WILSHIRE

Monthly Performance Review

As of December 31, 2020
Market Commentary

2020 ended the year with another positive month during December as global markets continued to rise on promising COVID-19 vaccine-related news and additional economic stimulus. The U.S. stock market returned +20.9% during the year after rallying nearly +75% following its dramatic decline during February and March.

Although positive vaccine news bolstered investor sentiment during the month and quarter, the pandemic continued to worsen across much of the developed world, particularly in the United States and Europe. New infection rates rose significantly forcing capacity limits on many intensive care units and new lockdown restrictions to be implemented.

The GDPNow* model estimate for Fourth Quarter 2020 GDP in the United States is 7.5% as of January 21, 2020.

The unemployment rate in the United States remained unchanged during the month of December, despite adding 140,000 jobs during the month. At the end of December, the unemployment rate in the U.S. remained at 6.7%.

Manufacturing continues to prove to be more resilient as compared to the services industry. U.S. manufacturing, as marked by the ISM Manufacturing Index, rose modestly to 60.7 during December, up from 57.5 at the end of November.

Consumer sentiment in the United States rose during the month, as the University of Michigan Consumer Sentiment Index marked a reading of 80.7 during December, up from 76.9 at the end of November.

*Per The Federal Reserve Bank of Atlanta
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The U.S. stock market continued its record rally, up +4.5% during the month of December. Represented by the Russell 3000 Index, U.S. equities were up +14.7% during the Fourth Quarter, and up +20.9% for calendar year 2020.

Investor sentiment remained high during the month as positive news around COVID-19 vaccines and additional economic stimulus aided returns.

The technology darling of 2020, Tesla (ticker: TSLA), was added to the S&P 500 Index before market opening on December 21, 2020. Tesla’s market cap rose to nearly $500 billion before being added to the index after returning nearly +600% during the year.

Small capitalization stocks continued their rally versus large capitalization stocks during December, now outperforming for four straight months. The Russell 2000 Index returned +8.7% versus +4.2% for the Russell 1000 Index. For the Fourth Quarter, small cap stocks outperformed large cap stocks, +31.4% versus 13.7%, respectively. In 2020, large cap stocks remain slightly ahead despite the strong comeback; up +21.0% versus +20.0% for small cap stocks.

Growth stocks led value stocks during December, a reversal from prior months. During the Fourth Quarter; however, value outperformed growth in both large and small cap.

Of the eleven major sectors in the index, all were positive for the month. During 2020, Information Technology and Consumer Discretionary were the highest returners, up +46.5% and 42.1%, respectively.
Equity markets outside of the United States outperformed U.S. stocks during December, up +5.4%. During 2020, Non-U.S. equities as measured by the MSCI ACWI ex U.S. Index were up +10.7%.

Developed markets trailed emerging markets during December, up +4.7% versus +7.4% for emerging markets equities. Emerging markets outpaced developed markets during 2020 by nearly 2.4x, up +18.3% versus +7.8%.

As the pandemic worsened across much of Europe, UK services came under pressure during the month as new restrictions limited the industry.

The European Central Bank and the UK’s Bank of England both announced that they would be expanding their asset purchase facilities.

Emerging markets benefited during December from hopes of cyclical recovery, a declining U.S. Dollar, and increased global trade activity, particularly in technology and medical supplies.

The U.S. Dollar continued to weaken during the month as additional economic stimulus pushed the currency down. The weaker U.S. Dollar provided a strong tailwind for U.S.-based investors of +1.9% during the month. During 2020, the weakening U.S. Dollar provided U.S.-based investors with additional return of +4.6%. 

### Non-U.S. Equity Market

<table>
<thead>
<tr>
<th>Non-U.S. Equity (USD %)</th>
<th>MTD</th>
<th>QTD</th>
<th>YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCI AC World ex U.S. Index</td>
<td>5.41</td>
<td>17.01</td>
<td>18.65</td>
<td>10.65</td>
<td>4.86</td>
<td>8.92</td>
<td>4.91</td>
</tr>
<tr>
<td>MSCI EAFE Index</td>
<td>4.65</td>
<td>16.05</td>
<td>14.82</td>
<td>10.65</td>
<td>4.86</td>
<td>8.92</td>
<td>5.60</td>
</tr>
<tr>
<td>MSCI Emerging Markets Index</td>
<td>7.35</td>
<td>17.97</td>
<td>18.31</td>
<td>18.31</td>
<td>6.77</td>
<td>12.79</td>
<td>3.63</td>
</tr>
<tr>
<td>MSCI Europe Index</td>
<td>4.71</td>
<td>15.61</td>
<td>18.38</td>
<td>18.38</td>
<td>6.77</td>
<td>12.79</td>
<td>3.63</td>
</tr>
<tr>
<td>MSCI Japan Index</td>
<td>4.13</td>
<td>15.26</td>
<td>14.48</td>
<td>14.48</td>
<td>6.05</td>
<td>8.64</td>
<td>6.49</td>
</tr>
<tr>
<td>MSCI Pacific ex Japan Index</td>
<td>5.28</td>
<td>20.07</td>
<td>6.55</td>
<td>6.55</td>
<td>4.19</td>
<td>8.95</td>
<td>4.83</td>
</tr>
<tr>
<td>MSCI EM Latin America Index</td>
<td>11.90</td>
<td>34.32</td>
<td>(13.80)</td>
<td>(13.80)</td>
<td>(18.3)</td>
<td>8.92</td>
<td>(3.44)</td>
</tr>
<tr>
<td>MSCI EM Asia Index</td>
<td>7.05</td>
<td>18.86</td>
<td>28.38</td>
<td>28.38</td>
<td>8.97</td>
<td>14.41</td>
<td>6.56</td>
</tr>
<tr>
<td>MSCI EM Europe Index</td>
<td>10.56</td>
<td>22.46</td>
<td>(12.50)</td>
<td>(12.50)</td>
<td>9.66</td>
<td>9.05</td>
<td>(179)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Local Currency (%)</th>
<th>MTD</th>
<th>QTD</th>
<th>YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCI AC World ex U.S. Index</td>
<td>3.52</td>
<td>12.58</td>
<td>6.01</td>
<td>6.01</td>
<td>4.57</td>
<td>7.66</td>
<td>6.72</td>
</tr>
<tr>
<td>MSCI EAFE Index</td>
<td>2.47</td>
<td>11.35</td>
<td>0.84</td>
<td>0.84</td>
<td>2.98</td>
<td>5.80</td>
<td>6.82</td>
</tr>
<tr>
<td>MSCI Emerging Markets Index</td>
<td>6.07</td>
<td>16.02</td>
<td>19.12</td>
<td>19.12</td>
<td>8.13</td>
<td>12.60</td>
<td>6.60</td>
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</tbody>
</table>

