

NDPERS  
401(a)  
Defined Contribution Plan  
Quarterly Report  
4<sup>th</sup> Quarter  
10/1/2015 – 12/31/2015



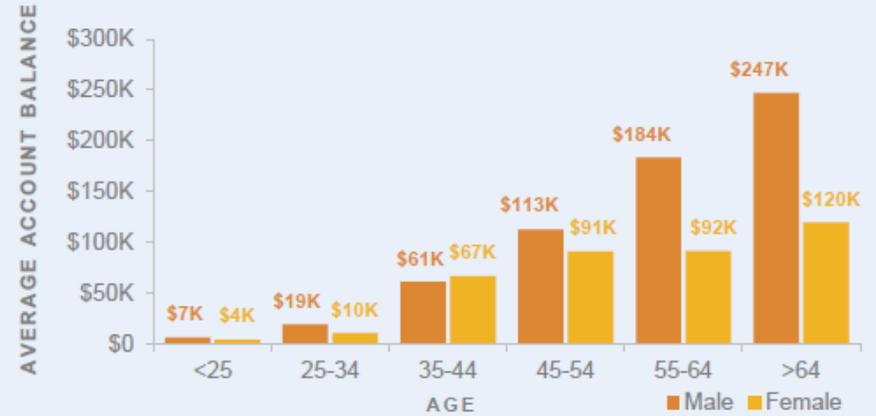
North Dakota Public Employees Retirement System  
400 E Bdwy, Suite 505  
Box 1657  
Bismarck, ND 58502

# Gender and Age Summary<sup>1</sup>

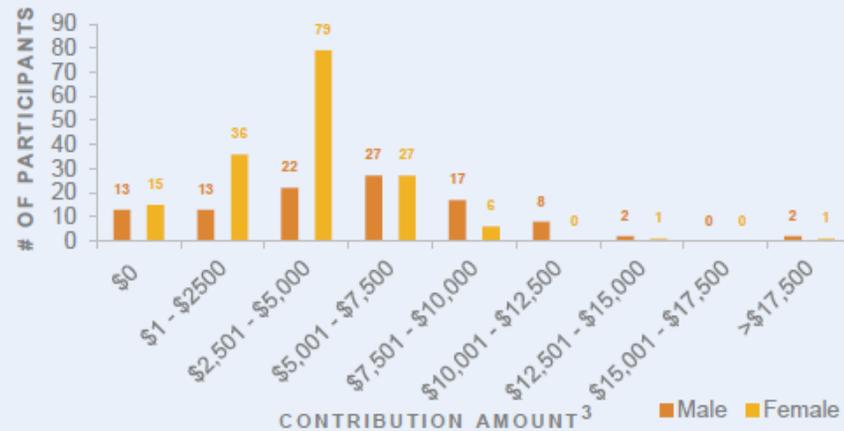
## Demographics By Age and Gender



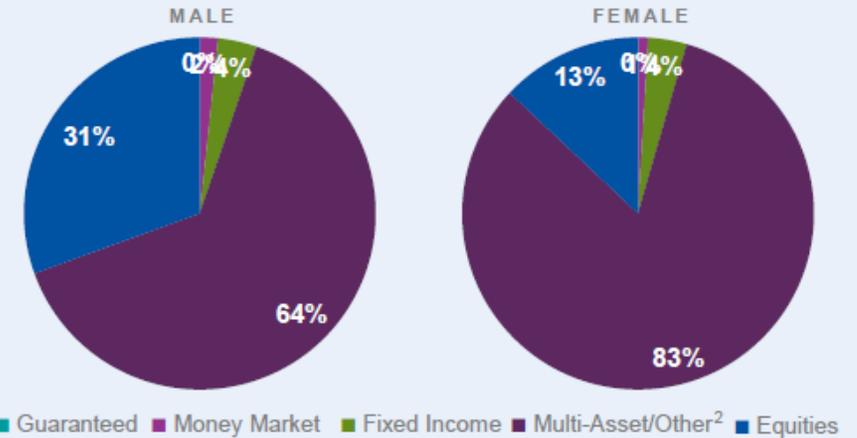
## Average Account Balance By Age and Gender



## Employee Contribution Amounts by Gender



## Diversification by Gender



This report is as of the period ending 12/31/2015 and reflects the trailing 12 months of activity unless otherwise noted. The report includes all TIAA-CREF plans except 457(f), 457(b) Private, Nonqualified Deferred Compensation, and Retirement Healthcare plans.

1. Data reflected is for all participant statuses except Employee Contribution Amounts by Gender which includes only active or leave status. Does not include 3 participants with no age or gender on file. 2. Multi-Asset/Other includes Lifecycle, Real Estate, and Brokerage 3. Contribution data reflects the trailing 12 months of data.

## Average Account Balance by Age



This report is as of the period ending 12/31/2015 and reflects the trailing 12 months of activity unless it is otherwise noted. The report includes all TIAA-CREF plans except 457(f), 457(b) Private, Nonqualified Deferred Compensation, and Retirement Healthcare plans.

