

NDPERS  
401(a) Defined Contribution Plan  
Quarterly Report  
1<sup>st</sup> Quarter  
1/1/2020 – 3/31/2020



North Dakota Public Employees Retirement System  
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March 13, 2018 – The NDPERS Board put the **Prudential Mid Cap Growth fund (PEGZX)** on Formal Fund Review.

March 12, 2019 - The NDPERS Board approved the following actions for the 457 Companion plan:

Close the **Allianz NFJ Small Cap fund (PVADX)** and replace it with the **Northern Small Cap Value fund (NOSGX)**.

Close the **Franklin Mutual Discovery fund (MDISX)** and replace it with the **American Funds New Perspective (RNPEX)**.

Close the **PIMCO Real Return fund (PARRX)** and replace it with the **MassMutual Premier Inflation Protection fund (MIPYX)**.

September 10, 2019 – The NDPERS Board approved the following actions for the 457 Companion plan:

The NDPERS Board approved removing the **Wells Fargo Growth fund (SGRKKX)** from Formal Fund Review.

The NDPERS Board put the **PIMCO Total Return fund (PTRAX)** on Formal Fund Review.

The NDPERS Board put the **AMG/Fairpointe Mid Cap fund (ABMIX)** on Formal Fund Review.

December 10, 2019 – The NDPERS Board approved the following actions for the 457 Companion plan:

The NDPERS Board put the **Templeton Global Bond fund (TGBAX)** on Formal Fund Review.

Close the **AMG/Fairpointe Mid Cap fund (ABMIX)**.

March 10, 2020 - The NDPERS Board approved the following actions for the 401(a) Defined Contribution plan and 457 Companion plan:

Close the **PIMCO Total Return Bond fund (PTRAX)** and replace it with the **Baird Core Plus Bond fund (BCOSX)**.

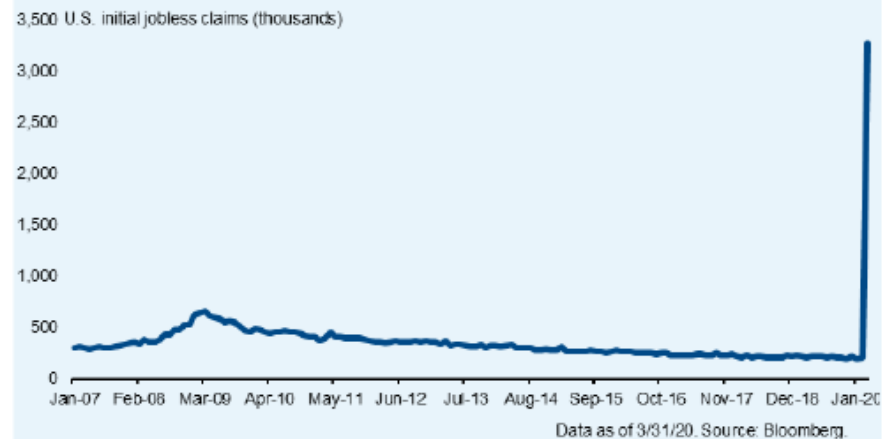
401(a)	Assets	Pct
TIAA-CREF Lifecycle 2030 Fund Retirement	\$1,678,801	12.8%
TIAA-CREF Lifecycle 2025 Fund Retirement	\$1,571,269	12.0%
TIAA-CREF Lifecycle 2035 Fund Retirement	\$1,393,032	10.7%
TIAA-CREF Lifecycle 2020 Fund Retirement	\$910,180	7.0%
TIAA-CREF Lifecycle 2050 Fund Retirement	\$598,964	4.6%
PGIM High Yield Fund Z	\$582,457	4.5%
TIAA-CREF Lifecycle 2045 Fund Retirement	\$540,415	4.1%
Brown Capital Management Small Company Fund Investor	\$522,886	4.0%
TIAA-CREF Lifecycle 2040 Fund Retirement	\$483,307	3.7%
Vanguard Institutional Index Fund Institutional	\$470,289	3.6%
TIAA-CREF Lifecycle 2055 Fund Retirement	\$363,803	2.8%
TIAA-CREF Lifecycle 2010 Fund Retirement	\$352,541	2.7%
Franklin Growth Fund Advisor	\$343,087	2.6%
T. Rowe Price Capital Appreciation Fund Advisor	\$338,844	2.6%
Wells Fargo Growth Fund Administrator	\$318,931	2.4%
Vanguard Admiral Treasury Money Market Fund Investor	\$257,981	2.0%
Vanguard Total International Stock Index Fund Admiral	\$249,933	1.9%
Cohen & Steers Realty Shares	\$201,250	1.5%
American Funds New Perspective Fund R4	\$198,266	1.5%
Hartford Dividend and Growth Fund R5	\$181,917	1.4%
Wells Fargo Stable Value Fund - J	\$167,955	1.3%
Vanguard Dividend Growth Fund Investor	\$161,736	1.2%
PIMCO Total Return Fund Admin	\$155,386	1.2%
Invesco Oppenheimer Developing Markets Fund Y	\$152,156	1.2%
Vanguard Total Bond Market Index Fund Admiral	\$138,401	1.1%
Columbia Mid Cap Index Fund A	\$117,338	0.9%
T. Rowe Price Equity Income Fund	\$109,972	0.8%
Self Directed Brokerage Account	\$90,240	0.7%
Northern Small Cap Value Fund	\$84,678	0.6%
Templeton Global Bond Fund Advisor	\$82,857	0.6%
DFA U.S. Small Cap Portfolio Institutional	\$69,896	0.5%
Prudential Jennison Mid-Cap Growth Fund Z	\$63,638	0.5%
MassMutual Premier Inflation-Protected and Income Fund Service Class	\$61,638	0.5%
TIAA-CREF Lifecycle 2015 Fund Retirement	\$32,683	0.2%
Virtus Ceredex Mid-Cap Value Equity Fund I	\$25,161	0.2%
TIAA-CREF Lifecycle 2060 Fund Retirement	\$4,953	0.0%
TIAA-CREF Lifecycle Retirement Income Fund Retirement	\$0	0.0%
<b>Total</b>	<b>\$13,076,840</b>	<b>100.0%</b>

- Mitigation strategies put in place to stop the global spread of the coronavirus has driven the world into a deep recession of uncertain length.
- The depth and duration of the downturn will be determined by health care policy, while the shape and trajectory of the recovery will be determined by economic policy.
- We expect the U.S. economy to contract at a 20-30% annualized rate in Q2 before partially recovering in the second half.
- U.S. initial jobless claims spiked in late March due to the unprecedented suddenness of the economic shock.
- Global manufacturing activity is weak, although activity in China is showing signs of recovery after its economy shut down in January and February.

