

May 31, 2019



## **The North Carolina Supplemental Retirement Plan**

**Investment Measurement Service  
Monthly Review**

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## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of May 31, 2019, with the distribution as of April 30, 2019. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Distribution Across Investment Managers

	May 31, 2019 Market Value	Net New Inv.	Inv. Return	April 30, 2019 Market Value
<b>North Carolina SRP 401k &amp; 457</b>				
<b>Tier II Passive</b>	<b>\$3,224,349,759</b>	<b>\$3,953,665</b>	<b>\$(198,301,235)</b>	<b>\$3,418,697,329</b>
Fixed Income Passive	78,352,139	420,194	1,360,611	76,571,334
Treasury Inflation Protected	200,126,831	938,349	2,270,441	196,918,041
Large Cap Passive	2,575,872,327	2,015,907	(175,006,912)	2,748,863,333
SMID Cap Passive	296,287,467	(9,965)	(22,822,980)	319,120,412
International Passive	73,710,995	589,180	(4,102,396)	77,224,210
<b>Tier II Active</b>	<b>\$8,417,802,159</b>	<b>\$1,914,905</b>	<b>\$(264,082,338)</b>	<b>\$8,679,969,593</b>
Stable Value Fund	2,077,433,778	(2,798,178)	4,815,276	2,075,416,680
Fixed Income Fund	1,677,752,971	5,852,412	30,785,518	1,641,115,041
Inflation Responsive Fund	385,969,449	1,562,740	(449,821)	384,856,530
Large Cap Core Equity Fund	1,778,782,036	(10,197,387)	(132,877,281)	1,921,856,705
Small/Mid Cap Equity Fund	792,141,998	1,400,678	(62,068,284)	852,809,604
International Equity Fund	1,705,721,926	6,094,639	(104,287,747)	1,803,915,034

## Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended May 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended May 31, 2019

	Last Month	Year to Date	Last 12 Months	Last 36 Months	Last 60 Months
<b>Tier 2: Passive (Net of Fee)</b>					
Fixed Income Passive	1.77%	4.79%	6.30%	2.43%	2.64%
Blmbg Barclays Aggregate	1.78%	4.80%	6.40%	2.50%	2.70%
Treasury Inflation Protected Securities	1.15%	4.26%	-	-	-
Blmbg US TIPS 1-10 Yr	1.09%	4.13%	3.94%	2.15%	1.28%
Large Cap Passive	(6.36%)	10.76%	3.84%	11.71%	9.60%
S&P 500 Index	(6.35%)	10.74%	3.78%	11.72%	9.66%
SMID Cap Passive	(7.15%)	11.28%	(4.38%)	9.69%	7.17%
Russell 2500 Index	(7.11%)	11.35%	(4.29%)	9.79%	7.19%
International Passive	(5.29%)	7.35%	(6.02%)	7.00%	1.50%
MSCI ACWI ex US	(5.37%)	7.15%	(6.26%)	6.73%	1.31%

## Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended May 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

### Returns for Periods Ended May 31, 2019

	Last Month	Year to Date	Last 12 Months	Last 36 Months	Last 60 Months
<b>Tier 2: Active (Net of Fee)</b>					
<b>Stable Value Fund</b>	<b>0.23%</b>	<b>1.06%</b>	<b>2.45%</b>	<b>2.17%</b>	<b>2.04%</b>
3 Yr US Treas Rolling	0.15%	0.93%	2.53%	1.91%	1.53%
T-Bill + 1.5%	0.35%	1.63%	3.76%	2.82%	2.33%
<b>Fixed Income Fund</b>	<b>1.87%</b>	<b>5.80%</b>	<b>7.25%</b>	<b>3.56%</b>	<b>3.45%</b>
TCW Core Plus	1.87%	5.25%	6.84%	-	-
Prudential Core Plus	1.87%	6.37%	7.70%	4.45%	-
Blmbg Barclays Aggregate	1.78%	4.80%	6.40%	2.50%	2.70%
<b>Inflation Responsive Fund</b>	<b>(0.12%)</b>	<b>7.32%</b>	<b>2.15%</b>	<b>4.86%</b>	<b>1.71%</b>
Inflation Responsive Benchmark	(0.16%)	7.22%	1.69%	2.44%	(0.18%)
BlackRock Strategic Completion	(0.12%)	7.34%	-	-	-
BlackRock Custom Benchmark	(0.16%)	7.22%	1.43%	-	-
<b>Large Cap Core Equity Fund</b>	<b>(6.93%)</b>	<b>11.91%</b>	<b>2.94%</b>	-	-
BlackRock Russell 1000 Index	(6.36%)	11.04%	3.43%	-	-
Russell 1000 Index	(6.37%)	11.05%	3.47%	11.68%	9.45%
Hotchkis & Wiley Large Cap Value	(8.31%)	10.98%	(3.66%)	9.20%	6.26%
Macquarie Large Cap Value	(6.96%)	4.24%	(0.05%)	7.31%	-
Russell 1000 Value Index	(6.43%)	8.45%	1.45%	7.98%	6.53%
Sands Capital Large Cap Growth	(5.81%)	20.31%	7.35%	19.76%	13.00%
Loomis Sayles Large Cap Growth	(7.36%)	13.49%	7.12%	15.24%	-
Russell 1000 Growth Index	(6.32%)	13.68%	5.39%	15.33%	12.33%
<b>Small/Mid Cap Equity Fund</b>	<b>(7.26%)</b>	<b>13.11%</b>	<b>(3.78%)</b>	-	-
BlackRock Russell 2500 Index	(7.15%)	11.08%	(4.53%)	-	-
Russell 2500 Index	(7.11%)	11.35%	(4.29%)	9.79%	7.19%
Hotchkis & Wiley Mid Cap Value	(12.81%)	5.06%	(18.01%)	3.11%	0.65%
Earnest Partners Small/Mid Cap Value	(7.72%)	14.02%	(2.20%)	10.18%	7.47%
Wedge Small/Mid Cap Value	(8.04%)	8.24%	(8.54%)	5.21%	5.03%
Russell 2500 Value Index	(7.54%)	8.25%	(7.39%)	6.94%	5.12%
Brown Advisory Small/Mid Cap Growth	(2.98%)	23.47%	10.58%	15.33%	12.52%
Russell 2500 Growth Index	(6.64%)	14.97%	(0.70%)	12.99%	9.47%
<b>International Equity Fund</b>	<b>(5.77%)</b>	<b>9.17%</b>	<b>(4.32%)</b>	<b>7.26%</b>	<b>2.68%</b>
Mondrian ACWI ex-US Value	(6.34%)	5.57%	(3.67%)	5.05%	0.98%
Baillie Gifford ACWI ex-US Growth	(5.21%)	12.83%	(4.03%)	9.91%	4.82%
MSCI ACWI ex US	(5.37%)	7.15%	(6.26%)	6.73%	1.31%

March 31, 2019



## **The North Carolina Supplemental Retirement Plan Executive Summary**

**Investment Measurement Service  
Quarterly Review**

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## U.S. EQUITY

Equity markets dramatically snapped back in the first quarter, driven by the Fed's unexpected dovish comments in January, solid corporate fundamentals, and low unemployment.

**Large Cap U.S. Equity** (S&P 500: +13.6%; Russell 1000: +14.0%)

- All sectors delivered double-digit gains with the exception of Financials (+8.6%) and Health Care (+6.6%).
- Consumers remain in good shape, with household debt service as a percentage of disposable income at the lowest level in decades.
- The risk-on market was highlighted by low quality (S&P ratings B or lower) outperforming high quality (B+ or higher) by 440 basis points.
- Surprisingly, Utilities and REITs produced double-digit returns; investors sought yield in the face of a flattening yield curve and the end to rate hikes in the first quarter.

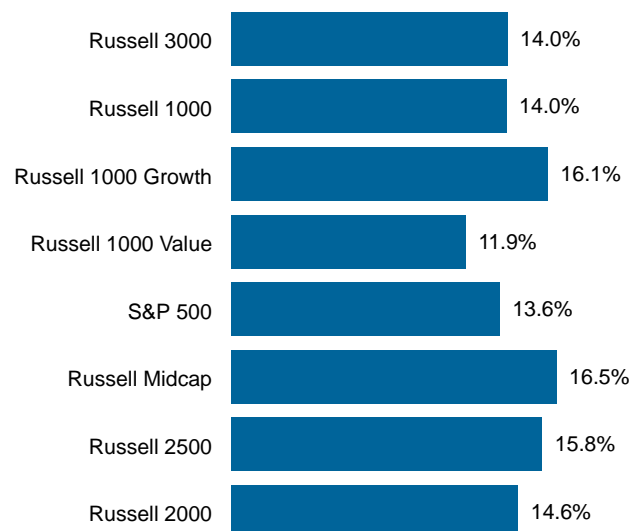
**Growth vs. Value** (Russell 1000 Growth: +16.1%; Russell 1000 Value: +11.9%)

- The sharp change in Fed rhetoric influenced the stronger performance of growth stocks over value stocks during the quarter. Investors favored companies with stronger earnings prospects to counter a softer economic environment.
- Technology produced strong results, while the outlook for Financials weakened as the yield curve flattened.

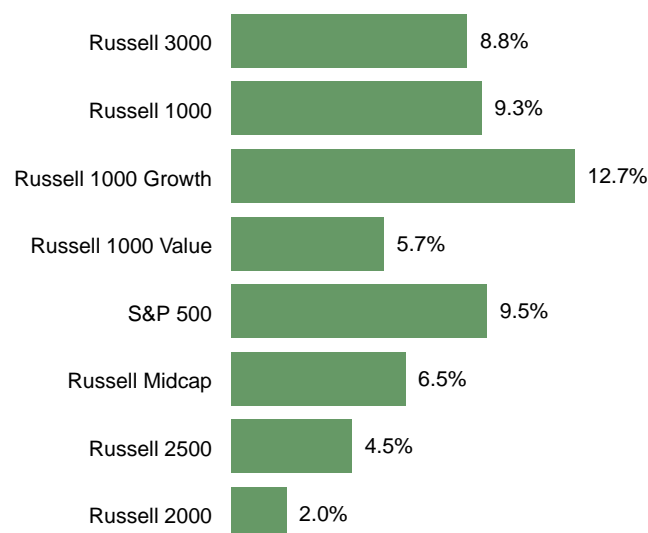
**Small Cap** (Russell 2000: +14.6%; Russell 2000 Growth: +17.1%; Russell 2000 Value: +11.9%)

- Within the Russell 2000 Growth Index, the three largest sectors (Health Care, Consumer Discretionary, and Technology) surged 19%, 17%, and 23%, respectively. Software and biotechnology both posted 25% gains in the quarter; combined they are more than 23% of the benchmark weight.
- Influenced by excessive fourth quarter tax-loss selling, the market experienced a strong “January effect”—where last year's losers became January 2019's winners.

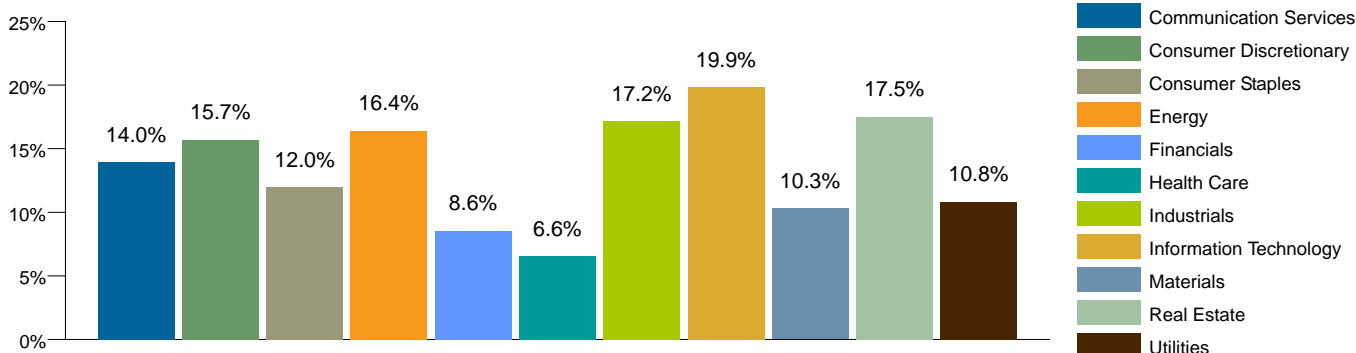
## U.S. Equity: Quarterly Returns



## U.S. Equity: One-Year Returns



## S&P Sector Returns, Quarter Ended March 31, 2019



Source: Standard & Poor's

## NON-U.S./GLOBAL EQUITY

Global equity markets were positive in the first quarter following a sharp sell-off to end 2018. Investors resumed a risk-on outlook as central banks telegraphed more accommodative positioning. Delayed outcomes regarding U.S./China trade talks and Brexit negotiations allowed markets to stabilize, although uncertain outcomes remain a future risk.