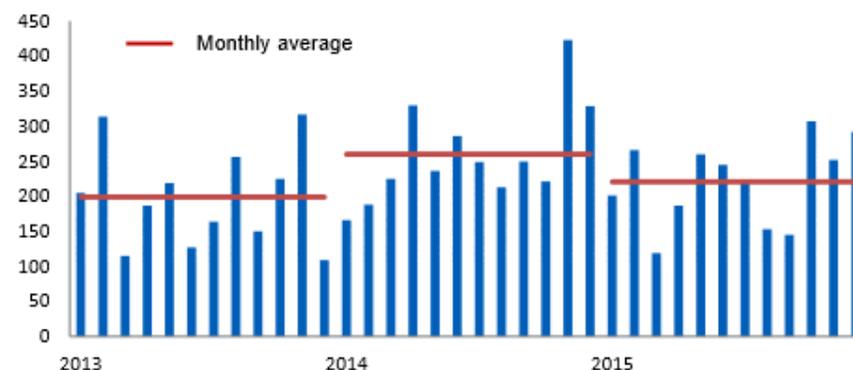
401(a)	Assets	Pct
TIAA-CREF Lifecycle 2035 Fund Retirement	\$4,569,421	16.9%
TIAA-CREF Lifecycle 2030 Fund Retirement	\$4,205,332	15.5%
TIAA-CREF Lifecycle 2025 Fund Retirement	\$3,696,239	13.7%
TIAA-CREF Lifecycle 2020 Fund Retirement	\$2,641,994	9.8%
TIAA-CREF Lifecycle 2040 Fund Retirement	\$1,245,842	4.6%
TIAA-CREF Lifecycle 2010 Fund Retirement	\$916,377	3.4%
Wells Fargo Stable Return Fund - J	\$854,589	3.2%
Wells Fargo Growth Fund Administrator	\$761,740	2.8%
TIAA-CREF Lifecycle 2015 Fund Retirement	\$706,274	2.6%
Vanguard Total International Stock Index Fund Admiral	\$605,296	2.2%
Vanguard 500 Index Fund Admiral	\$594,429	2.2%
PIMCO Total Return Fund Admin	\$496,388	1.8%
Cohen & Steers Realty Shares	\$407,743	1.5%
AllianzGI NFJ Small Cap Value Fund Administrative	\$375,653	1.4%
Vanguard Prime Money Market Fund Investor	\$369,991	1.4%
T. Rowe Price Equity Income Fund	\$355,783	1.3%
T. Rowe Price Capital Appreciation Fund Advisor	\$346,680	1.3%
ASTON/Fairpointe Mid Cap Fund I	\$343,144	1.3%
Franklin Growth Fund Advisor	\$332,374	1.2%
Self Directed Brokerage Account	\$267,600	1.0%
TIAA-CREF Lifecycle 2045 Fund Retirement	\$265,429	1.0%
Franklin Mutual Global Discovery Fund Z	\$255,134	0.9%
Vanguard Dividend Growth Fund Investor	\$244,838	0.9%
Oppenheimer Developing Markets Fund Y	\$240,083	0.9%
Hartford Dividend and Growth Fund R5	\$229,316	0.8%
RidgeWorth Mid Cap Value Equity Fund I	\$227,234	0.8%
Prudential Jennison Mid-Cap Growth Fund Z	\$207,315	0.8%
Brown Capital Management Small Company Fund Institutional	\$193,478	0.7%
TIAA-CREF Lifecycle 2050 Fund Retirement	\$191,245	0.7%
Prudential High Yield Fund Z	\$182,627	0.7%
TIAA-CREF Lifecycle Retirement Income Fund Retirement	\$165,045	0.6%
Templeton Global Bond Fund Advisor	\$158,332	0.6%
Columbia Mid Cap Index Fund A	\$132,212	0.5%
PIMCO Real Return Fund Administrative	\$122,141	0.5%
TIAA-CREF Lifecycle 2055 Fund Retirement	\$90,578	0.3%
DFA U.S. Small Cap Portfolio Institutional	\$45,473	0.2%
TIAA-CREF Lifecycle 2060 Fund Retirement	\$1,086	0.0%
TIAA-CREF Money Market Fund Retirement	\$0	0.0%
<b>Total</b>	<b>\$27,044,453</b>	<b>100.0%</b>

## Economic overview (4Q15)

- The U.S. economy remained on a slow and steady growth path in 4Q, though data releases were less positive later in the period.
- More than 850,000 U.S. jobs were created in the quarter; the unemployment rate was 5% at year-end.
- Inflation remained below the Fed's 2% target, but expectations for future inflation rates rose.
- The Fed ended a long period of uncertainty by hiking interest rates by 25 basis points (0.25%) in December.
- Housing data, though mixed, was an overall bright spot, but manufacturing activity contracted.
- Oil prices tumbled by 18% in 4Q as demand and oversupply concerns intensified.
- China's economic and currency woes, along with slumping commodity prices, continued to weigh on global growth prospects and 4Q markets.
- Eurozone GDP growth and unemployment rates improved, and the ECB announced an extension of its QE stimulus program.
- After contracting in 2Q, Japan skirted a recession in 3Q; the yen generally held its value against the dollar.
- We expect only modest U.S. growth in 2016. China will likely be key to global economic health.

### Healthy pace of job growth continued in 2015

Net change in U.S. nonfarm payrolls, in thousands



Source: Bureau of Labor Statistics

### Annual inflation rate ticked up but remains low

Personal Consumption Expenditure Price Index through November 2015



Source: Bureau of Economic Analysis

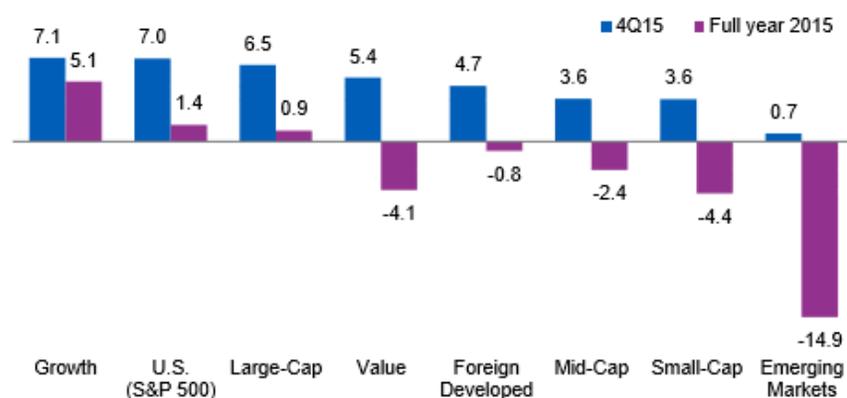
## Equity markets (4Q15)

- The S&P 500 Index (+7.0%) rebounded from a negative 3Q, pushing its full-year return into positive territory (+1.4%).
- All S&P 500 sectors advanced in 4Q, led by Materials (+9.7%), Health Care (+9.2%), and Information Technology (+9.2%).
- Notable laggards included Utilities (+1.1%) and Energy (+0.2%), which by far was also the worst performer (-21.1%) for 2015 as a whole.
- Based on respective Russell indexes, large caps (+6.5%) outpaced both mid caps (+3.6%) and small caps (+3.6%), while growth (+7.1%) beat value (+5.41%).
- Outside the U.S., emerging markets (+0.7%) lagged foreign developed markets (+4.7%), according to MSCI indexes. Emerging markets posted a double-digit loss (-14.9%) for the year.
- Eurozone stocks gained in 4Q (+3.4%) but were down for 2015 overall (-2.8%), partly due to euro's weakness.
- Japan remained a top-performing market, with the Nikkei 225 Index up for the both the quarter (+9.1%) and the year (+10.2%).
- Chinese equity indexes rebounded in 4Q but faced renewed turmoil heading into 2016.

\* U.S. equity returns represented by S&P 500, Russell 2000, Russell 1000, Russell Midcap, Russell 3000 Growth, and Russell 3000 Value indexes; foreign developed-market equity returns represented by MSCI EAFE Index; emerging-market equity returns represented by MSCI Emerging Markets Index. All returns are stated in U.S. dollar terms unless noted otherwise.