## China manufacturing bouncing as rest of world hit hard



## Bracing for a massive spike in U.S. unemployment



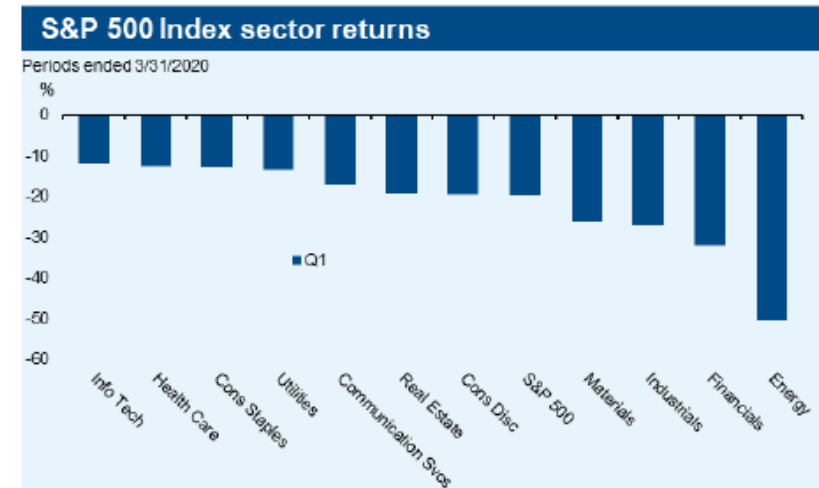
# Equity markets review & outlook



- Global equity markets uniformly entered “bear” territory in Q1, dropping 20% or more from their February peaks.
- Valuations have fallen as well, but by less than stock prices given the dramatic reduction in earnings expectations for the year.
- Energy stocks have been hit by weaker global demand and an unexpected increase in oil supply by OPEC and Russia.
- Growth stocks are outperforming value given the struggles in energy and financials.
- We favor growth sectors like Technology and Health Care, which can outperform in difficult macro environments.
- Earnings estimates will continue to fall; we expect a 20% drop in S&P 500 profits



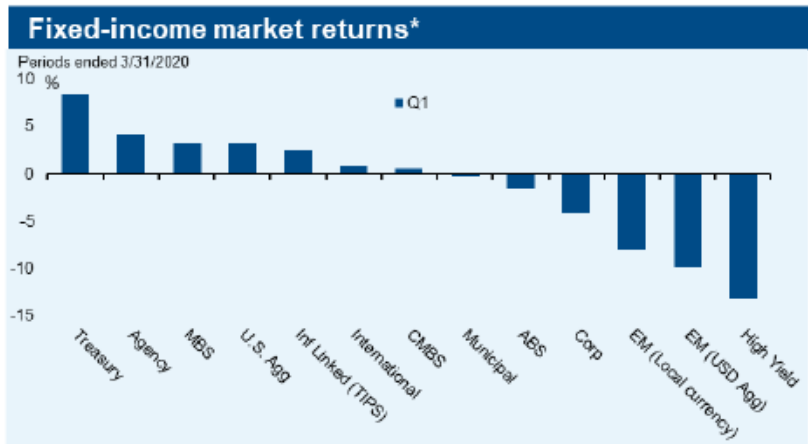
Past Performance is no guarantee of future results.



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\* Growth returns represented by the Russell 3000 Growth Index, emerging-markets returns represented by MSCI Emerging Markets Index, U.S. returns represented by S&P 500 Index, large-cap returns represented by Russell 1000 Index, mid-cap returns represented by Russell Midcap Index, value returns represented by Russell 3000 Value Index, international developed-markets returns represented by MSCI EAFE Index, small-cap returns represented by Russell 2000 Index. All returns are stated in U.S. dollar terms unless noted otherwise. Indices are unmanaged and unavailable for direct investment.

- Higher quality bonds are leading all segments of the fixed income market on risk aversion.
- U.S. credit spreads have widened sharply but are not as distressed as they were during the 2008 financial crisis.
- EM credit should be helped by global stimulus and better U.S. dollar liquidity.
- Some markets—TIPS, municipals and investment grade corporate—became illiquid in March, but there are signs this is abating.
- We expect rates to remain low unless and until risk appetite returns.



Past Performance is no guarantee of future results.



Data source: Bloomberg

\* Sources: Emerging-markets (EM) returns (local currency) represented by Bloomberg Barclays Emerging Markets Local Currency Government Index, Inflation-Linked (TIPS) returns represented by Bloomberg Barclays US Treasury Inflation-Linked Bond Index (Series-L), Corporate returns represented by Bloomberg Barclays US Corporate Bond Index, International returns represented by Bloomberg Barclays Global Aggregate ex-US Index, Municipal bond returns represented by Bloomberg Barclays U.S. Municipal Index, EM bond (USD Agg) returns represented by Bloomberg Barclays Emerging Markets USD Aggregate Index, High Yield returns represented by Bloomberg Barclays US Corporate High-Yield Bond Index, U.S. Agg returns represented by Bloomberg Barclays US Aggregate Bond Index, CMBS returns represented by Bloomberg Barclays US Aggregate Securitized – CMBS Index, MBS returns represented by Bloomberg Barclays US Aggregate Securitized – MBS Index, Treasury returns represented by Bloomberg Barclays US Aggregate Government – Treasury Index, ABS returns represented by Bloomberg Barclays US Aggregate Securitized – ABS Index, Agency returns represented by Bloomberg Barclays US Agency Index.

