1074      | 983       | 637       |

Five Year Risk/Return Analysis vs Peer Universe\*



| Description        | Legend | Gross Fee Ret |      | Standard Deviation |      |
|--------------------|--------|---------------|------|--------------------|------|
|                    |        | Value         | Rank | Value              | Rank |
| Neuberger Berman   | ◆      | 8.26          | 66   | 10.06              | 64   |
| MSCI ACWI X US (N) | 1      | 6.80          | 81   | 10.54              | 49   |
| Median             |        | 9.35          |      | 10.53              |      |

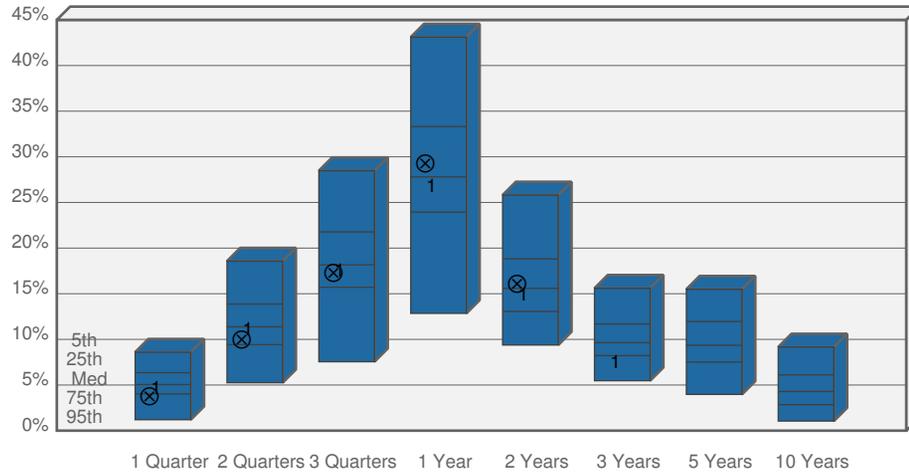
\*TUCS Total Returns of International Equity Portfolios Universe - Gross of Fees & Fire

# INVESTMENT MANAGER ANALYSIS

Harding Loevner

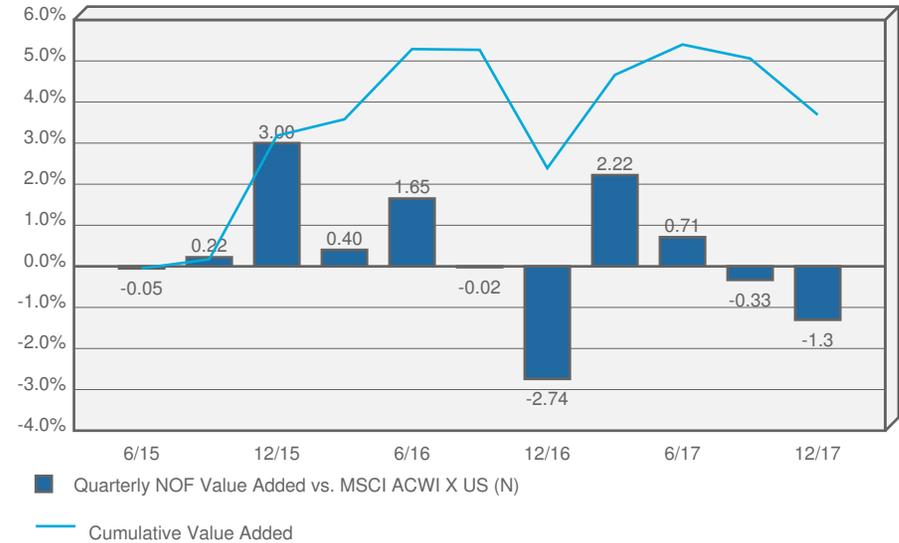
December 31, 2017

Performance Comparison vs Peer Universe\*



|                  |           |            |            |            |            |           |      |      |
|------------------|-----------|------------|------------|------------|------------|-----------|------|------|
| ⊗ Harding Loevne | 3.83 (78) | 10.03 (67) | 17.32 (58) | 29.31 (40) | 16.10 (44) |           |      |      |
| 1 MSCI ACWI X US | 5.00 (51) | 11.47 (48) | 17.92 (52) | 27.19 (54) | 15.29 (52) | 7.83 (80) |      |      |
| Median           | 5.05      | 11.37      | 18.16      | 27.80      | 15.59      | 9.64      | 9.35 | 4.29 |
| Number of Funds  | 1198      | 1180       | 1169       | 1155       | 1129       | 1074      | 983  | 637  |

Value-Added Analysis vs Benchmark

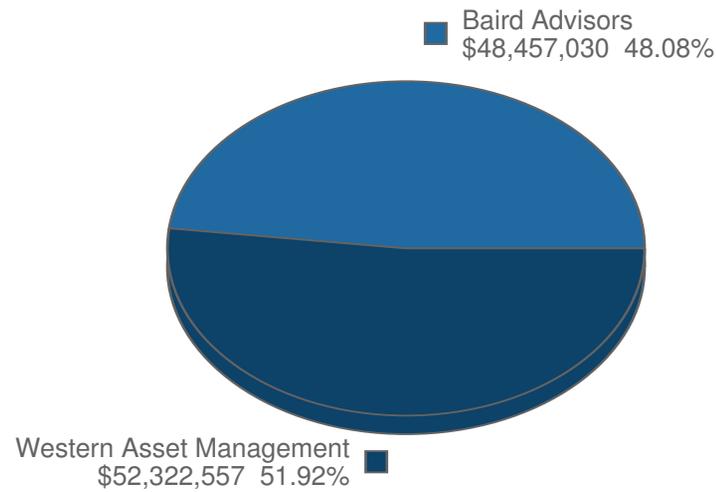


\*TUCS Total Returns of International Equity Portfolios Universe - Gross of Fees & Fire



# CORE FIXED INCOME

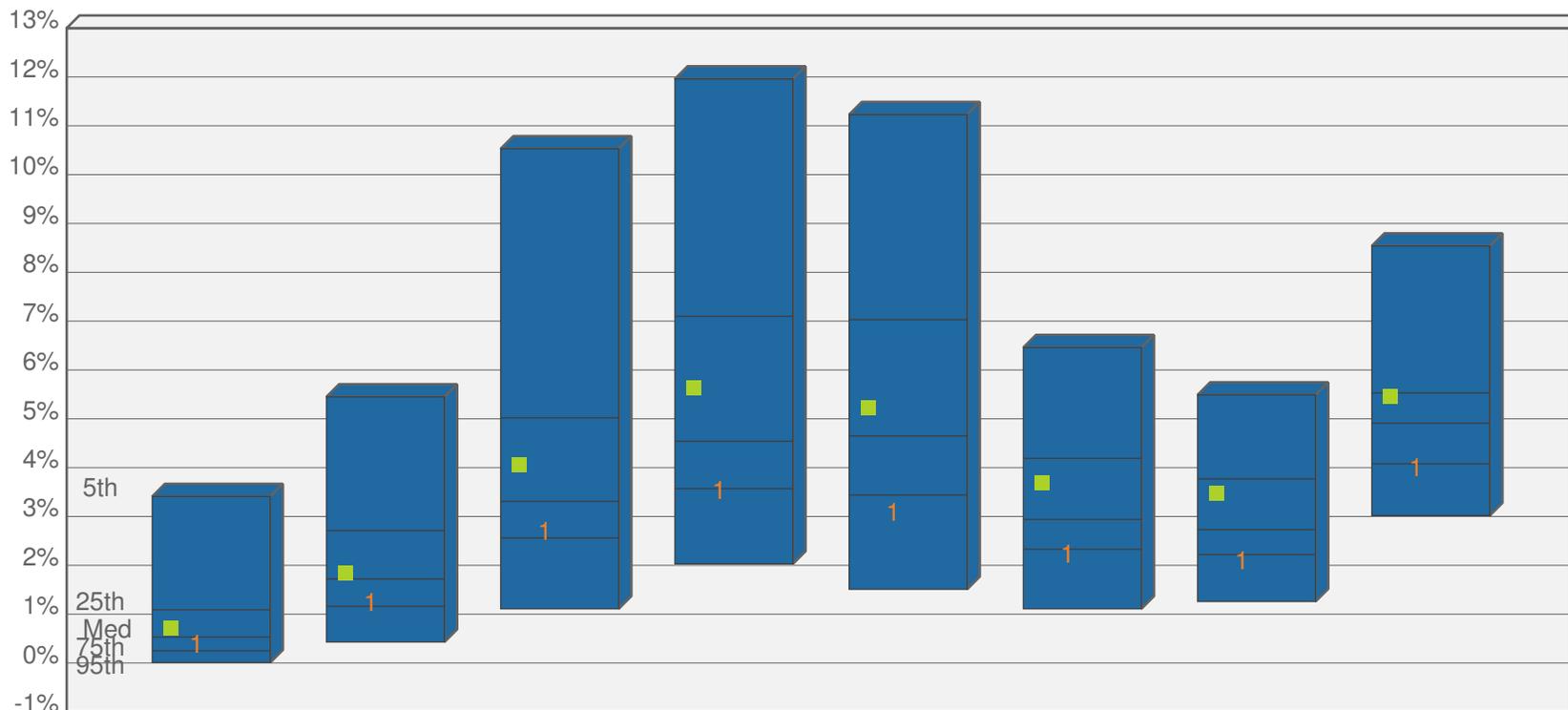
Wilshire Consulting  
MANAGER ALLOCATION  
Core Fixed Composite  
As of December 31, 2017



# PERFORMANCE COMPARISON

## Core Fixed Composite

Periods Ended December 31, 2017



|                        | 1 Quarter | 2 Quarters | 3 Quarters | 1 Year    | 2 Years   | 3 Years   | 5 Years   | 10 Years  |
|------------------------|-----------|------------|------------|-----------|-----------|-----------|-----------|-----------|
| ■ Core Fixed Composite | 0.74 (39) | 1.87 (45)  | 4.09 (35)  | 5.66 (38) | 5.25 (40) | 3.71 (33) | 3.51 (29) | 5.48 (26) |
| ┆ Bloomberg Aggreg     | 0.39 (66) | 1.24 (72)  | 2.70 (65)  | 3.54 (76) | 3.09 (76) | 2.24 (76) | 2.10 (79) | 4.01 (75) |
| 5th %tile              | 3.41      | 5.45       | 10.53      | 11.96     | 11.23     | 6.46      | 5.49      | 8.54      |
| 25th %tile             | 1.09      | 2.71       | 5.02       | 7.10      | 7.03      | 4.19      | 3.77      | 5.53      |
| Median                 | 0.53      | 1.72       | 3.31       | 4.54      | 4.65      | 2.94      | 2.73      | 4.91      |
| 75th %tile             | 0.25      | 1.16       | 2.56       | 3.57      | 3.44      | 2.33      | 2.22      | 4.08      |
| 95th %tile             | 0.01      | 0.43       | 1.11       | 2.03      | 1.51      | 1.11      | 1.26      | 3.02      |
| Number of Funds        | 137       | 127        | 124        | 115       | 111       | 106       | 94        | 61        |

\*TUCS Total Ret of Fixed Income Investment Pools Universe - Gross of Fees Police & Fire

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

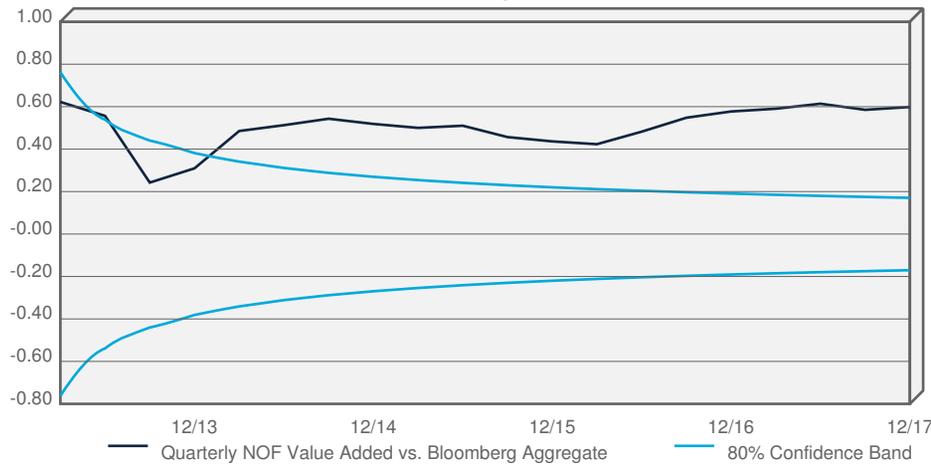
|                                 | 1 Qtr       | YTD         | 1 Year      | 3 Yrs       | 5 Yrs       | 7 Yrs       | 10 Yrs      | Incept Date    | Incept Ret  |
|---------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------------|-------------|
| <b>Baird Advisors</b>           |             |             |             |             |             |             |             |                |             |
| <b>Net of Fee Return</b>        | <b>0.60</b> | <b>4.25</b> | <b>4.25</b> | <b>2.91</b> | <b>2.71</b> | <b>3.99</b> | <b>4.53</b> | <b>3/31/03</b> | <b>4.50</b> |
| Bloomberg Aggregate             | 0.39        | 3.54        | 3.54        | 2.24        | 2.10        | 3.20        | 4.01        | 3/31/03        | 4.12        |
| Value Added                     | 0.21        | 0.71        | 0.71        | 0.67        | 0.61        | 0.79        | 0.52        | 3/31/03        | 0.38        |
| <b>Western Asset Management</b> |             |             |             |             |             |             |             |                |             |
| <b>Net of Fee Return</b>        | <b>0.76</b> | <b>6.54</b> | <b>6.54</b> | <b>3.98</b> | <b>3.78</b> | <b>5.07</b> | <b>5.81</b> | <b>3/31/04</b> | <b>5.20</b> |
| Bloomberg Aggregate             | 0.39        | 3.54        | 3.54        | 2.24        | 2.10        | 3.20        | 4.01        | 3/31/04        | 4.03        |
| Value Added                     | 0.37        | 2.99        | 2.99        | 1.74        | 1.68        | 1.86        | 1.80        | 3/31/04        | 1.18        |
| <b>Core Fixed Composite</b>     |             |             |             |             |             |             |             |                |             |
| <b>Net of Fee Return</b>        | <b>0.68</b> | <b>5.39</b> | <b>5.39</b> | <b>3.45</b> | <b>3.25</b> | <b>4.56</b> | <b>5.23</b> | <b>9/30/87</b> | <b>6.93</b> |
| Bloomberg Aggregate             | 0.39        | 3.54        | 3.54        | 2.24        | 2.10        | 3.20        | 4.01        | 9/30/87        | 6.51        |
| Value Added                     | 0.29        | 1.85        | 1.85        | 1.21        | 1.15        | 1.35        | 1.22        | 9/30/87        | 0.42        |

# INVESTMENT MANAGER ANALYSIS

Baird Advisors

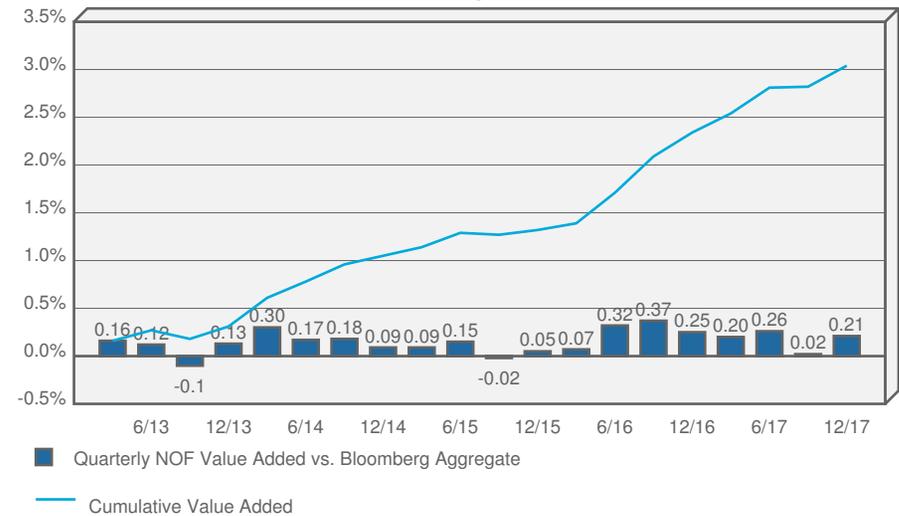
December 31, 2017

Cumulative Skill Analysis vs Benchmark

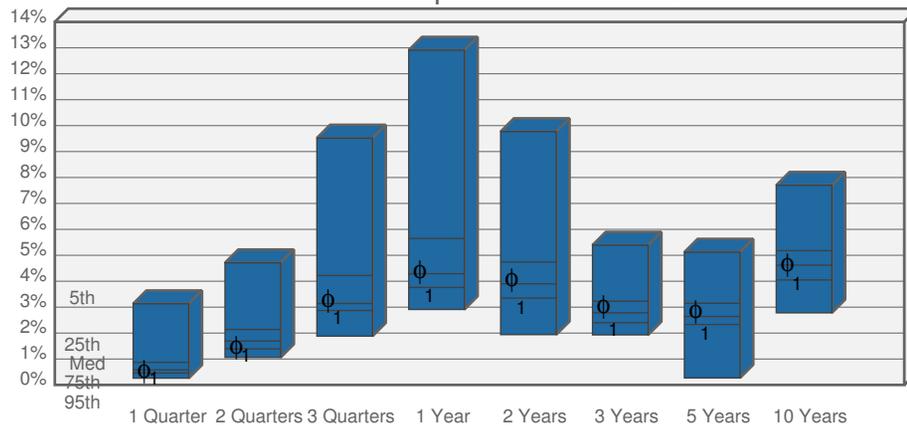


|                |      |                    |      |
|----------------|------|--------------------|------|
| Excess Return: | 0.60 | Information Ratio: | 2.58 |
| Excess Risk:   | 0.23 | T-Stat:            | 5.78 |