**Global/Non-U.S. Developed** (MSCI EAFE: +10.0%; MSCI World ex USA: +10.4%; MSCI ACWI ex USA: +10.3%; MSCI Europe: +10.8%; MSCI Japan: +6.7%)

- Developed markets rallied as central banks around the world expressed more accommodative paths with interest rates and quantitative easing.
- Brexit negotiations continue and a “no-deal” Brexit remains a possibility, but with an extended deadline. The potential for investment paralysis drags on.
- European PMI continued to deteriorate, falling to 47.7 in March from 49.4.
- The currency effect was mixed as the U.S. dollar rose against the euro and yen, by 1.8% and 0.9%, but fell against the British pound by 2.3% as a delay in Brexit allowed for a temporary bounce.
- EAFE sector performance was mixed. Information Technology (+15.3%) and Materials (+13.2%) led economically sensitive sectors; Consumer Staples (+12.4%) led defensive sectors. Interest rate-sensitive Financials (+6.9%) and Utilities (+9.0%) trailed the broad index.
- Factor performance favored growth (historical and projected) while value factors were generally negative.

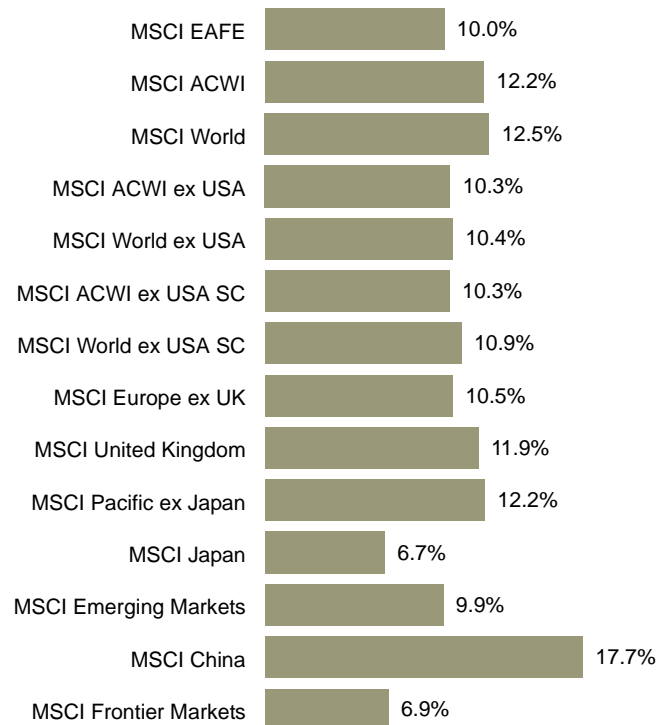
**Emerging Markets** (MSCI Emerging Markets Index: +9.9%)

- In a big reversal from the fourth quarter, China led emerging markets with MSCI China gaining 17.7% and MSCI China A up 30.9%.
- Trade talks continue but positive indications for a deal buoyed markets; uncertainty on the outcome remains.
- Asian Information Technology rebounded nicely with Chinese IT (+27.6%) leading the sector. An improving outlook on Chinese consumption positively influenced EM Consumer Discretionary (+20.8%), which was the top-performing sector.
- Growth led value with MSCI EM Growth gaining 12.0% and EM Value up 7.8%.

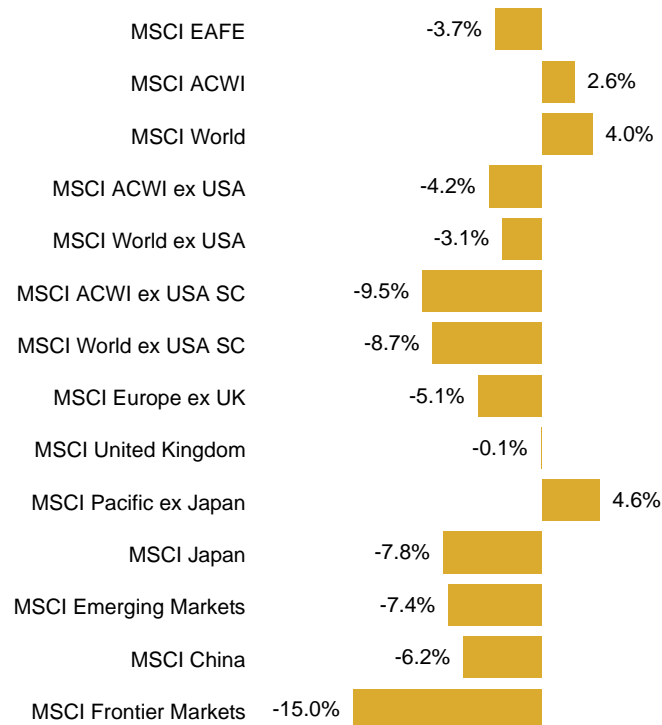
**Non-U.S. Small Cap** (MSCI World ex USA Small Cap: +10.9%; MSCI EM Small Cap: +7.8%; MSCI ACWI ex USA Small Cap: +10.3%)

- Within developed markets, small cap performed in line with large cap.
- EM Small Cap trailed EM as MSCI China Small Cap has less exposure to IT, which led the risk-on rally.

## Global Equity: Quarterly Returns



## Global Equity: One-Year Returns



Source: MSCI



**U.S. FIXED INCOME**

Risk markets sharply reversed from the fourth quarter sell-off supported by the Fed's unexpected dovish comments, relatively solid U.S. economic growth data, and tempered concern over a slowing China. This quarter's strong results recaptured most of the loss experienced in the prior quarter.

**U.S. Fixed Income** (Bloomberg Barclays US Aggregate: +2.9%)

- U.S. Treasuries rose 2.1% as the yield curve shifted lower across maturities as growth and inflation expectations declined.
- The shape of the yield curve did not materially change during the quarter. The yield differential between the 10-year and 2-year key rates remained positive and traded around a range of +12 to +20 bps. However, the front-end of the curve inverted, with the 5-year offering less yield than the 2-year.
- TIPS outperformed nominal Treasuries as the Fed's balanced stance and unexpected wage pressures stoked higher inflation expectation.

**Investment-Grade Corporates** (Bloomberg Barclays Corporate: +5.1%)

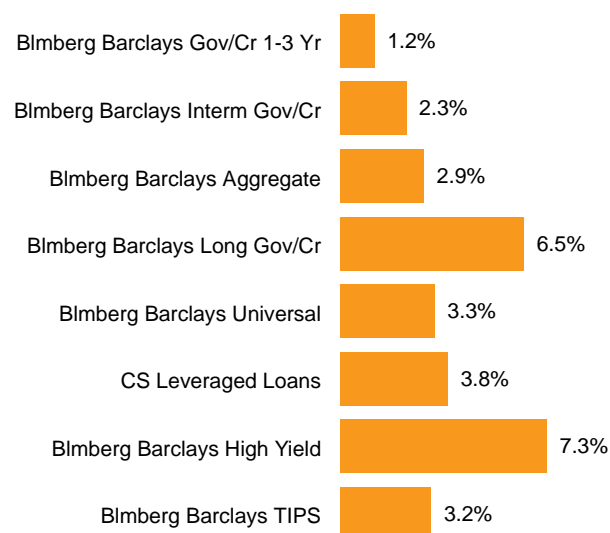
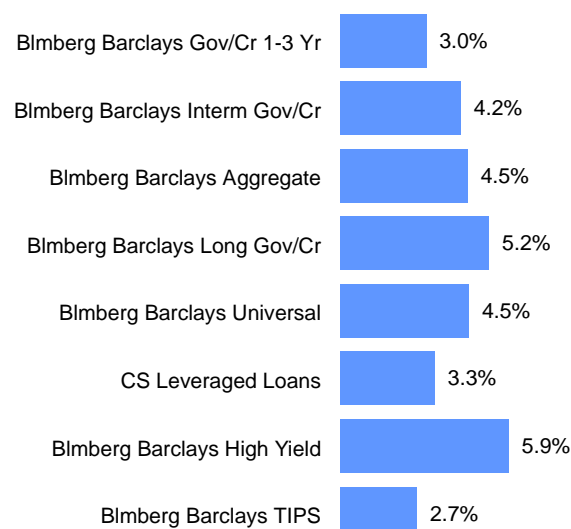
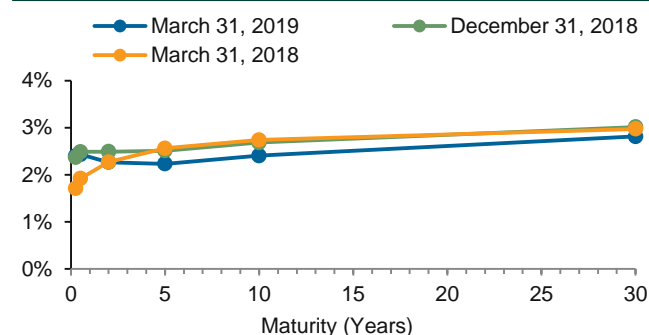
- Credit spreads rallied on the back of a softer Fed stance, positive economic news, and better than expected corporate earnings.
- Net new corporate issuance during the first quarter of \$117 billion was roughly on par with a year ago.
- Surprisingly, Aaa-rated corporates (+5.0%) outperformed Aa- (+3.7%) and single A-rated issuers (+4.7%). BBB-rated issuers were the best performers (+5.7%).

**High Yield** (Bloomberg Barclays Corporate High Yield: +7.3%)

- Given the risk-on environment, below-investment grade issuers were the best performers, aided by strong asset inflows.
- Ba/B sectors (+7.2%) marginally outpaced CCC by 6 bps; this was an unusual occurrence given that the dispersion between high-quality and low-quality is typically wide during these periods of absolute returns.

**Leveraged Loans** (Credit Suisse Leveraged Loans Index: +3.8%)

- Leveraged loans participated in the rally but lagged both longer duration investment grade and high yield corporates. The sector was negatively impacted by the Fed's pause, retail outflows, and a slow-developing CLO pipeline.
- Bank loans have less sensitivity to interest rates but may have a similar spread duration profile to that of their high yield bond counterparts.

**U.S. Fixed Income: Quarterly Returns****U.S. Fixed Income: One-Year Returns****U.S. Treasury Yield Curves**

Sources: Bloomberg, Bloomberg Barclays, Credit Suisse

## NON-U.S. FIXED INCOME

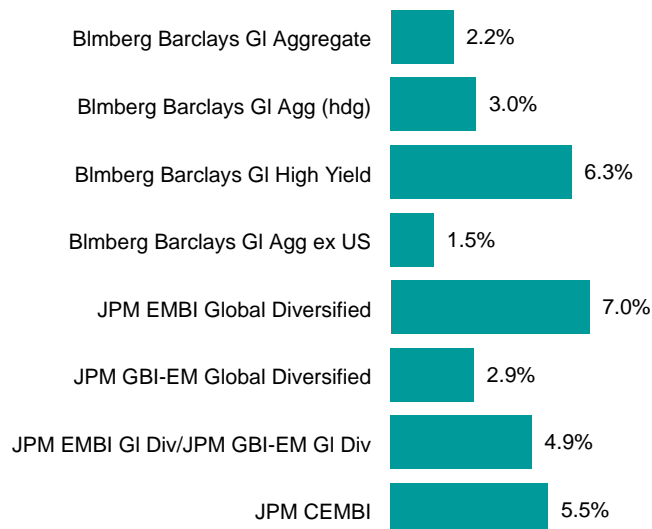
**Global Fixed Income** (Bloomberg Barclays Global Aggregate (unhedged): +2.2%)

- Developed market sovereign bonds rallied in tandem with Treasuries. The U.S. dollar appreciated modestly versus the euro and yen, but lost ground versus the British pound and Canadian dollar.