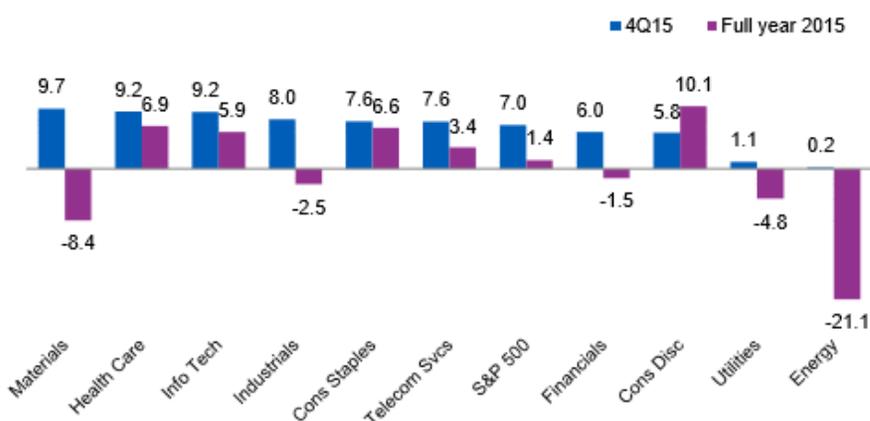
### Equity market returns (%)\*

Periods ended 12/31/2015



### S&P 500 sector returns (%)

Periods ended 12/31/2015



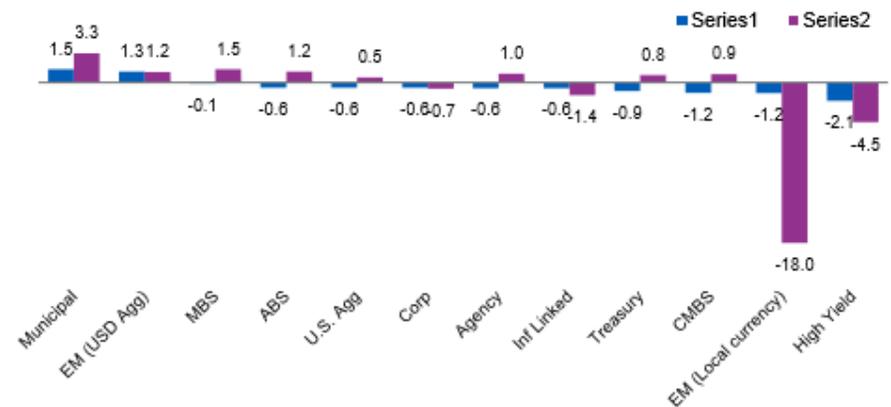
# Fixed-income markets (4Q15)

- Fixed-income assets struggled in 4Q, as price declines largely offset yield-based returns. The Fed's decision to hike rates in December was a primary focus.
- The broad investment-grade fixed-income market, measured by the Barclays U.S. Aggregate Bond Index, returned -0.6% in 4Q and +0.5% for the full year.
- Treasury yields rose across the board, but increases were steeper for shorter-term than for longer-term securities, resulting in a flatter yield curve.
- The bellwether 10-year yield climbed from 2.06% to 2.27%.
- High-yield securities (-2.1% for the quarter and -4.5% for the year) suffered as falling oil and commodity prices sparked fears of potentially higher default rates.
- Local currency EM debt markets posted a 1.2% loss in 4Q and a steep 18.0% decline in 2015 amid a sharp decline in the value of EM currencies.
- Spreads remained relatively stable in the higher-quality ABS sector, but CMBS underperformed as investor risk aversion increased.
- Municipal bonds and USD-denominated EM debt were among the few sectors to realize gains in the quarter.

\* Source: Bond market segments are represented by respective Barclays indexes and related subsets. Segments shown include U.S. Treasury, Agencies, Mortgage-Backed Securities (MBS), Barclays U.S. Aggregate Bond Index, Barclays Global Emerging Markets Bonds Index (Global EM), Corporate Bonds, Asset-Backed Securities (ABS), U.S. High-Yield, Inflation-Linked, and Commercial Mortgage-Backed Securities (CMBS).

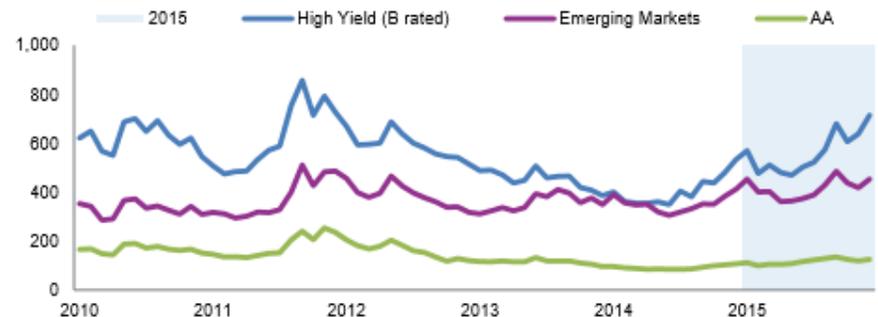
## Fixed-income market returns (%)\*

Periods ended 12/31/2015



## High-yield spreads continued to climb in 2015

Option-adjusted spreads (basis points), monthly data



Option-adjusted spreads measure the relative value of fixed-income securities that contain an embedded option (such as a call provision in a corporate bond); they are quoted as a spread, or differential, over a benchmark security—in this case, the 10-year U.S. Treasury yield. The wider the option-adjusted spread, the higher the implied return and risk of the bond, compared with the benchmark. Data source: Merrill Lynch/Bloomberg.