Value-Added Analysis vs Benchmark

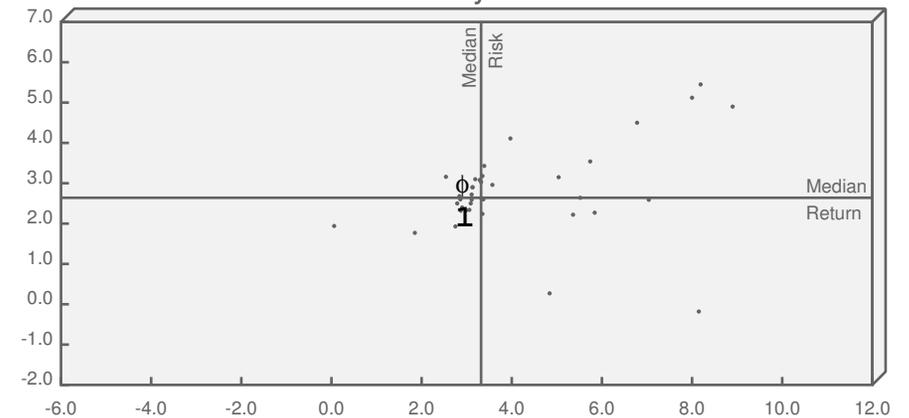


Performance Comparison vs Peer Universe\*



|                  | 1 Quarter | 2 Quarters | 3 Quarters | 1 Year    | 2 Years   | 3 Years   | 5 Years   | 10 Years  |
|------------------|-----------|------------|------------|-----------|-----------|-----------|-----------|-----------|
| Φ Baird Advisors | 0.65 (42) | 1.58 (50)  | 3.36 (43)  | 4.47 (45) | 4.18 (38) | 3.13 (31) | 2.93 (37) | 4.75 (47) |
| 1 Bloomberg Aggr | 0.39 (87) | 1.24 (85)  | 2.70 (85)  | 3.54 (90) | 3.09 (83) | 2.24 (87) | 2.10 (85) | 4.01 (77) |
| Median           | 0.58      | 1.69       | 3.14       | 4.29      | 3.90      | 2.78      | 2.64      | 4.62      |
| Number of Funds  | 51        | 50         | 47         | 47        | 46        | 45        | 39        | 22        |

Five Year Risk/Return Analysis vs Peer Universe\*



| Description         | Legend | Gross Fee Ret |      | Standard Deviation |      |
|---------------------|--------|---------------|------|--------------------|------|
|                     |        | Value         | Rank | Value              | Rank |
| Baird Advisors      | Φ      | 2.93          | 37   | 3.08               | 72   |
| Bloomberg Aggregate | 1      | 2.10          | 85   | 3.08               | 72   |
| Median              |        | 2.64          |      | 3.32               |      |

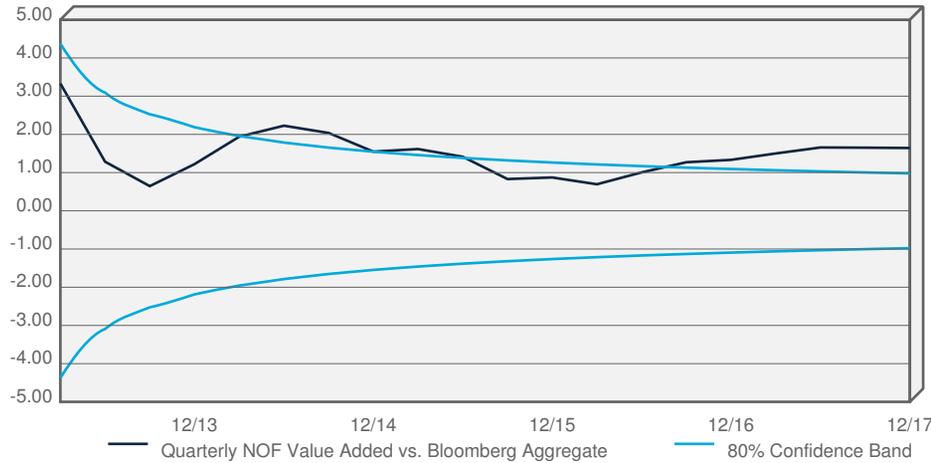
\*TUCS Total Returns of Fixed Income Portfolios - Core Universe - Gross of Fees & Fire

# INVESTMENT MANAGER ANALYSIS

Western Asset Management

December 31, 2017

Cumulative Skill Analysis vs Benchmark

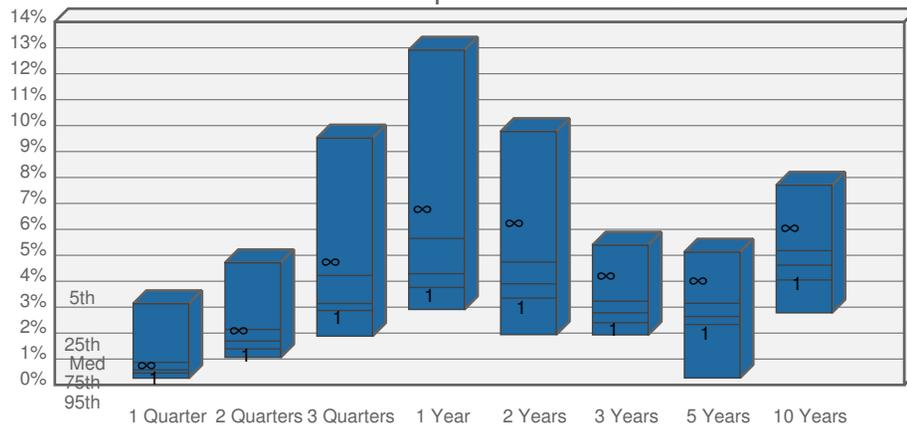


|                |      |                    |      |
|----------------|------|--------------------|------|
| Excess Return: | 1.64 | Information Ratio: | 1.24 |
| Excess Risk:   | 1.33 | T-Stat:            | 2.76 |

Value-Added Analysis vs Benchmark

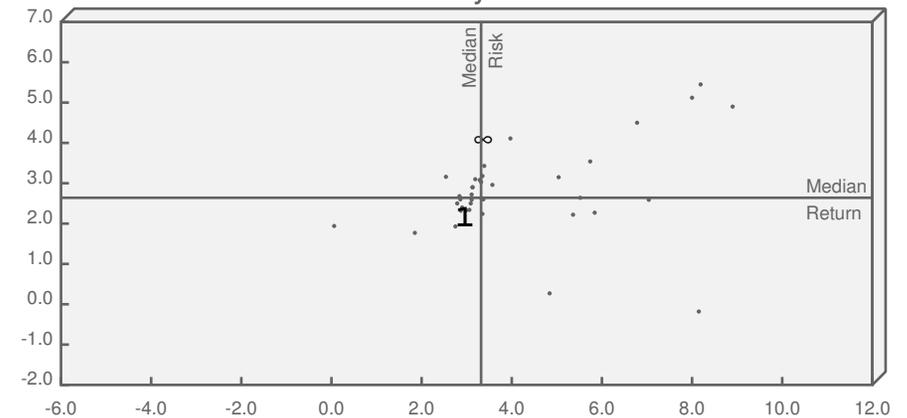


Performance Comparison vs Peer Universe\*



|                  | 1 Quarter | 2 Quarters | 3 Quarters | 1 Year    | 2 Years   | 3 Years   | 5 Years   | 10 Years  |
|------------------|-----------|------------|------------|-----------|-----------|-----------|-----------|-----------|
| ∞ Western Asset  | 0.83 (26) | 2.16 (17)  | 4.82 (19)  | 6.85 (19) | 6.31 (17) | 4.29 (13) | 4.08 (13) | 6.12 (15) |
| 1 Bloomberg Aggr | 0.39 (87) | 1.24 (85)  | 2.70 (85)  | 3.54 (90) | 3.09 (83) | 2.24 (87) | 2.10 (85) | 4.01 (77) |
| Median           | 0.58      | 1.69       | 3.14       | 4.29      | 3.90      | 2.78      | 2.64      | 4.62      |
| Number of Funds  | 51        | 50         | 47         | 47        | 46        | 45        | 39        | 22        |

Five Year Risk/Return Analysis vs Peer Universe\*



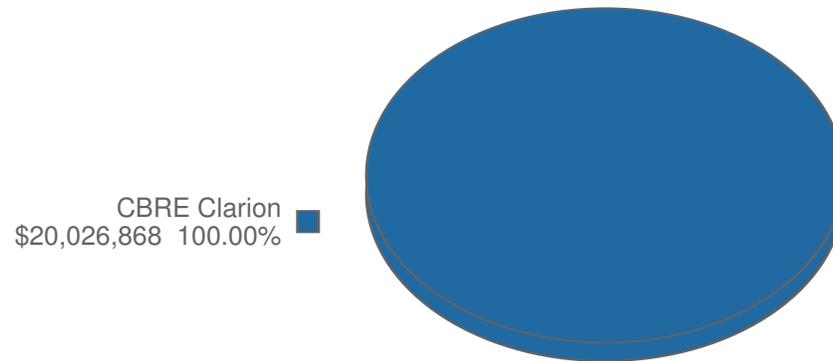
| Description              | Legend | Gross Fee Ret |      | Standard Deviation |      |
|--------------------------|--------|---------------|------|--------------------|------|
|                          |        | Value         | Rank | Value              | Rank |
| Western Asset Management | ∞      | 4.08          | 13   | 3.48               | 37   |
| Bloomberg Aggregate      | 1      | 2.10          | 85   | 3.08               | 72   |
| Median                   |        | 2.64          |      | 3.32               |      |

\*TUCS Total Returns of Fixed Income Portfolios - Core Universe - Gross of Fees & Fire



# REAL ESTATE

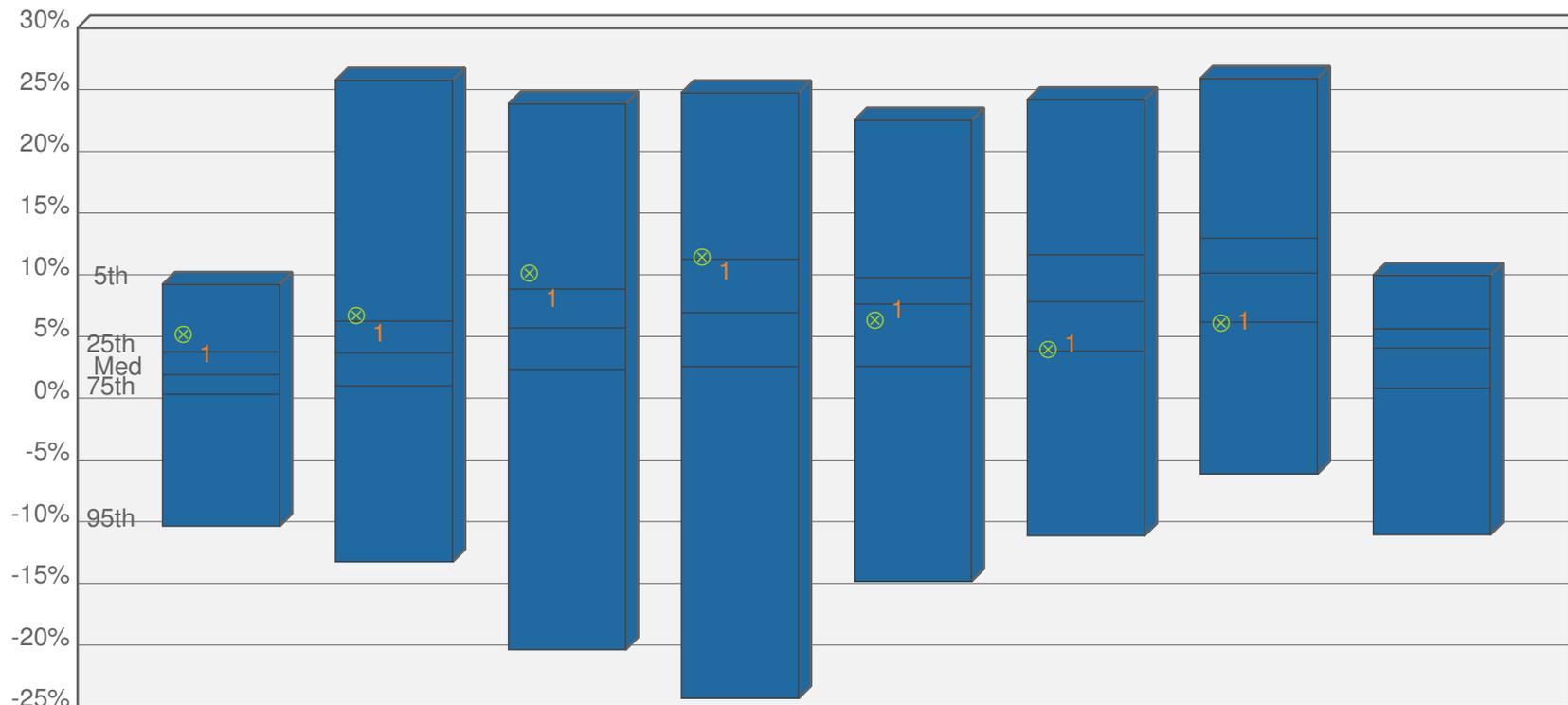
Wilshire Consulting  
MANAGER ALLOCATION  
Real Estate Composite  
*As of December 31, 2017*



# PERFORMANCE COMPARISON

## Real Estate Composite

Periods Ended December 31, 2017



|                         | 1 Quarter | 2 Quarters | 3 Quarters | 1 Year     | 2 Years   | 3 Years   | 5 Years   | 10 Years |
|-------------------------|-----------|------------|------------|------------|-----------|-----------|-----------|----------|
| ⊗ Real Estate Composite | 5.25 (15) | 6.78 (20)  | 10.15 (21) | 11.50 (23) | 6.37 (63) | 3.99 (73) | 6.14 (75) |          |
| 1 FTSE EPRA/NAREIT      | 3.60 (28) | 5.27 (30)  | 8.12 (28)  | 10.36 (27) | 7.17 (54) | 4.44 (72) | 6.32 (74) |          |
| 5th %tile               | 9.21      | 25.75      | 23.84      | 24.73      | 22.52     | 24.17     | 25.89     | 9.95     |
| 25th %tile              | 3.75      | 6.24       | 8.84       | 11.26      | 9.78      | 11.62     | 12.96     | 5.62     |
| Median                  | 1.90      | 3.67       | 5.69       | 6.93       | 7.62      | 7.82      | 10.14     | 4.07     |
| 75th %tile              | 0.32      | 1.00       | 2.34       | 2.56       | 2.58      | 3.81      | 6.15      | 0.81     |
| 95th %tile              | -10.37    | -13.26     | -20.38     | -24.32     | -14.84    | -11.15    | -6.14     | -11.07   |
| Number of Funds         | 280       | 285        | 280        | 263        | 267       | 249       | 209       | 117      |

# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

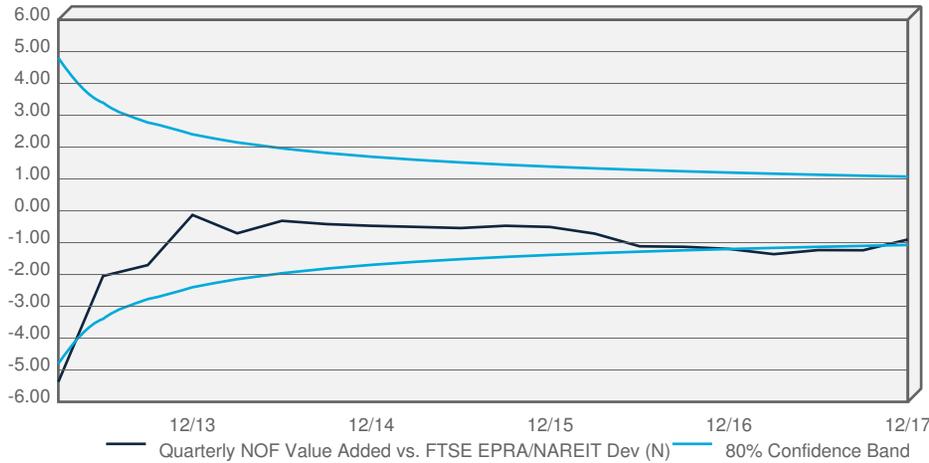
|                              | 1 Qtr       | YTD          | 1 Year       | 3 Yrs       | 5 Yrs       | 7 Yrs       | 10 Yrs | Incept Date    | Incept Ret   |
|------------------------------|-------------|--------------|--------------|-------------|-------------|-------------|--------|----------------|--------------|
| <b>CBRE Clarion</b>          |             |              |              |             |             |             |        |                |              |
| <b>Net of Fee Return</b>     | <b>5.05</b> | <b>10.68</b> | <b>10.68</b> | <b>3.21</b> | <b>5.36</b> | <b>6.34</b> |        | <b>6/30/09</b> | <b>10.45</b> |
| FTSE EPRA/NAREIT Dev (N)     | 3.60        | 10.36        | 10.36        | 4.44        | 6.32        | 7.17        |        | 6/30/09        | 11.53        |
| Value Added                  | 1.46        | 0.32         | 0.32         | -1.24       | -0.96       | -0.83       |        | 6/30/09        | -1.08        |
| <b>Real Estate Composite</b> |             |              |              |             |             |             |        |                |              |
| <b>Net of Fee Return</b>     | <b>5.05</b> | <b>10.68</b> | <b>10.68</b> | <b>3.21</b> | <b>5.35</b> | <b>6.33</b> |        | <b>6/30/09</b> | <b>10.44</b> |
| FTSE EPRA/NAREIT Dev (N)     | 3.60        | 10.36        | 10.36        | 4.44        | 6.32        | 7.17        |        | 6/30/09        | 11.53        |
| Value Added                  | 1.46        | 0.32         | 0.32         | -1.24       | -0.97       | -0.83       |        | 6/30/09        | -1.09        |

# INVESTMENT MANAGER ANALYSIS

CBRE Clarion

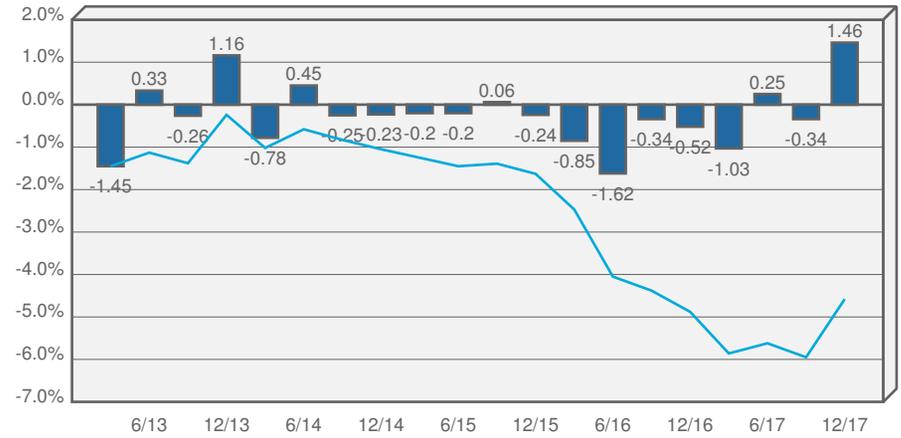
December 31, 2017

Cumulative Skill Analysis vs Benchmark



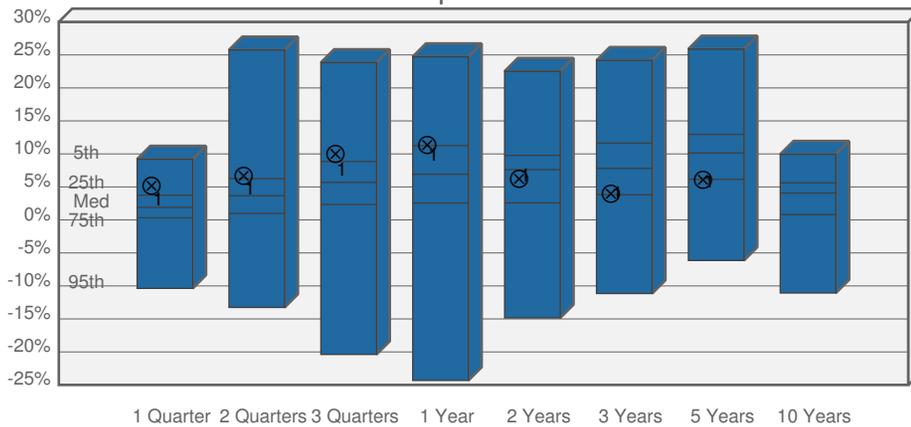
|                |       |                    |       |
|----------------|-------|--------------------|-------|
| Excess Return: | -0.90 | Information Ratio: | -0.62 |
| Excess Risk:   | 1.46  | T-Stat:            | -1.38 |