# Benchmark yearly returns



HIGHEST RETURN

LOWEST RETURN

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	YTD
EM Equity	39.42	Int'l Bond 10.11	EM Equity 78.51	Global RET 27.95	TIPs 13.56	Global RET 19.70	Small Cap 38.82	Global RET 28.03	Global RET 2.83	Small Cap 21.31	EM Equity 37.28	Short Bonds 1.38	S&P 500 31.49	Bonds 3.15
TIPs	11.64	Bonds 5.24	Int'l Small Cap 62.91	Small Cap 26.85	Global RET 8.28	Int'l Small Cap 18.52	Mid Cap 34.76	S&P 500 13.69	Int'l Small Cap 2.60	High Yield 17.13	Int'l Small Cap 31.65	Bonds 0.01	Mid Cap 30.54	Short Bonds 2.17
Int'l Bond	11.45	Short Bonds 5.13	High Yield 58.21	Mid Cap 25.48	Bonds 7.84	EM Equity 18.22	S&P 500 32.39	Mid Cap 13.22	S&P 500 1.38	Mid Cap 13.80	Int'l Equity 25.03	TIPs -1.26	Global RET 28.66	TIPs 1.69
Int'l Equity	11.17	TIPs -2.35	Mid Cap 40.48	Int'l Small Cap 25.21	Int'l Bond 5.17	Int'l Equity 17.32	Int'l Equity 22.78	Bonds 5.97	Short Bonds 0.97	S&P 500 11.96	S&P 500 21.83	Int'l Bond -1.82	Small Cap 25.52	Int'l Bond 1.88
Int'l Small Cap	10.76	High Yield -26.16	Target Date 32.71	EM Equity 18.88	High Yield 4.98	Mid Cap 17.28	Target Date 19.90	Target Date 5.80	Bonds 0.55	EM Equity 11.19	Mid Cap 18.52	High Yield -2.08	Int'l Small Cap 22.42	High Yield -12.68
Target Date	8.48	Small Cap -33.79	Int'l Equity 31.78	Target Date 16.89	Short Bonds 3.14	Small Cap 16.35	Int'l Small Cap 19.73	Small Cap 4.89	Int'l Equity -0.81	Global RET 8.63	Target Date 16.99	Global RET -4.04	Int'l Equity 22.01	Target Date -15.78
Short Bonds	7.27	Target Date 35.15	Global RET 27.99	High Yield 15.12	S&P 500 2.11	S&P 500 16.00	High Yield 7.44	TIPs 3.64	TIPs -1.44	Target Date 8.49	Small Cap 14.65	S&P 500 -4.38	Target Date 19.70	S&P 500 -19.60
Bonds	6.97	S&P 500 -37.00	Small Cap 27.17	S&P 500 15.06	Mid Cap -1.55	High Yield 15.81	Global RET 2.86	High Yield 2.45	Target Date -1.61	TIPs 4.68	Int'l Bond 10.33	Target Date -5.80	EM Equity 18.42	Int'l Equity -22.83
Mid Cap	5.60	Global RET -37.73	S&P 500 26.46	Int'l Equity 7.75	Target Date 2.62	Target Date 13.92	Short Bonds 0.28	Short Bonds 1.42	Mid Cap -2.44	Int'l Small Cap 3.91	Global RET 8.67	Mid Cap -9.06	High Yield 14.32	Global RET -23.44
S&P 500	5.49	Mid Cap -41.46	TIPs 11.41	Bonds 6.54	Small Cap -4.18	TIPs 6.98	Bonds -2.02	EM Equity -2.19	Small Cap -4.41	Bonds 2.65	High Yield 7.5	Small Cap -11.01	Bonds 8.72	EM Equity -23.6
High Yield	1.87	Int'l Equity -43.38	Bonds 5.93	TIPs 6.31	Int'l Equity -12.14	Bonds 4.21	EM Equity -2.60	Int'l Bond -2.68	High Yield -4.47	Int'l Bond 1.81	Bonds 3.54	Int'l Equity -13.79	TIPs 8.43	Mid Cap -27.07
Small Cap	-1.57	Int'l Small Cap -50.23	Short Bonds 4.62	Int'l Bond 5.21	EM Equity -18.42	Short Bonds 2.24	Int'l Bond -4.56	Int'l Small Cap -4.03	Int'l Bond -5.54	Short Bonds 1.56	TIPs 3.01	EM Equity -14.58	Int'l Bond 5.32	Int'l Small Cap 28.04
Global RET	-15.69	EM Equity -53.33	Int'l Bond 4.39	Short Bonds 4.08	Int'l Small Cap -18.50	Int'l Bond 1.51	TIPs -8.61	Int'l Equity -4.90	EM Equity -14.92	Int'l Equity 1.00	Short Bonds 1.27	Int'l Small Cap -18.2	Short Bonds 5.01	Small Cap -30.61

Asset categories' returns could vary widely from year to year which will change annualized returns for 3-, 5-, and 10-year returns accordingly.

Sources: Morningstar Direct

**Past performance is no guarantee of future results. You cannot directly invest in an index.**

Category	Proxy Index
Bonds	BBgBarc US Agg Bond TR USD
High Yield	BBgBarc US Corporate High Yield TR USD
TIPs	BBgBarc US Treasury US TIPS TR USD
Target Date	DJ Target 2035 TR USD
Global REIT	FTSE NAREIT All Equity REITs TR USD
Int'l Equity	MSCI EAFE NR USD
EM Equity	MSCI EM NR USD
Small Cap	Russell 2000 TR USD
Mid Cap	Russell Mid Cap TR USD
S&P 500	S&P 500 TR USD
Int'l Bond	Citi WGBI NonUSD USD
Short Bonds	BBgBarc US Govt/Credit 1-5 Yr TR USD
Int'l Small Cap	MSCI ACWI Ex USA Small NR USD

Sources: Morningstar Direct

Unless noted YTD, returns are as of year end listed.

As of 3/31/2020

# 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	LARGE
	Virtus Mid Cap Value Equity I	Columbia Mid Cap Index A	Prudential Jennison Mid Cap Growth Z	MEDIUM
	Northern Small Cap Value	DFA US Small Cap	Brown Capital Mgmt Small Co Inv	SMALL
	VALUE	BLEND	GROWTH	
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 Mass Mutual Inflation Protected Bond Fund	Vanguard Total Bond Index Fund Prudential High Yield Z	Templeton Global Bond	
REAL ESTATE:	Cohen & Steers Realty Shares			
INTERNATIONAL FUNDS:	American Funds New Perspective	Vanguard Total Intl Stock Index	Oppenheimer Developing Markets Y	
LIFESTYLE FUNDS:	TIAA-CREF Lifecycle Ret Income TIAA-CREF Lifecycle 2010 TIAA-CREF Lifecycle 2015 TIAA-CREF Lifecycle 2020	TIAA-CREF Lifecycle 2025 TIAA-CREF Lifecycle 2030 TIAA-CREF Lifecycle 2035 TIAA-CREF Lifecycle 2040	TIAA-CREF Lifecycle 2045 TIAA-CREF Lifecycle 2050 TIAA-CREF Lifecycle 2055 TIAA-CREF Lifecycle 2060	
<b>FUND STYLE CHANGES:</b>				
				LARGE
			Brown Capital Mgmt Small Co Inv	MEDIUM
				SMALL
	VALUE	BLEND	GROWTH	
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	LARGE
	Virtus Mid Cap Value Equity	Columbia Mid Cap Index A	Prudential Jennison Mid Cap Growth Z Brown Capital Mgmt Small Co Inv	MEDIUM
	Northern Small Cap Value	DFA US Small Cap		SMALL
	VALUE	BLEND	GROWTH	
BALANCED FUND:	T.Rowe Price Capital Appreciation			
INCOME FUNDS:	Wells Fargo Stable Value Fund J	Vanguard Treasury Money Market		
BOND FUNDS:	PIMCO Total Return Bond Fund Mass Mutual Inflation Protected Bond Fund	Vanguard Total Bond Index Fund Prudential High Yield Z	Templeton Global Bond	
REAL ESTATE:	Cohen & Steers Realty Shares			
INTERNATIONAL FUNDS:	American Funds New Perspective	Vanguard Total Intl Stock Index	Oppenheimer Developing Markets Y	
LIFESTYLE FUNDS:	TIAA-CREF Lifecycle Ret Income TIAA-CREF Lifecycle 2010 TIAA-CREF Lifecycle 2015 TIAA-CREF Lifecycle 2020	TIAA-CREF Lifecycle 2025 TIAA-CREF Lifecycle 2030 TIAA-CREF Lifecycle 2035 TIAA-CREF Lifecycle 2040	TIAA-CREF Lifecycle 2045 TIAA-CREF Lifecycle 2050 TIAA-CREF Lifecycle 2055 TIAA-CREF Lifecycle 2060	



