

PLAN INVESTMENT REVIEW | PERFORMANCE SUMMARY
 THE UNIVERSITY OF NORTH CAROLINA
 FOR THE PERIOD ENDING 12.31.18

| INVESTMENT NAME | PROVIDER | Q4'18 | 1 YEAR* | 3 YEAR* | 5 YEAR* | 10 YEAR* | Exp Ratio |
|----------------------------------------|--------------------|---------|---------|-----------------------|---------|----------|-----------|
| MONEY MARKET | | | | | | | |
| Fidelity Government Money Market | Fidelity | 0.46% | 1.47% | 0.67% | 0.41% | 0.24% | 0.42 |
| CREF Money Market R3 | TIAA-CREF | 0.52% | 1.46% | 0.69% | 0.42% | 0.22% | 0.24 |
| Vanguard Federal Money Market | TIAA-CREF | 0.54% | 1.78% | 0.96% | 0.59% | 0.34% | 0.11 |
| BofA Merrill Lynch 3-month U.S. T-Bill | Benchmark | 0.56% | 1.87% | 1.02% | 0.63% | 0.37% | |
| STABLE VALUE | | | | | | | |
| Fidelity Managed Income Portfolio | Fidelity | 0.43% | 1.57% | 1.37% | 1.25% | 1.28% | 0.77 |
| Lincoln Fixed Account* | Fidelity | 0.50% | 2.00% | 2.08% | 2.15% | 2.52% | 0.35 |
| TIAA Traditional Annuity - GRA | TIAA-CREF | | | Current Rate is 4.00% | | | |
| TIAA Traditional Annuity - GSRA | TIAA-CREF | | | Current Rate is 3.25% | | | |
| Hueler Stable Value Index (gross) | Peer Group | 0.60% | 2.26% | 2.00% | 1.89% | 2.25% | |
| BofA Merrill Lynch 3-month U.S. T-Bill | Benchmark | 0.56% | 1.87% | 1.02% | 0.63% | 0.37% | |
| SHORT TERM BOND | | | | | | | |
| Vanguard Short Term Bond Index I | Fidelity/TIAA-CREF | 1.45% | 1.37% | 1.36% | 1.26% | 1.97% | 0.05 |
| Short Term Bond Universe | Peer Group | 0.48% | 0.85% | 1.57% | 1.17% | 2.68% | |
| Barclays Government/Credit 1-3 Yr | Benchmark | 1.18% | 1.60% | 1.24% | 1.03% | 1.52% | |
| INTERMEDIATE TERM BOND | | | | | | | |
| JPMorgan Core Bond R5 | Fidelity | 1.67% | 0.25% | 2.14% | 2.51% | 4.02% | 0.45 |
| Vanguard Total Bond Market Index Inst | TIAA-CREF/Fidelity | 1.62% | -0.01% | 2.04% | 2.47% | 3.45% | 0.04 |
| MetWest Total Return Bond | TIAA-CREF/Fidelity | 1.49% | 0.29% | 2.10% | 2.52% | 5.69% | 0.38 |
| JPMorgan Core Bond R6 | TIAA-CREF | 1.69% | 0.35% | 2.23% | 2.61% | 4.10% | 0.35 |
| Intermediate Term Bond Universe | Peer Group | 0.86% | -0.58% | 2.16% | 2.29% | 4.45% | |
| Barclays Aggregate Bond Index | Benchmark | 1.64% | 0.01% | 2.06% | 2.52% | 3.48% | |
| ALLOCATION--50% TO 70% EQUITY | | | | | | | |
| Fidelity Balanced K | Fidelity | -10.59% | -3.94% | 6.26% | 5.91% | 10.45% | 0.46 |
| Allocation-50% to 70% Equity Universe | Peer Group | -8.49% | -5.75% | 4.73% | 3.80% | 8.42% | |
| 60% S&P 500 40% BC Agg | Benchmark | -7.56% | -2.35% | 6.50% | 6.24% | 9.42% | |
| WORLD ALLOCATION | | | | | | | |
| CREF Social Choice Account R3 | TIAA-CREF | -7.40% | -4.29% | 5.51% | 4.46% | 8.43% | 0.27 |
| World Allocation Universe | Peer Group | -8.03% | -8.09% | 3.82% | 1.74% | 6.84% | |
| 60% MSCI World 40% BC Agg Index | Benchmark | -7.46% | -4.76% | 5.10% | 4.25% | 7.79% | |
| ALLOCATION--85%+ EQUITY | | | | | | | |
| CREF Stock R3 | TIAA-CREF | -14.56% | -9.65% | 6.78% | 5.14% | 10.84% | 0.31 |
| Allocation--85%+ Equity Universe | Peer Group | -13.54% | -9.48% | 5.46% | 3.86% | 9.97% | |
| 85% S&P 500, 15% BBgBarc Agg | Benchmark | -12.78% | -4.15% | 8.79% | 8.10% | 12.23% | |
| LARGE COMPANY VALUE | | | | | | | |
| JHancock Disciplined Value R6 | TIAA-CREF | -13.92% | -9.47% | 7.21% | 5.43% | 11.79% | 0.70 |
| JHancock Disciplined Value R5 | Fidelity | -13.97% | -9.52% | 7.15% | 5.36% | 11.75% | 0.75 |
| Large Value Universe | Peer Group | -12.63% | -8.91% | 6.55% | 5.22% | 10.81% | |
| Russell 1000 Value | Benchmark | -11.72% | -8.27% | 6.95% | 5.95% | 11.18% | |