Value-Added Analysis vs Benchmark



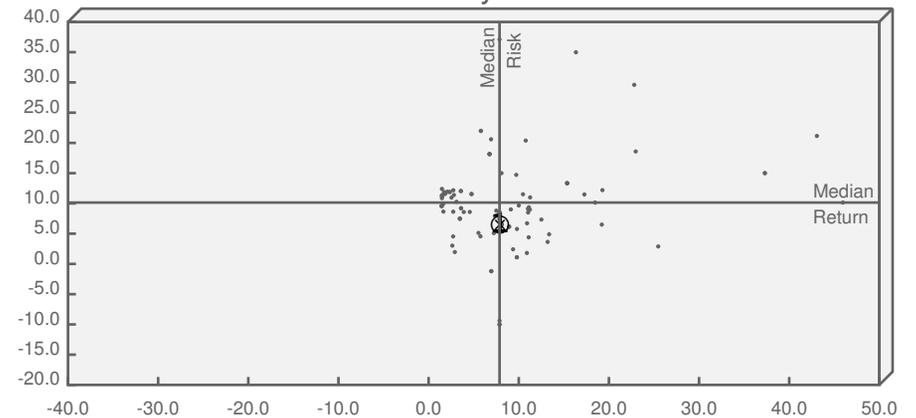
■ Quarterly NOF Value Added vs. FTSE EPRA/NAREIT Dev (N)  
 — Cumulative Value Added

Performance Comparison vs Peer Universe\*



|                            | 1 Quarter | 2 Quarters | 3 Quarters | 1 Year     | 2 Years   | 3 Years   | 5 Years   | 10 Years |
|----------------------------|-----------|------------|------------|------------|-----------|-----------|-----------|----------|
| ⊗ CBRE Clarion             | 5.25 (15) | 6.78 (20)  | 10.15 (21) | 11.50 (23) | 6.37 (63) | 3.99 (73) | 6.15 (75) |          |
| 1 FTSE EPRA/NAREIT Dev (N) | 6.60 (28) | 5.27 (30)  | 8.12 (28)  | 10.36 (27) | 7.17 (54) | 4.44 (72) | 6.32 (74) |          |
| Median                     | 1.90      | 3.67       | 5.69       | 6.93       | 7.62      | 7.82      | 10.14     | 4.07     |
| Number of Funds            | 280       | 285        | 280        | 263        | 267       | 249       | 209       | 117      |

Five Year Risk/Return Analysis vs Peer Universe\*



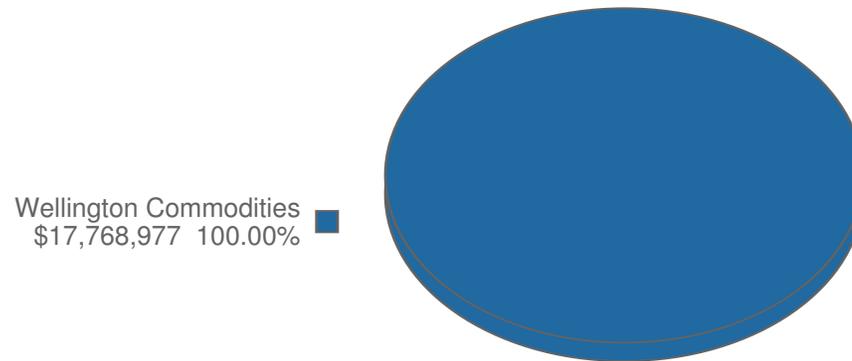
| Description              | Legend | Gross Fee Ret |      | Standard Deviation |      |
|--------------------------|--------|---------------|------|--------------------|------|
|                          |        | Value         | Rank | Value              | Rank |
| CBRE Clarion             | ⊗      | 6.15          | 75   | 8.42               | 44   |
| FTSE EPRA/NAREIT Dev (N) | 1      | 6.32          | 74   | 8.51               | 44   |
| Median                   |        | 10.14         |      | 7.87               |      |

\*TUCS Total Returns of Real Estate Portfolios Universe - Gross of Fees



# COMMODITIES

Wilshire Consulting  
MANAGER ALLOCATION  
Commodities Composite  
*As of December 31, 2017*



# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

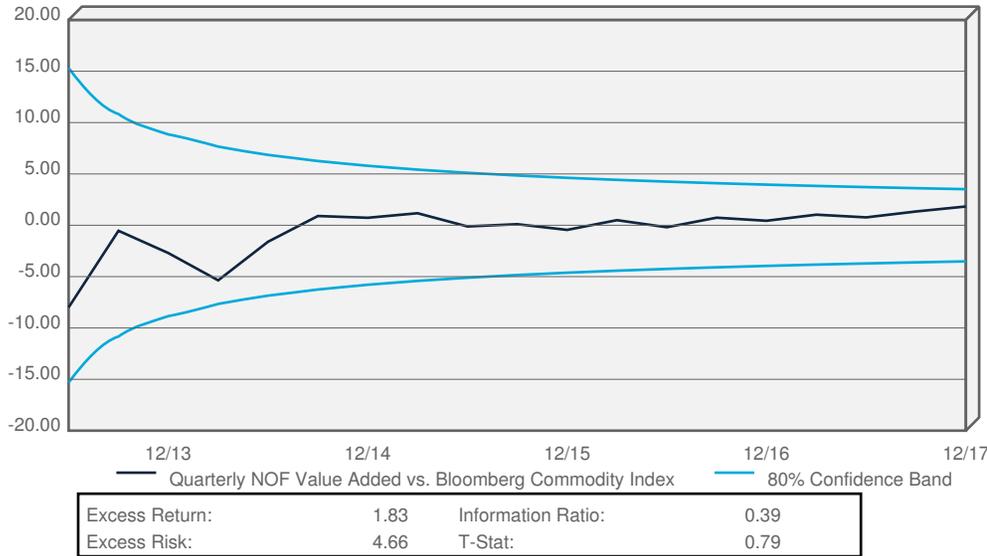
|                               | 1 Qtr       | YTD         | 1 Year      | 3 Yrs        | 5 Yrs | 7 Yrs | 10 Yrs | Incept Date    | Incept Ret   |
|-------------------------------|-------------|-------------|-------------|--------------|-------|-------|--------|----------------|--------------|
| <b>Wellington Commodities</b> |             |             |             |              |       |       |        |                |              |
| <b>Net of Fee Return</b>      | <b>7.48</b> | <b>9.05</b> | <b>9.05</b> | <b>-2.68</b> |       |       |        | <b>3/31/13</b> | <b>-6.99</b> |
| Bloomberg Commodity Index     | 4.71        | 1.70        | 1.70        | -5.03        |       |       |        | 3/31/13        | -8.66        |
| Value Added                   | 2.77        | 7.35        | 7.35        | 2.35         |       |       |        | 3/31/13        | 1.67         |
| <b>Commodities Composite</b>  |             |             |             |              |       |       |        |                |              |
| <b>Net of Fee Return</b>      | <b>7.48</b> | <b>9.05</b> | <b>9.05</b> | <b>-2.68</b> |       |       |        | <b>3/31/13</b> | <b>-6.99</b> |
| Bloomberg Commodity Index     | 4.71        | 1.70        | 1.70        | -5.03        |       |       |        | 3/31/13        | -8.66        |
| Value Added                   | 2.77        | 7.35        | 7.35        | 2.35         |       |       |        | 3/31/13        | 1.67         |

# INVESTMENT MANAGER ANALYSIS

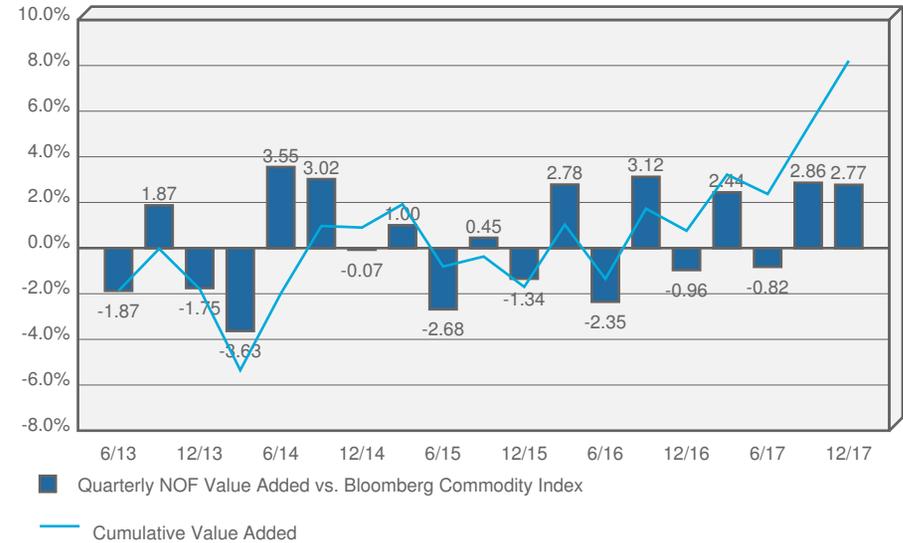
Wellington Commodities

December 31, 2017

Cumulative Skill Analysis vs Benchmark



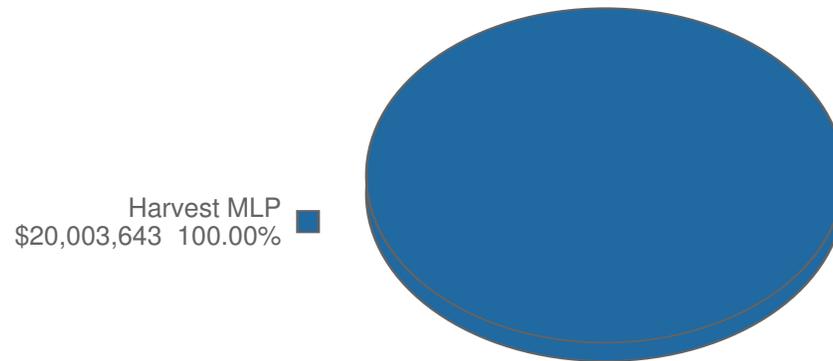
Value-Added Analysis vs Benchmark





# MLP

Wilshire Consulting  
MANAGER ALLOCATION  
MLP Composite  
*As of December 31, 2017*



# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

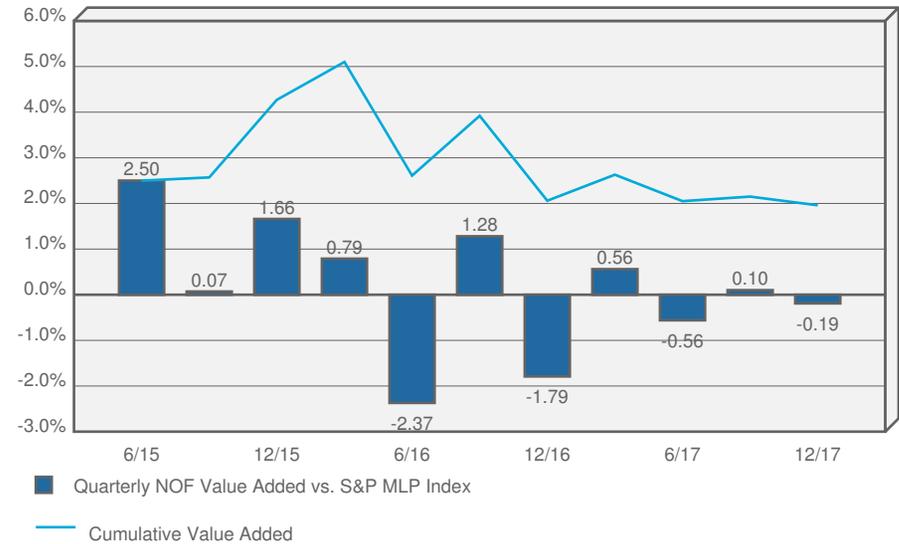
|                          | 1 Qtr        | YTD          | 1 Year       | 3 Yrs | 5 Yrs | 7 Yrs | 10 Yrs | Incept Date    | Incept Ret   |
|--------------------------|--------------|--------------|--------------|-------|-------|-------|--------|----------------|--------------|
| <b>Harvest MLP</b>       |              |              |              |       |       |       |        |                |              |
| <b>Net of Fee Return</b> | <b>-0.48</b> | <b>-5.74</b> | <b>-5.74</b> |       |       |       |        | <b>3/31/15</b> | <b>-8.10</b> |
| S&P MLP Index            | -0.29        | -5.58        | -5.58        |       |       |       |        | 3/31/15        | -8.99        |
| Value Added              | -0.19        | -0.15        | -0.15        |       |       |       |        | 3/31/15        | 0.89         |
| <b>MLP Composite</b>     |              |              |              |       |       |       |        |                |              |
| <b>Net of Fee Return</b> | <b>-0.48</b> | <b>-5.74</b> | <b>-5.74</b> |       |       |       |        | <b>3/31/15</b> | <b>-8.10</b> |
| S&P MLP Index            | -0.29        | -5.58        | -5.58        |       |       |       |        | 3/31/15        | -8.99        |
| Value Added              | -0.19        | -0.15        | -0.15        |       |       |       |        | 3/31/15        | 0.89         |

# INVESTMENT MANAGER ANALYSIS

Harvest MLP

December 31, 2017

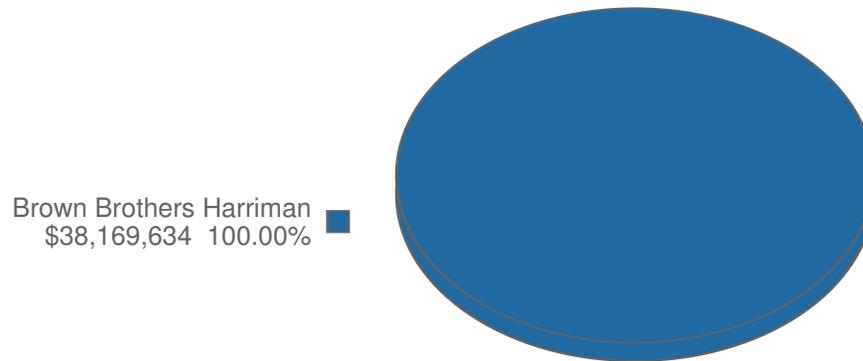
Value-Added Analysis vs Benchmark





# TIPS

Wilshire Consulting  
MANAGER ALLOCATION  
TIPS Composite  
*As of December 31, 2017*



# PERFORMANCE COMPARISON

## Trailing Returns

Periods Ended December 31, 2017

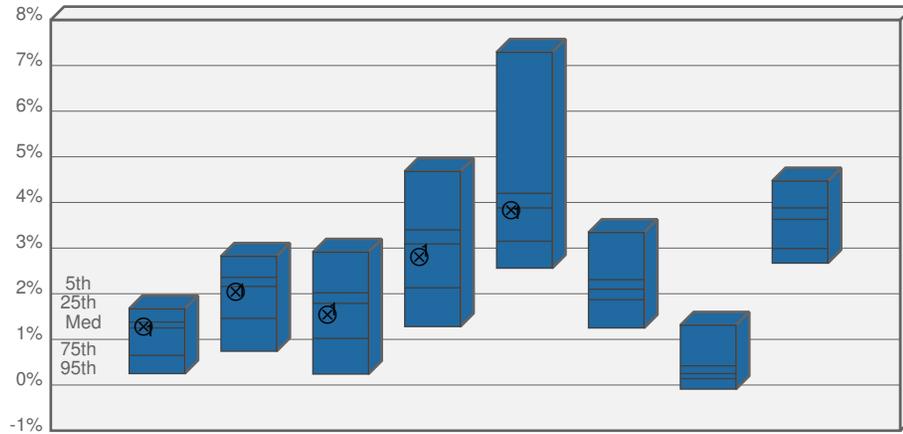
|                                | 1 Qtr       | YTD         | 1 Year      | 3 Yrs | 5 Yrs | 7 Yrs | 10 Yrs | Incept Date    | Incept Ret  |
|--------------------------------|-------------|-------------|-------------|-------|-------|-------|--------|----------------|-------------|
| <b>Brown Brothers Harriman</b> |             |             |             |       |       |       |        |                |             |
| <b>Net of Fee Return</b>       | <b>1.30</b> | <b>2.81</b> | <b>2.81</b> |       |       |       |        | <b>6/30/15</b> | <b>2.33</b> |
| Barclays U.S. TIPS             | 1.26        | 3.01        | 3.01        |       |       |       |        | 6/30/15        | 2.33        |
| Value Added                    | 0.04        | -0.20       | -0.20       |       |       |       |        | 6/30/15        | 0.00        |
| <b>TIPS Composite</b>          |             |             |             |       |       |       |        |                |             |
| <b>Net of Fee Return</b>       | <b>1.30</b> | <b>2.81</b> | <b>2.81</b> |       |       |       |        | <b>6/30/15</b> | <b>2.33</b> |
| Barclays U.S. TIPS             | 1.26        | 3.01        | 3.01        |       |       |       |        | 6/30/15        | 2.33        |
| Value Added                    | 0.04        | -0.20       | -0.20       |       |       |       |        | 6/30/15        | 0.00        |

# INVESTMENT MANAGER ANALYSIS

Brown Brothers Harriman

December 31, 2017

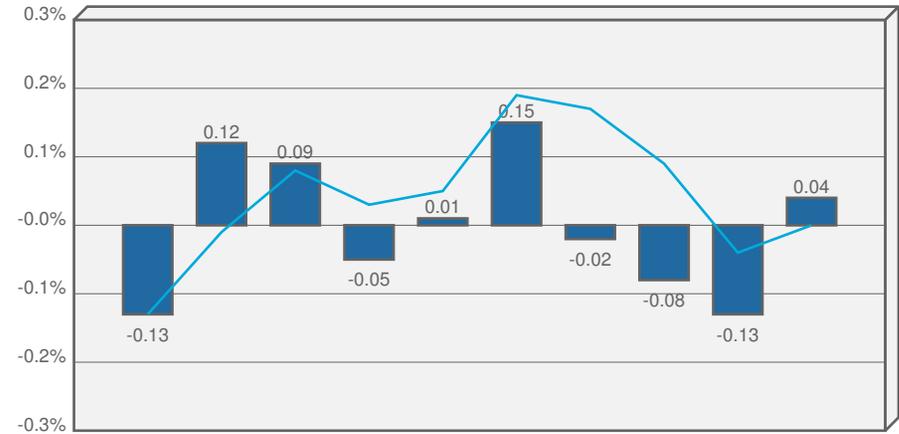
Performance Comparison vs Peer Universe\*