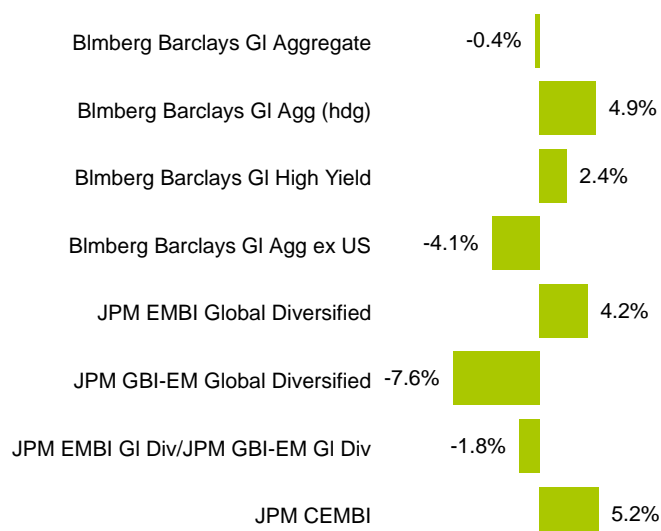
**U.S. dollar-denominated emerging market debt** (JPM EMBI Global Diversified: +7.0%), **Local currency-denominated EMD** (JPM GBI-EM Global Diversified: +2.9%)

- Country returns within the EMBI Global Diversified Index were all positive for the quarter.
- Turkey (-10.2%) and Argentina (-10.5%) were notable underperformers in the local currency index.
- Positive net inflows into the EM universe continued through quarter-end.

## Global Fixed Income: Quarterly Returns

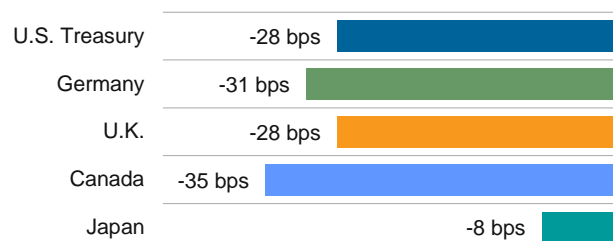


## Global Fixed Income: One-Year Returns



## Change in 10-Year Global Government Bond Yields

## 4Q18 to 1Q19



Sources: Bloomberg, Bloomberg Barclays, JP Morgan

# Summary Expectations – 2Q2019

## Macro

### Outlook for U.S. economy and expected rate hikes (next 3-9 mos.)

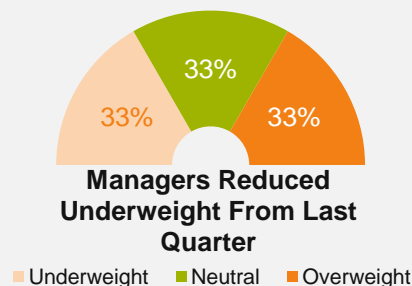
Consensus: **Zero hikes in 2019 and slowing US economy**

**91%** Expect 0 hikes in 2019

**5%** 0-1 hike

**5%** 2-3 hikes

### Relative Portfolio Duration



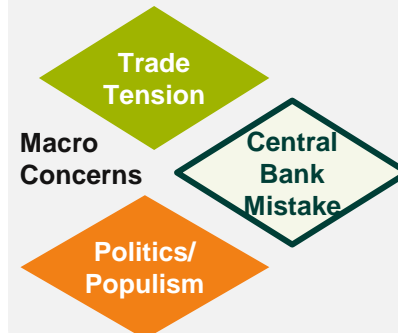
### Shape of the Yield Curve (next 3-9 mos.)

Consensus: **Non-directional**

**48%** Expect Flattener

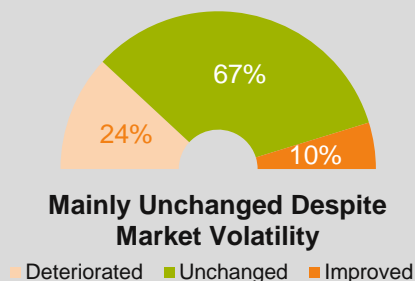
**24%** Neutral

**36%** Steepener

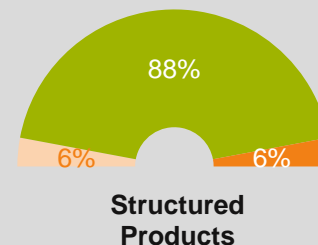
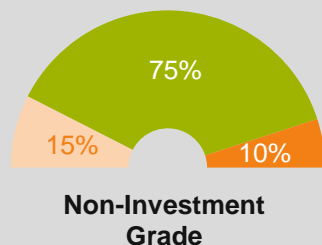
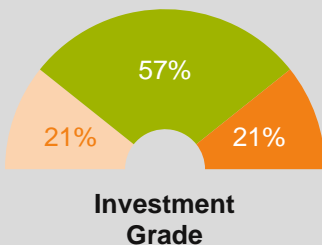


## Fundamentals

### Corporate Fundamentals Q/Q

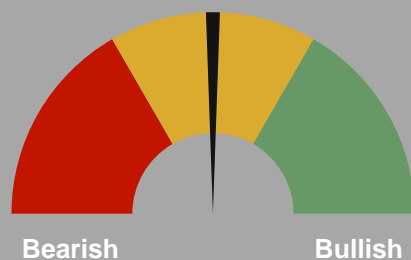


### Sector Outlooks – Stable with lowered optimism from a quarter ago



## Positioning\*

### Current Active Risk Budget



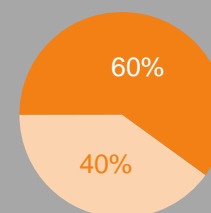
### Top 3 Sector Overweights\*

- 1 – CMBS/NRMBS
- 2 – CORP (IG & HY)
- 3 – ABS/CLO

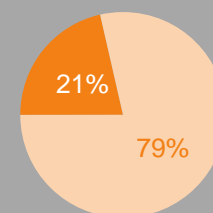
### Top 3 Sector Underweights

- 1 – US Treasuries
- 2 – Gov't Agencies
- 3 – Agency MBS

### Favor TIPS



### Favor DM vs EMD



\*Sector over/underweights compiled mainly from multi-sector respondents; multiple sectors listed within rankings denote ties

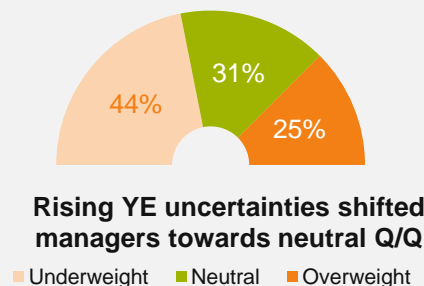
# Summary Expectations – 1Q2019

## Macro

### Outlook for U.S. economy and expected rate hikes (next 3-9 mos.)

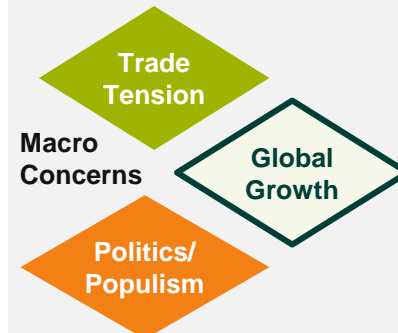
Consensus: **Bifurcated, 1 & 2 hikes**  
**8%** expect 0 hikes in 2019  
**32%** expect 1 hike  
**16%** expect 1-2 hikes  
**28%** expect 2 hikes

### Relative Portfolio Duration



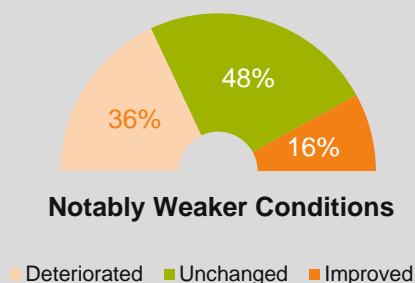
### Shape of the Yield Curve (next 3-9 mos.)

Consensus: **Non-directional**  
**38%** expect flattener  
**33%** neutral  
**29%** steepener

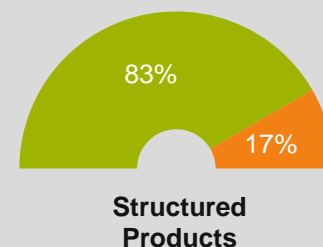
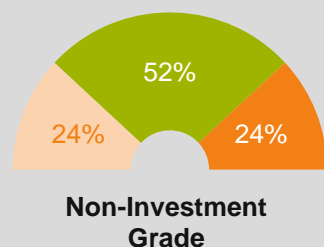
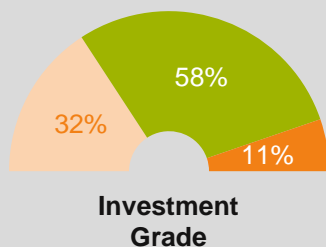


## Fundamentals

### Corporate Fundamentals Q/Q

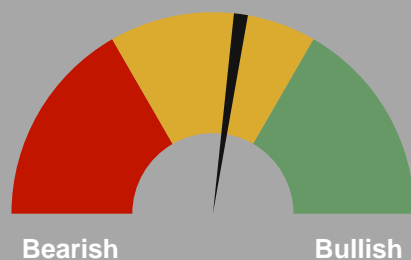


### Sector Outlooks – Stable with lowered optimism from a quarter ago



## Positioning\*

### Current Active Risk Budget



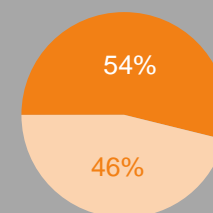
### Top 3 Sector Overweights\*

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- 2 – CORP (IG & HY)
- 3 – CMBS/NRMBS

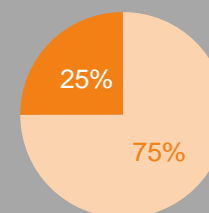
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### Favor TIPS



### Favor DM vs EMD



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## Disclosure

This report provides forward-looking insights on market conditions from several respected money management firms with the objective of providing Callan with a broad perspective of key market drivers. Over 20 managers complete a quarterly questionnaire on their 3-9 month forward-looking views on the US economy, health of corporate fundamentals, market valuations and technicals, and how these views translate to their portfolio positioning.

This report is for informational purposes only and should not be construed as legal or tax advice on any matter. Any decision you make on the basis of the content is your sole responsibility. You should consult with legal and tax advisers before applying any of this information to your particular situation. Reference to or inclusion in this report of any product, service or entity should not be construed as a recommendation, approval, affiliation or endorsement of such product, service or entity by Callan. Past performance is no guarantee of future results.