### Regional Returns (%)

<table>
<thead>
<tr>
<th>Europe</th>
<th>Japan</th>
<th>Pacific Ex Japan</th>
<th>EM Latin America</th>
<th>EM Asia</th>
<th>EM Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.7</td>
<td>5.4</td>
<td>4.1</td>
<td>14.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.3</td>
<td>6.6</td>
<td>11.9</td>
<td>7.1</td>
<td>28.4</td>
<td>10.6</td>
</tr>
<tr>
<td>(13.8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(12.5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Currency Effect (%)

<table>
<thead>
<tr>
<th>One-Month</th>
<th>QTD</th>
<th>YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.9</td>
<td>4.4</td>
<td>4.6</td>
<td>4.6</td>
<td>0.3</td>
<td>1.3</td>
<td>(1.8)</td>
</tr>
</tbody>
</table>

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Market Commentary

The U.S. Treasury Yield Curve rose modestly during the month of December following some volatile key events during the prior month. The 10-year Treasury yield ended the month at 0.92%, up 8 basis points from the end of November. The 30-year Treasury Yield also ended December up month-over-month, up 7 basis points, to 1.65%.

The U.S. Federal Reserve reiterated its commitment to continue purchasing $120 billion of Treasuries and agency MBS, per month, until economic conditions improve substantially. Rates and yields are likely to remain lower for much longer. Given additional economic stimulus, the 10-year Treasury breakeven rate increased 21 basis points to 1.98% during the month.

Credit spreads continued to tighten during December, marking another positive, risk-on environment for corporate bond investors. Below-investment grade benefited most from this risk-on environment, returning +1.9% during the month. Credit spreads in investment grade ended December at 96 basis points, while below-investment grade ended to the month at 360 basis points.
Market Commentary

U.S. and global real estate securities continued their Fourth Quarter 2020 rally during December, up +2.8% and +3.5%, respectively. For the calendar year 2020, U.S. and global real estate remained negative; however, down -8.0% and -8.5%, respectively.

Commodities were strong returners during the month as energy prices continued their rebound. The Bloomberg Commodity Index was up +5.0% while the S&P GSCI Index was up +6.0%.

The price of oil rose during the month by +7.0%, ending December at $48.52 per barrel. Year-to-date the price of oil remains negative; however, down -20.5%. 
IMRF Performance
The Illinois Municipal Retirement Fund (“IMRF”) ended December 2020 with a market value of $49.8 billion, up for the month by approximately $1.4 billion. IMRF returned +3.65% during the month, outperforming the Total Fund Benchmark which returned +2.73%. During Calendar Year 2020, IMRF outpaced the Total Fund Benchmark returning +14.69% versus +13.05% with strong relative performance during the second half of the year.

During December, U.S. Equity was again one of the largest contributors to Total Fund outperformance, returning +5.13% versus +4.50% for the benchmark. The Total Fund Portfolio’s overweight to U.S. Equity, as well as investment manager outperformance contributed to relative outperformance for the Total Fund. Within the U.S. Equity Portfolio, investment manager performance in Large Cap contributed to relative outperformance versus the benchmark. The Portfolio’s tilt to Small Cap also added value as Small Cap outperformed Large Cap during the month. For 2020, the U.S. Equity Portfolio outperformed the benchmark +21.86% versus +20.89%.

The Internally Managed Scientific Beta Portfolio outperformed the benchmark during December, returning +3.00% versus +2.95%. The strategy also outperformed the benchmark for the entire year of 2020, returning +8.37% versus +8.32% for the benchmark.

The Internally Managed GSAM-Factor Diversity Portfolio outperformed the benchmark during December and during the Fourth Quarter 2020. For the month, the strategy returned +4.59% versus +4.28% for the benchmark, while for the Quarter, the strategy returned +14.81% versus +13.87% for the benchmark.