## NDPERS 401(a) Defined Contribution Plan & 457 Companion Plan - TIAA-CREF

INITIAL OFFERING:			
	Hartford Dividend & Growth T.Rowe Price Equity Income	Vanguard 500 Index Signal Vanguard Dividend Growth	Franklin Growth Adv Wells Fargo Adv Growth Adm
			<b>LARGE</b>
	RidgeWorth Mid Cap Value Equity I	ASTON/Fairpointe Mid Cap I Columbia Mid Cap Index A	Prudential Jennison Mid Cap Growth Z
			<b>MEDIUM</b>
	Allianz NFJ Small Cap Value	DFA US Small Cap	Brown Capital Mgmt Small Co Inv
			<b>SMALL</b>
	<b>VALUE</b>	<b>BLEND</b>	<b>GROWTH</b>
BALANCED FUND: T.Rowe Price Capital Appreciation			
INCOME FUNDS: Wells Fargo Stable Value Fund J Vanguard Prime Money Market			
BOND FUNDS: PIMCO Total Return Bond Fund Prudential High Yield Z			
REAL ESTATE: PIMCO Real Return Admin Bond Fund Templeton Global Bond			
INTERNATIONAL FUNDS: Cohen & Steers Realty Shares			
Mutual Global Discovery Z Vanguard Total Intl Stock Index Oppenheimer Developing Markets Y			
LIFESTYLE FUNDS: TIAA-CREF Lifecycle Ret Income TIAA-CREF Lifecycle 2025 TIAA-CREF Lifecycle 2045			
TIAA-CREF Lifecycle 2010 TIAA-CREF Lifecycle 2030 TIAA-CREF Lifecycle 2050			
TIAA-CREF Lifecycle 2015 TIAA-CREF Lifecycle 2035 TIAA-CREF Lifecycle 2055			
TIAA-CREF Lifecycle 2020 TIAA-CREF Lifecycle 2040 TIAA-CREF Lifecycle 2060			
<b>FUND STYLE CHANGES:</b>			
←←←←← →→→→→			
↑ ↓	ASTON/Fairpointe Mid Cap I ←		
			<b>MEDIUM</b>
			<b>SMALL</b>
	<b>VALUE</b>	<b>BLEND</b>	<b>GROWTH</b>
OTHER FUNDS:			
<b>CURRENT LINEUP:</b>			
	Hartford Dividend & Growth T.Rowe Price Equity Income	Vanguard 500 Index Signal Vanguard Dividend Growth	Franklin Growth Adv Wells Fargo Adv Growth Adm
			<b>LARGE</b>
	ASTON/Fairpointe Mid Cap I RidgeWorth Mid Cap Value Equity	Columbia Mid Cap Index A	Prudential Jennison Mid Cap Growth Z
			<b>MEDIUM</b>
	Allianz NFJ Small Cap Value	DFA US Small Cap	Brown Capital Mgmt Small Co Inv
			<b>SMALL</b>
	<b>VALUE</b>	<b>BLEND</b>	<b>GROWTH</b>
BALANCED FUND: T.Rowe Price Capital Appreciation			
INCOME FUNDS: Wells Fargo Stable Value Fund J Vanguard Prime Money Market			
BOND FUNDS: PIMCO Total Return Bond Fund Prudential High Yield Z			
REAL ESTATE: PIMCO Real Return Admin Bond Fund Templeton Global Bond			
INTERNATIONAL FUNDS: Cohen & Steers Realty Shares			
Mutual Global Discovery Z Vanguard Total Intl Stock Index Oppenheimer Developing Markets Y			
LIFESTYLE FUNDS: TIAA-CREF Lifecycle Ret Income TIAA-CREF Lifecycle 2025 TIAA-CREF Lifecycle 2045			
TIAA-CREF Lifecycle 2010 TIAA-CREF Lifecycle 2030 TIAA-CREF Lifecycle 2050			
TIAA-CREF Lifecycle 2015 TIAA-CREF Lifecycle 2035 TIAA-CREF Lifecycle 2055			
TIAA-CREF Lifecycle 2020 TIAA-CREF Lifecycle 2040 TIAA-CREF Lifecycle 2060			

## NDPERS Investment Benchmarks - 4th Quarter 2015

	<u>Quarter</u>	<u>Y-T-D</u>	<u>1-Year</u>	<u>3-Year</u>	<u>5-Year</u>
<u>Stable Value / Money Market Fund</u>					
<i>Vanguard Prime Money Market - VMMXX</i>	0.03%	0.05%	0.05%	0.03%	0.03%
<i>Wells Fargo Stable Return Fund J - WFSJ#</i>	0.22%	0.83%	0.83%	0.81%	1.04%
3 Month T-Bill Index	0.01%	0.03%	0.03%	0.04%	0.05%
<u>Fixed Income Fund</u>					
<i>PIMCO Real Return Admin - PARRX</i>	-0.88%	-3.00%	-3.00%	-3.17%	1.94%
<i>PIMCO Total Return Bond Fund - PTRAX &lt;ON WATCH&gt;</i>	0.41%	0.46%	0.46%	0.88%	3.26%
Barclays Aggregate Bond Index	-0.57%	0.55%	0.55%	1.44%	3.25%
Taxable Bond Fund Universe	-0.59%	-1.39%	-1.39%	1.36%	4.30%
<i>Prudential High Yield Z - PHYZX</i>	-1.81%	-2.59%	-2.59%	2.41%	5.20%
ML High Yield Bond Fund Index	-2.17%	-4.64%	-4.64%	1.64%	4.84%
High Yield Bond Fund Universe	-1.98%	-4.03%	-4.03%	1.27%	4.10%
<i>Templeton Global Bond Adv - TGBAX</i>	2.26%	-4.03%	-4.03%	0.03%	2.60%
Citi World Govt Bond Index	-1.23%	-3.57%	-3.57%	-2.70%	0.08%
World Bond Fund Universe	-0.58%	-4.08%	-4.08%	-1.55%	1.28%
<u>Real Estate Fund</u>					
<i>Cohen &amp; Steers Realty Shares - CSRSX</i>	7.84%	5.00%	5.00%	12.11%	11.60%
FTSE NAREIT All Equity REITs Index	7.26%	3.20%	3.20%	11.23%	11.96%
Real Estate Fund Universe	6.63%	2.44%	2.44%	10.15%	11.10%
<u>Balanced Fund</u>					
<i>T.Rowe Price Capital Appreciation - PACLX</i>	4.47%	5.12%	5.12%	12.82%	11.06%
60% Large Cap Value Univ & 40% Taxable Bond Universe	2.45%	-2.98%	-2.98%	7.52%	7.57%
60% Russell 1000 Value & 40% Agg Bond Index	3.13%	-2.84%	-2.84%	8.44%	8.08%
<u>Large Cap Equities - Value</u>					
<i>Hartford Dividend &amp; Growth - HDGTX</i>	6.32%	-1.17%	-1.17%	13.50%	10.89%
<i>T.Rowe Price Equity Income - PRFDX &lt;On Watch&gt;</i>	5.67%	-6.66%	-6.66%	9.19%	8.67%
Russell 1000 Value Index	5.60%	-5.10%	-5.10%	13.10%	11.30%
Large Cap Value Fund Universe	4.47%	-4.04%	-4.04%	11.63%	9.75%
<u>Large Cap Equities - Blend</u>					
<i>Vanguard 500 Index Signal - VIFSX</i>	7.04%	1.36%	1.36%	15.09%	12.53%
<i>Vanguard Dividend Growth Fund - VDIGX</i>	6.83%	2.62%	2.62%	14.72%	12.77%
S&P 500 Index	7.04%	1.38%	1.38%	15.13%	12.57%
Large Cap Blend Fund Universe	5.57%	-1.06%	-1.06%	13.23%	10.75%
<u>Large Cap Equities - Growth</u>					
<i>Wells Fargo Adv Growth Adm - SGRKX &lt;ON WATCH&gt;</i>	6.44%	2.70%	2.70%	12.50%	12.50%
Russell 3000 Growth Index	7.09%	5.09%	5.09%	16.62%	13.30%
<i>Franklin Growth Adv - FCGAX</i>	5.23%	2.20%	2.20%	15.14%	11.91%
Russell 1000 Growth Index	7.30%	5.70%	5.70%	16.80%	13.50%
Large Cap Growth Fund Universe	6.73%	3.60%	3.60%	15.27%	11.70%
<u>Mid Cap Equities - Value</u>					
<i>RidgeWorth Mid Cap Value Equity I - SMVTX</i>	6.00%	-6.00%	-6.00%	11.04%	9.09%
Russell Mid Cap Value	3.12%	-4.78%	-4.78%	13.40%	11.25%
Mid Cap Value Fund Universe	2.69%	-5.40%	-5.40%	11.51%	9.06%
<u>Mid Cap Equities - Blend</u>					
<i>Columbia Mid Cap Index A - NTIAX</i>	2.49%	-2.55%	-2.55%	12.26%	10.18%
S&P Mid Cap 400	2.60%	-2.18%	-2.18%	12.76%	10.68%
<i>ASTON/Fairpointe Mid Cap I - ABMIX</i>	5.14%	-10.13%	-10.13%	12.71%	9.39%
Wilshire 4500 Index	3.10%	-2.65%	-2.65%	13.30%	10.48%
Mid Cap Blend Fund Universe	2.38%	-4.78%	-4.78%	11.44%	9.08%
<u>Mid Cap Equities - Growth</u>					
<i>Prudential Jennison Mid Cap Growth Z - PEGZX</i>	2.78%	-2.40%	-2.40%	11.01%	10.25%
Russell Mid Cap Growth	4.12%	-0.20%	-0.20%	14.88%	11.54%
Mid Cap Growth Fund Universe	3.31%	-0.95%	-0.95%	12.82%	9.59%