# Fees

A	B	C	D	E	F C+D+E	G B*F	H	I F-H
Funds and Sub-Advisors	Assets*	Inv. Mgmt. Fee	Custodial Expenses <sup>1</sup>	NC Budget <sup>2</sup>	Total Estimated Expense (%)	Total Estimated Expenses (\$) <sup>3</sup>	Callan Median Expense <sup>4</sup>	Difference
<b>North Carolina Stable Value Fund</b>	<b>\$2,078,074,367</b>	<b>0.306%</b>	<b>0.002%</b>	<b>0.025%</b>	<b>0.333%</b>	<b>\$6,919,988</b>	<b>0.32%</b>	<b>0.01%</b>
Galliard	\$2,078,074,367	0.306%	0.000%		0.306%	\$6,358,908	0.32%	-0.01%
<b>North Carolina Fixed Income Passive Fund</b>	<b>\$76,513,317</b>	<b>0.020%</b>	<b>0.036%</b>	<b>0.025%</b>	<b>0.081%</b>	<b>\$61,976</b>	<b>0.15%</b>	<b>-0.07%</b>
Blackrock	\$76,513,317	0.020%	0.010%		0.030%	\$22,954	0.02%	0.01%
<b>North Carolina Fixed Income Fund</b>	<b>\$1,631,726,397</b>	<b>0.130%</b>	<b>0.011%</b>	<b>0.025%</b>	<b>0.165%</b>	<b>\$2,695,612</b>	<b>0.43%</b>	<b>-0.26%</b>
50% TCW	\$814,812,519	0.149%	0.000%		0.149%	\$1,346,070	0.18%	-0.03%
50% Prudential	\$816,913,905	0.110%	0.010%		0.120%	\$1,349,542	0.18%	-0.06%
<b>North Carolina Inflation Sensitive Fund</b>	<b>\$384,512,380</b>	<b>0.090%</b>	<b>0.016%</b>	<b>0.025%</b>	<b>0.131%</b>	<b>\$502,558</b>	<b>0.85%</b>	<b>-0.72%</b>
Blackrock	\$384,512,380	0.090%	0.010%		0.100%	\$502,558	0.64%	-0.54%
<b>North Carolina Large Cap Passive Fund</b>	<b>\$2,641,941,218</b>	<b>0.005%</b>	<b>0.011%</b>	<b>0.025%</b>	<b>0.041%</b>	<b>\$1,083,196</b>	<b>0.08%</b>	<b>-0.04%</b>
Blackrock	\$2,641,941,218	0.005%	0.010%		0.015%		0.01%	0.01%
<b>North Carolina Large Cap Core Fund</b>	<b>\$1,858,646,160</b>	<b>0.286%</b>	<b>0.014%</b>	<b>0.025%</b>	<b>0.325%</b>	<b>\$6,031,307</b>	<b>0.65%</b>	<b>-0.33%</b>
25% Blackrock Russell 1000 Index	\$458,191,250	0.005%	0.010%		0.015%	\$1,486,831	0.04%	-0.03%
18.75% Hotchkis & Wiley	\$344,882,351	0.400%	0.000%		0.400%	\$1,119,143	0.40%	0.00%
18.75% Macquarie	\$350,974,823	0.278%	0.000%		0.278%	\$1,138,913	0.40%	-0.12%
18.75% Sands Capital Management	\$351,472,044	0.450%	0.000%		0.450%	\$1,140,527	0.40%	0.05%
18.75% Loomis Sayles	\$353,125,680	0.382%	0.000%		0.382%	\$1,145,893	0.40%	-0.02%
<b>North Carolina SMID Cap Passive Fund</b>	<b>\$309,212,689</b>	<b>0.005%</b>	<b>0.015%</b>	<b>0.025%</b>	<b>0.045%</b>	<b>\$140,073</b>	<b>0.20%</b>	<b>-0.15%</b>
Blackrock	\$309,212,689	0.005%	0.010%		0.015%	\$140,073	0.06%	-0.05%
<b>North Carolina SMID Cap Core Fund</b>	<b>\$818,037,983</b>	<b>0.376%</b>	<b>0.012%</b>	<b>0.025%</b>	<b>0.413%</b>	<b>\$3,380,951</b>	<b>0.89%</b>	<b>-0.48%</b>
28.80% Blackrock Russell 2500 Index	\$234,921,644	0.005%	0.010%		0.015%	\$970,931	0.06%	-0.05%
15.80% Hotchkis & Wiley	\$127,959,117	0.500%	0.000%		0.500%	\$528,855	0.71%	-0.21%
15.80% EARNEST Partners	\$129,626,107	0.470%	0.000%		0.470%	\$535,745	0.71%	-0.24%
15.80% Wedge Capital Management	\$129,416,866	0.616%	0.000%		0.616%	\$534,880	0.71%	-0.09%
23.80% Brown Advisory	\$196,114,241	0.520%	0.000%		0.520%	\$810,540	0.69%	-0.17%
<b>North Carolina International Passive Fund</b>	<b>\$75,117,978</b>	<b>0.025%</b>	<b>0.020%</b>	<b>0.025%</b>	<b>0.070%</b>	<b>\$52,207</b>	<b>0.25%</b>	<b>-0.18%</b>
Blackrock	\$75,117,978	0.025%	0.010%		0.020%	\$52,207	0.07%	-0.05%
<b>North Carolina International Equity</b>	<b>\$1,735,139,648</b>	<b>0.335%</b>	<b>0.011%</b>	<b>0.025%</b>	<b>0.040%</b>	<b>\$685,380</b>	<b>0.85%</b>	<b>-0.81%</b>
50% Baillie Gifford	\$864,831,459	0.282%	0.000%		0.282%	\$341,608	0.51%	-0.23%
50% Mondrian Investment Partners	\$868,866,677	0.387%	0.000%		0.387%	\$343,202	0.51%	-0.12%
<b>North Carolina TIPS Fund</b>	<b>\$195,806,237</b>	<b>0.025%</b>	<b>0.005%</b>	<b>0.025%</b>	<b>0.055%</b>	<b>\$107,889</b>	<b>0.40%</b>	<b>-0.34%</b>
Blackrock	\$195,806,237	0.025%	0.000%		0.025%	\$107,889	0.14%	-0.12%
<b>Total</b>	<b>\$11,804,728,374</b>	<b>0.146%</b>	<b>0.014%</b>	<b>0.025%</b>	<b>0.154%</b>	<b>\$21,661,137</b>	<b>0.46%</b>	

\*Individual Manager Assets do not sum to Fund asset class totals due to residual/closing accounts.

<sup>1</sup> Based on annualized monthly fee accruals as of 03/31/2019

<sup>2</sup> The cost of the budget associated with the management of the Supplemental Retirement Plans, borne by each investment option in proportion to the pro-rata share of the applicable assets in that fund.

<sup>3</sup> Manager fee estimates reflect investment management fee only, does not include \$31 per participant record-keeping fee.

<sup>4</sup> Total Fund median expenses for White Label composites are compared against their respective Callan Mutual Fund Institutional Universe, while the individual managers are compared to peers with the same vehicle and strategy assets.

# Performance Watch-List Scorecard

## North Carolina Supplemental Retirement Plans Active Management Scorecard

	Large Cap Equity								
	3 Years to 3/31/2019		3 Years to 12/31/2018		3 Years to 09/30/2018		3 Years to 06/30/2018		5 Year Risk
	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	
Hotchkis & Wiley Large Cap Value									
Macquarie Large Cap Value									
Sands Capital Large Cap Growth									
Loomis Large Cap Growth									
	Small/Mid Cap								
	3 Years to 3/31/2019		3 Years to 12/31/2018		3 Years to 09/30/2018		3 Years to 06/30/2018		5 Year Risk
	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	
Hotchkis & Wiley SMID Cap Value									
EARNEST Partners SMID Cap Value									
WEDGE SMID Cap Value									
Brown Advisory									
	International Equity								
	3 Years to 3/31/2019		3 Years to 12/31/2018		3 Years to 09/30/2018		3 Years to 06/30/2018		5 Year Risk
	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	
Baillie Gifford ACWI ex US Growth									
Mondrian ACWI ex US Value									
	Fixed Income								
	3 Years to 3/31/2019		3 Years to 12/31/2018		3 Years to 09/30/2018		3 Years to 06/30/2018		5 Year Risk
	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	
TCW Core Plus*									
Prudential Core Plus									
	Stable Value								
	3 Years to 3/31/2019		3 Years to 12/31/2018		3 Years to 09/30/2018		3 Years to 06/30/2018		5 Year Risk
	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	
Stable Value									

# North Carolina Supplemental Retirement Plans Quarterly Manager Review Spotlight Report

1<sup>st</sup> Quarter 2019

## Manager Assessment

	Organization	People	Process and Philosophy	Product Dynamics	Short Term Performance	Long Term Performance	Overall	OVERALL STATUS	NOTES
<b>LARGE CAP CORE</b>									
BlackRock	●	●	●	●	●	●	●	Satisfactory	
<b>LARGE CAP VALUE</b>									
Hotchkis & Wiley Large Cap Fundamental Value	●	●	●	●	●	●	●	Satisfactory	Recent performance volatility within expectations given deep-value process.
Macquarie Large Cap Value Focus	●	●	●	●	●	●	●	Satisfactory	Concern over Lead PM Ty Nutt's pending retirement in June 2019; monitoring transition to Nik Lalvani closely and additional planned junior PM hire. Outstanding lawsuit between former PM and Macquarie has been resolved (1/11/19). Performance in line with expectations.
<b>LARGE CAP GROWTH</b>									
Loomis Sayles Large Cap Growth	●	●	●	●	●	●	●	Satisfactory	
Sands Capital Management Select Growth	●	●	●	●	●	●	●	Satisfactory	
<b>SMID CAP CORE</b>									
BlackRock	●	●	●	●	●	●	●	Satisfactory	
<b>SMID CAP VALUE</b>									
Wedge Capital US SMID Cap Value	●	●	●	●	●	●	●	Satisfactory (recommend NC watch-list)	Recent performance, while within expectations, has triggered watch-list based on NC criteria. See note below.
Earnest Partners US SMID Cap Value	●	●	●	●	●	●	●	Satisfactory	
<b>SMID CAP GROWTH</b>									
Brown Advisory US SMID Cap Growth	●	●	●	●	●	●	●	Satisfactory	
<b>MID CAP VALUE</b>									
Hotchkis & Wiley Mid Cap Value	●	●	●	●	●	●	●	Satisfactory (on NC watch-list)	Recent performance volatility within expectations given deep-value process but notable for magnitude. Overall investment team remains exceptionally stable.

● Positive status; no issues    ● Cautionary status; noteworthy item but no concerns    ● Under Review status; noteworthy item with concerns

*Product Dynamics:* reflects noteworthy highlights of the portfolio and strategy including assets and portfolio characteristics.

*Short-Term Performance:* reflects periods of three years and under with a focus on whether or not the manager is performing within expectations.

*Long-Term Performance:* reflects periods of five years and longer with a focus on whether or not the manager is performing within expectations.



## Manager Assessment

	Organization	People	Process and Philosophy	Product Dynamics	Short Term Performance	Long Term Performance	Overall	OVERALL STATUS	NOTES
<b>INTERNATIONAL EQUITY</b>									
Baillie Gifford ACWI Ex-US Alpha	●	●	●	●	●	●	●	Satisfactory	
BlackRock	●	●	●	●	●	●	●	Satisfactory	
Mondrian Investment Partners Focused ACWI Ex-US	●	●	●	●	●	●	●	Satisfactory (on NC watch-list)	Liz Desmond appointed Deputy CEO; Desmond's day to day responsibilities are not changing and she continues to manage the International Equity group and portfolios. Outperformance in fourth quarter of 2018 versus the MSCI ACWI ex US confirms the consistency of the process and ability to protect in down markets, however, the strategy continues to lag on a 3-year basis due to the underperformance in 2017. The strategy was challenged in 2017 given the narrow, growth market.
<b>CORE &amp; CORE PLUS FIXED INCOME</b>									
BlackRock	●	●	●	●	●	●	●	Satisfactory	
Prudential Global Investment Management Core Plus Bond	●	●	●	●	●	●	●	Satisfactory	Announced series of changes across FI platform. Core Plus team remains intact with some changes in reporting lines.
TCW Core Plus	●	●	●	●	●	●	●	Satisfactory	Head of Credit Research, Jamie Farnham resigned and replaced by special situations analyst Steve Purdy.
<b>INFLATION SENSITIVE</b>									
BlackRock Strategic Completion Fund	●	●	●	●	●	●	●	Satisfactory	
<b>STABLE VALUE</b>									
Galliard Stable Value	●	●	●	●	●	●	●	Under Review (recommend NC watch-list)	Remaining founding partners Richard Merriam and Karl Tourville have formally announced their retirements. Awaiting more clarity on future relationship with parent Wells Fargo and potential renegotiation of the revenue sharing agreement between the two entities, which may impact Galliard's ability to retain talent and assets.

● Positive status; no issues    ● Cautionary status; noteworthy item but no concerns    ● Under Review status; noteworthy item with concerns

*Product Dynamics:* reflects noteworthy highlights of the portfolio and strategy including assets and portfolio characteristics.

*Short-Term Performance:* reflects periods of three years and under with a focus on whether or not the manager is performing within expectations.

*Long-Term Performance:* reflects periods of five years and longer with a focus on whether or not the manager is performing within expectations.

**Hotchkis & Wiley MidCap**

Hotchkis and Wiley (H&W) utilizes a disciplined equity approach that seeks to determine the present value of a company's future cash flows in order to maximize long-term performance with below-market volatility.