The Public Real Assets Portfolio outperformed its benchmark during the month returning +1.23% versus +0.86%. During 2020, the Public Real Assets Portfolio outperformed the benchmark, providing some downside protection, returning -4.12% versus -5.87% for the benchmark.

The International Equity Portfolio continued to outperform the benchmark during December, returning +6.40% versus +5.41%. In aggregate, investment manager outperformance in Large Cap and Emerging Markets contributed to relative outperformance during the month. The Portfolio’s dedicated allocation to Small Cap stocks also contributed to relative outperformance during December. In 2020, the International Equity Portfolio had another strong year of performance, outperforming the benchmark by nearly 2.5% and returning +13.08% versus +10.65%.

The Fixed Income Portfolio outperformed the benchmark during December returning +0.55% versus +0.14% for the benchmark. The Portfolio’s allocation to credit markets benefited relative performance as credit spreads continued to narrow in both investment grade and below-investment grade fixed income. Additionally, active managers with a shorter duration position benefited during the month as the yield curve rose modestly across all maturities. In aggregate, investment managers in Core, Core Plus, Bank Loans and Emerging Markets Debt outperformed their benchmarks. For Calendar Year 2020, the Fixed Income Portfolio outperformed the benchmark returning +7.75% versus +7.51%.

As of December month-end, Domestic Equity was 6.1% over its target. The current Statement of Investment Policy states that when actual allocations of the asset classes differ by more than four percentage points from their policy target, a recommendation for rebalancing will be made to the Board of Trustees. The Interim Chief Investment Officer and Consultant do not recommend any rebalancing at this time.
Total Fund
## Asset Allocation

### Total Fund

**Periods Ended As of December 31, 2020**

<table>
<thead>
<tr>
<th>Category</th>
<th>Actual Allocation $Millions</th>
<th>Actual Allocation %</th>
<th>Target Allocation %</th>
<th>Differences %</th>
<th>Differences $Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fund</td>
<td>49,841</td>
<td>100.0</td>
<td>100.0</td>
<td>0.0</td>
<td>3,023</td>
</tr>
<tr>
<td>Domestic Equity</td>
<td>21,464</td>
<td>43.1</td>
<td>37.0</td>
<td>6.1</td>
<td>605</td>
</tr>
<tr>
<td>International Equity</td>
<td>9,576</td>
<td>19.2</td>
<td>18.0</td>
<td>1.2</td>
<td>605</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>12,227</td>
<td>24.5</td>
<td>28.0</td>
<td>-3.5</td>
<td>-1,728</td>
</tr>
<tr>
<td>Real Estate</td>
<td>3,188</td>
<td>6.4</td>
<td>9.0</td>
<td>-2.6</td>
<td>-1,298</td>
</tr>
<tr>
<td>Alternatives Investments</td>
<td>3,159</td>
<td>6.3</td>
<td>7.0</td>
<td>-0.7</td>
<td>-330</td>
</tr>
<tr>
<td>Cash &amp; Equivalents</td>
<td>226</td>
<td>0.5</td>
<td>1.0</td>
<td>-0.5</td>
<td>-272</td>
</tr>
</tbody>
</table>

### Pie Charts

**Actual Allocation**
- Domestic Equity: 43.1%
- International Equity: 19.2%
- Fixed Income: 24.5%
- Real Estate: 6.4%
- Alternatives Investments: 6.3%
- Cash & Equivalents: 0.5%

**Target Allocation**
- Domestic Equity: 37.0%
- International Equity: 18.0%
- Fixed Income: 28.0%
- Real Estate: 9.0%
- Alternatives Investments: 7.0%
- Cash & Equivalents: 1.0%
Includes committed, but unfunded amounts for real estate ($1,517.1 million) and alternatives ($2,358.3 million). Assumes real estate and alternatives allocations are fully funded as of month’s end.

Assumes that outstanding commitments are funded equally from the public markets asset classes (one-third from U.S. Equity, one-third from International Equity, and one-third from Fixed Income).
Total Fund Attribution

Total Fund Benchmark = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.

Total Fund

1 Month Ending December 31, 2020

Wilshire Consulting

Asset Class Under or Overweighting

- Domestic Equity: 6.02%
- International Equity: 0.62%
- Fixed Income: -2.82%
- Real Estate: -2.77%
- Alternative Investment: -0.67%
- Cash: -0.38%

Asset Allocation Value Added: 0.30%

- Average Active Weight: 0.11%
- Asset Allocation Value Added: 0.07%
- Manager Value Added: 0.08%

Total Manager Value Added: 0.69%

- Average Active Weight: 0.27%
- Asset Allocation Value Added: 0.19%
- Manager Value Added: 0.09%
## Relative Attribution by Asset Class

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Total Value Added</th>
<th>Manager Value Added</th>
<th>Asset Allocation</th>
<th>Return (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Equity</td>
<td>0.38%</td>
<td>0.11%</td>
<td>0.01%</td>
<td>0.27%</td>
</tr>
<tr>
<td>International Equity</td>
<td>0.20%</td>
<td>0.02%</td>
<td>0.02%</td>
<td>0.07%</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>0.18%</td>
<td>0.07%</td>
<td>0.07%</td>
<td>0.08%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>0.11%</td>
<td>0.08%</td>
<td>0.08%</td>
<td>0.08%</td>
</tr>
<tr>
<td>Alternative Investment</td>
<td>0.10%</td>
<td>0.01%</td>
<td>0.01%</td>
<td>0.01%</td>
</tr>
<tr>
<td>Cash</td>
<td>0.01%</td>
<td>0.01%</td>
<td>0.01%</td>
<td>0.01%</td>
</tr>
</tbody>
</table>