<b>NDPERS Investment Benchmarks - 1st Quarter 2020</b>					
	<b>Quarter</b>	<b>Y-T-D</b>	<b>1-Year</b>	<b>3-Year</b>	<b>5-Year</b>
<u>Stable Value / Money Market Fund</u>					
<b>Vanguard Treasury Money Market - VUSXX</b>	0.35%	0.35%	1.91%	1.65%	1.07%
<b>Wells Fargo Stable Return Fund J - WFSJ#</b>	0.39%	0.39%	1.69%	1.44%	1.23%
3 Month T-Bill Index	0.39%	0.39%	2.04%	1.74%	1.12%
<u>Fixed Income Fund</u>					
<b>Mass Mutual Income Bond Fund - MIPYX</b>	-1.15%	-1.15%	3.61%	2.35%	2.03%
<b>PIMCO Total Return Bond Fund - PTRAX &lt;ON WATCH&gt;</b>	2.13%	2.13%	7.37%	4.25%	2.98%
<b>Vanguard Total Bond Market Index Fund - VBTIX</b>	3.27%	3.27%	9.06%	4.83%	3.33%
US Aggregate Bond Index	3.18%	3.18%	9.06%	4.87%	3.38%
Taxable Corporate Bond Fund Universe	-4.74%	-4.74%	2.64%	2.96%	2.77%
<b>Prudential High Yield Z - PHYZX</b>	-14.17%	-14.17%	-7.20%	0.98%	3.03%
BofA High Yield Bond Fund Index	-13.12%	-13.12%	-7.45%	0.55%	2.67%
High Yield Bond Fund Universe	-12.70%	-12.70%	-7.67%	-0.18%	1.66%
<b>Templeton Global Bond Adv - TGBAX &lt;ON WATCH&gt;</b>	-4.43%	-4.43%	-5.45%	-1.38%	0.49%
World Govt Bond Index	2.00%	2.00%	6.17%	4.27%	2.98%
World Bond Fund Universe	-5.02%	-5.02%	-1.16%	1.17%	1.03%
<u>Real Estate Fund</u>					
<b>Cohen &amp; Steers Realty Shares - CSRSX</b>	-22.83%	-22.83%	-12.49%	1.22%	2.11%
FTSE NAREIT Equity REITs Index	-23.44%	-23.44%	-15.93%	0.06%	1.99%
Real Estate Fund Universe	-26.35%	-26.35%	-19.21%	-2.77%	-0.46%
<u>Balanced Fund</u>					
<b>T.Rowe Price Capital Appreciation - PACLX</b>	-12.05%	-12.05%	-2.29%	6.21%	6.76%
60% Large Cap Value Univ & 40% Taxable Bond Universe	-17.96%	-17.96%	-9.58%	-0.08%	1.96%
60% Russell 1000 Value & 40% Agg Bond Index	-14.77%	-14.77%	-6.68%	0.64%	2.49%
<u>Large Cap Equities - Value</u>					
<b>Hartford Dividend &amp; Growth - HDGTX</b>	-22.43%	-22.43%	-10.71%	2.18%	4.73%
<b>T.Rowe Price Equity Income - PRFDX</b>	-28.36%	-28.36%	-18.30%	-2.57%	1.46%
Russell 1000 Value Index	-26.73%	-26.73%	-17.17%	-2.18%	1.90%
Large Cap Value Fund Universe	-26.77%	-26.77%	-17.73%	-2.11%	1.42%
<u>Large Cap Equities - Blend</u>					
<b>Vanguard Institutional Index - VINIX</b>	-19.60%	-19.60%	-7.00%	5.08%	6.70%
<b>Vanguard Dividend Growth Fund - VDIGX</b>	-17.29%	-17.29%	-4.86%	6.94%	7.22%
S&P 500 Index	-19.60%	-19.60%	-6.98%	5.10%	6.73%
Large Cap Blend Fund Universe	-20.92%	-20.92%	-9.97%	2.80%	4.46%
<u>Large Cap Equities - Growth</u>					
<b>Wells Fargo Adv Growth Adm - SGRKX</b>	-16.24%	-16.24%	-3.93%	11.68%	8.65%
Russell 3000 Growth Index	-14.85%	-14.85%	-0.44%	10.54%	9.74%
<b>Franklin Growth Adv - FCGAX</b>	-16.11%	-16.11%	-3.56%	8.13%	8.02%
Russell 1000 Growth Index	-14.10%	-14.10%	0.91%	11.32%	10.36%
Large Cap Growth Fund Universe	-15.48%	-15.48%	-3.72%	8.65%	7.64%
<u>Mid Cap Equities - Value</u>					
<b>Virtus Mid Cap Value Equity I - SMVTX</b>	-34.13%	-34.13%	-23.34%	-4.98%	0.31%
Russell Mid Cap Value	-31.71%	-31.71%	-24.13%	-5.97%	-0.76%
Mid Cap Value Fund Universe	-32.53%	-32.53%	-25.38%	-6.89%	-1.79%
<u>Mid Cap Equities - Blend</u>					
<b>Columbia Mid Cap Index A - NTIAX</b>	-29.85%	-29.85%	-22.97%	-4.57%	0.07%
S&P Mid Cap 400	-29.70%	-29.70%	-22.51%	-4.09%	0.56%
Mid Cap Blend Fund Universe	-28.28%	-28.28%	-20.69%	-3.71%	-0.58%
<u>Mid Cap Equities - Growth</u>					
<b>Prudential Jennison Mid Cap Growth - PEGZX &lt;ON WATCH&gt;</b>	-20.01%	-20.01%	-8.14%	4.49%	3.46%
Russell Mid Cap Growth	-20.04%	-20.04%	-9.45%	6.53%	5.61%
Mid Cap Growth Fund Universe	-20.64%	-20.64%	-11.17%	4.66%	4.33%