Shading highlights performance at or above median for peer group if available, otherwise at or above benchmark.

*403(b) Plan only

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| LARGE COMPANY BLEND | | | | | | | |
| Vanguard Instl Index PI Fund | TIAA-CREF/Fidelity | -13.53% | -4.41% | 9.24% | 8.48% | 13.13% | 0.02 |
| Large Blend Universe | Peer Group | -13.69% | -6.56% | 7.52% | 6.60% | 11.98% | |
| S&P 500 Index | Benchmark | -13.52% | -4.38% | 9.26% | 8.49% | 13.12% | |
| LARGE COMPANY GROWTH | | | | | | | |
| Vanguard FTSE Social Index I | Fidelity | -13.09% | -3.38% | 9.80% | 9.20% | 14.49% | 0.12 |
| Fidelity Contrafund K | Fidelity | -16.24% | -2.07% | 10.28% | 9.40% | 14.02% | 0.65 |
| T Rowe Price Instl Large Cap Growth | TIAA-CREF/Fidelity | -12.85% | 4.32% | 13.93% | 12.09% | 18.12% | 0.56 |
| Large Growth Universe | Peer Group | -15.53% | -1.97% | 8.99% | 8.20% | 13.79% | |
| Russell 1000 Growth | Benchmark | -15.89% | -1.51% | 11.15% | 10.40% | 15.29% | |
| MEDIUM COMPANY VALUE | | | | | | | |
| MFS Mid Cap Value R4 | Fidelity | -14.76% | -11.43% | 5.21% | 4.62% | 13.56% | 0.86 |
| MFS Mid Cap Value R6 | TIAA-CREF | -14.72% | -11.31% | 5.37% | 4.77% | 13.53% | 0.71 |
| Mid Value Universe | Peer Group | -16.05% | -13.46% | 4.88% | 3.62% | 11.53% | |
| Russell MidCap Value | Benchmark | -14.95% | -12.29% | 6.06% | 5.44% | 13.03% | |
| MEDIUM COMPANY BLEND | | | | | | | |
| Vanguard Ext Mkt Idx Instl Plus | TIAA-CREF/Fidelity | -18.17% | -9.35% | 7.55% | 5.31% | 13.63% | 0.05 |
| Mid Blend Universe | Peer Group | -16.73% | -11.92% | 4.97% | 3.67% | 11.81% | |
| Russell MidCap | Benchmark | -15.37% | -9.06% | 7.04% | 6.26% | 14.03% | |
| MEDIUM COMPANY GROWTH | | | | | | | |
| MassMutual Select Mid Cap Gr Eq II | TIAA-CREF/Fidelity | -13.67% | -3.10% | 8.65% | 8.96% | 15.92% | 0.72 |
| Mid Growth Universe | Peer Group | -17.41% | -5.85% | 7.66% | 5.96% | 13.42% | |
| Russell MidCap Growth | Benchmark | -15.99% | -4.75% | 8.59% | 7.42% | 15.12% | |
| FOREIGN LARGE VALUE | | | | | | | |
| MFS International Value R4 | Fidelity | -10.84% | -9.01% | 6.43% | 5.49% | 10.03% | 0.76 |
| MFS International Value R6 | TIAA-CREF | -10.81% | -8.89% | 6.54% | 5.60% | 10.07% | 0.66 |
| Foreign Large Value Universe | Peer Group | -12.50% | -13.36% | 3.38% | 1.00% | 6.81% | |
| MSCI EAFE | Benchmark | -13.10% | -16.68% | 1.77% | -1.01% | 5.24% | |
| FOREIGN LARGE BLEND | | | | | | | |
| Amer Funds EuroPac R6 | TIAA-CREF | -12.59% | -14.91% | 4.08% | 1.86% | 7.69% | 0.49 |
| Amer Funds EuroPac R4 | Fidelity | -12.67% | -15.22% | 3.72% | 1.50% | 7.33% | 0.83 |
| Vanguard Total Intl Stock Index Inst | TIAA-CREF/Fidelity | -11.66% | -14.39% | 4.56% | 0.97% | 6.38% | 0.09 |
| Foreign Large Blend Universe | Peer Group | -12.99% | -15.44% | 2.27% | -0.05% | 5.97% | |
| MSCI EAFE | Benchmark | -12.50% | -13.36% | 3.38% | 1.00% | 6.81% | |
| FOREIGN SMALL/MID GROWTH | | | | | | | |
| T Rowe Price International Discovery | Fidelity | -15.39% | -17.47% | 5.02% | 4.85% | 12.33% | 1.19 |
| T Rowe Price International Discovery I | TIAA-CREF | -15.35% | -17.34% | 5.15% | 4.93% | 12.38% | 1.07 |
| Foreign Small/Mid Growth Universe | Peer Group | -17.28% | -18.12% | 2.69% | 2.01% | 10.60% | |
| MSCI World ex USA Smid Cap USD | Benchmark | -15.68% | -17.00% | 3.86% | 2.34% | - | |
| SMALL COMPANY VALUE | | | | | | | |
| Goldman Sachs Small Value Inst | Fidelity | -18.08% | -14.02% | 6.39% | 4.09% | 12.45% | 0.95 |
| Goldman Sachs Small Value R6 | TIAA-CREF | -18.09% | -14.03% | 6.39% | 3.97% | 12.15% | 0.94 |
| Small Value Universe | Peer Group | -19.10% | -15.71% | 4.91% | 2.21% | 10.99% | |
| Russell 2000 Value | Benchmark | -18.67% | -12.86% | 7.37% | 3.61% | 10.40% | |