### Relative Attribution Effects

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Effective Weight</th>
<th>Effective Target Weight</th>
<th>Actual Return</th>
<th>Target Return</th>
<th>Manager Effect</th>
<th>Asset Allocation</th>
<th>Total Relative Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Equity</td>
<td>43.0</td>
<td>37.0</td>
<td>5.13</td>
<td>4.50</td>
<td>0.27</td>
<td>0.11</td>
<td>0.38</td>
</tr>
<tr>
<td>International Equity</td>
<td>18.6</td>
<td>18.0</td>
<td>6.40</td>
<td>5.41</td>
<td>0.19</td>
<td>0.02</td>
<td>0.20</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>25.2</td>
<td>28.0</td>
<td>0.55</td>
<td>0.14</td>
<td>0.10</td>
<td>0.07</td>
<td>0.18</td>
</tr>
<tr>
<td>Real Estate</td>
<td>6.2</td>
<td>9.0</td>
<td>0.59</td>
<td>0.00</td>
<td>0.04</td>
<td>0.08</td>
<td>0.11</td>
</tr>
<tr>
<td>Alternative Investment</td>
<td>6.3</td>
<td>7.0</td>
<td>2.15</td>
<td>0.72</td>
<td>0.09</td>
<td>0.01</td>
<td>0.10</td>
</tr>
<tr>
<td>Cash</td>
<td>0.6</td>
<td>1.0</td>
<td>0.11</td>
<td>0.01</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>Total Fund</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>3.65</strong></td>
<td><strong>2.73</strong></td>
<td><strong>0.69</strong></td>
<td><strong>0.30</strong></td>
<td><strong>0.92</strong></td>
</tr>
</tbody>
</table>

Total Fund Benchmark = 37.0% Russell 3000 Index, 28.0% Blmbg Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.
Total Fund Attribution

Total Fund

Year To Date Ending December 31, 2020

Total Fund Performance

Total Fund Benchmark

Total Fund

Total Value Added: 1.64%

Asset Allocation

Manager Value Added

Other

Asset Class Under or Overweighting

Asset Allocation Value Added: 0.23%

Total Manager Value Added: 1.34%

Domestic Equity

International Equity

Fixed Income

Real Estate

Alternative Investment

Cash

Average Active Weight

Asset Allocation Value Added

Manager Value Added

Total Fund Benchmark = 37.0% Russell 3000 Index, 28.0% Blimb Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.
Wilshire Consulting
Total Fund Attribution
Total Fund
Year To Date Ending December 31, 2020

Relative Attribution by Asset Class

-0.20 % 0.00 % 0.20 % 0.40 % 0.60 % 0.80 %

Return (%)

Cash
Alternative Investment
Real Estate
Fixed Income
International Equity
Domestic Equity

Total Value Added
Manager Value Added
Asset Allocation

Relative Attribution Effects

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Effective Actual Weight</th>
<th>Effective Target Weight</th>
<th>Actual Return</th>
<th>Target Return</th>
<th>Manager Effect</th>
<th>Asset Allocation</th>
<th>Total Relative Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Equity</td>
<td>40.2</td>
<td>37.0</td>
<td>21.86</td>
<td>20.89</td>
<td>0.49</td>
<td>0.15</td>
<td>0.63</td>
</tr>
<tr>
<td>International Equity</td>
<td>17.9</td>
<td>18.0</td>
<td>13.08</td>
<td>10.65</td>
<td>0.46</td>
<td>-0.10</td>
<td>0.36</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>28.3</td>
<td>28.0</td>
<td>7.75</td>
<td>7.51</td>
<td>-0.09</td>
<td>0.09</td>
<td>-0.01</td>
</tr>
<tr>
<td>Real Estate</td>
<td>6.8</td>
<td>9.0</td>
<td>3.65</td>
<td>-0.74</td>
<td>0.32</td>
<td>0.23</td>
<td>0.55</td>
</tr>
<tr>
<td>Alternative Investment</td>
<td>6.2</td>
<td>7.0</td>
<td>11.35</td>
<td>9.00</td>
<td>0.15</td>
<td>-0.10</td>
<td>0.04</td>
</tr>
<tr>
<td>Cash</td>
<td>0.6</td>
<td>1.0</td>
<td>2.55</td>
<td>0.67</td>
<td>0.02</td>
<td>-0.03</td>
<td>-0.02</td>
</tr>
<tr>
<td>Total Fund</td>
<td>100.0</td>
<td>100.0</td>
<td>14.69</td>
<td>13.05</td>
<td>1.34</td>
<td>0.23</td>
<td>1.64</td>
</tr>
</tbody>
</table>

Total Fund Benchmark = 37.0% Russell 3000 Index, 28.0% BIMB Aggregate, 18.0% MSCI ACWI ex US, 9.0% NCREIF NFI-ODCE Val Wt Nt, 7.0% 9% Annually and 1.0% 3-month Treasury Bill.
### Asset Class Returns