**Fund Returns in RED do not meet both benchmarks.**

**Fund Returns in BLACK meet both benchmarks.**

## NDPERS Investment Benchmarks - 1st Quarter 2020

	Quarter	Y-T-D	1-Year	3-Year	5-Year
<u>Small Cap Equities - Value</u>					
<b>Northern Small Cap Value Fund - NOSGX</b>	<b>-34.43%</b>	<b>-34.43%</b>	<b>-28.37%</b>	<b>-9.56%</b>	<b>-2.57%</b>
Russell 2000 Value Index	-35.66%	-35.66%	-29.64%	-9.51%	-2.42%
Small Value Fund Universe	-36.89%	-36.89%	-31.64%	-11.15%	-4.27%
<u>Small Cap Equities - Blend</u>					
<b>DFA US Small Cap - DFSTX</b>	<b>-32.73%</b>	<b>-32.73%</b>	<b>-27.15%</b>	<b>-7.72%</b>	<b>-1.84%</b>
Russell 2000 Index	-30.61%	-30.61%	-23.99%	-4.64%	-0.25%
Small Blend Fund Universe	-32.37%	-32.37%	-26.41%	-6.82%	-1.76%
<u>Small Cap Equities - Growth</u>					
<b>Brown Capital Mgmt Small Co Inv - BCSIX</b>	<b>-15.46%</b>	<b>-15.46%</b>	<b>-8.55%</b>	<b>8.72%</b>	<b>9.49%</b>
Russell 2000 Growth Index	-25.76%	-25.76%	-18.58%	0.10%	1.70%
Small Growth Fund Universe	-24.59%	-24.59%	-17.66%	1.69%	2.77%
<u>International Equity Funds</u>					
<b>American Funds New Perspective Fund - RNPEX</b>	<b>-18.26%</b>	<b>-18.26%</b>	<b>-6.69%</b>	<b>5.57%</b>	<b>5.71%</b>
<b>Vanguard Total Intl Stock Index Inv - VTIAI</b>	<b>-24.30%</b>	<b>-24.30%</b>	<b>-16.57%</b>	<b>-2.55%</b>	<b>-0.68%</b>
MSCI ACWI Index	-23.36%	-23.36%	-15.57%	-1.96%	-0.64%
International Stock Fund Universe	-23.39%	-23.39%	-15.67%	-2.74%	-1.14%
<b>Oppenheimer Developing Markets Y - ODVYX</b>	<b>-22.83%</b>	<b>-22.83%</b>	<b>-14.65%</b>	<b>0.92%</b>	<b>1.31%</b>
MSCI Emerging Markets Index	-23.60%	-23.60%	-17.69%	-1.62%	-0.37%
Diversified Emerging Mkts Universe	-25.26%	-25.26%	-19.17%	-3.34%	-1.35%
<u>Asset Allocation Funds:</u>					
<b>TIAA-CREF Lifecycle Ret Income - TLIRX</b>	<b>-9.68%</b>	<b>-9.68%</b>	<b>-2.77%</b>	<b>2.47%</b>	<b>2.84%</b>
Income Benchmark	-3.86%	-3.86%	1.91%	3.19%	2.68%
<b>TIAA-CREF Lifecycle 2010 - TCLEX</b>	<b>-9.69%</b>	<b>-9.69%</b>	<b>-2.70%</b>	<b>2.61%</b>	<b>3.00%</b>
2010 Benchmark	-8.07%	-8.07%	-1.26%	2.89%	2.87%
<b>TIAA-CREF Lifecycle 2015 - TCLIX</b>	<b>-10.87%</b>	<b>-10.87%</b>	<b>-3.62%</b>	<b>2.52%</b>	<b>3.04%</b>
2015 Benchmark	-10.28%	-10.28%	-2.92%	2.74%	2.98%
<b>TIAA-CREF Lifecycle 2020 - TCLTX</b>	<b>-12.00%</b>	<b>-12.00%</b>	<b>-4.45%</b>	<b>2.56%</b>	<b>3.17%</b>
2020 Benchmark	-12.16%	-12.16%	-4.34%	2.60%	3.07%
<b>TIAA-CREF Lifecycle 2025 - TCLFX</b>	<b>-13.85%</b>	<b>-13.85%</b>	<b>-5.88%</b>	<b>2.35%</b>	<b>3.15%</b>
2025 Benchmark	-13.75%	-13.75%	-5.54%	2.50%	3.14%
<b>TIAA-CREF Lifecycle 2030 - TCLNX</b>	<b>-15.66%</b>	<b>-15.66%</b>	<b>-7.31%</b>	<b>2.17%</b>	<b>3.15%</b>
2030 Benchmark	-16.41%	-16.41%	-7.57%	2.30%	3.26%
<b>TIAA-CREF Lifecycle 2035 - TCLRX</b>	<b>-17.52%</b>	<b>-17.52%</b>	<b>-8.72%</b>	<b>1.96%</b>	<b>3.11%</b>
2035 Benchmark	-19.88%	-19.88%	-10.44%	1.91%	3.31%
<b>TIAA-CREF Lifecycle 2040 - TCLOX</b>	<b>-19.23%</b>	<b>-19.23%</b>	<b>-10.20%</b>	<b>1.66%</b>	<b>3.03%</b>
2040 Benchmark	-21.09%	-21.09%	-11.41%	1.79%	3.34%
<b>TIAA-CREF Lifecycle 2045 - TTFRX</b>	<b>-20.73%</b>	<b>-20.73%</b>	<b>-11.47%</b>	<b>1.27%</b>	<b>2.88%</b>
2045 Benchmark	-21.11%	-21.11%	-11.42%	1.80%	3.35%
<b>TIAA-CREF Lifecycle 2050 - TLFrx</b>	<b>-20.99%</b>	<b>-20.99%</b>	<b>-11.70%</b>	<b>1.23%</b>	<b>2.89%</b>
2050 Benchmark	-21.11%	-21.11%	-11.42%	1.80%	3.35%
<b>TIAA-CREF Lifecycle 2055 - TTRLX</b>	<b>-21.21%</b>	<b>-21.21%</b>	<b>-11.84%</b>	<b>1.21%</b>	<b>2.91%</b>
2055 Benchmark	-21.11%	-21.11%	-11.42%	1.80%	3.35%
<b>TIAA-CREF Lifecycle 2060 - TLXRX</b>	<b>-21.37%</b>	<b>-21.37%</b>	<b>-11.92%</b>	<b>1.20%</b>	<b>2.94%</b>
2060 Benchmark	-21.11%	-21.11%	-11.41%	1.80%	3.35%
Income Benchmark is comprised of 11.1% Wilshire 5000, 9.1% MSCI ACWI, 52.4% Ag Bond, 5.0% REIT Index, 22.4% 3 Month T-Bill					
2010 Benchmark is comprised of 23.1% Wilshire 5000, 14.9% MSCI ACWI, 42.0% Ag Bond, 5.0% REIT Index, 15.0% 3 Month T-Bill					
2015 Benchmark is comprised of 29.6% Wilshire 5000, 17.7% MSCI ACWI, 36.2% Ag Bond, 5.0% REIT Index, 11.5% 3 Month T-Bill					
2020 Benchmark is comprised of 35.1% Wilshire 5000, 20.1% MSCI ACWI, 31.2% Ag Bond, 5.0% REIT Index, 8.6% 3 Month T-Bill					
2025 Benchmark is comprised of 39.8% Wilshire 5000, 22.1% MSCI ACWI, 27.0% Ag Bond, 5.0% REIT Index, 6.1% 3 Month T-Bill					
2030 Benchmark is comprised of 47.6% Wilshire 5000, 25.5% MSCI ACWI, 19.7% Ag Bond, 5.0% REIT Index, 2.2% 3 Month T-Bill					
2035 Benchmark is comprised of 57.4% Wilshire 5000, 29.7% MSCI ACWI, 5.8% Ag Bond, 5.0% REIT Index, 2.1% 3 Month T-Bill					
2040 Benchmark is comprised of 60.8% Wilshire 5000, 31.3% MSCI ACWI, 1.8% Ag Bond, 5.0% REIT Index, 1.3% 3 Month T-Bill					
2045 Benchmark is comprised of 60.9% Wilshire 5000, 31.3% MSCI ACWI, 1.8% Ag Bond, 5.0% REIT Index, 1.1% 3 Month T-Bill					
2050 Benchmark is comprised of 60.9% Wilshire 5000, 31.3% MSCI ACWI, 1.8% Ag Bond, 5.0% REIT Index, 1.1% 3 Month T-Bill					
2055 Benchmark is comprised of 61.0% Wilshire 5000, 31.2% MSCI ACWI, 1.7% Ag Bond, 5.0% REIT Index, 1.1% 3 Month T-Bill					
2060 Benchmark is comprised of 61.0% Wilshire 5000, 31.2% MSCI ACWI, 1.8% Ag Bond, 5.0% REIT Index, 1.1% 3 Month T-Bill					
Wilshire 5000 Index	-20.84%	-20.84%	-9.74%	3.78%	5.54%
FTSE NAREIT Equity REITs Index	-23.44%	-23.44%	-15.93%	0.06%	1.99%
MSCI ACWI Index	-23.36%	-23.36%	-15.57%	-1.96%	-0.64%
US Aggregate Bond Index	3.18%	3.18%	9.06%	4.87%	3.38%
3 Month T-Bill Index	0.39%	0.39%	2.04%	1.74%	1.12%
<b>Fund Returns in RED do not meet both benchmarks. Fund Returns in BLACK meet both benchmarks.</b>					