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| SMALL COMPANY GROWTH | | | | | | | |
| Eagle Small Cap Growth R5 | Fidelity | -21.75% | -10.16% | 6.91% | 5.10% | 13.56% | 0.77 |
| Eagle Small Cap Growth R6 | TIAA-CREF | -21.73% | -10.06% | 7.02% | 5.21% | 13.53% | 0.66 |
| Small Growth Universe | Peer Group | -20.74% | -5.63% | 8.57% | 5.26% | 13.56% | |
| Russell 2000 Growth | Benchmark | -21.65% | -9.31% | 7.24% | 5.13% | 13.52% | |
| SPECIALTY-REAL ESTATE | | | | | | | |
| Cohen & Steers Realty Shares | Fidelity | -6.69% | -4.19% | 2.71% | 8.17% | 12.20% | 0.97 |
| Cohen & Steers Instl Realty Shares | TIAA-CREF | -6.63% | -3.99% | 2.99% | 8.40% | 12.44% | 0.75 |
| Specialty-Real Estate Universe | Peer Group | -7.21% | -6.41% | 1.80% | 6.84% | 11.53% | |
| Dow Jones US Select REIT | Benchmark | -6.61% | -4.22% | 1.97% | 7.89% | 12.05% | |
| SPECIALTY-REAL ESTATE | | | | | | | |
| TIAA Real Estate Account | TIAA-CREF | 0.95% | 4.79% | 4.79% | 6.91% | 4.56% | 0.89 |
| Specialty-Real Estate Universe | Peer Group | -7.21% | -6.41% | 1.80% | 6.84% | 11.53% | |
| NCREIF Property Index | Benchmark | 1.37% | 6.71% | 7.22% | 9.33% | 7.49% | |
| TARGET DATE | | | | | | | |
| Vanguard Target Retirement Income Tr Plus | TIAA-CREF/Fidelity | -3.23% | -1.99% | 3.87% | 3.43% | - | 0.06 |
| Retirement Income Moderate | Peer Group | -4.25% | -3.55% | 3.32% | 2.66% | 5.50% | |
| Morningstar Lifetime Moderate Income Index | Benchmark | -4.12% | -2.20% | 4.01% | 2.94% | 5.88% | |
| Vanguard Target Retirement 2015 Tr Plus | TIAA-CREF/Fidelity | -4.69% | -2.94% | 4.80% | 4.11% | - | 0.06 |
| 2015 Moderate | Peer Group | -5.57% | -4.18% | 4.20% | 3.14% | 7.39% | |
| Morningstar Lifetime Moderate 2015 Index | Benchmark | -5.20% | -3.54% | 4.79% | 3.61% | 7.55% | |
| Vanguard Target Retirement 2020 Tr Plus | TIAA-CREF/Fidelity | -6.48% | -4.16% | 5.41% | 4.55% | - | 0.06 |
| 2020 Moderate | Peer Group | -6.60% | -4.93% | 4.51% | 3.45% | 8.11% | |
| Morningstar Lifetime Moderate 2020 Index | Benchmark | -5.95% | -4.16% | 5.18% | 3.87% | 8.27% | |
| Vanguard Target Retirement 2025 Tr Plus | TIAA-CREF/Fidelity | -7.72% | -5.05% | 5.82% | 4.77% | - | 0.06 |
| 2025 Moderate | Peer Group | -7.72% | -5.54% | 5.10% | 3.79% | 8.84% | |
| Morningstar Lifetime Conservative 2025 Index | Benchmark | -7.01% | -4.90% | 5.69% | 4.16% | 9.05% | |