**Peridaes Ended December 31, 2020**

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>1 Month</th>
<th>QTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
<th>20 Years</th>
<th>30 Years</th>
<th>Since Inception</th>
<th>Inception Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Fund</strong></td>
<td>3.65</td>
<td>11.43</td>
<td>14.89</td>
<td>9.64</td>
<td>10.55</td>
<td>9.17</td>
<td>7.25</td>
<td>9.00</td>
<td>10.02</td>
<td>1/1/1982</td>
</tr>
<tr>
<td>Total Fund - Net</td>
<td>3.65</td>
<td>11.38</td>
<td>14.69</td>
<td>9.45</td>
<td>10.34</td>
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<tr>
<td>Total Fund Benchmark</td>
<td>2.73</td>
<td>8.78</td>
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<td>9.13</td>
<td>9.91</td>
<td>8.69</td>
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<tr>
<td><strong>Domestic Equity</strong></td>
<td>5.13</td>
<td>17.02</td>
<td>22.07</td>
<td>14.00</td>
<td>14.87</td>
<td>13.42</td>
<td>8.11</td>
<td>11.45</td>
<td>11.92</td>
<td>1/1/1982</td>
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<tr>
<td>Domestic Equity - Net</td>
<td>5.13</td>
<td>16.98</td>
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<td>13.80</td>
<td>14.64</td>
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<td>Blended Benchmark (U.S. Equity)</td>
<td>4.50</td>
<td>14.68</td>
<td>20.89</td>
<td>14.49</td>
<td>15.43</td>
<td>13.78</td>
<td>8.02</td>
<td>10.93</td>
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<tr>
<td>U.S. Equity IMRF Custom Benchmark</td>
<td>4.69</td>
<td>15.37</td>
<td>18.00</td>
<td>12.56</td>
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<tr>
<td><strong>International Equity</strong></td>
<td>6.41</td>
<td>18.33</td>
<td>13.52</td>
<td>6.45</td>
<td>9.84</td>
<td>6.71</td>
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<td>7.87</td>
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<td>5.31</td>
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<td>4.83</td>
<td>5.86</td>
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<td><strong>Real Estate</strong></td>
<td>0.59</td>
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<td>8.15</td>
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<td>10.19</td>
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<td>-0.74</td>
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<td>8.05</td>
<td>11.39</td>
<td>12.68</td>
<td>11.05</td>
<td>9.69</td>
<td>6.19</td>
<td>11.86</td>
<td>10.88</td>
<td>2/1/1986</td>
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<tr>
<td>Alternatives Investments - Net</td>
<td>2.15</td>
<td>8.04</td>
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<td>10.90</td>
<td>9.45</td>
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<tr>
<td>Alternatives Custom Benchmark</td>
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<td>9.00</td>
<td>9.00</td>
<td>9.00</td>
<td>10.76</td>
<td>12.15</td>
<td>12.55</td>
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<td><strong>Private Equity</strong></td>
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<td>14.10</td>
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<tr>
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<td>9.00</td>
<td>9.00</td>
<td>10.76</td>
<td>12.15</td>
<td>12.55</td>
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<td><strong>Agriculture</strong></td>
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<td>7.33</td>
<td>6.83</td>
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<tr>
<td>NCREIF Farmland Index</td>
<td>1.59</td>
<td>1.59</td>
<td>3.08</td>
<td>4.87</td>
<td>5.57</td>
<td>10.41</td>
<td>12.07</td>
<td>11.42</td>
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</table>

Benchmark definitions on next page.
### Asset Class Returns

**Periods Ended December 31, 2020**

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>1 Month</th>
<th>QTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
<th>20 Years</th>
<th>30 Years</th>
<th>Since Inception</th>
<th>Inception Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timberland</td>
<td>-0.80</td>
<td>-0.66</td>
<td>4.51</td>
<td>0.57</td>
<td>0.32</td>
<td>2.71</td>
<td>3.25</td>
<td>7.24</td>
<td>10/1/1992</td>
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<td>NCREIF Timberland Index</td>
<td>0.58</td>
<td>0.58</td>
<td>0.81</td>
<td>1.77</td>
<td>2.30</td>
<td>4.55</td>
<td>5.68</td>
<td>8.33</td>
<td>4/1/1992</td>
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<tr>
<td>Unlisted Infrastructure</td>
<td>0.00</td>
<td>8.43</td>
<td>15.90</td>
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<td></td>
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<td>4/1/2018</td>
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<tr>
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<td>9.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9.00</td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>0.11</td>
<td>0.30</td>
<td>2.56</td>
<td>2.84</td>
<td>2.16</td>
<td>1.18</td>
<td>1.71</td>
<td>3.16</td>
<td>3.78</td>
<td>7/1/1986</td>
</tr>
<tr>
<td>90 Day US Treasury Bill</td>
<td>0.01</td>
<td>0.03</td>
<td>0.67</td>
<td>1.61</td>
<td>1.18</td>
<td>0.62</td>
<td>1.47</td>
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<td>3.21</td>
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</tr>
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</table>