1 Quarter 2 Quarters 3 Quarters 1 Year 2 Years 3 Years 5 Years 10 Years

|                  |           |           |           |           |           |      |      |      |
|------------------|-----------|-----------|-----------|-----------|-----------|------|------|------|
| ⊗ Brown Brothers | 1.30 (34) | 2.05 (67) | 1.55 (69) | 2.81 (67) | 3.85 (51) |      |      |      |
| 1 Barclays U.S.  | 1.26 (49) | 2.14 (57) | 1.72 (67) | 3.01 (59) | 3.84 (53) |      |      |      |
| Median           | 1.25      | 2.16      | 1.79      | 3.09      | 3.88      | 2.10 | 0.25 | 3.63 |
| Number of Funds  | 40        | 40        | 40        | 40        | 39        | 39   | 39   | 31   |

Value-Added Analysis vs Benchmark



■ Quarterly NOF Value Added vs. Barclays U.S. TIPS  
 — Cumulative Value Added

\*Compass Total Returns of Active TIPS Portfolios Universe - Gross of Fees Police & Fire



# PRIVATE EQUITY

# Investment Performance Private Partnerships

As of December 31, 2017

| Partnership                              | Commitment Value    | Inception Date        | Capital Called      |            | Capital Distributed |            | Fair Value          | Total Value / Paid-In Capital <sup>1</sup> | Annualized IRR |
|--|---------------------|-----------------------|---------------------|------------|---------------------|------------|---------------------|--|----------------|
|  |                     |                       | Amount              | %          | Amount              | %          |                     |  |                |
| Adams Street Direct 2010 Fund            | \$500,000           | April 27, 2010        | \$473,300           | 95%        | \$452,537           | 91%        | \$319,099           | 1.63                                       | 12.36%         |
| Adams Street Non-US Dev. 2010 Fund       | \$1,500,000         | April 27, 2010        | \$1,250,250         | 83%        | \$686,863           | 46%        | \$1,023,865         | 1.37                                       | 10.27%         |
| Adams Street Non-US EM 2010 Fund         | \$500,000           | January 3, 2011       | \$434,000           | 87%        | \$87,864            | 18%        | \$515,557           | 1.39                                       | 9.95%          |
| Adams Street US 2010 Fund                | \$2,500,000         | April 27, 2010        | \$2,202,500         | 88%        | \$1,184,098         | 47%        | \$2,097,023         | 1.49                                       | 12.96%         |
| Adams Street 2013 Global Fund            | \$5,000,000         | July 3, 2013          | \$3,330,000         | 67%        | \$311,975           | 6%         | \$3,627,723         | 1.18                                       | 7.43%          |
| Aberdeen Global Partners                 | \$5,000,000         | January 17, 2012      | \$4,550,000         | 91%        | \$1,016,042         | 20%        | \$4,678,451         | 1.25                                       | 8.50%          |
| Adams Street 2015 Global                 | \$6,500,000         | September 30, 2015    | \$1,888,250         | 29%        | \$503,322           | 8%         | \$2,044,173         | 1.35                                       | 29.96%         |
| Adams Street 2017 Global                 | \$6,000,000         | June 17, 2017         | \$261,000           | 4%         | \$0                 | 0%         | \$267,969           | 1.03                                       | NA             |
| <b>Alternative Investments Composite</b> | <b>\$27,500,000</b> | <b>April 27, 2010</b> | <b>\$14,389,300</b> | <b>52%</b> | <b>\$4,242,701</b>  | <b>15%</b> | <b>\$14,573,860</b> | <b>1.31</b>                                | <b>10.56%</b>  |

<sup>1</sup>TVPI = Fair Value + Capital Distributed / Capital Called  
©2017 Wilshire Associates.



# CAPITAL MARKET REVIEW

# MARKET COMMENTARY

## U.S. Equity

The U.S. stock market was up 6.4% for the fourth quarter of 2017. There was a relative lack of volatility during the year. The largest drawdown for the year was -2.75% and there were only 4 trading days where the market was down 1% or more. Several factors contributed to this success including a rebound in global economic growth and continued strength domestically.

The third quarter of 2017 was the second consecutive quarter of real GDP growth in excess of 3%, annualized. Businesses seem to be gaining confidence in the global economy and have been increasing spending on equipment while growing inventories during the quarter, contributing more than three-quarters of a percent to real GDP growth. Strong retail sales during the fourth quarter have helped raise expectations for economic growth during the final quarter of 2017.

## Non-U.S. Equity

Equity markets outside of the U.S. produced strong returns during the fourth quarter of 2017, in both developed and emerging markets. Japan was one of the strongest developed markets during the quarter due to stimulative policies by both the Bank of Japan and the national government. Emerging Markets led all global equities during 2017 and produced their second consecutive positive annual gain.

## Fixed Income

The U.S. Treasury yield curve continued to flatten during the quarter with short to intermediate term rates rising and long-term yields falling. The bellwether 10-year Treasury yield ended the quarter at 2.40%. The Federal Open Market Committee decided to increase its overnight rate by 25 basis points in December. Credit spreads continued to tighten during the quarter.

# DECEMBER 2017 ASSET CLASS ASSUMPTIONS

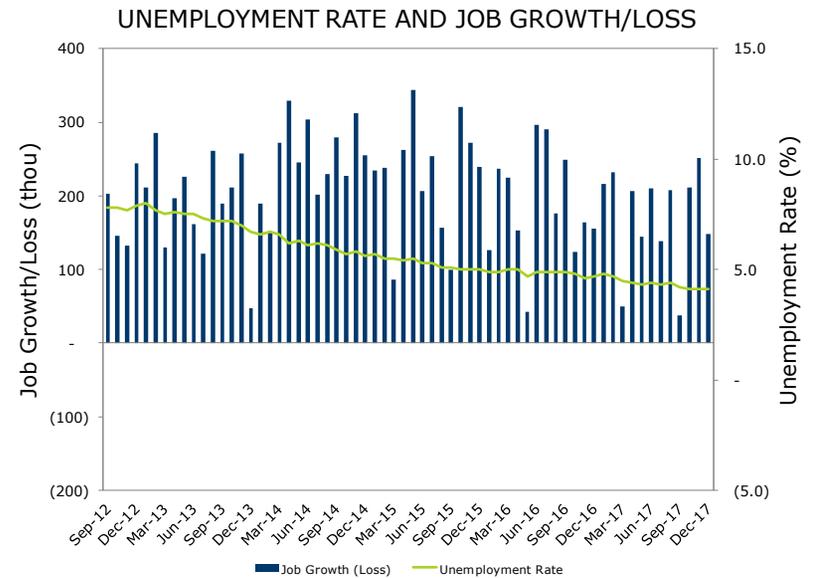
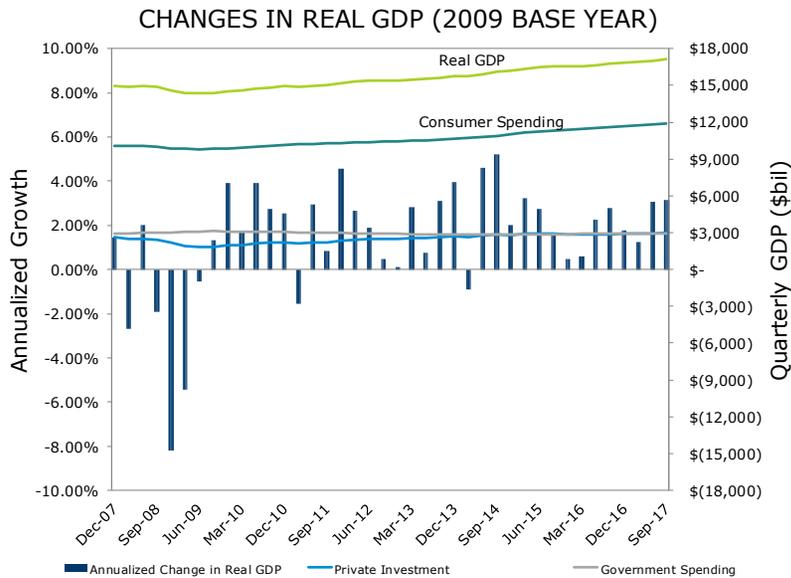
|                                | EQUITY   |                 |                |              |              |                | FIXED INCOME |              |        |            |            |                   | REAL ASSETS |       |       |             |        |      |
|--------------------------------|----------|-----------------|----------------|--------------|--------------|----------------|--------------|--------------|--------|------------|------------|-------------------|-------------|-------|-------|-------------|--------|------|
|                                | US STOCK | DEV EX-US STOCK | EMG MRKT STOCK | GLOBAL STOCK |              | PRIVATE EQUITY | CASH         | LT CORE BOND |        | US TIPS    | HIGH YIELD | NON-US BOND (HDG) | REAL ESTATE |       |       | REAL ASSETS | US CPI |      |
|                                |          | EX-US STOCK     | GLOBAL STOCK   | EX-US STOCK  | GLOBAL STOCK | CORE BOND      |              | CORE BOND    | US RES | GLOBAL RES | PRIVATE RE | CMDTY             |             |       |       |             |        |      |
| EXPECTED COMPOUND RETURN (%)   | 6.25     | 6.25            | 6.25           | 6.45         | 6.45         | 8.75           | 1.75         | 3.55         | 3.60   | 2.95       | 4.95       | 1.30              | 5.40        | 5.60  | 6.90  | 3.70        | 6.60   | 1.95 |
| EXPECTED ARITHMETIC RETURN (%) | 7.55     | 7.70            | 9.20           | 8.05         | 7.80         | 12.10          | 1.75         | 3.70         | 4.05   | 3.10       | 5.40       | 1.35              | 6.75        | 6.75  | 7.80  | 4.75        | 6.95   | 1.95 |
| EXPECTED RISK (%)              | 17.00    | 18.00           | 26.00          | 18.75        | 17.15        | 28.00          | 1.25         | 5.15         | 9.85   | 6.00       | 10.00      | 3.50              | 17.00       | 15.80 | 14.00 | 15.00       | 8.40   | 1.75 |
| CASH YIELD (%)                 | 2.00     | 3.00            | 2.00           | 2.75         | 2.35         | 0.00           | 1.75         | 3.55         | 4.75   | 3.05       | 8.15       | 1.65              | 3.95        | 3.95  | 2.65  | 1.75        | 2.85   | 0.00 |
| <b>CORRELATIONS</b>            |          |                 |                |              |              |                |              |              |        |            |            |                   |             |       |       |             |        |      |
| US STOCK                       | 1.00     |                 |                |              |              |                |              |              |        |            |            |                   |             |       |       |             |        |      |
| DEV EX-US STOCK (USD)          | 0.81     | 1.00            |                |              |              |                |              |              |        |            |            |                   |             |       |       |             |        |      |
| EMERGING MARKET STOCK          | 0.74     | 0.74            | 1.00           |              |              |                |              |              |        |            |            |                   |             |       |       |             |        |      |
| GLOBAL EX-US STOCK             | 0.83     | 0.96            | 0.86           | 1.00         |              |                |              |              |        |            |            |                   |             |       |       |             |        |      |
| GLOBAL STOCK                   | 0.94     | 0.92            | 0.82           | 0.94         | 1.00         |                |              |              |        |            |            |                   |             |       |       |             |        |      |
| PRIVATE EQUITY                 | 0.74     | 0.64            | 0.62           | 0.67         | 0.74         | 1.00           |              |              |        |            |            |                   |             |       |       |             |        |      |
| CASH EQUIVALENTS               | -0.05    | -0.09           | -0.05          | -0.08        | -0.07        | 0.00           | 1.00         |              |        |            |            |                   |             |       |       |             |        |      |
| CORE BOND                      | 0.28     | 0.13            | 0.00           | 0.09         | 0.20         | 0.31           | 0.19         | 1.00         |        |            |            |                   |             |       |       |             |        |      |
| LT CORE BOND                   | 0.31     | 0.16            | 0.01           | 0.12         | 0.23         | 0.32           | 0.11         | 0.93         | 1.00   |            |            |                   |             |       |       |             |        |      |
| US TIPS                        | -0.05    | 0.00            | 0.15           | 0.05         | 0.00         | -0.03          | 0.20         | 0.60         | 0.47   | 1.00       |            |                   |             |       |       |             |        |      |
| HIGH YIELD BOND                | 0.54     | 0.39            | 0.49           | 0.45         | 0.51         | 0.34           | -0.10        | 0.25         | 0.32   | 0.05       | 1.00       |                   |             |       |       |             |        |      |
| NON-US BOND (HDG)              | 0.16     | 0.25            | -0.01          | 0.18         | 0.18         | 0.26           | 0.10         | 0.67         | 0.64   | 0.39       | 0.26       | 1.00              |             |       |       |             |        |      |
| US RE SECURITIES               | 0.59     | 0.47            | 0.44           | 0.49         | 0.56         | 0.50           | -0.05        | 0.17         | 0.23   | 0.10       | 0.56       | 0.05              | 1.00        |       |       |             |        |      |
| GLOBAL RE SECURITIES           | 0.65     | 0.59            | 0.56           | 0.62         | 0.66         | 0.58           | -0.05        | 0.17         | 0.22   | 0.11       | 0.62       | 0.03              | 0.94        | 1.00  |       |             |        |      |
| PRIVATE REAL ESTATE            | 0.54     | 0.44            | 0.44           | 0.47         | 0.52         | 0.51           | -0.05        | 0.19         | 0.25   | 0.09       | 0.57       | 0.05              | 0.77        | 0.76  | 1.00  |             |        |      |
| COMMODITIES                    | 0.25     | 0.34            | 0.39           | 0.38         | 0.32         | 0.27           | 0.00         | -0.02        | -0.02  | 0.25       | 0.29       | -0.10             | 0.25        | 0.28  | 0.25  | 1.00        |        |      |
| REAL ASSET BASKET              | 0.42     | 0.43            | 0.50           | 0.48         | 0.47         | 0.43           | 0.01         | 0.24         | 0.25   | 0.41       | 0.53       | 0.06              | 0.65        | 0.69  | 0.69  | 0.59        | 1.00   |      |
| INFLATION (CPI)                | -0.10    | -0.15           | -0.13          | -0.15        | -0.13        | -0.10          | 0.10         | -0.12        | -0.12  | 0.15       | -0.08      | -0.08             | 0.05        | 0.03  | 0.05  | 0.44        | 0.26   | 1.00 |

# ECONOMIC REVIEW

AS OF DECEMBER 31, 2017 KEY ECONOMIC INDICATORS

| CPI (ALL ITEMS)       | MONTHLY CHANGE |      | CUMULATIVE CHANGE |             |
|-----------------------|----------------|------|-------------------|-------------|
| SEASONALLY ADJUSTED   | Dec-17         | 0.1  | 3-Mo.             | 0.6         |
|                       | Nov-17         | 0.4  | 12-Mo.            | 2.1         |
|                       | Oct-17         | 0.1  | 10-Yr. (Annual)   | 1.6         |
|                       | 10-Yr.         | 2.0  |                   |             |
| BREAKEVEN INFLATION   |                |      |                   |             |
| CONSUMER SENTIMENT    | Dec-17         | 95.9 |                   |             |
| U. OF MICHIGAN SURVEY | Nov-17         | 98.5 |                   |             |
|                       | 1-Yr. Ago      | 98.2 | 10-Yr. Avg        | 79.1        |
|                       |                |      |                   |             |
| MANUFACTURING         | Dec-17         | 59.7 | CHANGE IN SECTOR  |             |
| INST. FOR SUPPLY MGMT | Nov-17         | 58.2 | >50               | Expansion   |
| PURCHASING MNGRS' IDX | 1-Yr. Avg.     | 57.6 | <50               | Contraction |

Note: Seasonally adjusted CPI data is utilized to better reflect short-term pricing activity.

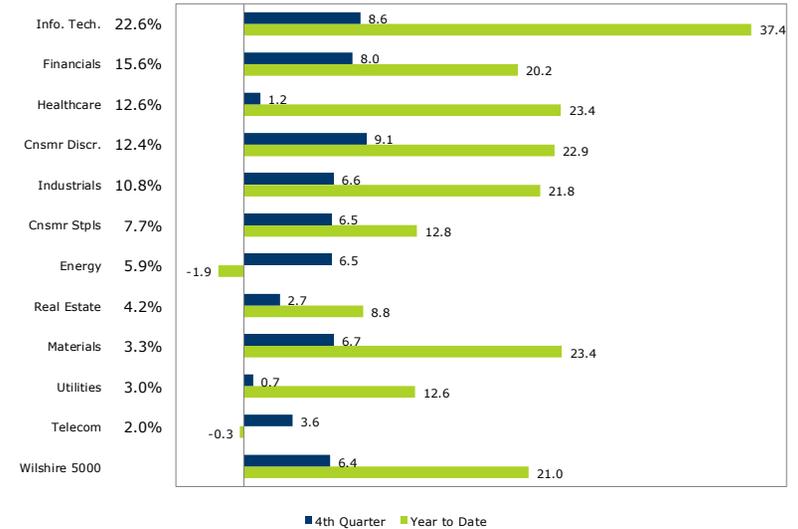


Data sources: Bureau of Labor Statistics, U.S. Treasury, University of Michigan, Institute for Supply Management, Bureau of Economic Analysis