Underperformance is notable for the high magnitude but within expectations of the strategy and market conditions. Callan remains cautious of the risk-adjusted return profile. The firm has not changed the investment process and we would expect results to trail the benchmark when defensive stocks and sectors are in favor. Future portfolio results will continue to be tied to the performance within Energy and Financials sectors, areas currently overweight in the portfolio and differentiated from the benchmark.

The investment philosophy of H&W is rooted in exploiting the behavioral biases of the broader stock market. H&W invests in companies where, in their analysis, the present value of future cash flows exceeds the current market price. They believe these opportunities emerge because other investors ("the market") extrapolates the most recent trends of earnings and margin changes into the future, which leads to favoring "popular" investments and shunning unglamorous investments —regardless of the market valuation.

The portfolio holds 50 to 80 securities at a given time. Lead portfolio manager Stan Majcher does consider benchmark weights when constructing the portfolio. Risk is managed through limits to individual sectors, industries and securities, which are limited to a maximum of 35%, 15% and 5% of total portfolio assets at market, respectively.

The portfolio underperformed the Russell Midcap Value Index benchmark and peers over trailing one- and three-year periods. The performance profile remains volatile: during Q4 2018, the fund fell (15.2%) versus the index (10.5%). The portfolio will bounce back in rallies, however, as evidenced by the out performance in Q1 2019 (returning +16.5% compared to +14.4% for the index). The portfolio ranked in the bottom decile in 2018 as the cyclical and deeper value exposure sharply declined during the market sell-off in Q4 2018. The magnitude of underperformance in Q4 2018 (and 2018) has impacted the trailing three-year results as well. Sell decisions are based on valuation, risk and portfolio guidelines.

Portfolio manager Majcher is indifferent to sector weights relative to the benchmark – the portfolio is underweight Real Estate (3.1% vs. 14.1% index), Utilities (2.1% vs. 11.9% index), Health Care (1.9% vs. 6.8% index) Materials (0% vs. 6.2% index), and Staples (1.9% vs. 5.1% index). These sectors comprise approximately 45% of the benchmark but only 9% of the portfolio. Not being exposed to Real Estate, Utilities, and Staples was a major headwind to results in 2018 as investors sought defensive and safety stocks amidst the heightened uncertainty regarding tariffs, global growth, and interest rates. Conversely, Majcher determined that the Energy sector remains the most attractive and is the largest overweight in the portfolio; other overweight sectors include Financials, Technology, Consumer Discretionary, and Industrials. The portfolio is currently at a post-financial crisis high in sector deviation exposure versus the index (i.e., 70.8% sector exposure is different than the index).

**Wedge Smid Cap**

WEDGE Capital Management was founded in 1984 and based in North Carolina. The organization is 100% employee owned by eight partners. WEDGE employs a well-resourced investment team with significant experience in the industry and at the firm. The Smid Value strategy is a 50/50 blend of WEDGE Small Cap Value and Mid Cap Value portfolio. The investment approach is a fundamentally based, value-oriented discipline, employing up front quantitative screens and qualitative analysis. Quantitative screens search for attractive value and quality characteristics to define a pool of candidates; fundamental research is then applied to identify attractive unrecognized value opportunities. WEDGE believes they can produce superior long term returns by employing rigorous quantitative research and independent qualitative analysis.

The WEDGE Smid Value strategy has produced competitive performance results, outperforming the Russell 2500 Value Index on a long-term basis. WEDGE significantly underperformed in fourth quarter 2016 when higher risk, lower quality securities performed very well post-election; this time period negatively impacts shorter term results. Underperformance over the last year is also influenced by an underweight to REITs as well as stock selection in consumer durables and utilities. A notable detractor within utilities was PG&E, which was sold in mid-January prior to the bankruptcy filing.

This strategy should not perform well in vertical up markets with narrow leadership and typically protects in down markets.

**Mondrian International**

Mondrian's value driven investment philosophy is based on the belief that investments need to be evaluated in terms of their fundamental long-term value. In the management of international equity assets, they invest in securities where rigorous dividend discount analysis identifies value in terms of the long term flow of income.

Mondrian's fundamental approach employs a combination of top-down and bottom-up processes to identify quality businesses trading at favorable valuation defined by four-stage dividend discount model. The strategy offers a defensive-value characteristics with an absolute-return performance pattern. As such, the strategy has delivered long-term outperformance relative to the index and peers by consistently compounding excess returns garnered from downside protection.

Outperformance in fourth quarter of 2018 relative to the MSCI ACWI ex-US index confirms the consistency of the process and ability to protect in down markets. However, the strategy continues to lag on a 3-year basis due to the underperformance in 2017. The strategy was challenged in 2017 given the narrow, growth market. Mondrian's value oriented and defensive style, understandably did not capture the upside in 2017. Markets have been remarkably strong since the global financial crisis in 2008, which tends to be a headwind for all of their strategies on a relative basis. Callan is cautionary in light of the recent performance and modest AUM decline. However, history has shown over the long term, and especially in periods of stress, Mondrian is able to beat their benchmark by playing superior defense.

## Investment Fund Balances

The table below compares the fund's investment fund balances as of March 31, 2019 with that of December 31, 2018. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

### Asset Distribution Across Investment Funds

	March 31, 2019				December 31, 2018	
	Market Value	Weight	Net New Invest.	Invest. Return	Market Value	Weight
<b>North Carolina SRP 401k &amp; 457</b>						
<b>Tier II Passive</b>	<b>\$3,298,591,439</b>	<b>27.94%</b>	<b>\$1,671,435</b>	<b>\$377,348,023</b>	<b>\$2,919,571,980</b>	<b>27.04%</b>
Fixed Income Passive	76,513,317	0.65%	984,058	5,867,127	69,662,133	0.65%
Treasury Inflation Protected	195,806,237	1.66%	9,214,326	6,507,575	180,084,337	1.67%
Large Cap Passive	2,641,941,218	22.38%	(8,995,821)	316,509,377	2,334,427,661	21.62%
SMID Cap Passive	309,212,689	2.62%	(197,969)	41,232,827	268,177,830	2.48%
International Passive	75,117,978	0.64%	666,842	7,231,117	67,220,020	0.62%
<b>Tier II Active</b>	<b>\$8,506,136,935</b>	<b>72.06%</b>	<b>\$(6,183,090)</b>	<b>\$636,554,616</b>	<b>\$7,875,765,409</b>	<b>72.96%</b>
Stable Value Fund	2,078,074,367	17.60%	11,954,914	3,327,974	2,062,791,479	19.11%
Fixed Income Fund	1,631,726,397	13.82%	25,549,619	61,020,601	1,545,156,177	14.31%
Inflation Responsive Fund	384,512,380	3.26%	9,140,516	30,000,309	345,371,555	3.20%
Large Cap Core Equity Fund	1,858,646,160	15.74%	(12,388,609)	226,936,980	1,644,097,789	15.23%
Small/Mid Cap Equity Fund	818,037,983	6.93%	(17,010,221)	120,567,504	714,480,699	6.62%
International Equity Fund	1,735,139,648	14.70%	(23,429,308)	194,701,247	1,563,867,709	14.49%
<b>Total Fund</b>	<b>\$11,804,728,374</b>	<b>100.0%</b>	<b>\$(4,511,654)</b>	<b>\$1,013,902,639</b>	<b>\$10,795,337,390</b>	<b>100.0%</b>

## Investment Fund Balances

The table below compares the fund's investment fund balances as of March 31, 2019 with that of December 31, 2018.

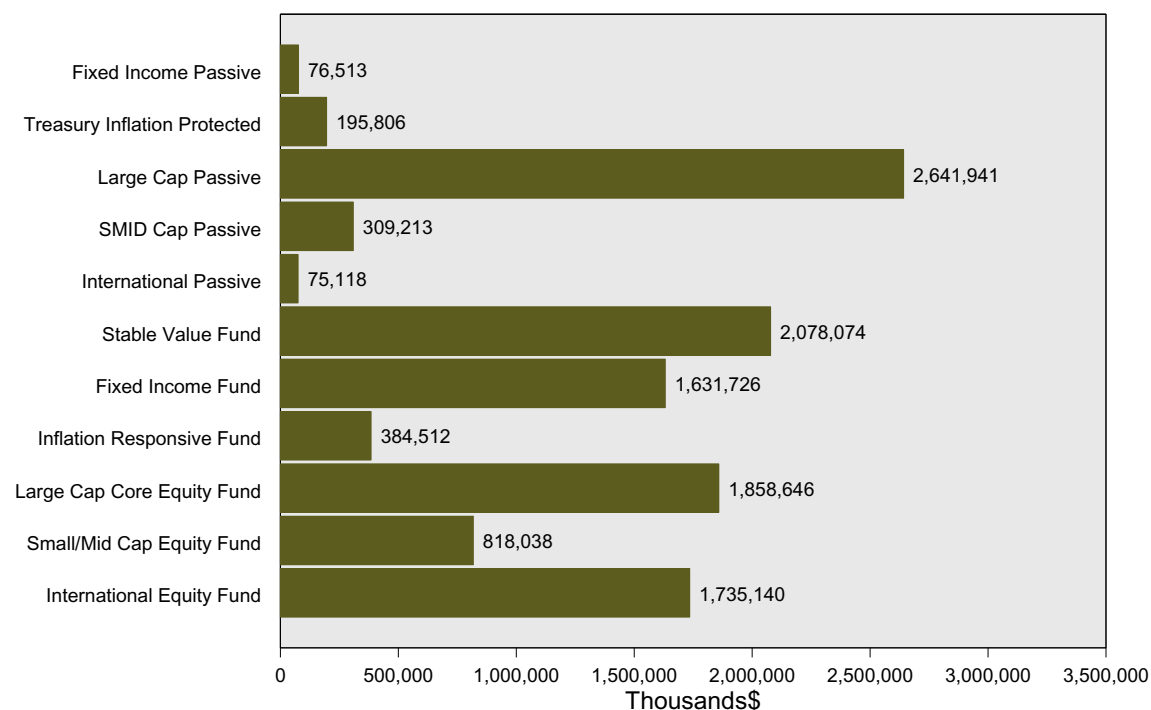
### Asset Distribution Across Investment Funds

	March 31, 2019		December 31, 2018	
	Market Value	Weight	Market Value	Weight
<b>North Carolina SRP 401k &amp; 457</b>				
<b>Tier I: GoalMaker</b>				
Pre Retirement Conservative 0-5	238,489,306	4.35%	220,980,804	4.44%
Pre Retirement Conservative 6-10	143,314,666	2.62%	135,408,874	2.72%
Pre Retirement Conservative 11-15	100,805,331	1.84%	94,144,825	1.89%
Pre Retirement Conservative 16-20	79,463,357	1.45%	72,981,320	1.47%
Pre Retirement Conservative 21-25	58,898,070	1.08%	53,206,948	1.07%
Pre Retirement Conservative 26+	81,066,920	1.48%	72,667,841	1.46%
Post Retirement Conservative 0-5	273,988,145	5.00%	253,358,947	5.10%
Post Retirement Conservative 6-10	62,448,239	1.14%	57,829,373	1.16%
Post Retirement Conservative 11+	9,623,777	0.18%	8,241,567	0.17%
Pre Retirement Moderate 0-5	488,962,961	8.93%	442,838,734	8.91%
Pre Retirement Moderate 6-10	500,652,150	9.14%	458,737,388	9.23%
Pre Retirement Moderate 11-15	395,024,827	7.21%	362,416,477	7.29%
Pre Retirement Moderate 16-20	310,631,980	5.67%	278,044,021	5.59%
Pre Retirement Moderate 21-25	222,954,294	4.07%	201,536,970	4.05%
Pre Retirement Moderate 26+	244,747,852	4.47%	216,085,334	4.35%
Post Retirement Moderate 0-5	300,151,925	5.48%	278,883,576	5.61%
Post Retirement Moderate 6-10	62,119,836	1.13%	57,640,450	1.16%
Post Retirement Moderate 11+	14,004,685	0.26%	9,292,299	0.19%
Pre Retirement Aggressive 0-5	239,032,888	4.36%	217,165,966	4.37%
Pre Retirement Aggressive 6-10	351,160,905	6.41%	316,161,506	6.36%
Pre Retirement Aggressive 11-15	347,915,394	6.35%	312,185,448	6.28%
Pre Retirement Aggressive 16-20	352,460,630	6.43%	315,598,523	6.35%
Pre Retirement Aggressive 21-25	231,069,012	4.22%	205,986,849	4.14%
Pre Retirement Aggressive 26+	221,009,582	4.03%	197,275,020	3.97%
Post Retirement Aggressive 0-5	117,627,590	2.15%	108,070,372	2.17%
Post Retirement Aggressive 6-10	22,413,821	0.41%	18,558,356	0.37%
Post Retirement Aggressive 11+	7,986,085	0.15%	6,761,273	0.14%
<b>Tier I: GoalMaker</b>	<b>\$5,478,024,228</b>	<b>100.0%</b>	<b>\$4,972,059,057</b>	<b>100.0%</b>