Benchmark definitions on next page.
### Benchmark Definitions

<table>
<thead>
<tr>
<th>Account Name</th>
<th>From Date</th>
<th>To Date</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Equity Blended Benchmark</td>
<td>1/1/2015</td>
<td>Present</td>
<td>100% Russell 3000 Index</td>
</tr>
<tr>
<td></td>
<td>1/1/1982</td>
<td>12/31/2014</td>
<td>100% Dow Jones US Total Stock Market Index</td>
</tr>
<tr>
<td>Real Estate Blended Benchmark</td>
<td>1/1/2013</td>
<td>Present</td>
<td>100% NCREIF Fund Index-ODCE (VW) (Net)** 100%</td>
</tr>
<tr>
<td></td>
<td>1/1/2007</td>
<td>12/31/2012</td>
<td>100% NPI + 1%</td>
</tr>
<tr>
<td></td>
<td>1/1/2005</td>
<td>12/31/2016</td>
<td>100% Consumer Price Index + 5%</td>
</tr>
<tr>
<td>Alternatives Custom Benchmark</td>
<td>7/1/2010</td>
<td>Present</td>
<td>100% Annualized rate of 9.0%</td>
</tr>
<tr>
<td></td>
<td>1/1/2004</td>
<td>6/30/2010</td>
<td>100% Annualized rate of 12.0%</td>
</tr>
<tr>
<td></td>
<td>1/1/2003</td>
<td>12/31/2003</td>
<td>100% Annualized rate of 13.0%</td>
</tr>
<tr>
<td></td>
<td>2/1/1986</td>
<td>12/31/2002</td>
<td>100% Annualized rate of 15.0%</td>
</tr>
<tr>
<td>U.S. Equity IMRF Custom Benchmark</td>
<td></td>
<td></td>
<td>Blend of the U.S. Equity Style benchmarks returns, dollar weighted by the actual allocation at previous month end.</td>
</tr>
<tr>
<td>International Equity IMRF Custom Benchmark</td>
<td></td>
<td></td>
<td>Blend of the the International Equity Style benchmarks returns, dollar weighted by the actual allocation at previous month end.</td>
</tr>
<tr>
<td>Fixed Income IMRF Custom Benchmark</td>
<td></td>
<td></td>
<td>Blend of the the Fixed Income Style benchmarks returns, dollar weighted by the actual allocation at previous month end.</td>
</tr>
</tbody>
</table>

**ODCE returns are updated quarterly.**
## Benchmark Definitions

<table>
<thead>
<tr>
<th>Account Name</th>
<th>From Date</th>
<th>To Date</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fund Benchmark</td>
<td></td>
<td></td>
<td>The total fund benchmark is a blend of the asset class benchmark returns weighted by the target allocation for each asset class, currently:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>37% Russell 3000 Index, 28% Blmbg. Barc. U.S. Aggregate, 18% MSCI AC World ex USA (Net), 9% NCREIF Fund Index-ODCE (VW) (Net), 7% Alternatives Custom Benchmark, 1% 90 Day US Treasury Bill.</td>
</tr>
</tbody>
</table>
## Investment Manager Asset Allocation

**Periods Ended December 31, 2020**

<table>
<thead>
<tr>
<th>Investment Strategy</th>
<th>Nov-2020 $</th>
<th>Nov-2020 %</th>
<th>Dec-2020 $</th>
<th>Dec-2020 %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domestic Equity</strong></td>
<td>20,796,727,666</td>
<td>43.02</td>
<td>21,463,906,127</td>
<td>43.06</td>
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<tr>
<td><strong>Large Cap Growth</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTGI S&amp;P 500 Growth</td>
<td>3,102,177,709</td>
<td>6.42</td>
<td>3,228,524,751</td>
<td>6.48</td>
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<tr>
<td>Sands Capital</td>
<td>3,589,142,438</td>
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<td>3,452,849,176</td>
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<tr>
<td>Xponance Russell 1000 G</td>
<td>1,843,149,237</td>
<td>3.81</td>
<td>1,927,873,611</td>
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<tr>
<td><strong>Large Cap Value</strong></td>
<td>4,687,129,818</td>
<td>9.70</td>
<td>4,054,025,952</td>
<td>8.13</td>
</tr>
<tr>
<td>Dodge &amp; Cox</td>
<td>1,408,389,861</td>
<td>2.91</td>
<td>1,461,604,174</td>
<td>2.93</td>
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<tr>
<td>BMO</td>
<td>853,224,847</td>
<td>1.76</td>
<td>74,927,467</td>
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<td>LSV Asset</td>
<td>1,179,967,526</td>
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<td>1,228,327,832</td>
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<td>NTGI S&amp;P 500 Value</td>
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<td>1,289,166,479</td>
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<tr>
<td><strong>Large Cap Pass. Core</strong></td>
<td>2,944,617,332</td>
<td>6.09</td>
<td>2,948,174,624</td>
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<td>NTGI MarketCap Idx.</td>
<td>2,944,617,332</td>
<td>6.09</td>
<td>2,948,174,624</td>
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<td><strong>Factor Diversity Strategies</strong></td>
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<td>1,098,112,816</td>
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<td>U.S. Large Cap FDP-GSAM</td>
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<td><strong>Quantitative Factor Strategies</strong></td>
<td>278,637,998</td>
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<td>1,046,216,386</td>
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<tr>
<td>Quantitative US Equity - SciBeta</td>
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<td>1,046,216,386</td>
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<tr>
<td><strong>Small Cap Growth</strong></td>
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<td>1,036,204,380</td>
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<td>Frontier Capital</td>
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<td>865,833,273</td>
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<td>FIAM Small Cap</td>
<td>206,212,888</td>
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<td>170,371,107</td>
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<td><strong>Small Cap Value</strong></td>
<td>1,549,241,870</td>
<td>3.20</td>
<td>1,668,609,553</td>
<td>3.35</td>
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<tr>
<td>Channing</td>
<td>262,530,394</td>
<td>0.54</td>
<td>284,485,075</td>
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<td>DFA Small Cap Val.</td>
<td>575,874,118</td>
<td>1.19</td>
<td>623,763,500</td>
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<td>Inv. Couns. Maryland</td>
<td>710,837,358</td>
<td>1.47</td>
<td>760,360,978</td>
<td>1.53</td>
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## Investment Manager Asset Allocation