## NDPERS Mutual Fund Research - Q1 2020

### Large Value

Fund	Symbol	Assets	Inception	Manager	Tenure	Expense Ratio	Yield	Turnover	P/E	Rating	Mom-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	Ratio
Hartford Dividend & Growth	HDGTX	8.0 Billion	12/22/2006	Team		0.75%	2.23	22%	14.3	5-Stars		8	8	-22.43%	-10.71%	2.18%	4.73%	8.70%	96	0.97	-2.70	14.98	0.10
T.Rowe Price Equity Income	PRFDX	16.2 Billion	10/31/1985	2 years		0.64%	2.76	18%	15.1	3-Stars		60	51	-28.36%	-18.30%	-2.57%	1.46%	6.44%	93	1.10	-7.63	17.30	-0.16

### Large Blend

Fund	Symbol	Assets	Inception	Manager	Tenure	Expense Ratio	Yield	Turnover	P/E	Rating	Mom-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	Ratio
T.Rowe Price Capital Appreciation (Balanced)	PACLX	34.4 Billion	3/6/1990	11 Years		1.00%	N/A	45%	23.4	5-Stars		4	2	-12.05%	-2.29%	6.21%	6.76%	9.47%				10.03	0.48
Vanguard 500 Index	VINIX	190.8 Billion	9/29/2006	17 Years		0.04%	2.28	4%	17.2	5-Stars		19	11	-19.60%	-7.00%	5.08%	6.70%	10.50%	100	1.00	-0.03	15.21	0.29
Vanguard Dividend Growth	VDIGX	35.4 Billion	2/1/2006	13 Years		0.22%	2.19	17%	20.5	5-Stars		4	6	-17.29%	-4.86%	6.94%	7.22%	10.61%	90	0.82	2.24	13.09	0.45

### Large Growth

Fund	Symbol	Assets	Inception	Manager	Tenure	Expense Ratio	Yield	Turnover	P/E	Rating	Mom-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	Ratio
Wells Fargo Adv Growth Adm	SGRKX	3.9 Billion	8/30/2002	Team		0.96%	N/A	39%	28.4	4-Stars		21	38	-16.24%	-3.93%	11.68%	8.65%	12.70%	87	1.08	6.13	17.70	0.62
Franklin Growth Adv	FCGAX	14.1 Billion	12/31/1996	Team		0.59%	0.72	5%	22.9	3-Stars		58	46	-16.11%	-3.56%	8.13%	8.02%	10.93%	96	0.99	2.90	15.37	0.47

### Medium Value

Fund	Symbol	Assets	Inception	Manager	Tenure	Expense Ratio	Yield	Turnover	P/E	Rating	Mom-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	Ratio
Virtus Mid Cap Value Equity I	SMVTX	2.7 Billion	11/30/2001	16 Years		1.01%	1.47	121%	18.5	4-Stars		23	19	-34.13%	-23.34%	-4.98%	0.31%	6.65%	86	1.24	-10.08	20.44	-0.23

### Medium Blend

Fund	Symbol	Assets	Inception	Manager	Tenure	Expense Ratio	Yield	Turnover	P/E	Rating	Mom-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	Ratio
Columbia Mid Cap Index A	NTIAX	2.8 Billion	5/31/2000	Team		0.45%	1.60	17%	15.8	3-Stars		67	42	-29.85%	-22.97%	-4.57%	0.07%	7.37%	92	1.25	-9.87	19.88	-0.22

### Medium Growth

Fund	Symbol	Assets	Inception	Manager	Tenure	Expense Ratio	Yield	Turnover	P/E	Rating	Mom-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	Ratio
Prudential Jennison Mid Cap Growth (WATCH)	PEGZX	2.6 Billion	12/31/1996	Team		0.79%	0.00	31%	23.9	3-Stars		51	66	-20.01%	-8.14%	4.49%	3.46%	9.03%	88	1.01	0.34	13.08	1.05

### Small Value

Fund	Symbol	Assets	Inception	Manager	Tenure	Expense Ratio	Yield	Turnover	P/E	Rating	Mom-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	Ratio
Northern Small Cap Value	NOSGX	2.2 Billion	3/31/1994	17 Years		1.00%	1.56	16%	14.7	4-Stars		25	21	-34.43%	-28.37%	-9.56%	-2.57%	5.48%	82	1.28	-14.98	21.49	-0.44

### Small Blend

Fund	Symbol	Assets	Inception	Manager	Tenure	Expense Ratio	Yield	Turnover	P/E	Rating	Mom-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	Ratio
DFA Small Cap	DFSTX	12.4 Billion	3/19/1992	Team		0.35%	1.48	8%	13.5	3-Stars		65	52	-32.73%	-27.15%	-7.72%	-1.84%	6.73%	86	1.32	-13.12	21.77	-0.34

### Small Growth

Fund	Symbol	Assets	Inception	Manager	Tenure	Expense Ratio	Yield	Turnover	P/E	Rating	Mom-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	Ratio
Brown Capital Mgmt Small Co Inv	BCSIX	4.7 Billion	1/2/1996	Team		1.26%	0.00	17%	39.8	5-Stars		16	5	-15.46%	-8.55%	8.72%	9.49%	13.53%	67	1.15	3.86	21.39	0.42

International																						
Fund	Symbol	Assets	Inception	Manager	Expense Ratio	Yield	Turnover	P/E	Rating	Mom-Star	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	
American Funds New Perspective	RNPEX	84.1 Billion	5/28/2002	Team	0.77%	0.86	20%	21.3	4-Stars	17	15	-18.26%	-6.69%	5.57%	5.71%	8.30%	90	0.93	7.19	14.87	0.32	
Vanguard Total Intl Stock Index Inv	VTIAX	344.4 Billion	4/29/1996	10 Years	0.11%	3.88	4%	13.1	3-Stars	53	37	-24.30%	-16.57%	-2.55%	-0.68%	1.98%	99	1.02	-0.47	15.50	-0.20	
Oppenheimer Developing Markets Y	ODVYX	34.4 Billion	9/7/2005	12 Years	1.00%	0.66	7%	18.1	5-Stars	13	14	-22.83%	-14.65%	0.92%	1.31%	3.03%	90	1.05	3.24	16.66	0.03	