Fund Returns in RED do not meet both benchmarks.

Fund Returns in BLACK meet both benchmarks.

<b>NDPERS Investment Benchmarks - 4th Quarter 2015</b>					
	<b>Quarter</b>	<b>Y-T-D</b>	<b>1-Year</b>	<b>3-Year</b>	<b>5-Year</b>
<b>Small Cap Equities - Value</b>					
<b>Allianz NFJ Small Cap Value - PVADX</b>	<b>0.72%</b>	<b>-8.18%</b>	<b>-8.18%</b>	<b>7.16%</b>	<b>6.82%</b>
Russell 2000 Value Index	2.88%	-7.47%	-7.47%	9.06%	7.67%
Small Value Fund Universe	2.03%	-6.70%	-6.70%	9.43%	7.68%
<b>Small Cap Equities - Blend</b>					
<b>DFA US Small Cap - DFSTX</b>	<b>2.71%</b>	<b>-3.29%</b>	<b>-3.29%</b>	<b>12.83%</b>	<b>10.49%</b>
Russell 2000 Index	3.59%	-4.41%	-4.41%	11.65%	9.19%
Small Blend Fund Universe	2.69%	-5.38%	-5.38%	10.35%	8.22%
<b>Small Cap Equities - Growth</b>					
<b>Brown Capital Mgmt Small Co Inv - BCSIX</b>	<b>9.21%</b>	<b>8.75%</b>	<b>8.75%</b>	<b>18.30%</b>	<b>14.26%</b>
Russell 2000 Growth Index	4.30%	-1.40%	-1.40%	14.30%	10.70%
Small Growth Fund Universe	2.83%	-2.42%	-2.42%	12.19%	9.40%
<b>International Equity Funds</b>					
<b>Mutual Global Discovery Z - MDISX</b>	<b>3.83%</b>	<b>-3.36%</b>	<b>-3.36%</b>	<b>8.54%</b>	<b>7.18%</b>
<b>Vanguard Total Intl Stock Index Inv - VGTSX</b>	<b>2.74%</b>	<b>-4.26%</b>	<b>-4.26%</b>	<b>1.84%</b>	<b>1.31%</b>
MSCI EAFE	3.24%	-5.66%	-5.66%	1.50%	1.06%
International Stock Fund Universe	4.13%	-1.69%	-1.69%	8.25%	6.51%
<b>Oppenheimer Developing Markets Y - ODVYX</b>	<b>4.67%</b>	<b>-13.84%</b>	<b>-13.84%</b>	<b>-3.68%</b>	<b>-2.29%</b>
MSCI Emerging Markets Index	0.66%	-14.92%	-14.92%	-6.76%	-4.81%
Diversified Emerging Mkts Universe	0.71%	-13.78%	-13.78%	-5.69%	-4.45%
<b>Asset Allocation Funds:</b>					
<b>TIAA-CREF Lifecycle Ret Income - TLIRX</b>	<b>1.77%</b>	<b>0.09%</b>	<b>0.09%</b>	<b>4.58%</b>	<b>5.44%</b>
Income Benchmark	1.70%	-0.63%	-0.63%	4.88%	5.06%
<b>TIAA-CREF Lifecycle 2010 - TCLEX</b>	<b>1.97%</b>	<b>0.07%</b>	<b>0.07%</b>	<b>5.30%</b>	<b>5.87%</b>
2010 Benchmark	2.09%	-0.79%	-0.79%	5.59%	5.54%
<b>TIAA-CREF Lifecycle 2015 - TCLIX</b>	<b>2.30%</b>	<b>0.18%</b>	<b>0.18%</b>	<b>5.95%</b>	<b>6.25%</b>
2015 Benchmark	2.41%	-0.96%	-0.96%	6.18%	5.95%
<b>TIAA-CREF Lifecycle 2020 - TCLTX</b>	<b>2.73%</b>	<b>0.17%</b>	<b>0.17%</b>	<b>6.78%</b>	<b>6.72%</b>
2020 Benchmark	2.84%	-1.20%	-1.20%	6.94%	6.46%
<b>TIAA-CREF Lifecycle 2025 - TCLFX</b>	<b>3.16%</b>	<b>0.12%</b>	<b>0.12%</b>	<b>7.64%</b>	<b>7.18%</b>
2025 Benchmark	3.26%	-1.43%	-1.43%	7.69%	6.97%
<b>TIAA-CREF Lifecycle 2030 - TCLNX</b>	<b>3.63%</b>	<b>0.05%</b>	<b>0.05%</b>	<b>8.41%</b>	<b>7.60%</b>
2030 Benchmark	3.80%	-1.33%	-1.33%	8.44%	7.36%
<b>TIAA-CREF Lifecycle 2035 - TCLRX</b>	<b>4.01%</b>	<b>-0.07%</b>	<b>-0.07%</b>	<b>9.08%</b>	<b>7.94%</b>
2035 Benchmark	4.25%	-1.52%	-1.52%	9.17%	7.79%
<b>TIAA-CREF Lifecycle 2040 - TCLOX</b>	<b>4.44%</b>	<b>-0.11%</b>	<b>-0.11%</b>	<b>9.48%</b>	<b>8.16%</b>
2040 Benchmark	4.52%	-1.63%	-1.63%	9.60%	8.04%
<b>TIAA-CREF Lifecycle 2045 - TTFRX</b>	<b>4.45%</b>	<b>-0.12%</b>	<b>-0.12%</b>	<b>9.48%</b>	<b>8.14%</b>
2045 Benchmark	4.52%	-1.64%	-1.64%	9.60%	8.04%
<b>TIAA-CREF Lifecycle 2050 - TLFrx</b>	<b>4.53%</b>	<b>-0.06%</b>	<b>-0.06%</b>	<b>9.49%</b>	<b>8.16%</b>
2050 Benchmark	4.52%	-1.65%	-1.65%	9.59%	8.03%