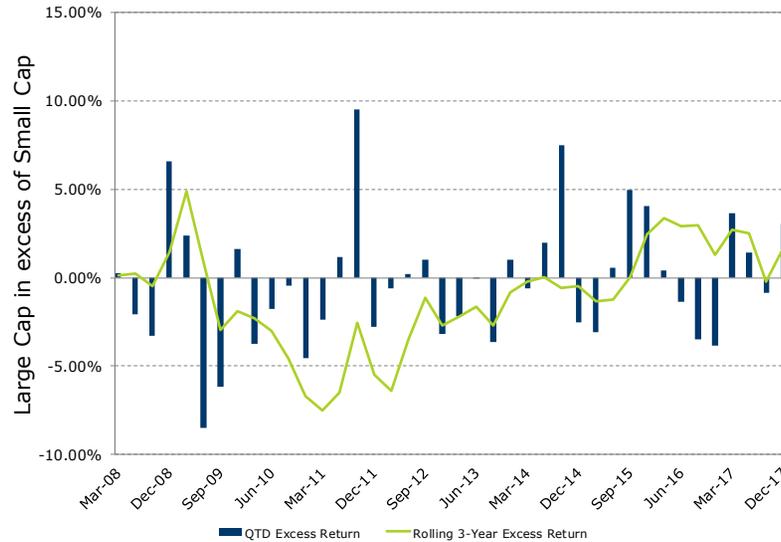
# U.S. EQUITY MARKET

| AS OF DECEMBER 31, 2017    | QTR | YTD  | 1 YR | 3 YR | 5 YR | 10 YR |
|----------------------------|-----|------|------|------|------|-------|
| WILSHIRE 5000 INDEX        | 6.4 | 21.0 | 21.0 | 11.4 | 15.7 | 8.6   |
| WILSHIRE U.S. LARGE CAP    | 6.7 | 21.8 | 21.8 | 11.5 | 15.8 | 8.5   |
| WILSHIRE U.S. SMALL CAP    | 3.6 | 13.5 | 13.5 | 9.7  | 14.4 | 9.9   |
| WILSHIRE U.S. LARGE GROWTH | 7.3 | 27.7 | 27.7 | 12.9 | 17.3 | 9.7   |
| WILSHIRE U.S. LARGE VALUE  | 6.1 | 16.3 | 16.3 | 10.0 | 14.4 | 7.2   |
| WILSHIRE U.S. SMALL GROWTH | 4.2 | 19.6 | 19.6 | 9.8  | 14.9 | 9.9   |
| WILSHIRE U.S. SMALL VALUE  | 3.0 | 7.4  | 7.4  | 9.5  | 13.9 | 9.8   |
| WILSHIRE REIT INDEX        | 1.7 | 4.2  | 4.2  | 5.2  | 9.3  | 7.3   |
| MSCI USA MIN. VOL. INDEX   | 5.2 | 18.4 | 18.4 | 10.9 | 14.5 | 8.8   |
| FTSE RAFI U.S. 1000 INDEX  | 6.5 | 16.4 | 16.4 | 10.1 | 15.3 | 9.4   |

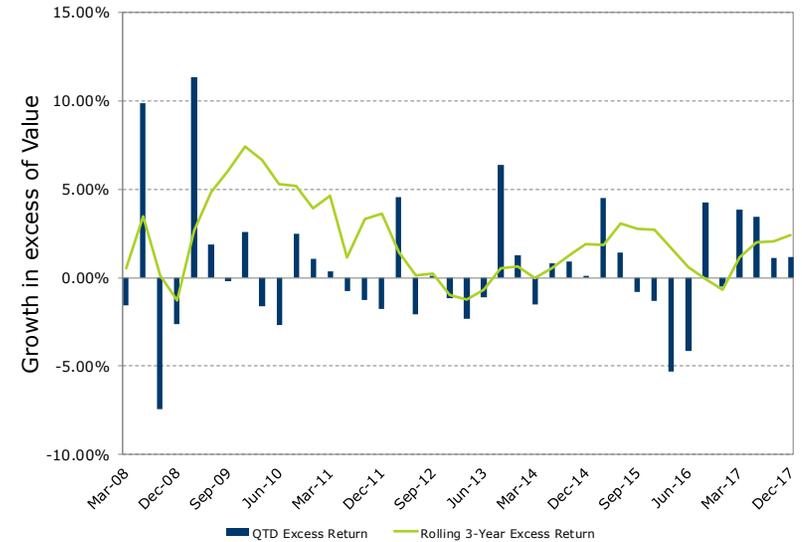
WILSHIRE 5000 SECTOR WEIGHT & RETURN (%)



LARGE CAP VS SMALL CAP



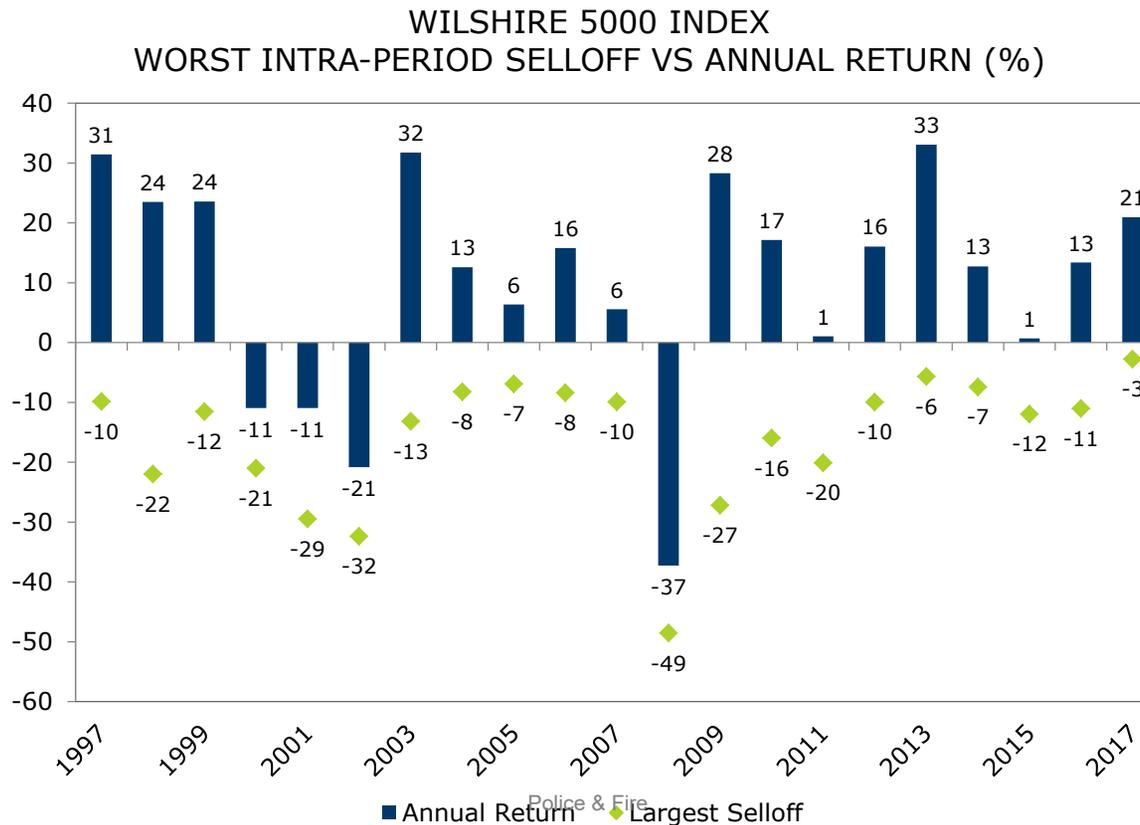
GROWTH VS VALUE



Data sources: Wilshire Compass, Wilshire Atlas

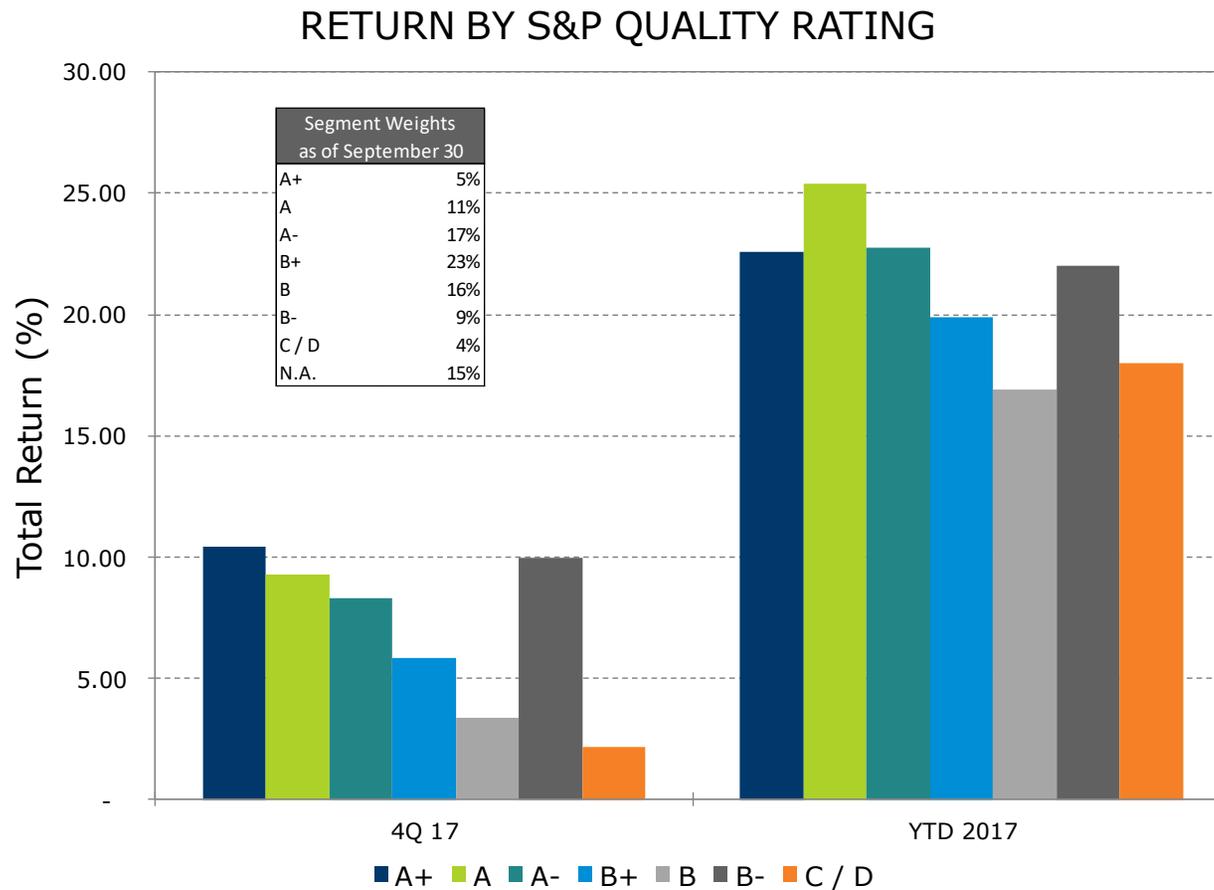
# ANNUAL EQUITY RETURNS

- U.S. Equity has now produced 9 straight years of positive returns since 2008
- 2017 was one of the least volatile years in nearly four decades
  - Largest drawdown for the year was -2.75%
  - Only 4 trading days where the market was down 1% or more



# RETURNS BY QUALITY SEGMENT

Generally speaking, higher quality names led the market for both the fourth quarter and 2017

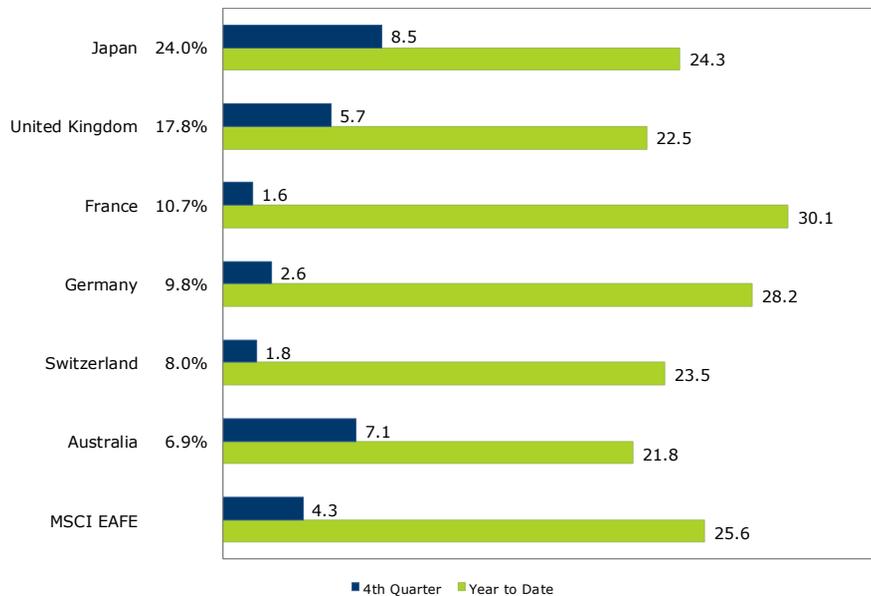


Data sources: Wilshire Atlas

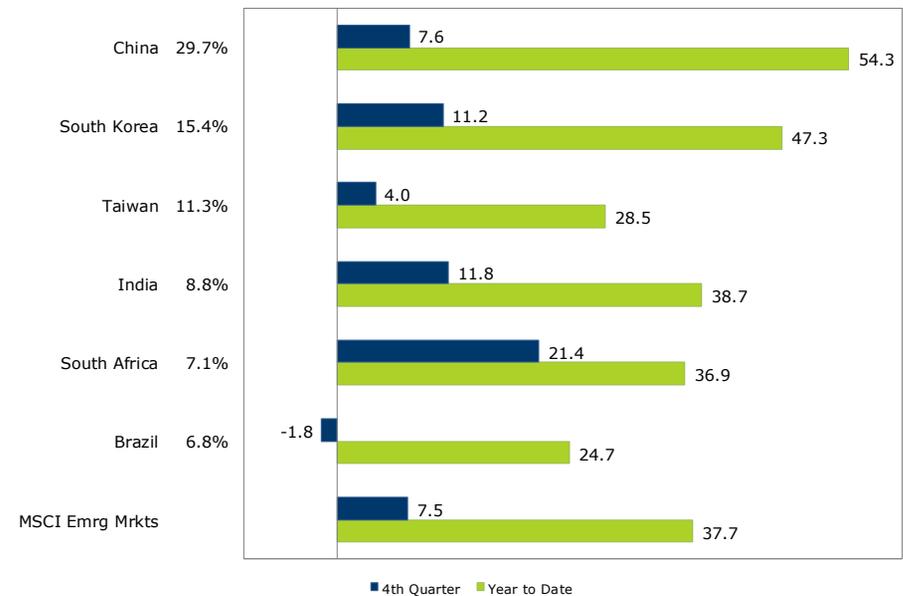
# NON-U.S. EQUITY MARKET

| AS OF DECEMBER 31, 2017      | QTR | YTD  | 1 YR | 3 YR | 5 YR | 10 YR |
|------------------------------|-----|------|------|------|------|-------|
| MSCI ACWI EX-US (\$G)        | 5.1 | 27.8 | 27.8 | 8.3  | 7.3  | 2.3   |
| MSCI EAFE (\$G)              | 4.3 | 25.6 | 25.6 | 8.3  | 8.4  | 2.4   |
| MSCI EMERGING MARKETS (\$G)  | 7.5 | 37.7 | 37.7 | 9.5  | 4.7  | 2.0   |
| MSCI FRONTIER MARKETS (\$G)  | 5.6 | 32.3 | 32.3 | 5.5  | 9.7  | -0.7  |
| MSCI ACWI EX-US GROWTH (\$G) | 5.8 | 32.5 | 32.5 | 9.7  | 8.4  | 2.8   |
| MSCI ACWI EX-US VALUE (\$G)  | 4.3 | 23.4 | 23.4 | 6.9  | 6.2  | 1.8   |
| MSCI ACWI EX-US SMALL (\$G)  | 6.6 | 32.1 | 32.1 | 12.5 | 10.5 | 5.2   |
| MSCI EAFE MINIMUM VOLATILITY | 3.6 | 22.2 | 22.2 | 9.3  | 9.9  | 5.2   |
| FTSE RAFI DEVELOPED EX-US    | 4.7 | 25.7 | 25.7 | 8.7  | 8.9  | 2.8   |
| MSCI EAFE LC (G)             | 3.7 | 15.8 | 15.8 | 9.0  | 11.9 | 3.8   |
| MSCI EMERGING MARKETS LC (G) | 5.7 | 31.0 | 31.0 | 10.9 | 8.4  | 4.5   |

MSCI EAFE: LARGEST COUNTRIES & RETURN (USD)



MSCI EM: LARGEST COUNTRIES & RETURN (USD)



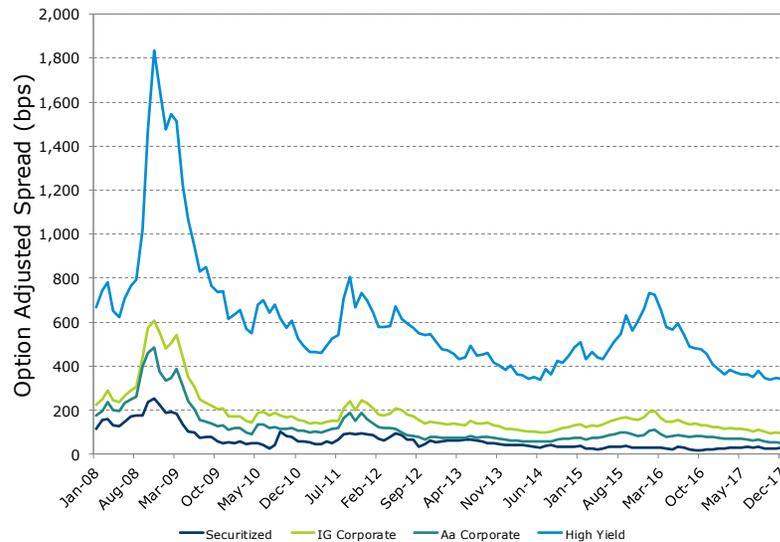
Data sources: Wilshire Compass

# U.S. FIXED INCOME

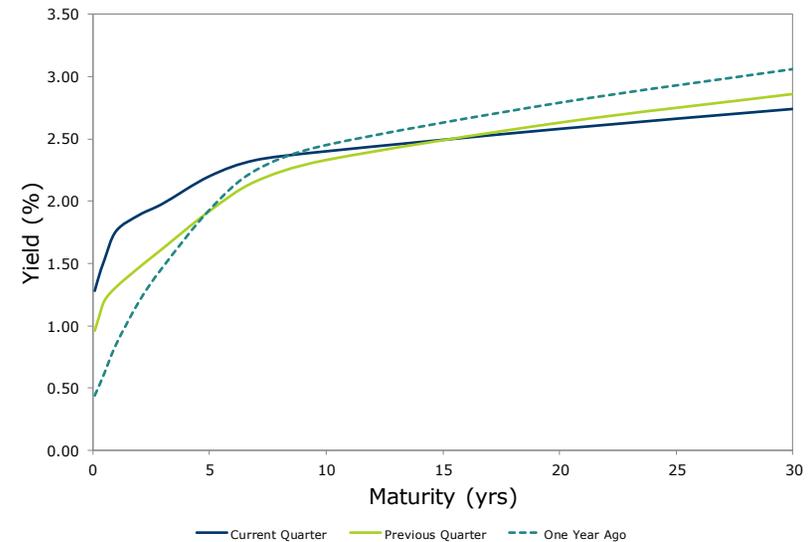
| AS OF DECEMBER 31, 2017          | YTM | DURATION | QTR | YTD  | 1 YR | 3 YR | 5 YR | 10 YR |
|----------------------------------|-----|----------|-----|------|------|------|------|-------|
| BLOOMBERG BARCLAYS AGGREGATE     | 2.7 | 6.0      | 0.4 | 3.6  | 3.6  | 2.2  | 2.1  | 4.0   |
| BLOOMBERG BARCLAYS TREASURY      | 2.2 | 6.2      | 0.1 | 2.3  | 2.3  | 1.4  | 1.3  | 3.3   |
| BLOOMBERG BARCLAYS GOV'T-REL.    | 2.7 | 5.5      | 0.3 | 4.2  | 4.2  | 2.2  | 1.9  | 3.7   |
| BLOOMBERG BARCLAYS SECURITIZED   | 2.9 | 4.4      | 0.2 | 2.5  | 2.5  | 1.9  | 2.0  | 3.8   |
| BLOOMBERG BARCLAYS CORPORATE     | 3.3 | 7.6      | 1.2 | 6.4  | 6.4  | 3.9  | 3.5  | 5.7   |
| BLOOMBERG BARCLAYS LT G/C        | 3.5 | 15.4     | 2.8 | 10.7 | 10.7 | 4.5  | 4.4  | 7.3   |
| BLOOMBERG BARCLAYS LT TREASURY   | 2.7 | 17.6     | 2.4 | 8.5  | 8.5  | 2.8  | 3.5  | 6.6   |
| BLOOMBERG BARCLAYS LT GOV't-REL. | 4.0 | 12.6     | 2.1 | 11.9 | 11.9 | 4.5  | 4.1  | 7.0   |
| BLOOMBERG BARCLAYS LT CORP.      | 4.0 | 14.3     | 3.3 | 12.1 | 12.1 | 5.9  | 5.3  | 7.8   |
| BLOOMBERG BARCLAYS U.S. TIPS *   | 2.4 | 7.7      | 1.3 | 3.0  | 3.0  | 2.0  | 0.1  | 3.5   |
| BLOOMBERG BARCLAYS HIGH YIELD    | 6.2 | 3.9      | 0.5 | 7.5  | 7.5  | 6.3  | 5.8  | 8.0   |
| TREASURY BILLS                   | 1.4 | 0.25     | 0.3 | 0.8  | 0.8  | 0.4  | 0.3  | 0.4   |