## Lifestyle / Others

Fund	Symbol	Assets	Inception	Manager	Expense Ratio	Yield	Turnover	P/E	Rating	Mom-Star	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	
Vanguard Treasury Money Market	VUSXX	26.9 Billion		1 Year	0.09%	2.19							0.35%	1.91%	1.65%	1.07%	0.54%				N/A	N/A
Wells Fargo Stable Return Fund J	WFSJ	30.3 Billion	10/1/1985		1.05%								0.39%	1.69%	1.44%	1.23%	1.24%	N/A	N/A	N/A	N/A	N/A
Mass Mutual Premier Bond Fund	MIPYX	0.33 Billion	12/31/2003	15 Years	0.68%	2.49	42%		4-Stars	51	39	-1.15%	3.61%	2.35%	2.03%	3.08%	N/A	N/A	N/A	4.10	0.16	
PIMCO Total Return Bond Fund (CLOSED)	PTRAX	66.8 Billion	9/8/1994	4 Years	0.96%	2.57	723%		4-Stars	22	36	2.13%	7.37%	4.25%	2.98%	3.85%	N/A	N/A	N/A	3.28	0.76	
Vanguard Total Bond Market Index Fund	VBTLX	259.3 Billion	11/12/2001	6 Years	0.05%	1.83	31%		4-Stars	7	13	3.27%	9.06%	4.83%	3.33%	3.84%	N/A	N/A	N/A	3.25	0.94	
Prudential High Yield Z	PHYZX	12.2 Billion	3/1/1996	Team	0.54%	9.38	43%	7.6	5-Stars	18	5	-14.17%	-7.20%	0.98%	3.03%	5.66%	N/A	N/A	N/A	8.67	-0.05	
Templeton Global Bond Adv (WATCH)	TGBAX	22.6 Billion	12/31/1996	Team	0.69%	3.43	91%	8.3	3-Stars	85	79	-4.43%	-5.45%	-1.38%	0.49%	2.59%	N/A	N/A	N/A	6.30	-0.47	
Cohen & Steers Realty Shares	CSRSX	3.4 Billion	7/2/1991	Team	0.88%	1.74	63%	42.1	4-Stars	10	9	-22.83%	-12.49%	1.22%	2.11%	8.35%	N/A	N/A	N/A	16.53	0.05	
TIAA-CREF Lifecycle Ret Income	TLIRX	517 Million	11/30/2007	Team	0.62%	2.40	25%	15.4	4-Stars	27	21	-9.68%	-2.77%	2.47%	2.84%	5.12%	N/A	N/A	N/A	7.01	0.13	
TIAA-CREF Lifecycle 2010	TCLFX	1.1 Billion	10/15/2004	Team	0.62%	2.12	22%	15.4	3-Stars	59	56	-9.69%	-2.70%	2.61%	3.00%	5.49%	N/A	N/A	N/A	7.13	0.15	
TIAA-CREF Lifecycle 2015	TCLNX	1.6 Billion	10/15/2004	Team	0.63%	2.03	21%	15.4	3-Stars	66	48	-10.87%	-3.62%	2.52%	3.04%	5.73%	N/A	N/A	N/A	7.67	0.13	
TIAA-CREF Lifecycle 2020	TCLTX	3.4 Billion	10/15/2004	Team	0.64%	1.83	23%	15.4	4-Stars	54	42	-12.00%	-4.45%	2.56%	3.17%	6.10%	N/A	N/A	N/A	8.68	0.13	
TIAA-CREF Lifecycle 2025	TCLFX	4.3 Billion	10/15/2004	Team	0.66%	1.77	20%	15.4	4-Stars	58	38	-13.85%	-5.88%	2.35%	3.15%	6.39%	N/A	N/A	N/A	9.92	0.11	
TIAA-CREF Lifecycle 2030	TCLNX	4.3 Billion	10/15/2004	Team	0.67%	1.58	20%	15.4	3-Stars	57	46	-15.66%	-7.31%	2.17%	3.15%	6.64%	N/A	N/A	N/A	11.18	0.09	
TIAA-CREF Lifecycle 2035	TCLRX	4.3 Billion	10/15/2004	Team	0.68%	1.53	17%	15.4	4-Stars	53	39	-17.52%	-8.72%	1.96%	3.11%	6.85%	N/A	N/A	N/A	12.44	0.08	
TIAA-CREF Lifecycle 2040	TCLOX	5.0 Billion	10/15/2004	Team	0.69%	1.30	18%	15.4	3-Stars	44	36	-19.23%	-10.20%	1.66%	3.03%	6.96%	N/A	N/A	N/A	13.71	0.06	
TIAA-CREF Lifecycle 2045	TIFRX	3.0 Billion	11/30/2007	Team	0.70%	1.77	13%	15.4	4-Stars	51	36	-20.73%	-11.47%	1.27%	2.88%	6.86%	N/A	N/A	N/A	14.66	0.04	
TIAA-CREF Lifecycle 2050	TLFRX	2.1 Billion	11/30/2007	Team	0.70%	1.76	12%	15.4	3-Stars	47	33	-20.99%	-11.70%	1.23%	2.89%	6.88%	N/A	N/A	N/A	14.82	0.04	
TIAA-CREF Lifecycle 2055	TTRLX	793 Million	4/29/2011	Team	0.70%	1.81	10%	15.4	3-Stars	47	34	-21.21%	-11.84%	1.21%	2.91%	N/A	N/A	N/A	N/A	14.99	0.04	
TIAA-CREF Lifecycle 2060	TLRX	176 Million	9/26/2014	Team	0.70%	1.82	36%	15.4	2-Stars	57	53	-21.37%	-11.92%	1.20%	2.94%	N/A	N/A	N/A	N/A	15.11	0.04	