**Periods Ended December 31, 2020**

<table>
<thead>
<tr>
<th>Fund Type</th>
<th>Nov-2020</th>
<th>Dec-2020</th>
<th>%</th>
<th>%</th>
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<tr>
<td><strong>Micro Cap</strong></td>
<td>318,195,169</td>
<td>319,746,036</td>
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<td>0.64</td>
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<td>DFA Micro Cap (9-10)</td>
<td>318,195,169</td>
<td>319,746,036</td>
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<td>0.64</td>
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<tr>
<td><strong>Public Real Assets</strong></td>
<td>675,292,117</td>
<td>683,568,840</td>
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<td>Brookfield</td>
<td>159,114,002</td>
<td>160,119,864</td>
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<td>0.32</td>
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<td>Cohen &amp; Steers</td>
<td>516,178,115</td>
<td>523,448,976</td>
<td>1.07</td>
<td>1.05</td>
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<tr>
<td><strong>International Equity</strong></td>
<td>9,000,173,262</td>
<td>9,576,479,786</td>
<td>18.62</td>
<td>19.21</td>
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<tr>
<td><strong>Intl Large Cap Growth</strong></td>
<td>1,559,815,227</td>
<td>1,671,253,979</td>
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<td>3.35</td>
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<tr>
<td>EARNEST Part. Intl</td>
<td>506,354,848</td>
<td>552,926,812</td>
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<td>1.11</td>
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<td>William Blair</td>
<td>1,053,460,379</td>
<td>1,118,327,167</td>
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<tr>
<td><strong>Intl Large Cap Value</strong></td>
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<td>1,257,629,247</td>
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<td>Brandes Investment</td>
<td>502,410,918</td>
<td>530,780,045</td>
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<td>Mondrian</td>
<td>562,408,450</td>
<td>590,987,037</td>
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<td>Lazard</td>
<td>128,354,336</td>
<td>135,862,165</td>
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<tr>
<td><strong>Intl Large Cap Core</strong></td>
<td>4,149,745,088</td>
<td>4,397,530,551</td>
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<td>8.82</td>
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<tr>
<td>Arrowstreet Capital</td>
<td>855,125,340</td>
<td>937,740,929</td>
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<td>Brown Capital</td>
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<td>GlobeFlex Capital</td>
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<td><strong>Intl All Cap Developed</strong></td>
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<td>Ativo International</td>
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## Investment Manager Asset Allocation

Periods Ended December 31, 2020

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<tr>
<th>Fund</th>
<th>Nov-2020</th>
<th>%</th>
<th>Dec-2020</th>
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<td>Internationl Small Cap</td>
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<td>Franklin Templeton</td>
<td>218,294,796</td>
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<td>William Blair IntSC</td>
<td>379,607,197</td>
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<td>1,351,882,425</td>
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<td>Genesis Asset Mngrs.</td>
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## Investment Manager Asset Allocation

**Periods Ended December 31, 2020**

<table>
<thead>
<tr>
<th>Category</th>
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<th>%</th>
<th>Dec-2020</th>
<th>%</th>
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<tr>
<td><strong>Fixed Income</strong></td>
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<td><strong>Domestic Fixed Core</strong></td>
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<td>Brandes FI Core</td>
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<td>383,313,604</td>
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<td>EARNEST Partners</td>
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<td>Xponance Yield Advantage Agg.</td>
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<td>Garcia Hamilton</td>
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<td>Ramirez Asset Management</td>
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<td><strong>Domestic Fixed Passive Core</strong></td>
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<td>3,813,613,446</td>
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<td>NTGI Blmbg Agg.</td>
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<td>237,699,989</td>
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<td>Standish-Mellon EMD</td>
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<td>MacKay Shields</td>
<td>794,461,571</td>
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<td>FIAM High Yield</td>
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## Investment Manager Asset Allocation

**Periods Ended December 31, 2020**

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<tr>
<th>Asset Class</th>
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<th>Dec-2020 $</th>
<th>%</th>
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<td>TA Assoc. Buckhead</td>
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<td>Barings Euro Core Property</td>
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<td>Blackstone Property Euro</td>
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<td>151,742,349</td>
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<td>INVESCO Core Real Estate</td>
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<td>200,824,885</td>
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<td>INVESCO European real estate</td>
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<td>60,347,092</td>
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<td>AEW Core Property Tr</td>
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<td>CBRE Core Partners</td>
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<td>JPM Strategic Property Fund</td>
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<td>Non-Core Real Estate Funds</td>
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<td>Almanac ARS V</td>
<td>122,274</td>
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<td>122,274</td>
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<td><strong>Alternatives Investments</strong></td>
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<td>3,159,232,633</td>
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<td>183,734</td>
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<td>Aurora Investment</td>
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<td>2,653,479,659</td>
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## Wilshire Consulting
### Investment Manager Asset Allocation