\* Yield and Duration statistics are for a proxy index based on similar maturity, the Bloomberg Barclays U.S. Treasury 7-10 Year Index

BLOOMBERG BARCLAYS FIXED INCOME INDEXES



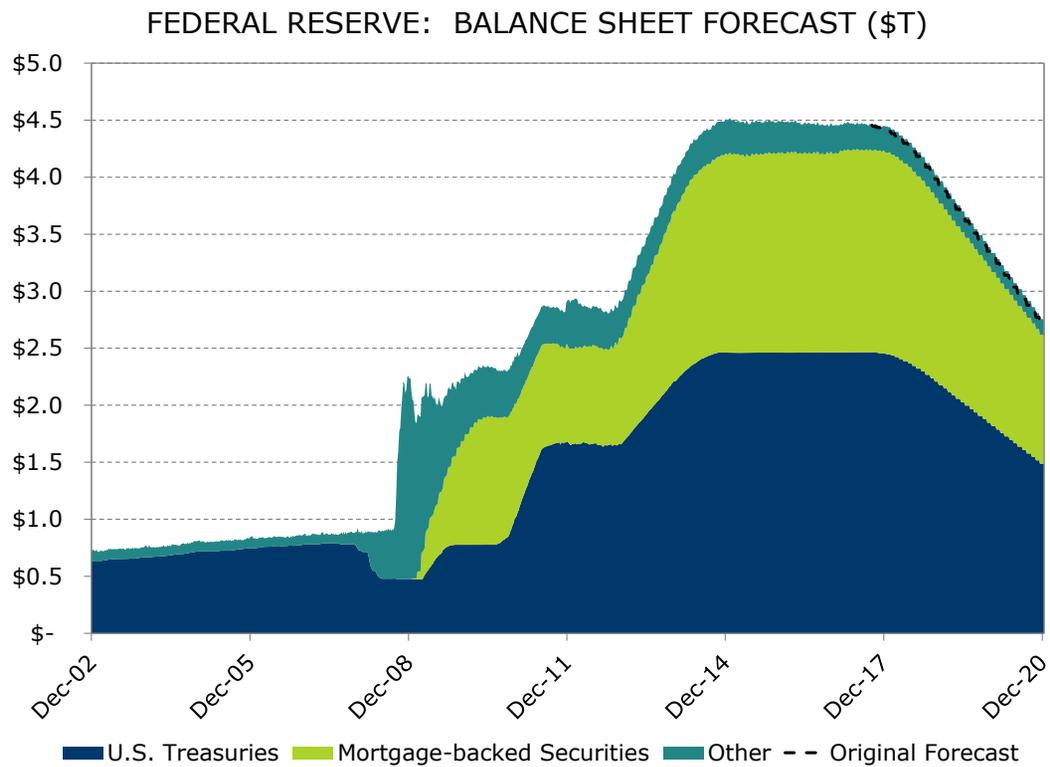
TREASURY YIELD CURVE



Data sources: Wilshire Compass, Bloomberg Barclays, U.S. Treasury

# FEDERAL RESERVE

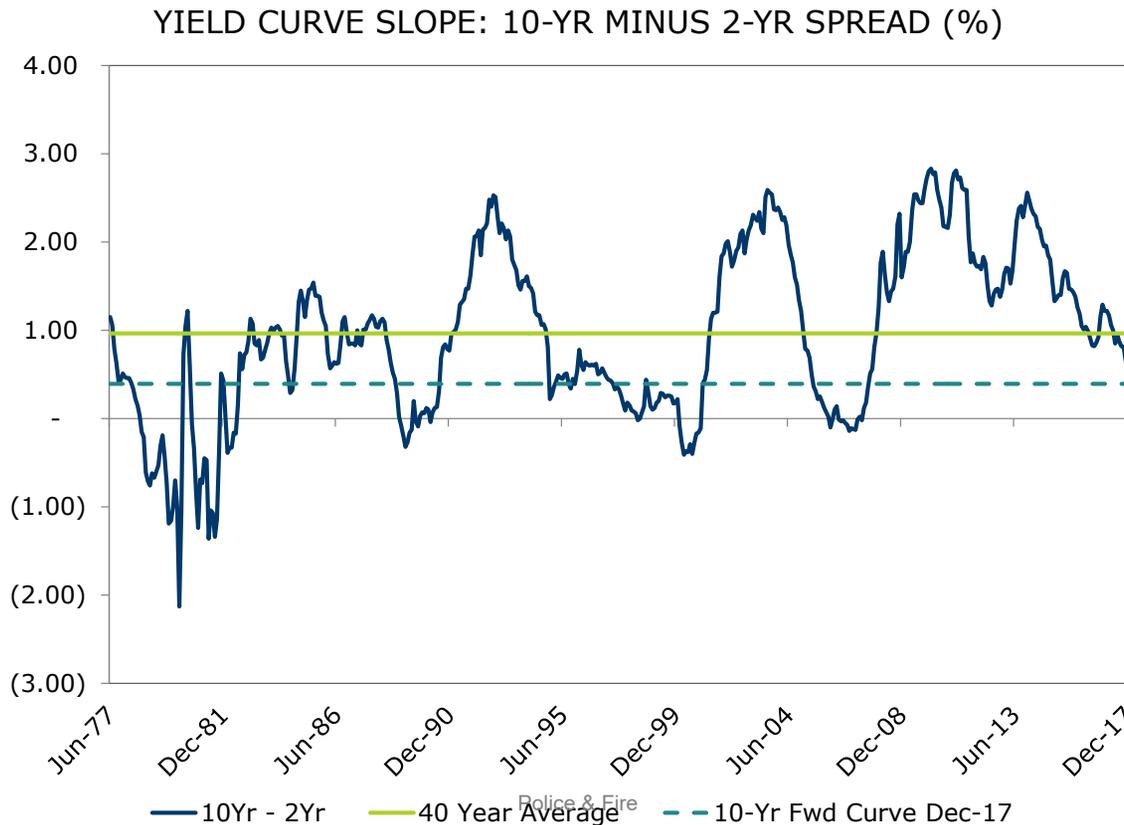
- Federal Reserve began their balance sheet normalization program during Q4; targeting \$10B in reductions per month with the goal of reaching \$50B per month in Q4 2018
- Total reductions have equaled only \$17B through mid-January 2018



Data sources: Federal Reserve

# U.S. YIELD CURVE

- Shape of the curve had been steep since the global financial crisis; has recently flattened
- Current spread between 10-year and 2-year Treasury is well below average (0.56% vs. 0.96%)
- Tight spread present in 10-year forward curve as well (0.39%)
- Continued strong economic growth will put upward pressure on the long end of the curve



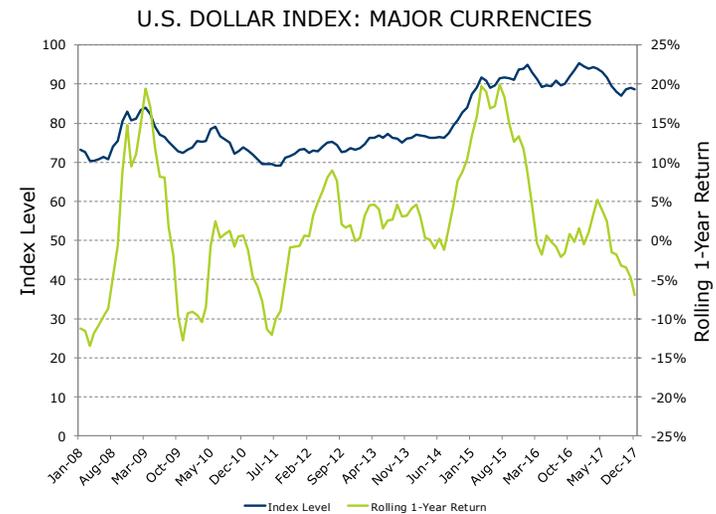
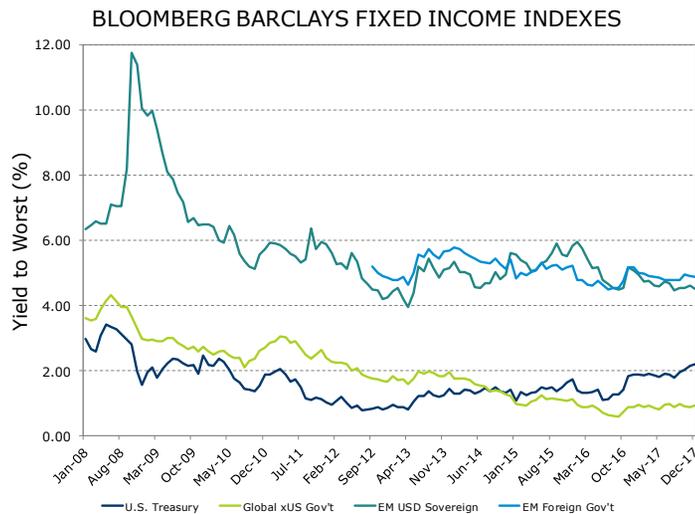
Data source: Federal Reserve

©2017 Wilshire Associates.

# NON-U.S. FIXED INCOME

| AS OF DECEMBER 31, 2017                    | QTR  | YTD  | 1 YR | 3 YR | 5 YR | 10 YR |
|--|------|------|------|------|------|-------|
| <b>DEVELOPED MARKETS</b>                   |      |      |      |      |      |       |
| BLMBRG BRCLYS GLBL AGGREGATE xUS           | 1.6  | 10.5 | 10.5 | 1.8  | -0.2 | 2.4   |
| BLMBRG BRCLYS GLBL AGGREGATE xUS *         | 1.1  | 2.5  | 2.5  | 2.9  | 3.7  | 4.2   |
| BLMBRG BRCLYS GLOBAL INF LNKD xUS          | 3.9  | 12.8 | 12.8 | 2.6  | 2.4  | 3.3   |
| BLMBRG BRCLYS GLOBAL INF LNKD xUS *        | 3.4  | 3.3  | 3.3  | 5.7  | 5.8  | 5.8   |
| <b>EMERGING MARKETS (HARD CURRENCY)</b>    |      |      |      |      |      |       |
| BLMBRG BRCLYS EM USD AGGREGATE             | 0.6  | 8.2  | 8.2  | 6.4  | 3.9  | 7.0   |
| <b>EMERGING MARKETS (FOREIGN CURRENCY)</b> |      |      |      |      |      |       |
| BLMBRG BRCLYS EM LOCAL CURR. GOVT          | 2.2  | 14.3 | 14.3 | 2.7  | 0.3  | n.a.  |
| BLMBRG BRCLYS EM LOCAL CURR. GOVT *        | 0.0  | 3.6  | 3.6  | 2.3  | 1.8  | n.a.  |
| EURO vs. DOLLAR                            | 1.6  | 13.8 | 13.8 | -0.3 | -1.9 | -2.0  |
| YEN vs. DOLLAR                             | -0.1 | 3.5  | 3.5  | 2.1  | -5.2 | -0.1  |
| POUND vs. DOLLAR                           | 0.8  | 9.5  | 9.5  | -4.6 | -3.6 | -3.8  |

\* Returns are reported in terms of local market investors, which removes currency effects.

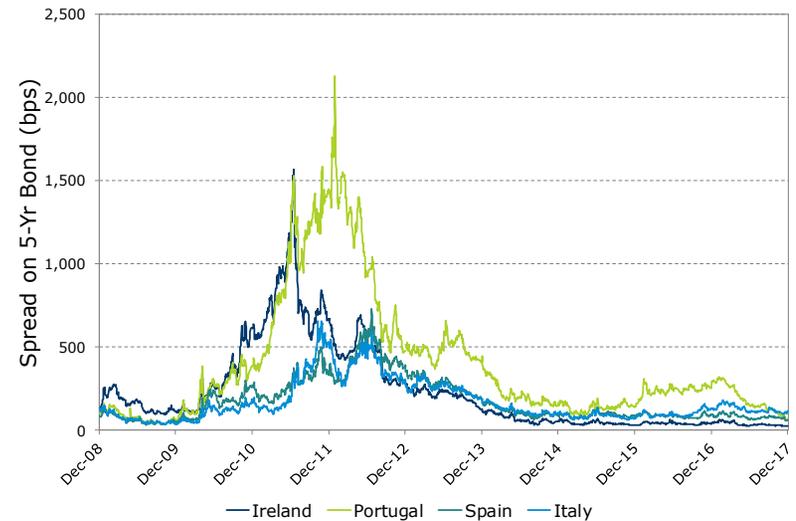


Data sources: Wilshire Compass, Bloomberg Barclays, Federal Reserve Bank of St. Louis

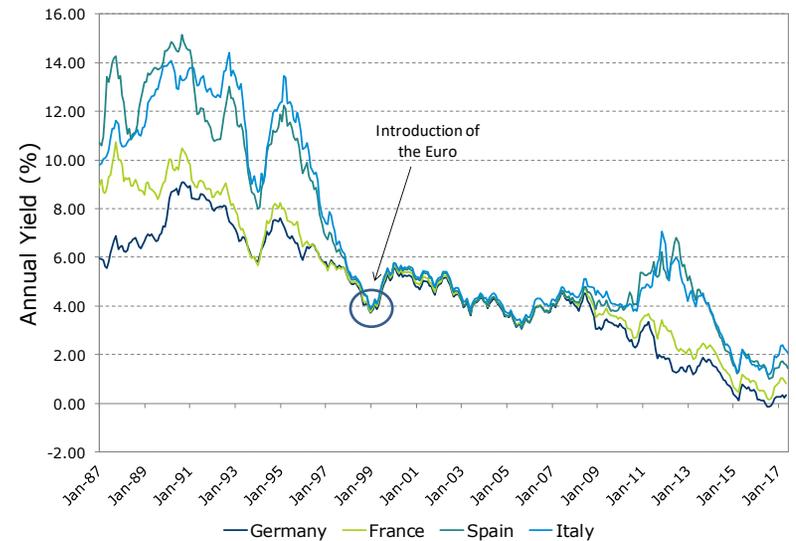
# EUROPEAN DEBT

- Yields on Portugal's debt are down in the midst of a strong economic recovery and rating upgrades during the fourth quarter
  
- Yields on government bonds remain low globally

GOVERNMENT BOND SPREADS  
Versus German Yield Curve



EUROPEAN GOVERNMENT BOND YIELDS

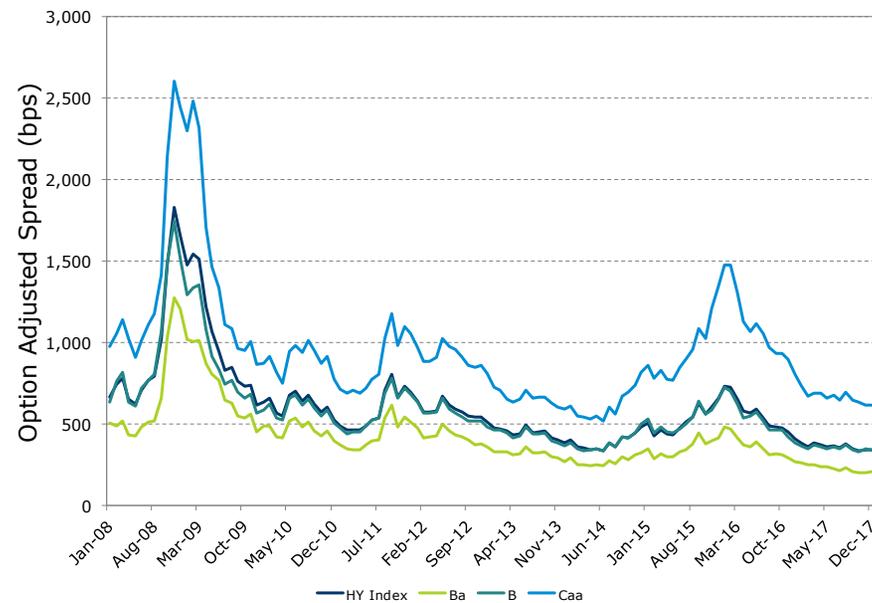


Data sources: Bloomberg Barclays, International Monetary Fund

# HIGH YIELD BOND MARKET

| AS OF DECEMBER 31, 2017                |               | QTR  | YTD  | 1 YR | 3 YR | 5 YR  | 10 YR |
|--|---------------|------|------|------|------|-------|-------|
| BLOOMBERG BARCLAYS HIGH YIELD          |               | 0.5  | 7.5  | 7.5  | 6.3  | 5.8   | 8.0   |
| CREDIT SUISSE LEVERAGED LOAN           |               | 1.2  | 4.2  | 4.2  | 4.5  | 4.3   | 4.6   |
| <b>HIGH YIELD QUALITY DISTRIBUTION</b> | <b>WEIGHT</b> |      |      |      |      |       |       |
| Ba U.S. HIGH YIELD                     | 44.1%         | 0.4  | 7.3  | 7.3  | 6.2  | 5.8   | 8.4   |
| B U.S. HIGH YIELD                      | 40.3%         | 0.4  | 6.5  | 6.5  | 5.5  | 5.1   | 6.5   |
| Caa U.S. HIGH YIELD                    | 14.4%         | 1.0  | 10.4 | 10.4 | 8.4  | 7.5   | 7.8   |
| Ca to D U.S. HIGH YIELD                | 1.1%          | 0.8  | 13.8 | 13.8 | -3.0 | -10.1 | -0.4  |
| Non-Rated U.S. HIGH YIELD              | 0.2%          | -2.0 | 9.2  | 9.2  | -2.5 | 0.9   | 1.3   |