**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 less 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.

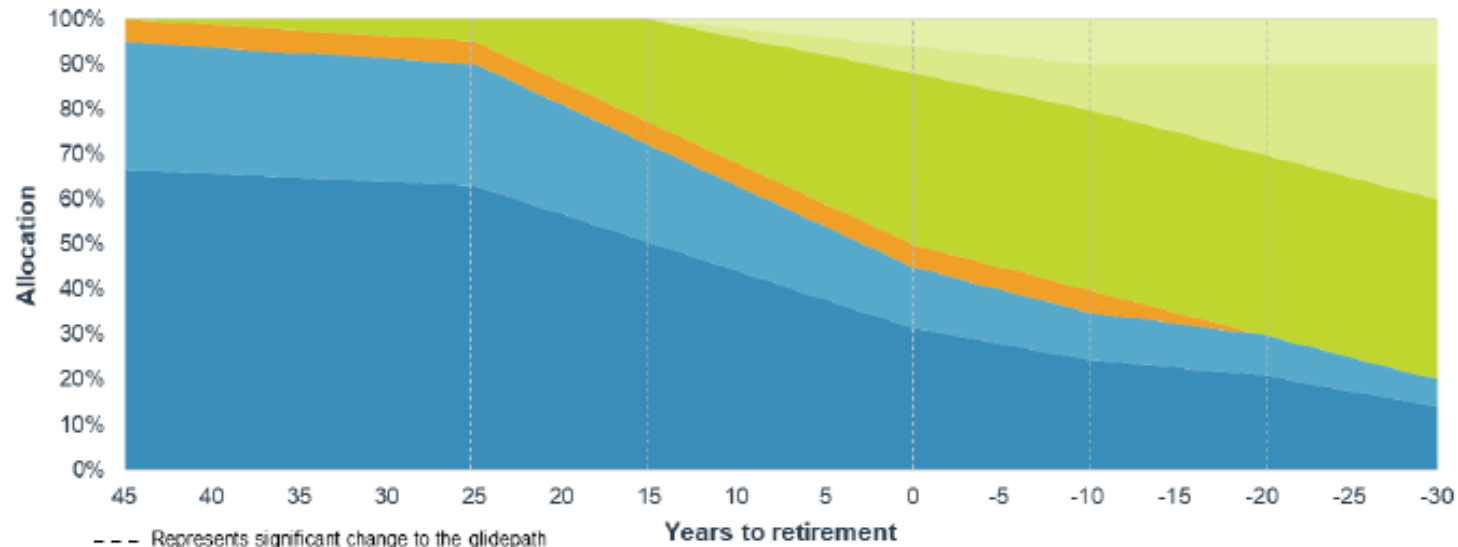
**Standard Deviation** - The higher this number is, the more volatile the fund's returns have been. It indicates how much the fund has deviated from its mean total return over the past three years.

**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.

# TIAA-CREF Lifecycle Funds Glidepath profile



## Strategic Glidepath allocations



Glidepath allocation	Equity	Fixed income	Real estate
Starting allocation	95.0%	0.0%	5.0%
25 yrs. to retirement	90.0%	5.0%	5.0%
15 yrs. To retirement	72.0%	23.0%	5.0%
At retirement	45.0%	50.0%	5.0%
15 yrs. post retirement	32.5%	65.0%	2.5%
Landing allocation	20.0%	80.0%	0.0%

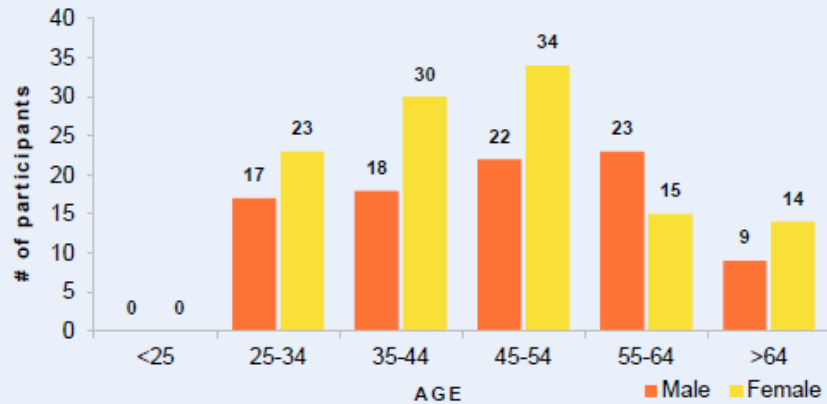
Source: TIAA Investments as of March 31, 2020

### Real estate allocation:

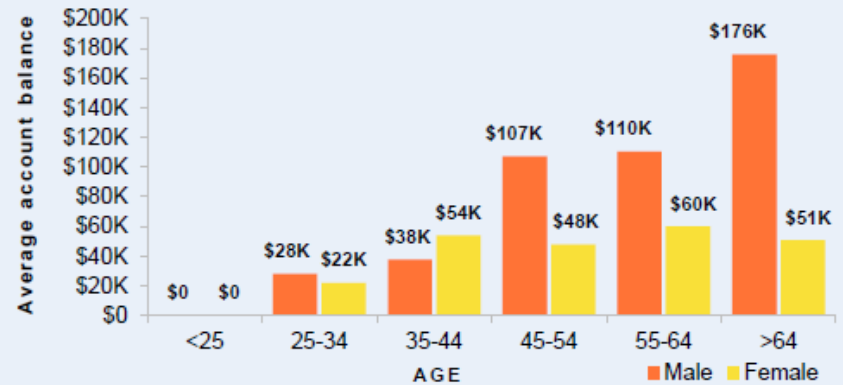
Strategic allocation to direct real estate remains constant along the glidepath at 5% until 10 years past the retirement date. The direct real estate allocation is phased out from 10 years past the retirement date to 20 years past the retirement date.

# Employee summary: Gender and age<sup>1</sup>

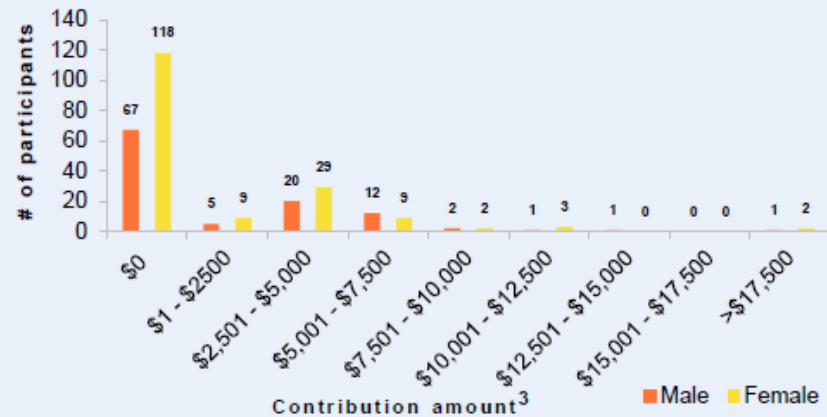
Demographics by Age and Gender



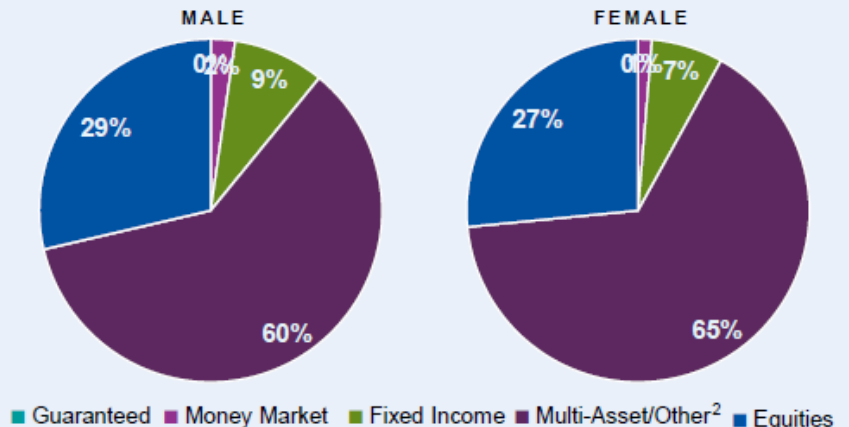
Average Account Balance by Age and Gender



Employee Contribution Amounts by Gender



Diversification by Gender



This report is as of the period ending 03/31/2020 and reflects the trailing 12 months of activity unless otherwise noted. The report includes all TIAA 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 2 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.