#### Periods Ended December 31, 2020

<table>
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<tr>
<th></th>
<th>Nov-2020</th>
<th></th>
<th>Dec-2020</th>
<th></th>
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<tr>
<td></td>
<td>$</td>
<td>%</td>
<td>$</td>
<td>%</td>
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<td>Abbott S/A Comp.</td>
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<td>1,570,645,561</td>
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<td>387,317,574</td>
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<td>Oakbrook Opportunities Fund</td>
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<td>Private Credit</td>
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<td>Premiere Partners IV</td>
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<td>215,962,216</td>
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<td>Timberland</td>
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<td>Unlisted Infrastructure</td>
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<tr>
<td>Unlisted Infrastructure Funds</td>
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<td>49,841,009,117</td>
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# Performance

**Periods Ended December 31, 2020**

<table>
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<tr>
<th></th>
<th>Market Value $</th>
<th>Performance (%)</th>
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</thead>
<tbody>
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<td></td>
<td>1 Month QTD 1 Year 3 Years 5 Years 10 Years Since Inception Inception Date</td>
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<tr>
<td>Total Fund</td>
<td>49,841,009,117</td>
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</tr>
<tr>
<td>Total Fund - Net</td>
<td>3.65 11.38 14.69 9.45 10.34 8.94</td>
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<tr>
<td>Total Fund Benchmark</td>
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<tr>
<td>Domestic Equity</td>
<td>21,463,906,127</td>
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<td>Domestic Equity - Net</td>
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<td>Blended Benchmark</td>
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<tr>
<td>Russell 3000 Index</td>
<td>4.50 14.68 20.89 14.49 15.43 13.79 11.82</td>
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<tr>
<td>U.S. Equity IMRF Custom Benchmark</td>
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<td>Large Cap Growth</td>
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<tr>
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<td>NTGI S&amp;P 500 Growth - Net</td>
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<td>LCG Blended Benchmark</td>
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<td>4.60 11.39 38.49 22.99 21.00 17.21 11.89</td>
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Benchmark definitions in glossary.
## Performance

### Periods Ended December 31, 2020

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<th></th>
<th>Market Value ($)</th>
<th>1 Month</th>
<th>QTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>10 Years</th>
<th>Since Inception</th>
<th>Inception Date</th>
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<tr>
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<td>10.22</td>
<td>10/1/1982</td>
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<tr>
<td>Large Cap Value - Net</td>
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<td>17.52</td>
<td>2.38</td>
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<td>LCV Blended Benchmark</td>
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<td>16.25</td>
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Benchmark definitions in glossary.
# Performance

**Periods Ended December 31, 2020**

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Benchmark definitions in glossary.
## Performance Periods Ended December 31, 2020

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Benchmark definitions in glossary.
# Performance Periods Ended December 31, 2020

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Benchmark definitions in glossary.
### Performance Periods Ended December 31, 2020

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Benchmark definitions in glossary.
## Performance

**Performance Periods Ended December 31, 2020**

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Benchmark definitions in glossary.
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Benchmark definitions in glossary.
## Performance

**Periods Ended December 31, 2020**

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<th>QTD</th>
<th>1 Year</th>
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<th>5 Years</th>
<th>10 Years</th>
<th>Since Inception</th>
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Benchmark definitions in glossary.
## Performance

**Periods Ended December 31, 2020**

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Benchmark definitions in glossary.
## Benchmark History

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<th>To Date</th>
<th>Benchmark</th>
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<td>100% Russell 1000 Growth Index</td>
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## Benchmark History

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<th>Account Name</th>
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<tbody>
<tr>
<td>Intl Small Cap Eqty</td>
<td>6/1/2011</td>
<td>Present</td>
<td>100% MSCI AC World ex USA Small Cap (Net)</td>
</tr>
<tr>
<td></td>
<td>12/1/2005</td>
<td>5/31/2011</td>
<td>100% S&amp;P Developed Ex-U.S. SmallCap (Net)</td>
</tr>
<tr>
<td>Barings Global Loan Fund</td>
<td>8/1/2014</td>
<td>Present</td>
<td>Comprised of the Credit Suisse US Leveraged Loan Index and the Credit Suisse Western European Leveraged Loan Index, weighted by the portfolio’s market value to each sector.</td>
</tr>
<tr>
<td>Standish Emerging Markets</td>
<td>4/1/2020</td>
<td>Present</td>
<td>50% JPM GBI-EM Global Diversified ex-CNY, 25% JPM EMBI Global (USD), 25% JPM CEMBI Broad Index</td>
</tr>
<tr>
<td></td>
<td>8/1/2014</td>
<td>3/31/2020</td>
<td>50% JPM GBI-EM Global Diversified, 25% JPM EMBI Global (USD), 25% JPM CEMBI Broad Index</td>
</tr>
</tbody>
</table>