## Changes in Investment Fund Balances Period Ended March 31, 2019

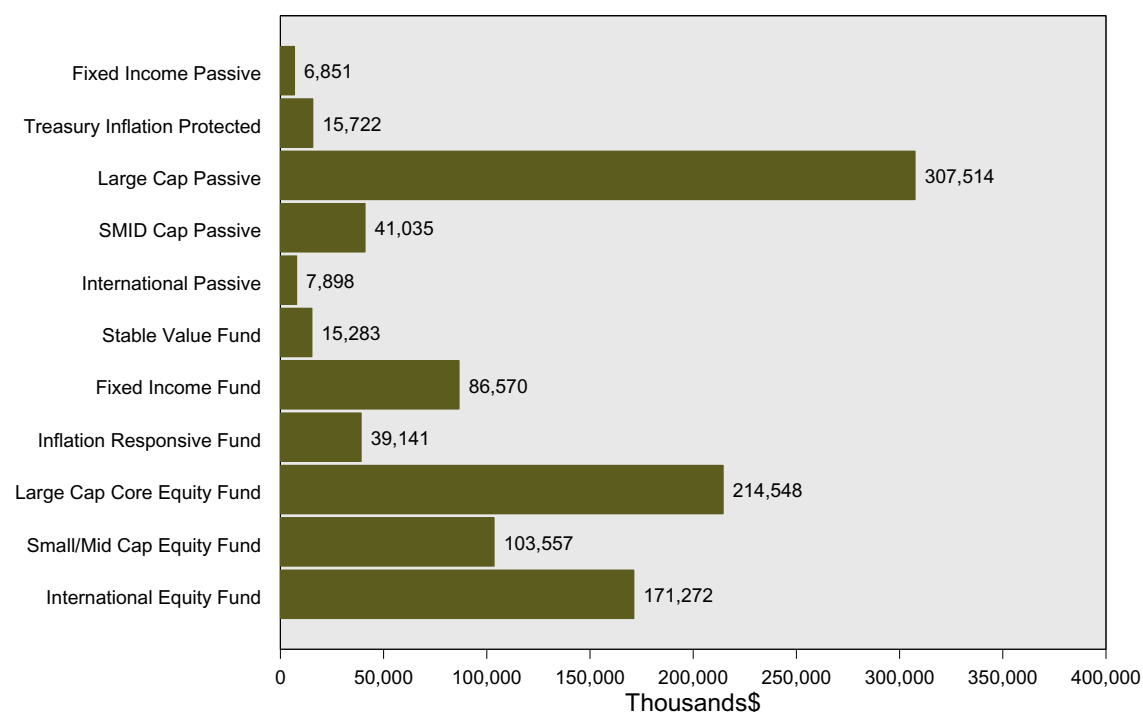
### Allocation Across Investment Options

The chart below illustrates the allocation of the aggregate fund assets across the various investment options for the quarter ended March 31, 2019.



### Changes in Fund Values

The chart below shows the net change in fund values across the various investment options for the quarter ended March 31, 2019. The change in value for each fund is the result of a combination of 3 factors: 1) market movements; 2) contributions or disbursements into or out of the funds by the participants (and any matching done by the company); and 3) transfers between funds by the participants.



## Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2019					
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Tier 2: Passive (Net of Fee)</b>					
Fixed Income Passive	2.95%	4.40%	1.98%	2.68%	2.72% <small>(10/10)</small>
Blmbg Barclays Aggregate	2.94%	4.48%	2.03%	2.74%	2.82% <small>(10/10)</small>
Treasury Inflation Protected Securities	2.65%	-	-	-	2.09% <small>(7/18)</small>
Blmbg US TIPS 1-10 Yr	2.57%	2.72%	1.53%	1.50%	2.09% <small>(7/18)</small>
Large Cap Passive	13.68%	9.55%	13.50%	10.84%	15.82% <small>(4/09)</small>
S&P 500 Index	13.65%	9.50%	13.51%	10.91%	15.92% <small>(4/09)</small>
SMID Cap Passive	15.77%	4.41%	12.47%	7.76%	16.17% <small>(4/09)</small>
Russell 2500 Index	15.82%	4.48%	12.56%	7.79%	16.23% <small>(4/09)</small>
International Passive	10.36%	(4.35%)	8.36%	2.74%	8.89% <small>(4/09)</small>
MSCI ACWI ex US	10.31%	(4.21%)	8.09%	2.57%	8.85% <small>(4/09)</small>

## Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

### Returns for Periods Ended March 31, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Tier 2: Active (Net of Fee)</b>					
<b>Stable Value Fund</b>	<b>0.61%</b>	<b>2.37%</b>	<b>2.13%</b>	<b>2.02%</b>	<b>2.52%</b> (7/09)
3 Yr US Treas Rolling	0.59%	2.62%	1.85%	1.49%	1.14%
T-Bill + 1.5%	0.97%	3.62%	2.69%	2.24%	1.94%
<b>Fixed Income Fund</b>	<b>3.63%</b>	<b>4.96%</b>	<b>3.12%</b>	<b>3.42%</b>	<b>4.63%</b> (4/09)
TCW Core Plus	3.14%	4.81%	-	-	3.06%
Prudential Core Plus	4.12%	5.16%	4.11%	-	3.80%
Blmbg Barclays Aggregate	2.94%	4.48%	2.03%	2.74%	2.27%
<b>Inflation Responsive Fund</b>	<b>7.99%</b>	<b>3.25%</b>	<b>5.54%</b>	<b>2.34%</b>	<b>2.40%</b> (10/13)
Inflation Responsive Benchmark	7.94%	3.06%	2.99%	0.34%	0.64%
BlackRock Strategic Completion	8.01%	-	-	-	4.75%
BlackRock Custom Benchmark	7.94%	4.58%	3.68%	1.41%	4.66%
<b>Large Cap Core Equity Fund</b>	<b>15.43%</b>	<b>10.37%</b>	-	-	<b>11.75%</b> (10/17)
BlackRock Russell 1000 Index	13.98%	9.27%	-	-	8.97%
Russell 1000 Index	14.00%	9.30%	13.52%	10.63%	9.08%
Hotchkis & Wiley Large Cap Value	14.79%	1.90%	12.22%	7.41%	16.34%
Macquarie Large Cap Value	10.39%	9.02%	11.56%	-	8.16%
Russell 1000 Value Index	11.93%	5.67%	10.45%	7.72%	7.06%
Sands Capital Large Cap Growth	22.30%	19.15%	21.95%	12.87%	21.33%
Loomis Sayles Large Cap Growth	16.13%	12.76%	17.63%	-	15.53%
Russell 1000 Growth Index	16.10%	12.75%	16.53%	13.50%	13.68%
<b>Small/Mid Cap Equity Fund</b>	<b>17.08%</b>	<b>3.42%</b>	-	-	<b>5.62%</b> (10/17)
BlackRock Russell 2500 Index	15.57%	4.31%	-	-	5.46%
Russell 2500 Index	15.82%	4.48%	12.56%	7.79%	5.60%
Hotchkis & Wiley Mid Cap Value	15.93%	(3.75%)	7.18%	3.16%	17.07%
Earnest Partners Small/Mid Cap Value	17.18%	1.55%	12.71%	8.27%	15.56%
Wedge Small/Mid Cap Value	13.02%	(1.19%)	8.07%	6.31%	11.86%
Russell 2500 Value Index	13.12%	1.84%	9.85%	6.02%	11.52%
Brown Advisory Small/Mid Cap Growth	22.01%	13.52%	17.04%	11.19%	17.76%
Russell 2500 Growth Index	18.99%	7.54%	15.60%	9.72%	17.50%
<b>International Equity Fund</b>	<b>11.84%</b>	<b>(3.39%)</b>	<b>8.55%</b>	<b>3.78%</b>	<b>9.73%</b> (4/09)
Mondrian ACWI ex-US Value	9.83%	(1.94%)	6.80%	2.55%	8.17%
Baillie Gifford ACWI ex-US Growth	13.85%	(3.84%)	10.76%	5.45%	11.88%
MSCI ACWI ex US	10.31%	(4.21%)	8.09%	2.57%	8.85%



## Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	3 Years Ended 3/2019	3 Years Ended 12/2018	3 Years Ended 9/2018	3 Years Ended 6/2018
<b>Tier 2: Passive (Net of Fee)</b>				
Fixed Income Passive	1.98%	2.01%	1.28%	1.68%
Blmbg Barclays Aggregate	2.03%	2.06%	1.31%	1.72%
Large Cap Passive	13.50%	9.24%	17.28%	11.89%
S&P 500 Index	13.51%	9.26%	17.31%	11.93%
SMID Cap Passive	12.47%	7.29%	16.10%	10.29%
Russell 2500 Index	12.56%	7.32%	16.13%	10.30%
International Passive	8.36%	4.95%	10.22%	5.29%
MSCI ACWI ex US	8.09%	4.48%	9.97%	5.07%

## Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	3 Years Ended 3/2019	3 Years Ended 12/2018	3 Years Ended 9/2018	3 Years Ended 6/2018
<b>Tier 2: Active (Net of Fee)</b>				
<b>Stable Value Fund</b>	<b>2.13%</b>	<b>2.08%</b>	<b>2.03%</b>	<b>2.00%</b>
3 Yr US Treas Rolling	1.85%	1.73%	1.60%	1.45%
T-Bill + 1.5%	2.69%	2.52%	2.34%	2.18%
<b>Fixed Income Fund</b>	<b>3.12%</b>	<b>2.98%</b>	<b>2.30%</b>	<b>2.60%</b>
Prudential Core Plus	4.11%	3.92%	3.40%	3.50%
Blmbg Barclays Aggregate	2.03%	2.06%	1.31%	1.72%
<b>Inflation Responsive Fund</b>	<b>5.54%</b>	<b>4.64%</b>	<b>5.49%</b>	<b>3.77%</b>
Inflation Responsive Benchmark	2.99%	2.08%	2.41%	1.30%
<b>Large Cap Core Equity Fund</b>				
Russell 1000 Index	13.52%	9.09%	17.07%	11.64%
Hotchkis & Wiley Large Cap Value	12.22%	7.51%	15.96%	9.80%
Macquarie Large Cap Value	11.56%	8.55%	15.60%	9.71%
Russell 1000 Value Index	10.45%	6.95%	13.55%	8.26%
Sands Capital Large Cap Growth	21.95%	10.25%	21.85%	16.01%
Loomis Sayles Large Cap Growth	17.63%	11.69%	20.26%	16.82%
Russell 1000 Growth Index	16.53%	11.15%	20.55%	14.98%
<b>Small/Mid Cap Equity Fund</b>				
Russell 2500 Index	12.56%	7.32%	16.13%	10.30%
Hotchkis & Wiley Mid Cap Value	7.18%	2.38%	13.04%	7.53%
Earnest Partners Small/Mid Cap Value	12.71%	7.69%	16.14%	10.00%
Wedge Small/Mid Cap Value	8.07%	4.69%	12.69%	8.18%
Russell 2500 Value Index	9.85%	6.59%	14.51%	9.76%
Brown Advisory Small/Mid Cap Growth	17.04%	8.21%	19.23%	12.74%
Russell 2500 Growth Index	15.60%	8.11%	17.96%	10.86%
<b>International Equity Fund</b>	<b>8.55%</b>	<b>5.07%</b>	<b>10.60%</b>	<b>6.01%</b>
Mondrian ACWI ex-US Value	6.80%	4.20%	8.08%	3.62%
Baillie Gifford ACWI ex-US Growth	10.76%	6.41%	13.70%	8.86%
MSCI ACWI ex US	8.09%	4.48%	9.97%	5.07%

## Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

### Returns for Periods Ended March 31, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Tier 1: GoalMaker Funds (Net of Fee)</b>					
Pre Retirement Conservative 0-5	5.98%	4.42%	4.92%	3.94%	5.81% <sup>(7/09)</sup>
Pre Ret Conservative 0-5 Index	5.45%	4.15%	4.51%	3.54%	4.82% <sup>(7/09)</sup>
Pre Retirement Conservative 6-10	6.91%	4.58%	5.93%	4.48%	6.82% <sup>(7/09)</sup>
Pre Ret Conservative 6-10 Index	6.29%	4.18%	5.45%	4.03%	5.73% <sup>(7/09)</sup>
Pre Retirement Conservative 11-15	7.84%	4.90%	7.65%	5.47%	8.28% <sup>(7/09)</sup>
Pre Ret Conservative 11-15 Index	7.17%	4.44%	7.11%	5.05%	7.58% <sup>(7/09)</sup>
Pre Retirement Conservative 16-20	8.91%	5.06%	9.51%	6.43%	9.83% <sup>(7/09)</sup>
Pre Ret Conservative 16-20 Index	8.16%	4.45%	8.91%	6.00%	9.27% <sup>(7/09)</sup>
Pre Retirement Conservative 21-25	9.99%	-	-	-	3.40% <sup>(7/18)</sup>
Pre Ret Conservative 21-25 Index	10.14%	-	-	-	10.28% <sup>(7/18)</sup>
Pre Retirement Conservative 26+	10.93%	-	-	-	3.03% <sup>(7/18)</sup>
Pre Ret Conservative 26+ Index	10.14%	-	-	-	10.28% <sup>(7/18)</sup>
Post Retirement Conservative 0-5	5.33%	-	-	-	3.51% <sup>(7/18)</sup>
Post Ret Conservative 0-5 Index	4.87%	-	-	-	3.27% <sup>(7/18)</sup>
Post Retirement Conservative 6-10	4.79%	-	-	-	3.39% <sup>(7/18)</sup>
Post Ret Conservative 6-10 Index	4.37%	-	-	-	3.16% <sup>(7/18)</sup>
Post Retirement Conservative 11+	4.53%	-	-	-	3.24% <sup>(7/18)</sup>
Post Ret Conservative 11+ Index	4.15%	-	-	-	3.04% <sup>(7/18)</sup>

## Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

### Returns for Periods Ended March 31, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Tier 1: GoalMaker Funds (Net of Fee)</b>					
Pre Retirement Moderate 0-5	7.77%	4.65%	6.51%	4.80%	7.22% <sup>(7/09)</sup>
Pre Ret Moderate 0-5 Index	7.15%	4.23%	6.03%	4.35%	6.33% <sup>(7/09)</sup>
Pre Retirement Moderate 6-10	8.85%	4.68%	7.58%	5.43%	8.13% <sup>(7/09)</sup>
Pre Ret Moderate 6-10 Index	8.14%	4.14%	7.00%	4.99%	7.55% <sup>(7/09)</sup>
Pre Retirement Moderate 11-15	9.90%	4.67%	8.90%	6.10%	9.39% <sup>(7/09)</sup>
Pre Ret Moderate 11-15 Index	9.14%	4.01%	8.27%	5.64%	8.73% <sup>(7/09)</sup>
Pre Retirement Moderate 16-20	10.93%	4.70%	10.84%	6.99%	10.89% <sup>(7/09)</sup>
Pre Ret Moderate 16-20 Index	10.14%	3.97%	10.18%	6.54%	10.41% <sup>(7/09)</sup>
Pre Retirement Moderate 21-25	11.61%	-	-	-	2.78% <sup>(7/18)</sup>
Pre Ret Moderate 21-25 Index	10.80%	-	-	-	2.07% <sup>(7/18)</sup>
Pre Retirement Moderate 26+	12.34%	-	-	-	2.52% <sup>(7/18)</sup>
Pre Ret Moderate 26+ Index	11.53%	-	-	-	1.79% <sup>(7/18)</sup>
Post Retirement Moderate 0-5	7.14%	-	-	-	3.63% <sup>(7/18)</sup>
Post Ret Moderate 0-5 Index	6.58%	-	-	-	3.29% <sup>(7/18)</sup>
Post Retirement Moderate 6-10	6.37%	-	-	-	3.38% <sup>(7/18)</sup>
Post Ret Moderate 6-10 Index	6.85%	-	-	-	2.27% <sup>(7/18)</sup>
Post Retirement Moderate 11+	5.81%	-	-	-	3.19% <sup>(7/18)</sup>
Post Ret Moderate 11+ Index	5.39%	-	-	-	2.97% <sup>(7/18)</sup>

## Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2019. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

### Returns for Periods Ended March 31, 2019

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Tier 1: GoalMaker Funds (Net of Fee)</b>					
Pre Retirement Aggressive 0-5	9.80%	4.74%	7.88%	5.62%	8.60% <small>(7/09)</small>
Pre Ret Aggressive 0-5 Index	9.11%	4.18%	7.29%	5.17%	7.83% <small>(7/09)</small>
Pre Retirement Aggressive 6-10	10.68%	4.49%	8.84%	6.06%	9.47% <small>(7/09)</small>
Pre Ret Aggressive 6-10 Index	9.91%	3.78%	8.19%	5.59%	8.70% <small>(7/09)</small>
Pre Retirement Aggressive 11-15	11.61%	4.48%	10.29%	6.75%	10.51% <small>(7/09)</small>
Pre Ret Aggressive 11-15 Index	10.80%	3.67%	9.61%	6.27%	10.04% <small>(7/09)</small>
Pre Retirement Aggressive 16-20	12.24%	4.49%	12.22%	7.61%	12.00% <small>(7/09)</small>
Pre Ret Aggressive 16-20 Index	11.42%	3.68%	11.55%	7.17%	11.69% <small>(7/09)</small>
Pre Retirement Aggressive 21-25	12.65%	-	-	-	2.38% <small>(7/18)</small>
Pre Ret Aggressive 21-25 Index	11.83%	-	-	-	1.59% <small>(7/18)</small>
Pre Retirement Aggressive 26+	12.65%	-	-	-	2.38% <small>(7/18)</small>
Pre Ret Aggressive 26+ Index	11.83%	-	-	-	1.59% <small>(7/18)</small>
Post Retirement Aggressive 0-5	8.80%	-	-	-	3.48% <small>(7/18)</small>
Post Ret Aggressive 0-5 Index	8.18%	-	-	-	3.09% <small>(7/18)</small>
Post Retirement Aggressive 6-10	8.06%	-	-	-	3.28% <small>(7/18)</small>
Post Ret Aggressive 6-10 Index	7.53%	-	-	-	2.96% <small>(7/18)</small>
Post Retirement Aggressive 11+	7.39%	-	-	-	3.23% <small>(7/18)</small>
Post Ret Aggressive 11+ Index	6.90%	-	-	-	2.96% <small>(7/18)</small>

## Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	3 Years Ended 3/2019	3 Years Ended 12/2018	3 Years Ended 9/2018	3 Years Ended 6/2018
<b>Tier 1: GoalMaker Funds (Net of Fee)</b>				
Pre Retirement Conservative 0-5	4.92%	3.36%	4.98%	3.92%
Pre Ret Conservative 0-5 Index	4.51%	3.10%	4.60%	3.54%
Pre Retirement Conservative 6-10	5.93%	4.00%	6.17%	4.67%
Pre Ret Conservative 6-10 Index	5.45%	3.71%	5.76%	4.26%
Pre Retirement Conservative 11-15	7.65%	5.36%	8.26%	6.01%
Pre Ret Conservative 11-15 Index	7.11%	5.05%	7.82%	5.59%
Pre Retirement Conservative 16-20	9.51%	6.72%	10.49%	7.39%
Pre Ret Conservative 16-20 Index	8.91%	6.41%	10.07%	6.97%

## Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	<b>3 Years Ended 3/2019</b>	<b>3 Years Ended 12/2018</b>	<b>3 Years Ended 9/2018</b>	<b>3 Years Ended 6/2018</b>
<b>Tier 1: GoalMaker Funds (Net of Fee)</b>				
Pre Retirement Moderate 0-5	6.51%	4.28%	6.98%	5.12%
Pre Ret Moderate 0-5 Index	6.03%	3.98%	6.57%	4.70%
Pre Retirement Moderate 6-10	7.58%	4.96%	8.37%	6.01%
Pre Ret Moderate 6-10 Index	7.00%	4.63%	7.93%	5.59%
Pre Retirement Moderate 11-15	8.90%	5.84%	10.05%	7.01%
Pre Ret Moderate 11-15 Index	8.27%	5.49%	9.60%	6.56%
Pre Retirement Moderate 16-20	10.84%	7.24%	12.40%	8.36%
Pre Ret Moderate 16-20 Index	10.18%	6.92%	11.99%	7.94%

## Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

	<b>3 Years Ended 3/2019</b>	<b>3 Years Ended 12/2018</b>	<b>3 Years Ended 9/2018</b>	<b>3 Years Ended 6/2018</b>
<b>Tier 1: GoalMaker Funds (Net of Fee)</b>				
Pre Retirement Aggressive 0-5	7.88%	4.93%	8.90%	6.26%
Pre Ret Aggressive 0-5 Index	7.29%	4.60%	8.46%	5.82%
Pre Retirement Aggressive 6-10	8.84%	5.53%	10.16%	7.01%
Pre Ret Aggressive 6-10 Index	8.19%	5.16%	9.71%	6.56%
Pre Retirement Aggressive 11-15	10.29%	6.53%	11.97%	8.06%
Pre Ret Aggressive 11-15 Index	9.61%	6.18%	11.55%	7.64%
Pre Retirement Aggressive 16-20	12.22%	8.06%	14.30%	9.39%
Pre Ret Aggressive 16-20 Index	11.55%	7.75%	13.94%	9.00%



**The North Carolina Supplemental Retirement Plan**  
**Investment Manager Performance Monitoring Summary Report**  
**March 31, 2019**

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	3 Year Return Consistency	5 Year Sharpe Ratio	5 Year Excess Rtn Ratio	5 Year Tracking Error
<b>Tier 2: Passive vs. Net of Fee Groups</b>								
<b>Fixed Income Passive (i)</b>	<b>3.0</b> 70	<b>4.4</b> 49	<b>2.0</b> 86	<b>2.7</b> 53		<b>0.6</b> 60	<b>-1.0</b> 94	<b>0.1</b> 99
Callan Core Bond MFs								
Blmbg Barclays Aggregate	2.9 71	4.5 44	2.0 85	2.7 38		0.6 53		
<b>Treasury Inflation Protected (i)</b>	<b>2.7</b> 79							
Callan TIPS MFs								
Blmbg US TIPS 1-10 Yr	2.6 83	2.7 17	1.5 69	1.5 53		0.3 31		
<b>Large Cap Passive (i)</b>	<b>13.7</b> 31	<b>9.5</b> 23	<b>13.5</b> 23	<b>10.8</b> 20		<b>0.9</b> 15	<b>-1.4</b> 96	<b>0.1</b> 99
Callan Large Cap Core MFs								
S&P 500 Index	13.6 31	9.5 24	13.5 22	10.9 17		0.9 12		
<b>SMID Cap Passive (i)</b>	<b>15.8</b> 15	<b>4.4</b> 13	<b>12.5</b> 14	<b>7.8</b> 34		<b>0.5</b> 33	<b>-0.3</b> 46	<b>0.1</b> 98
Callan SMID Core MFs								
Russell 2500 Index	15.8 15	4.5 13	12.6 14	7.8 33		0.5 33		
<b>International Passive (i)</b>	<b>10.4</b> 52	<b>-4.3</b> 35	<b>8.4</b> 24	<b>2.7</b> 42		<b>0.2</b> 39	<b>0.3</b> 27	<b>0.7</b> 100
Callan Non US Equity MFs								
MSCI ACWI ex US	10.3 53	-4.2 35	8.1 29	2.6 47		0.2 40		
<b>Tier 2: Active vs. Net of Fee Groups</b>								
<b>Stable Value Fund</b>	<b>0.6</b> 3	<b>2.4</b> 10	<b>2.1</b> 8	<b>2.0</b> 9		<b>12.3</b> 29	<b>-0.8</b> 35	<b>0.3</b> 35
Callan Stable Value CT								
T-Bill + 1.5%	1.0 1	3.6 1	2.7 1	2.2 1		3.7 94		
<b>Fixed Income Fund</b>	<b>3.6</b> 47	<b>5.0</b> 3	<b>3.1</b> 43	<b>3.4</b> 22		<b>0.8</b> 31	<b>1.2</b> 1	<b>0.5</b> 94
Callan Core Plus MFs								
Blmbg Barclays Aggregate	2.9 86	4.5 38	2.0 95	2.7 71		0.6 73		
<b>TCW Core Plus</b>	<b>3.1</b> 79	<b>4.8</b> 11						
Callan Core Plus MFs								
Blmbg Barclays Aggregate	2.9 86	4.5 38	2.0 95	2.7 71		0.6 73		
<b>Prudential Core Plus</b>	<b>4.1</b> 18	<b>5.2</b> 1	<b>4.1</b> 13					
Callan Core Plus MFs								
Blmbg Barclays Aggregate	2.9 86	4.5 38	2.0 95	2.7 71		0.6 73		