<b>TIAA-CREF Lifecycle 2055 - TTRLX</b>	<b>4.48%</b>	<b>-0.13%</b>	<b>-0.13%</b>	<b>9.49%</b>	<b>N/A</b>
2055 Benchmark	4.52%	-1.65%	-1.65%	9.59%	8.03%
<b>TIAA-CREF Lifecycle 2060 - TTRLX</b>	<b>4.52%</b>	<b>-0.03%</b>	<b>-0.03%</b>	<b>N/A</b>	<b>N/A</b>
2060 Benchmark	4.52%	-1.65%	-1.65%	9.59%	8.03%
Income Benchmark is comprised of 27.5% Wilshire 5000, 12.5% MSCI EAFE, 47.4% Ag Bond, 2.5% ML HY Bond, 10.1% 3 Month T-Bill					
2010 Benchmark is comprised of 32.6% Wilshire 5000, 14.5% MSCI EAFE, 42.8% Ag Bond, 2.8% ML HY Bond, 7.3% 3 Month T-Bill					
2015 Benchmark is comprised of 36.9% Wilshire 5000, 16.4% MSCI EAFE, 42.8% Ag Bond, 3.4% ML HY Bond, 5.2% 3 Month T-Bill					
2020 Benchmark is comprised of 42.5% Wilshire 5000, 18.8% MSCI EAFE, 31.1% Ag Bond, 4.4% ML HY Bond, 3.2% 3 Month T-Bill					
2025 Benchmark is comprised of 48.1% Wilshire 5000, 21.1% MSCI EAFE, 24.2% Ag Bond, 5.4% ML HY Bond, 1.2% 3 Month T-Bill					
2030 Benchmark is comprised of 53.8% Wilshire 5000, 23.4% MSCI EAFE, 22.8% Ag Bond					
2035 Benchmark is comprised of 59.4% Wilshire 5000, 25.8% MSCI EAFE, 14.8% Ag Bond					
2040 Benchmark is comprised of 62.7% Wilshire 5000, 27.2% MSCI EAFE, 10.1% Ag Bond					
2045 Benchmark is comprised of 62.7% Wilshire 5000, 27.3% MSCI EAFE, 10.0% Ag Bond					
2050 Benchmark is comprised of 62.6% Wilshire 5000, 27.4% MSCI EAFE, 10.0% Ag Bond					
2055&2060 Benchmark is comprised of 62.6% Wilshire 5000, 27.4% MSCI EAFE, 10.0% Ag Bond					
Wilshire 5000 Index	5.89%	-0.24%	-0.24%	14.43%	11.84%
MSCI EAFE	3.24%	-5.66%	-5.66%	1.50%	1.06%
Barclays Aggregate Bond Index	-0.57%	0.55%	0.55%	1.44%	3.25%
ML High Yield Bond Fund Index	-2.17%	-4.64%	-4.64%	1.64%	4.84%
3 Month T-Bill Index	0.01%	0.03%	0.03%	0.04%	0.05%
<b>Fund Returns in RED do not meet both benchmarks. Fund Returns in BLACK meet both benchmarks.</b>					

# NDPERS Mutual Fund Research - 12/31/2015

## Large Value

Fund	Symbol	Assets	Inception	Manager	Expense Ratio	Yield	Turnover	P/E	Morn-Star Rating	Category Rank	Average Return					Standard=S&P 500 Index				Standard	Sharpe
				Tenure						3 - Year	5 - Year	3-month	1-Year	3-Year	5-Year	10-Year	R-Squared	Beta	Alpha	Deviation	Ratio
Hartford Dividend & Growth	HDGTX	7.0 Billion	12/22/2006	Team	0.74%	1.71	23%	16.0	4-Stars	17	29	6.32	-1.17	13.50	10.89	N/A	98	0.98	-1.17	10.53	1.26
T.Rowe Price Equity Income	PRFDX	22.8 Billion	10/31/1985	29 years	0.66%	2.17	10%	17.6	3-Stars	86	78	5.67	-6.66	9.19	8.67	5.65	95	0.99	-5.24	10.86	0.86

## Large Blend

Fund	Symbol	Assets	Inception	Manager	Expense Ratio	Yield	Turnover	P/E	Morn-Star Rating	Category Rank	Average Return					Standard=S&P 500 Index				Standard	Sharpe	
				Tenure						3 - Year	5 - Year	3-month	1-Year	3-Year	5-Year	10-Year	R-Squared	Beta	Alpha	Deviation	Ratio	
T.Rowe Price Capital Appreciation (Balanced)	PACLX	24.4 Billion	3/6/1990	9 Years	1.01%	1.12	72%	21.2	5-Stars	1	1	4.47	5.12	12.82	11.06	8.23					6.99	1.76
Vanguard 500 Index Signal	VFIAX	219.8 Billion	9/29/2006	24 Years	0.05%	2.10	3%	18.6	4-Stars	13	12	7.04	1.36	15.09	12.53	7.30	100	1.00	-0.03	10.62	1.38	
Vanguard Dividend Growth	VDIGX	26.1 Billion	2/1/2006	9 Years	0.32%	1.86	23%	16.4	5-Stars	12	5	6.83	2.62	14.72	12.77	8.95	94	0.92	0.79	10.04	1.42	