| Vanguard Target Retirement 2030 Tr Plus | TIAA-CREF/Fidelity | -8.83% | -5.78% | 6.16% | 4.93% | - | 0.06 |
| 2030 Moderate | Peer Group | -9.19% | -6.43% | 5.56% | 4.13% | 9.49% | |
| Morningstar Lifetime Conservative 2030 Index | Benchmark | -8.44% | -5.82% | 6.26% | 4.44% | 9.74% | |
| Vanguard Target Retirement 2035 Tr Plus | TIAA-CREF/Fidelity | -9.91% | -6.51% | 6.50% | 5.09% | - | 0.06 |
| 2035 Moderate | Peer Group | -10.46% | -7.33% | 5.92% | 4.31% | 9.77% | |
| Morningstar Lifetime Conservative 2035 Index | Benchmark | -9.95% | -6.82% | 6.72% | 4.61% | 10.17% | |
| Vanguard Target Retirement 2040 Tr Plus | TIAA-CREF/Fidelity | -11.02% | -7.27% | 6.82% | 5.21% | - | 0.06 |
| 2040 Moderate | Peer Group | -11.39% | -7.90% | 5.93% | 4.38% | 9.91% | |
| Morningstar Lifetime Moderate 2040 Index | Benchmark | -11.09% | -7.65% | 6.98% | 4.65% | 10.32% | |
| Vanguard Target Retirement 2045 Tr Plus | TIAA-CREF/Fidelity | -11.76% | -7.84% | 6.86% | 5.23% | - | 0.06 |
| 2045 Moderate | Peer Group | -11.91% | -8.42% | 5.99% | 4.24% | 9.93% | |
| Morningstar Lifetime Moderate 2045 Index | Benchmark | -11.67% | -8.17% | 7.05% | 4.60% | - | |
| Vanguard Target Retirement 2050 Tr Plus | TIAA-CREF/Fidelity | -11.75% | -7.82% | 6.87% | 5.22% | - | 0.06 |
| 2050 Moderate | Peer Group | -11.98% | -8.33% | 6.05% | 4.37% | 9.98% | |
| Morningstar Lifetime Moderate 2050 Index | Benchmark | -11.81% | -8.41% | 7.05% | 4.51% | 10.27% | |

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| Vanguard Target Retirement 2055 Tr Plus | TIAA-CREF/Fidelity | -11.77% | -7.83% | 6.87% | 5.21% | - | 0.06 |
| 2055 Moderate | Peer Group | -12.25% | -8.95% | 5.99% | 4.42% | - | |
| Morningstar Lifetime Moderate 2055 Index | Benchmark | -11.84% | -8.57% | 7.04% | 4.42% | 10.19% | |
| Vanguard Target Retirement 2060 Tr Plus | TIAA-CREF/Fidelity | -11.78% | -7.80% | 6.87% | 5.22% | - | 0.06 |
| Vanguard Target Retirement 2065 Tr Plus | TIAA-CREF/Fidelity | -11.72% | -7.70% | - | - | - | |
| 2060+ Moderate | Peer Group | -12.46% | -8.56% | 6.27% | 4.80% | - | |
| Morningstar Lifetime Moderate 2060 Index | Benchmark | -11.81% | -8.69% | 7.02% | 4.34% | - | |

Shading highlights performance at or above median for peer group if available, otherwise at or above benchmark.