BLOOMBERG BARCLAYS HIGH YIELD INDEXES



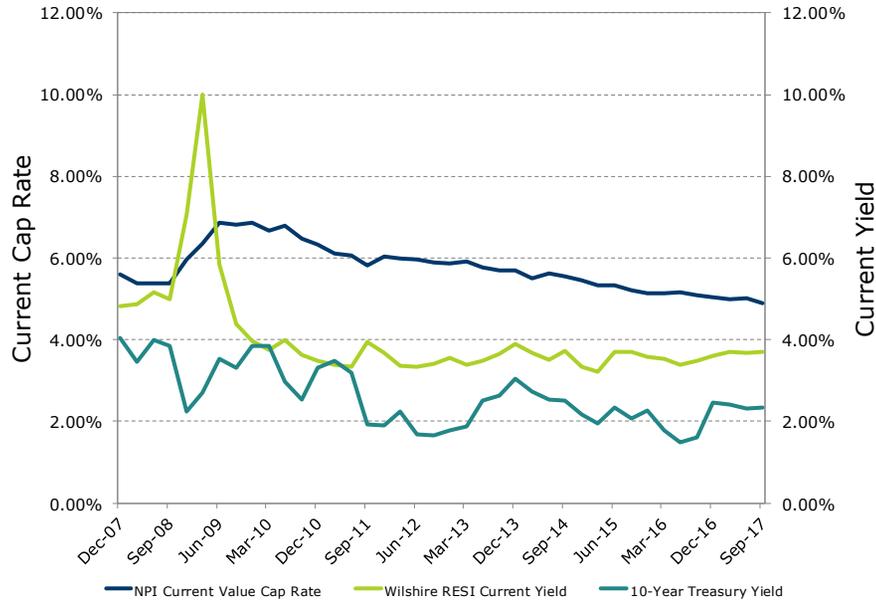
Data sources: Wilshire Compass, Bloomberg Barclays

# Wilshire Consulting REAL ASSETS

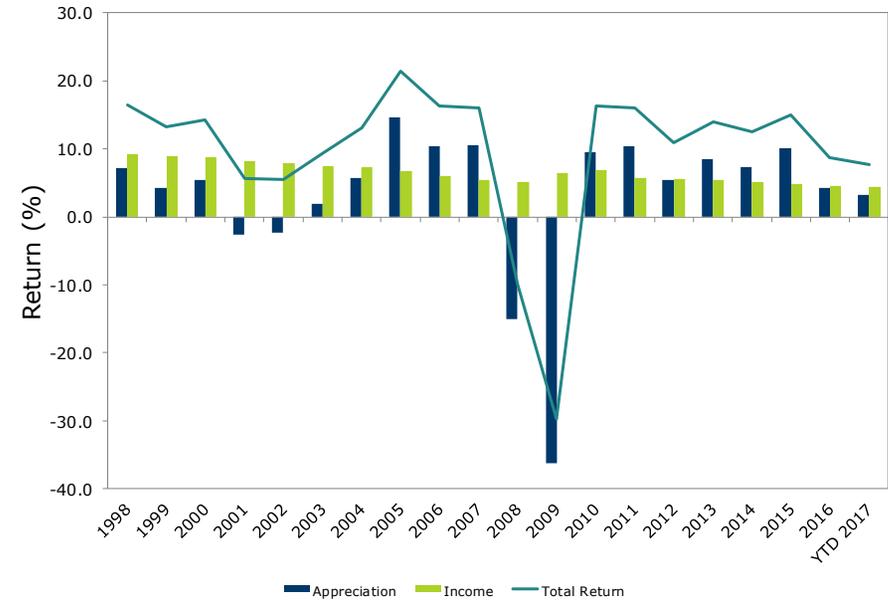


| AS OF DECEMBER 31, 2017       | QTR  | YTD  | 1 YR | 3 YR | 5 YR | 10 YR |
|-------------------------------|------|------|------|------|------|-------|
| BLOOMBERG BARCLAYS U.S. TIPS  | 1.3  | 3.0  | 3.0  | 2.0  | 0.1  | 3.5   |
| BLOOMBERG COMMODITY INDEX     | 4.7  | 1.7  | 1.7  | -5.0 | -8.5 | -6.8  |
| WILSHIRE GLOBAL RESI INDEX    | 3.2  | 10.0 | 10.0 | 5.8  | 8.0  | 5.4   |
| NCREIF ODCE FUND INDEX        | 2.1  | 7.6  | 7.6  | 10.4 | 11.5 | 5.0   |
| NCREIF TIMBERLAND INDEX       | 1.5  | 3.6  | 3.6  | 3.7  | 6.2  | 4.4   |
| ALERIAN MLP INDEX (OIL & GAS) | -1.0 | -6.5 | -6.5 | -9.3 | -0.1 | 6.0   |

REAL ESTATE VALUATION



NCREIF ODCE FUND INDEX RETURN



Data sources: Wilshire Compass, National Council of Real Estate Investment Fiduciaries

# ASSET CLASS PERFORMANCE

| ASSET CLASS RETURNS - BEST TO WORST |                      |                       |                       |                      |                      | ANNUALIZED<br>5-YEAR<br>AS OF 12/2017 |
|-------------------------------------|----------------------|-----------------------|-----------------------|----------------------|----------------------|---------------------------------------|
| 2012                                | 2013                 | 2014                  | 2015                  | 2016                 | 2017                 |                                       |
| Emrg Mrkts<br>18.6%                 | U.S. Equity<br>33.1% | REITs<br>31.8%        | REITs<br>4.2%         | MLPs<br>18.3%        | Emrg Mrkts<br>37.7%  | U.S. Equity<br>15.7%                  |
| Developed<br>17.9%                  | MLPs<br>27.6%        | U.S. Equity<br>12.7%  | U.S. Equity<br>0.7%   | High Yield<br>17.1%  | Developed<br>25.6%   | REITs<br>9.3%                         |
| REITs<br>17.6%                      | Developed<br>23.3%   | Core Bond<br>6.0%     | Core Bond<br>0.6%     | U.S. Equity<br>13.4% | U.S. Equity<br>21.0% | Developed<br>8.4%                     |
| U.S. Equity<br>16.1%                | High Yield<br>7.4%   | MLPs<br>4.8%          | T-Bills<br>0.1%       | Commodities<br>11.8% | High Yield<br>7.5%   | High Yield<br>5.8%                    |
| High Yield<br>15.8%                 | REITs<br>1.9%        | U.S. TIPS<br>3.6%     | Developed<br>-0.4%    | Emrg Mrkts<br>11.6%  | REITs<br>4.2%        | Emrg Mrkts<br>4.7%                    |
| U.S. TIPS<br>7.0%                   | T-Bills<br>0.1%      | High Yield<br>2.5%    | U.S. TIPS<br>-1.4%    | REITs<br>7.2%        | Core Bond<br>3.6%    | Core Bond<br>2.1%                     |
| MLPs<br>4.8%                        | Core Bond<br>-2.0%   | T-Bills<br>0.0%       | High Yield<br>-4.5%   | U.S. TIPS<br>4.7%    | U.S. TIPS<br>3.0%    | T-Bills<br>0.3%                       |
| Core Bond<br>4.2%                   | Emrg Mrkts<br>-2.3%  | Emrg Mrkts<br>-1.8%   | Emrg Mrkts<br>-14.6%  | Core Bond<br>2.6%    | Commodities<br>1.7%  | U.S. TIPS<br>0.1%                     |
| T-Bills<br>0.1%                     | U.S. TIPS<br>-8.6%   | Developed<br>-4.5%    | Commodities<br>-24.7% | Developed<br>1.5%    | T-Bills<br>0.8%      | MLPs<br>-0.1%                         |
| Commodities<br>-1.0%                | Commodities<br>-9.5% | Commodities<br>-17.0% | MLPs<br>-32.6%        | T-Bills<br>0.3%      | MLPs<br>-6.5%        | Commodities<br>-8.5%                  |

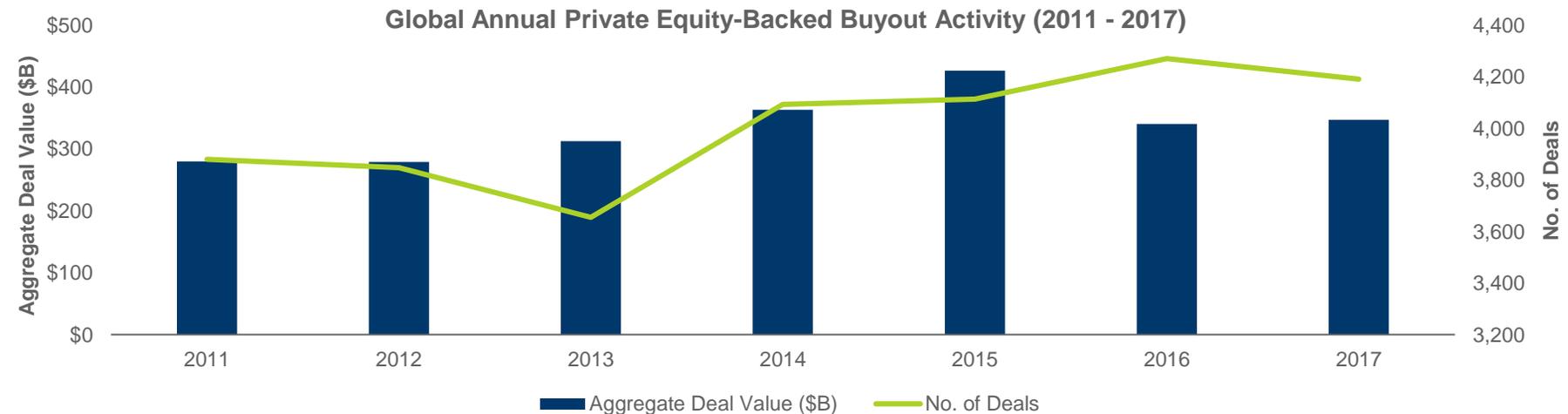
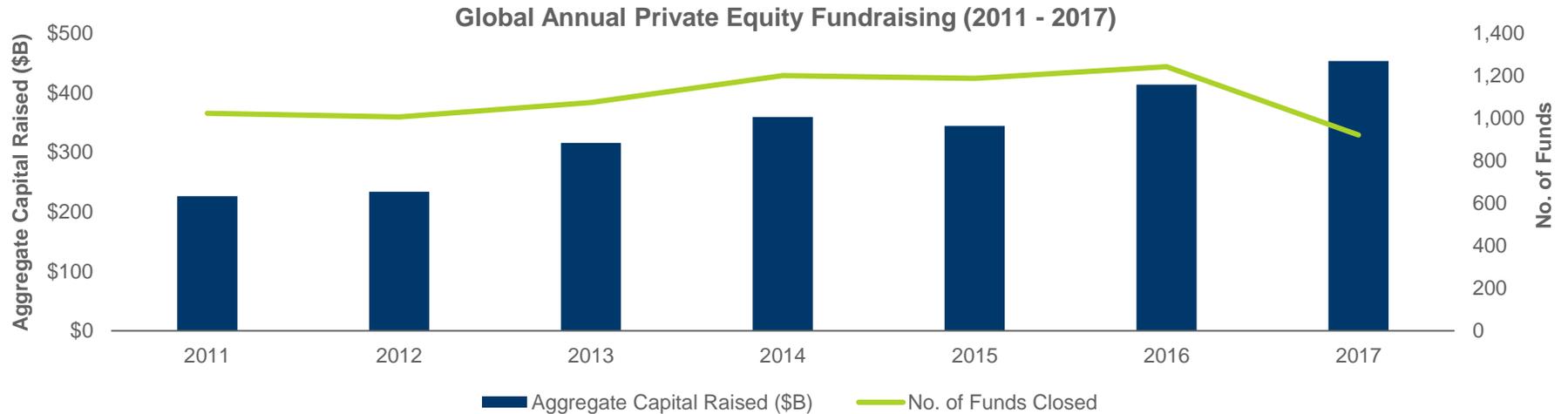
Data sources: Wilshire Compass

Note: Developed asset class is developed equity markets ex-U.S., ex-Canada



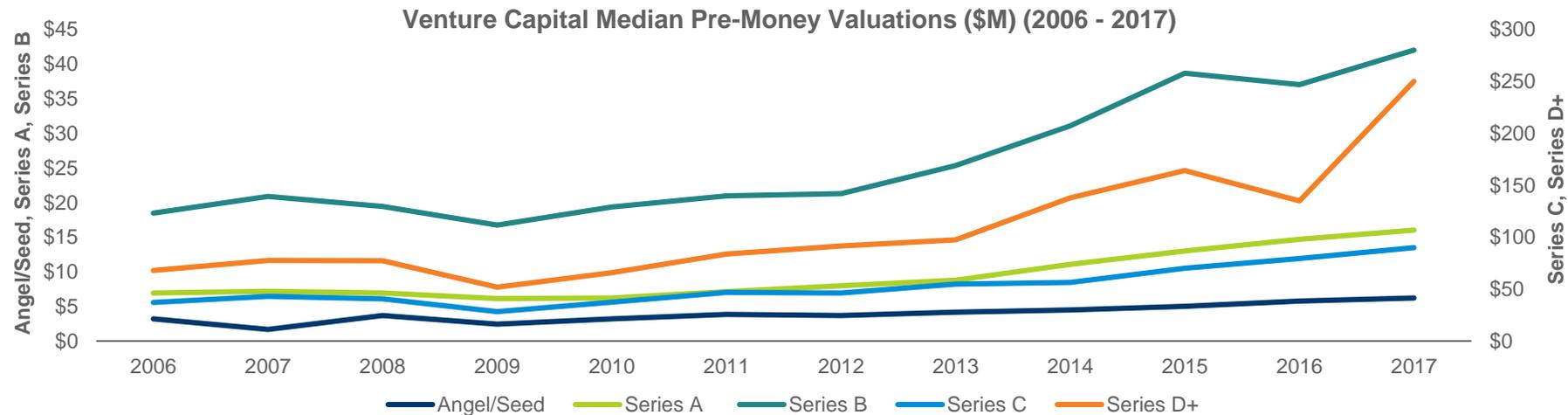
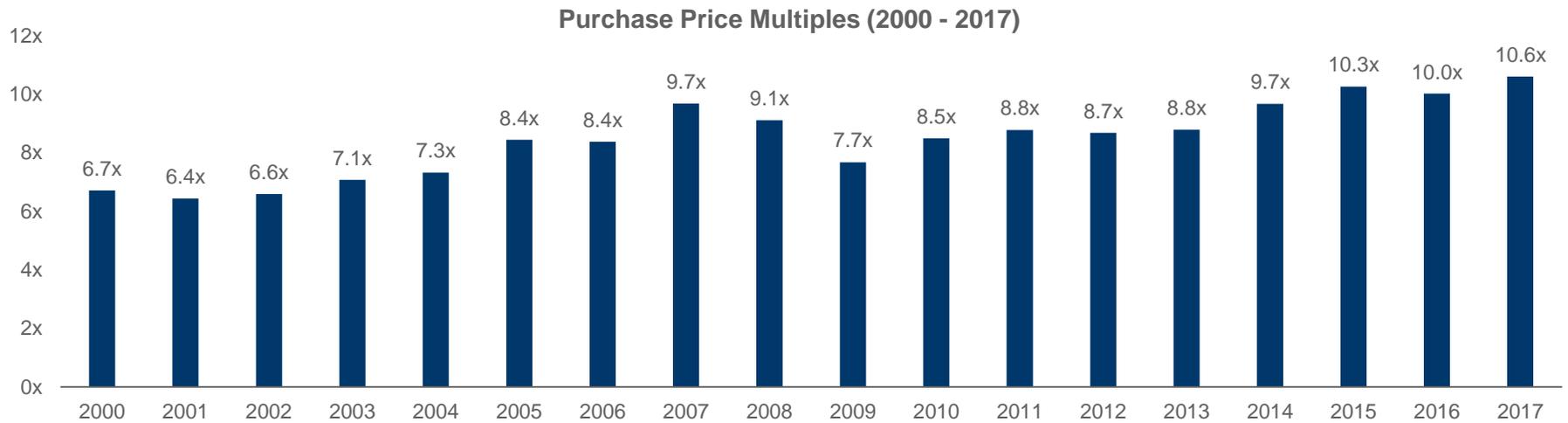
# APPENDIX: PRIVATE MARKETS UPDATE

# PRIVATE EQUITY – FUNDRAISING & INVESTMENT ACTIVITY



Source: Preqin, as of December 31, 2017.  
©2017 Wilshire Associates.