## Large Growth

Fund	Symbol	Assets	Inception	Manager	Expense Ratio	Yield	Turnover	P/E	Morn-Star Rating	Category Rank	Average Return					Standard=S&P 500 Index				Standard	Sharpe
				Tenure						3 - Year	5 - Year	3-month	1-Year	3-Year	5-Year	10-Year	R-Squared	Beta	Alpha	Deviation	Ratio
Wells Fargo Adv Growth Adm	SGRKX	8.0 Billion	8/30/2002	Team	0.96%	0.00	35%	29.1	4-Stars	88	43	6.44	2.70	12.50	12.50	10.85	69	0.98	-1.86	12.54	1.00
Franklin Growth Adv	FCGAX	11.8 Billion	12/31/1996	Team	0.63%	0.48	2%	21.4	3-Stars	44	47	5.23	2.20	15.14	11.91	8.36	94	0.87	1.80	9.56	1.52

## Medium Value

Fund	Symbol	Assets	Inception	Manager	Expense Ratio	Yield	Turnover	P/E	Morn-Star Rating	Category Rank	Average Return					Standard=S&P 500 Index				Standard	Sharpe
				Tenure						3 - Year	5 - Year	3-month	1-Year	3-Year	5-Year	10-Year	R-Squared	Beta	Alpha	Deviation	Ratio
RidgeWorth Mid Cap Value Equity I	SMVTX	3.2 Billion	11/30/2001	13 Years	1.10%	1.21	94%	19.8	4-Stars	64	59	6.00	-6.00	11.04	9.09	9.29	90	1.06	-4.45	11.94	0.93

## Medium Blend

Fund	Symbol	Assets	Inception	Manager	Expense Ratio	Yield	Turnover	P/E	Morn-Star Rating	Category Rank	Average Return					Standard=S&P 500 Index				Standard	Sharpe
				Tenure						3 - Year	5 - Year	3-month	1-Year	3-Year	5-Year	10-Year	R-Squared	Beta	Alpha	Deviation	Ratio
Columbia Mid Cap Index A	NTIAX	3.2 Billion	5/31/2000	Team	0.45%	1.03	13%	20.4	4-Stars	44	38	2.49	-2.55	12.26	10.18	7.77	78	0.98	-2.20	11.86	1.03
ASTON/Fairpointe Mid Cap I	ABMIX	3.7 Billion	7/6/2004	Team	0.86%	0.62	50%	20.5	4-Stars	57	60	5.14	-10.13	12.71	9.39	9.72	78	1.20	-4.64	14.48	0.90

## Medium Growth

Fund	Symbol	Assets	Inception	Manager	Expense Ratio	Yield	Turnover	P/E	Morn-Star Rating	Category Rank	Average Return					Standard=S&P 500 Index				Standard	Sharpe
				Tenure						3 - Year	5 - Year	3-month	1-Year	3-Year	5-Year	10-Year	R-Squared	Beta	Alpha	Deviation	Ratio
Prudential Jennison Mid Cap Growth Z	PEGZX	8.0 Billion	12/31/1996	9 Years	0.75%	0.00	45%	25.0	4-Stars	67	35	2.78	-2.40	11.01	10.25	8.49	79	0.93	-2.54	11.09	1.00

## Small Value

Fund	Symbol	Assets	Inception	Manager	Expense Ratio	Yield	Turnover	P/E	Morn-Star Rating	Category Rank	Average Return					Standard=S&P 500 Index				Standard	Sharpe
				Tenure						3 - Year	5 - Year	3-month	1-Year	3-Year	5-Year	10-Year	R-Squared	Beta	Alpha	Deviation	Ratio
Allianz NFJ Small Cap Value Admin	PVADX	4.1 Billion	11/1/1995	Team	1.03%	1.70	42%	15.4	4-Stars	83	73	0.72	-8.18	7.16	6.82	7.22	74	0.98	-6.82	12.14	0.63

## Small Blend

Fund	Symbol	Assets	Inception	Manager	Expense Ratio	Yield	Turnover	P/E	Morn-Star Rating	Category Rank	Average Return					Standard=S&P 500 Index				Standard	Sharpe
				Tenure						3 - Year	5 - Year	3-month	1-Year	3-Year	5-Year	10-Year	R-Squared	Beta	Alpha	Deviation	Ratio
DFA Small Cap	DFSTX	9.9 Billion	3/19/1992	Team	0.37%	1.13	11%	20.9	4-Stars	18	15	2.71	-3.29	12.83	10.49	7.82	66	1.06	-2.58	13.96	0.93

## Small Growth

Fund	Symbol	Assets	Inception	Manager	Expense Ratio	Yield	Turnover	P/E	Morn-Star Rating	Category Rank	Average Return					Standard=S&P 500 Index				Standard	Sharpe
				Tenure						3 - Year	5 - Year	3-month	1-Year	3-Year	5-Year	10-Year	R-Squared	Beta	Alpha	Deviation	Ratio
Brown Capital Mgmt Small Co Inv	BCSIX	2.5 Billion	1/2/1996	Team	1.25%	0.00	11%	34.0	5-Stars	2	1	9.21	8.75	18.30	14.26	13.02	50	0.97	3.65	14.60	1.22

## International

Fund	Symbol	Assets	Inception	Manager	Expense Ratio	Yield	Turnover	P/E	Morn-Star Rating	Category Rank	Average Return					Standard=ACWI Index				Standard	Sharpe
				Tenure						3 - Year	5 - Year	3-month	1-Year	3-Year	5-Year	10-Year	R-Squared	Beta	Alpha	Deviation	Ratio
Mutual Global Discovery Z	MDISX	24.1 Billion	12/31/1992	Team	0.96%	1.75	24%	16.0	4-Stars	54	40	3.83	-3.36	8.54	7.18	6.79	76	0.71	7.13	9.94	0.87
Vanguard Total Intl Stock Index Inv	VGTSX	186.9 Billion	4/29/1996	7 Years	0.19%	2.77	25%	15.5	3-Stars	85	84	2.74	-4.26	1.84	1.31	N/A	98	0.97	0.29	12.00	0.20
Oppenheimer Developing Markets Y	ODVYX	25.5 Billion	9/7/2005	8 Years	1.05%	0.75	36%	19.6	5-Stars	28	14	4.67	-13.84	-3.68	-2.29	6.16	82	1.08	-5.07	14.68	-0.19