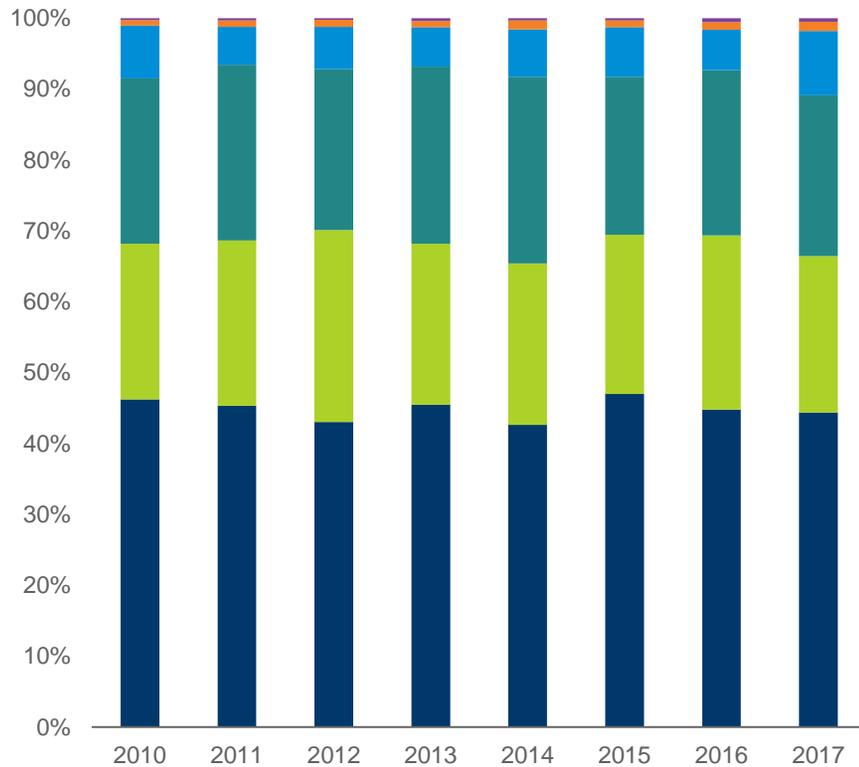
# PRIVATE EQUITY – PRICING & VALUATIONS



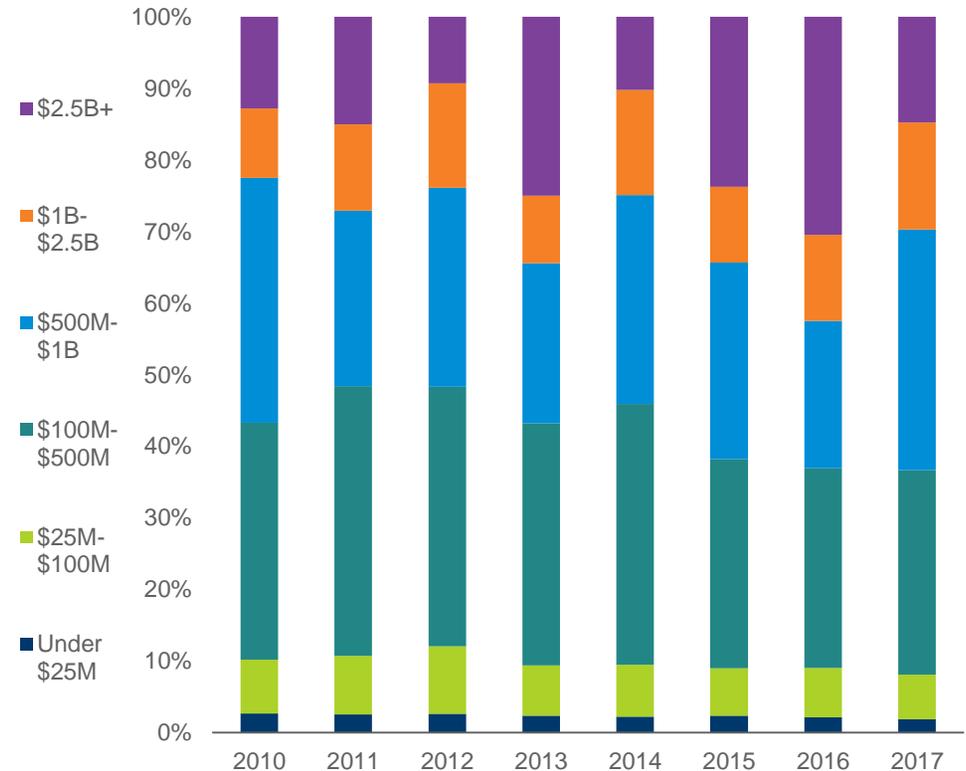
Source: S&P LBO; Pitchbook, as of December 31, 2017  
©2017 Wilshire Associates.

# U.S. INVESTMENT ACTIVITY BY DEAL SIZE

Percentage of Deal Volume by Deal Size (by Count)



Percentage of Deal Volume by Deal Size (by Dollars)

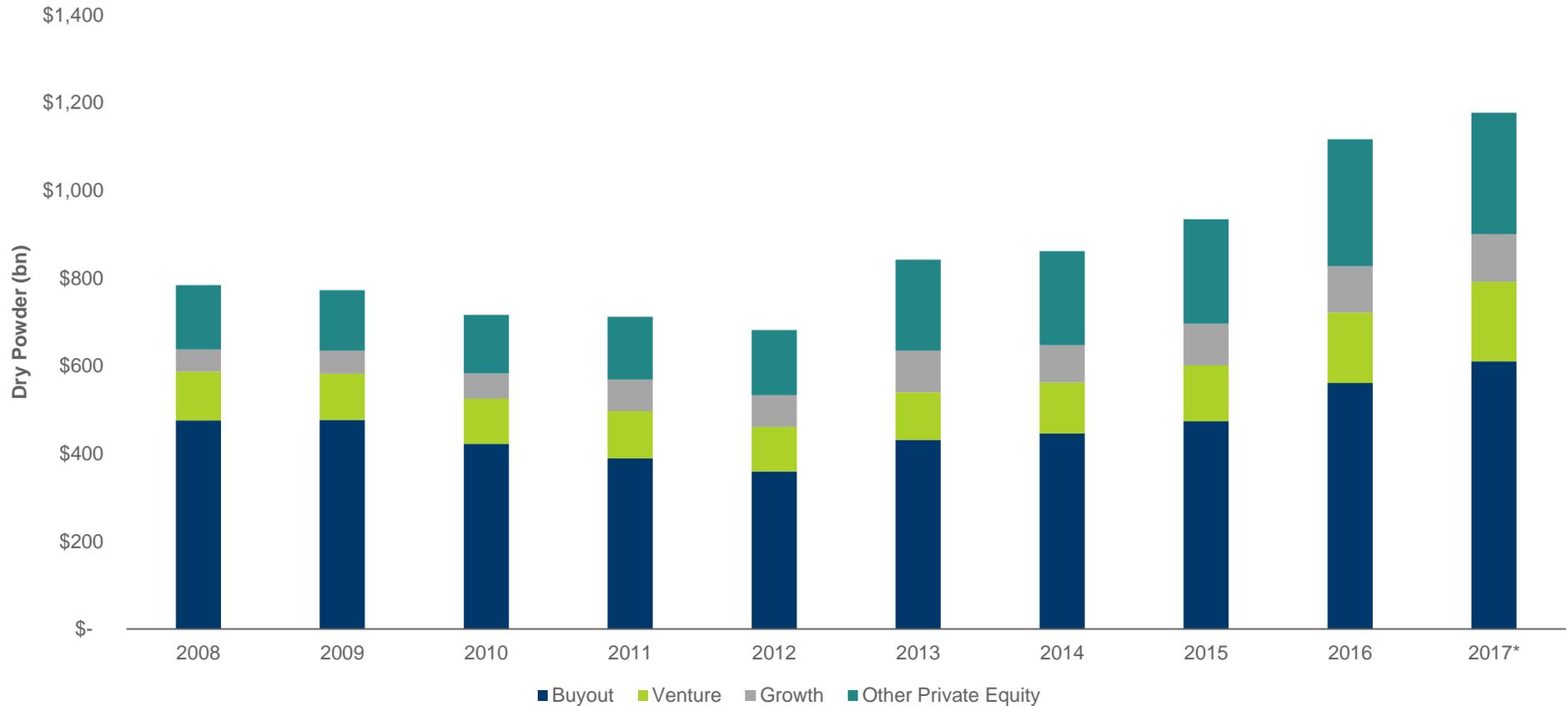


- Smaller investments again comprised a majority of deal volume in 2017 while there continues to be a limited number of deals over \$2.5 billion
- More capital was invested into deals in the \$500 million to \$1 billion range in 2017 than in prior years

Source: PitchBook, as of December 31, 2017

# PRIVATE EQUITY DRY POWDER

Private Equity Dry Powder by Fund Type (2008 - Q3 2017)

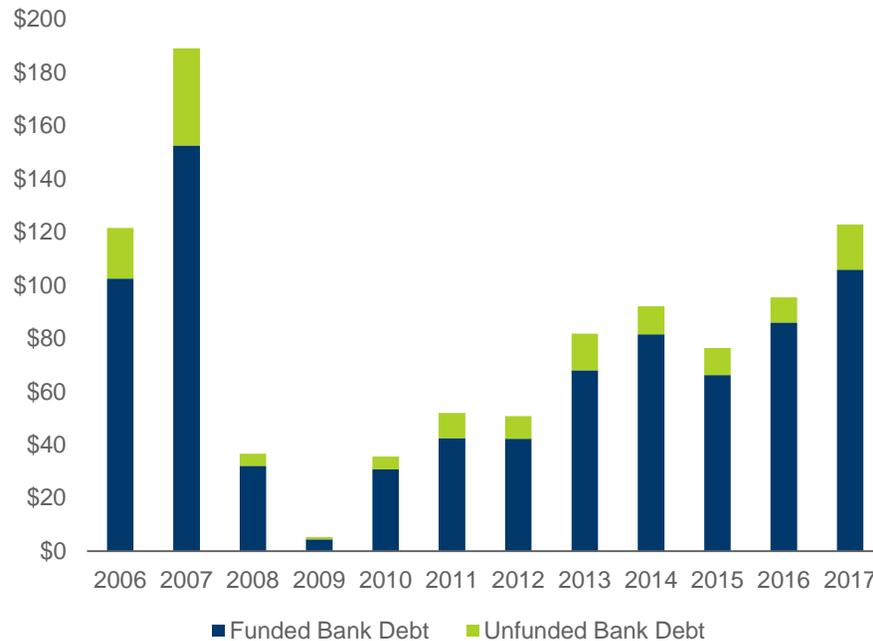


- Global private equity dry powder continues to increase, topping \$1.1 trillion across all fund types
- This abundant capital should continue to fuel private equity deal flow over the next few years

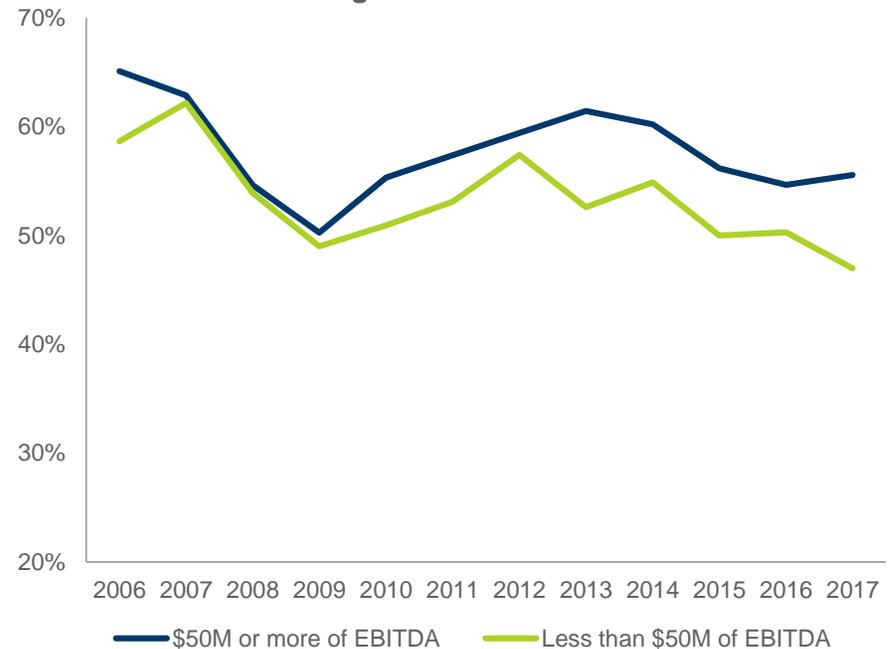
\*Source: Preqin, as of September 30, 2017

# PRIVATE EQUITY - U.S. DEBT MARKETS

Total U.S. LBO Loan Volume (\$B) (2006 - 2017)



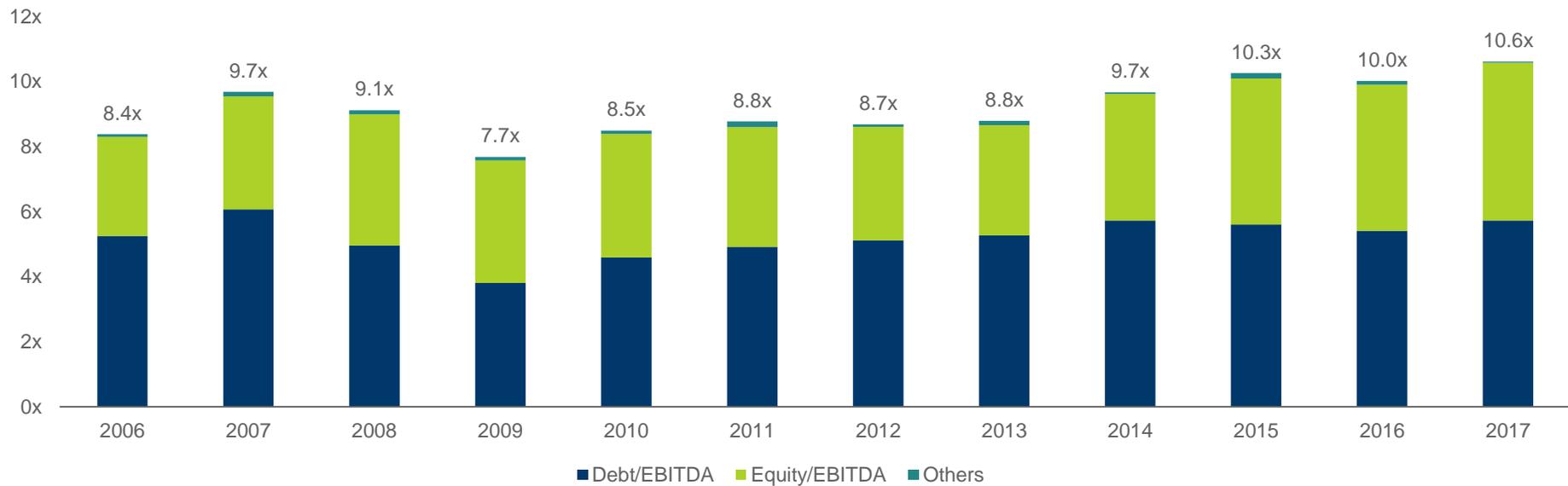
Percentage of Debt Used in LBOs



- The amount of capital available for leverage in LBOs has decreased considerably since its peak volume in 2007; however, loan volume in 2017 increased by approximately \$27 billion from 2016
- LBOs of companies with under \$50 million of EBITDA were financed with less debt than in prior years

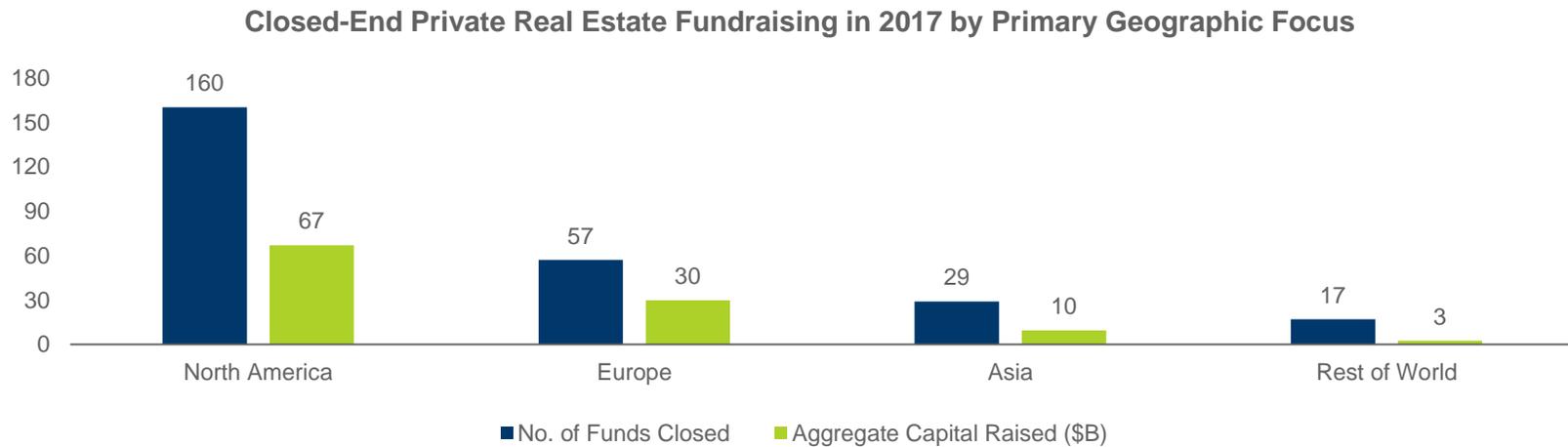
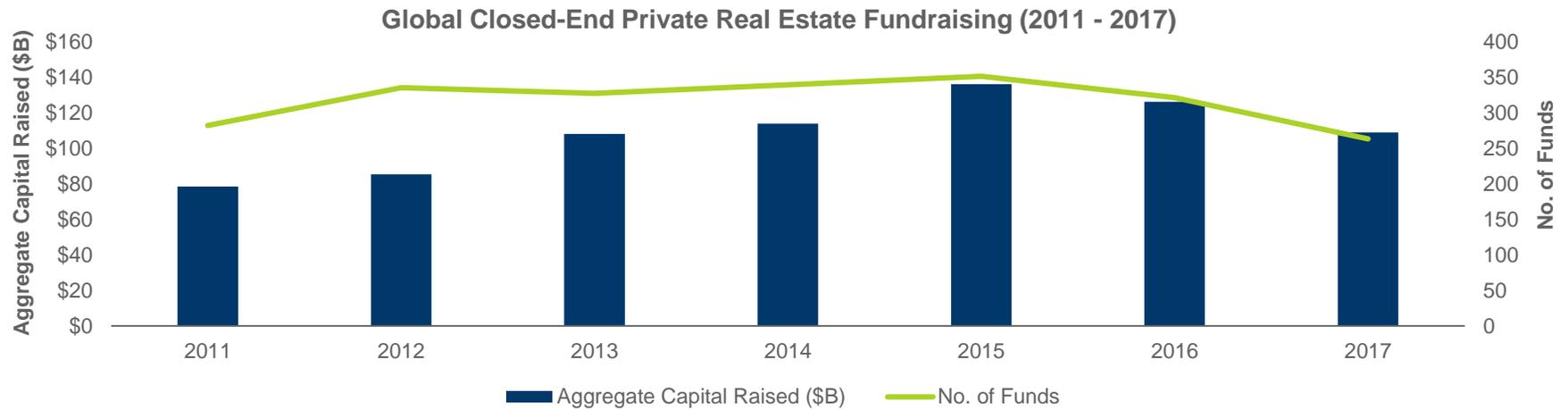
# PRIVATE EQUITY- U.S. LBO PURCHASE PRICE MULTIPLES

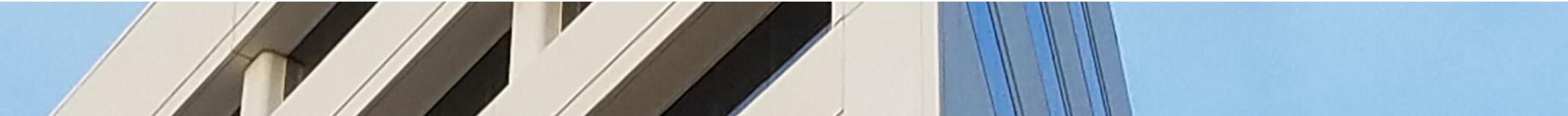
Purchase Price Multiples of U.S. LBO Transactions (2006 - 2017)



- As debt remains readily available, purchase price multiples for U.S. LBOs continue to increase and remain high relative to 2009’s low

# PRIVATE REAL ESTATE – FUNDRAISING ACTIVITY





# APPENDIX

# Glossary

## Cumulative Skill Graph

- Graphical representation of the statistical significance of excess returns over a specified benchmark for the cumulative time period being analyzed.
- Positive cumulative excess performance is shown when the dark blue line is above the "0.00" line measured on the left Y axis.
- The light blue lines that form a channel, or the shape of a trumpet horn, represent the boundaries of the statistical significance test.
- The width of the channel is calculated based on the amount of "Excess Risk" that the manager takes over the benchmark.