# Lifestyle / Others

Fund	Symbol	Assets	Inception	Manager	Expense	Yield	Turnover	P/E	Morn-Star	Category Rank		Average Return					Standard=S&P 500 Index			Standard	Sharpe	
										3 - Year	5 - Year	3-month	1-Year	3-Year	5-Year	10-Year	R-Squared	Beta	Alpha			Deviation
Vanguard Prime Money Market	VMMXX	136.3 Billion			0.14%	0.07						0.03	0.05	0.03	0.03	1.34					0.01	-2.07
Wells Fargo Stable Return Fund J	WFSJ	30.3 Billion	10/1/1985		1.05%							0.22	0.83	0.81	1.04	2.18	N/A	N/A	N/A	N/A	N/A	N/A
PIMCO Real Return Bond Fund	PARRX	11.1 Billion	4/28/2000	7 Years	0.70%	0.81	117%		3-Stars	69	30	-0.88	-3.00	-3.17	1.94	3.86	N/A	N/A	N/A	N/A	5.99	-0.52
PIMCO Total Return Bond Fund	PTRAX	89.9 Billion	9/8/1994	1 Year	0.71%	2.69	265%		4-Stars	73	52	0.41	0.46	0.88	3.26	5.50	N/A	N/A	N/A	N/A	3.71	0.24
Prudential High Yield Z	PHYZX	3.1 Billion	3/1/1996	Team	0.58%	6.93	48%		5-Stars	27	20	-1.81	-2.59	2.41	5.20	6.84	N/A	N/A	N/A	N/A	5.06	0.49
Templeton Global Bond Adv	TGBAX	54.7 Billion	12/31/1996	Team	0.63%	3.39	43%		4-Stars	33	28	2.26	-4.03	0.03	2.60	7.51	N/A	N/A	N/A	N/A	5.79	0.02
Cohen & Steers Realty Shares	CSRSX	5.7 Billion	7/2/1991	Team	0.97%	2.43	52%	42.1	4-Stars	6	39	7.84	5.00	12.11	11.60	7.81	N/A	N/A	N/A	N/A	14.42	0.86
TIAA-CREF Lifecycle Ret Income	TLIRX	366 Million	11/30/2007	Team	0.61%	2.08	19%	16.1	5-Stars	11	8	1.77	0.09	4.58	5.44	N/A	N/A	N/A	N/A	N/A	5.22	0.88
TIAA-CREF Lifecycle 2010	TCLEX	1.0 Billion	10/15/2004	Team	0.62%	1.91	20%	18.6	4-Stars	19	16	1.97	0.07	5.30	5.87	4.82	N/A	N/A	N/A	N/A	5.78	0.92
TIAA-CREF Lifecycle 2015	TCLIX	1.6 Billion	10/15/2004	Team	0.63%	1.87	16%	18.6	4-Stars	18	16	2.30	0.18	5.95	6.25	4.91	N/A	N/A	N/A	N/A	6.32	0.94
TIAA-CREF Lifecycle 2020	TCLTX	2.7 Billion	10/15/2004	Team	0.64%	1.75	13%	18.6	4-Stars	12	11	2.73	0.17	6.78	6.72	4.93	N/A	N/A	N/A	N/A	7.06	0.96
TIAA-CREF Lifecycle 2025	TCLFX	2.7 Billion	10/15/2004	Team	0.66%	1.70	12%	18.6	4-Stars	15	16	3.16	0.12	7.64	7.18	4.96	N/A	N/A	N/A	N/A	7.86	0.97
TIAA-CREF Lifecycle 2030	TCLNX	2.6 Billion	10/15/2004	Team	0.67%	1.64	11%	18.6	4-Stars	15	13	3.63	0.05	8.41	7.60	4.95	N/A	N/A	N/A	N/A	8.72	0.96
TIAA-CREF Lifecycle 2035	TCLRX	2.6 Billion	10/15/2004	Team	0.68%	1.48	11%	18.6	4-Stars	17	21	4.01	-0.07	9.08	7.94	5.13	N/A	N/A	N/A	N/A	9.50	0.96
TIAA-CREF Lifecycle 2040	TCLOX	3.3 Billion	10/15/2004	Team	0.69%	1.34	11%	18.6	4-Stars	17	17	4.44	-0.11	9.48	8.16	5.39	N/A	N/A	N/A	N/A	10.15	0.94
TIAA-CREF Lifecycle 2045	TFRX	1.3 Billion	11/30/2007	Team	0.69%	1.66	6%	18.6	4-Stars	19	24	4.45	-0.12	9.48	8.14	N/A	N/A	N/A	N/A	N/A	10.14	0.94
TIAA-CREF Lifecycle 2050	TLFRX	781 Million	11/30/2007	Team	0.69%	1.66	7%	18.6	4-Stars	21	25	4.53	-0.06	9.49	8.16	N/A	N/A	N/A	N/A	N/A	10.16	0.94
TIAA-CREF Lifecycle 2055	TTRLX	150 Million	4/29/2011	Team	0.69%	1.61	9%	18.6	4-Stars	30	N/A	4.48	-0.13	9.49	N/A	N/A	N/A	N/A	N/A	N/A	10.12	0.94
TIAA-CREF Lifecycle 2060	TLXRX	10 Million	9/26/2014	Team	0.69%	1.73	N/A	N/A	N/A	N/A	N/A	4.52	-0.03	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**R-squared** - This compares a fund's performance to a given index. If R-squared is 100, the fund moves in lockstep with the index to which it is being compared. Generally, a higher R-squared will indicate a more useful beta figure. If the R-squared is lower, then the beta is less relevant to the fund's performance.

**Beta** - This compares a fund's volatility to a given index. If beta is greater than 1, the fund is more volatile than the index to which it is being compared. If beta is lower than 1, the fund is less volatile than the index. If a fund's R-squared is low, beta is less reliable as a predictor of volatility.

**Alpha** - This is a measure of risk-adjusted performance. The higher a fund's alpha, the better it has done. A fund's alpha is only reliable when its R-squared is relatively high.

**Standard Deviation** - The higher this number is, the more volatile the fund's returns have been. It indicates how much the fund has deviated from its mean total return over the past three years.

**Sharpe Ratio** - This measure combines standard deviation and mean total return to show a risk-adjusted measure of the fund's performance. The higher this number is, the better. As a rule of thumb, a Sharpe ratio of more than 1.00 is very good.