Returns:  
■ above median  
■ third quartile  
■ fourth quartile

Return Consistency:  
■ above median  
■ third quartile  
■ fourth quartile

Sharpe Ratio:  
■ above median  
■ third quartile  
■ fourth quartile

Excess Return Ratio:  
■ above median  
■ third quartile  
■ fourth quartile

Tracking Error:  
■ below median  
■ second quartile  
■ first quartile

(i) - Indexed scoring method used. Green: manager & index ranking differ by <= +/- 10%tile. Yellow: manager & index ranking differ by <= +/- 20%tile. Red: manager & index ranking differ by > +/- 20%tile.

**The North Carolina Supplemental Retirement Plan  
Investment Manager Performance Monitoring Summary Report  
March 31, 2019**

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	3 Year Return Consistency	5 Year Sharpe Ratio	5 Year Excess Rtn Ratio	5 Year Tracking Error
<b>Inflation Responsive Fund</b> Callan Real Assets MFs Inflation Responsive Benchmark	8.0 59	3.3 29	5.5 35	2.3 25		0.2 35	1.4 4	1.5 98
	7.9 59	3.1 33	3.0 78	0.3 53		-0.1 81		
<b>BlackRock Strategic Completion</b> Callan Real Assets MFs BlackRock Custom Benchmark	8.0 59							
	7.9 59	4.6 21	3.7 69	1.4 41		0.1 39		
<b>Large Cap Core Equity Fund</b> Callan Lg Cap Broad MF Russell 1000 Index	15.4 37	10.4 37						
	14.0 49	9.3 43	13.5 45	10.6 43		0.9 31		
<b>BlackRock Russell 1000 Index</b> Callan Large Cap Core MFs Russell 1000 Index	14.0 28	9.3 28						
	14.0 28	9.3 28	13.5 22	10.6 21		0.9 18		
<b>Hotchkis &amp; Wiley Large Cap Value</b> Callan Lg Cap Value MF Russell 1000 Value Index	14.8 5	1.9 70	12.2 22	7.4 52		0.5 86	-0.1 44	4.9 10
	11.9 41	5.7 41	10.5 58	7.7 38		0.7 30		
<b>Macquarie Large Cap Value</b> Callan Lg Cap Value MF Russell 1000 Value Index	10.4 78	9.0 7	11.6 31					
	11.9 41	5.7 41	10.5 58	7.7 38		0.7 30		
<b>Sands Capital Large Cap Growth</b> Callan Large Cap Grwth MF Russell 1000 Growth Index	22.3 1	19.1 1	22.0 2	12.9 49		0.7 89	-0.1 37	9.9 1
	16.1 62	12.7 44	16.5 52	13.5 33		1.0 18		
<b>Loomis Sayles Large Cap Growth</b> Callan Large Cap Grwth MF Russell 1000 Growth Index	16.1 61	12.8 44	17.6 36					
	16.1 62	12.7 44	16.5 52	13.5 33		1.0 18		
<b>Small/Mid Cap Equity Fund</b> Callan SMID Broad MFs Russell 2500 Index	17.1 39	3.4 49						
	15.8 54	4.5 48	12.6 46	7.8 43		0.5 38		
<b>BlackRock Russell 2500 Index</b> Callan SMID Broad MFs Russell 2500 Index	15.6 55	4.3 48						
	15.8 54	4.5 48	12.6 46	7.8 43		0.5 38		

Returns:

■ above median  
■ third quartile  
■ fourth quartile

Return Consistency:

■ above median  
■ third quartile  
■ fourth quartile

Sharpe Ratio:

■ above median  
■ third quartile  
■ fourth quartile

Excess Return Ratio:

■ above median  
■ third quartile  
■ fourth quartile

Tracking Error:

■ below median  
■ second quartile  
■ first quartile

**The North Carolina Supplemental Retirement Plan**  
**Investment Manager Performance Monitoring Summary Report**  
**March 31, 2019**

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	3 Year Return Consistency	5 Year Sharpe Ratio	5 Year Excess Rtn Ratio	5 Year Tracking Error
<b>Hotchkis &amp; Wiley Mid Cap Value</b> Callan SMID Value MFs Russell 2500 Value Index	15.9 29	-3.7 74	7.2 75	3.2 68		0.1 74	-0.4 65	6.4 23
<b>Earnest Partners Small/Mid Cap Value</b> Callan SMID Value MFs Russell 2500 Value Index	17.2 10	1.6 19	12.7 5	8.3 6		0.5 3	0.5 3	4.7 37
<b>Wedge Small/Mid Cap Value</b> Callan SMID Value MFs Russell 2500 Value Index	13.0 67	-1.2 45	8.1 59	6.3 30		0.4 27	0.1 28	2.8 87
<b>Brown Advisory Small/Mid Cap Growth</b> Callan SMID Growth MFs Russell 2500 Growth Index	22.0 19	13.5 13	17.0 34	11.2 27		0.6 30	0.3 34	5.2 10
<b>International Equity Fund</b> Callan Non US Equity MFs MSCI ACWI ex US	11.8 24	-3.4 28	8.6 21	3.8 24		0.2 25	0.7 9	1.8 97
<b>Mondrian ACWI ex-US Value</b> Callan Non US Equity MFs MSCI ACWI ex US	9.8 70	-1.9 15	6.8 43	2.5 47		0.2 39	-0.0 47	2.9 84
<b>Baillie Gifford ACWI ex-US Growth</b> Callan Non US Equity MFs MSCI ACWI ex US	13.8 6	-3.8 31	10.8 3	5.4 9		0.3 11	0.7 3	3.9 45

Returns:  
 above median  
 third quartile  
 fourth quartile

Return Consistency:  
 above median  
 third quartile  
 fourth quartile

Sharpe Ratio:  
 above median  
 third quartile  
 fourth quartile

Excess Return Ratio:  
 above median  
 third quartile  
 fourth quartile

Tracking Error:  
 below median  
 second quartile  
 first quartile

**The North Carolina Supplemental Retirement Plan**  
**Investment Manager Performance Monitoring Summary Report**  
**March 31, 2019**

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	3 Year Return Consistency	5 Year Sharpe Ratio	5 Year Excess Rtn Ratio	5 Year Tracking Error
<b>Tier 2: Active vs. Gross of Fee Groups</b>								
<b>Galliard Stable Value</b> Callan Stable Value SA T-Bill + 1.5%	0.6 47	2.5 15	2.3 1	2.2 20		16.8 22	-0.1 20	0.3 24
<b>TCW Core Plus</b> Callan Core Bond FI Blmbg Aggregate	3.2 51	5.0 16						
	2.9 84	4.5 75	2.0 89	2.7 91		0.6 93		
<b>Prudential Core Plus</b> Callan Core Bond FI Blmbg Aggregate	4.1 4	5.3 4	4.3 1					
	2.9 84	4.5 75	2.0 89	2.7 91		0.6 93		
<b>BlackRock Strategic Completion</b> Callan Real Assets BlackRock Custom Benchmark	8.0 67							
	7.9 67	4.6 34	3.7 84	1.4 48		0.1 45		
<b>Hotchkis &amp; Wiley Large Cap Value</b> Callan Large Cap Value Russell 1000 Value Index	14.9 4	2.3 71	12.7 10	7.9 55		0.5 80	0.0 58	4.9 6
	11.9 35	5.7 30	10.5 68	7.7 66		0.7 44		
<b>Macquarie Large Cap Value</b> Callan Large Cap Value Russell 1000 Value Index	10.5 86	9.3 4	11.9 31					
	11.9 35	5.7 30	10.5 68	7.7 66		0.7 44		
<b>Sands Capital Large Cap Growth</b> Callan Large Cap Growth Russell 1000 Growth Index	22.4 3	19.7 7	22.5 3	13.4 42		0.7 94	-0.0 42	9.9 1
	16.1 57	12.7 59	16.5 56	13.5 42		1.0 38		
<b>Loomis Sayles Large Cap Growth</b> Callan Large Cap Growth Russell 1000 Growth Index	16.2 53	13.2 53	18.1 34					
	16.1 57	12.7 59	16.5 56	13.5 42		1.0 38		
<b>BlackRock Russell 1000 Index</b> Callan Large Cap Core Russell 1000 Index	14.0 32	9.3 38						
	14.0 31	9.3 37	13.5 33	10.6 37		0.9 26		
<b>Hotchkis &amp; Wiley Mid Cap Value</b> Callan Small/MidCap Value Russell 2500 Value Index	16.1 37	-3.3 67	7.7 80	3.7 91		0.2 91	-0.4 91	6.5 11
	13.1 79	1.8 37	9.9 36	6.0 56		0.4 46		

Returns:  
■ above median  
■ third quartile  
■ fourth quartile

Return Consistency:  
■ above median  
■ third quartile  
■ fourth quartile

Sharpe Ratio:  
■ above median  
■ third quartile  
■ fourth quartile

Excess Return Ratio:  
■ above median  
■ third quartile  
■ fourth quartile

Tracking Error:  
■ below median  
■ second quartile  
■ first quartile

**The North Carolina Supplemental Retirement Plan  
Investment Manager Performance Monitoring Summary Report  
March 31, 2019**

Investment Manager	Last Quarter Return	Last Year Return	3 Year Return	5 Year Return	3 Year Return Consistency	5 Year Sharpe Ratio	5 Year Excess Rtn Ratio	5 Year Tracking Error
<b>Earnest Partners Small/Mid Cap Value</b> Callan Small/MidCap Value Russell 2500 Value Index	17.3 13	2.0 32	13.2 17	8.8 14		0.6 16	0.6 16	4.7 37
<b>Wedge Small/Mid Cap Value</b> Callan Small/MidCap Value Russell 2500 Value Index	13.2 79	-0.6 52	8.8 68	7.1 31		0.5 29	0.4 25	2.8 89
<b>Brown Advisory Small/Mid Cap Growth</b> Callan Sm/MidCap Growth Russell 2500 Growth Index	22.1 27	14.1 11	17.7 39	11.8 30		0.7 22	0.4 27	5.3 24
<b>BlackRock Russell 2500 Index</b> Callan Small/MidCap Core Russell 2500 Index	15.6 34	4.3 36						
<b>Mondrian ACWI ex-US Value</b> Callan NonUS AC Broad Eq MSCI ACWI ex US	9.9 74	-1.6 14	7.2 69	3.0 67		0.2 63	0.1 68	2.9 65
<b>Baillie Gifford ACWI ex-US Growth</b> Callan NonUS AC Broad Eq MSCI ACWI ex US	13.9 16	-3.6 32	11.1 12	5.9 13		0.4 12	0.8 14	4.0 39

Returns:  
 above median  
 third quartile  
 fourth quartile

Return Consistency:  
 above median  
 third quartile  
 fourth quartile

Sharpe Ratio:  
 above median  
 third quartile  
 fourth quartile

Excess Return Ratio:  
 above median  
 third quartile  
 fourth quartile

Tracking Error:  
 below median  
 second quartile  
 first quartile

## Galliard Stable Value Period Ended March 31, 2019

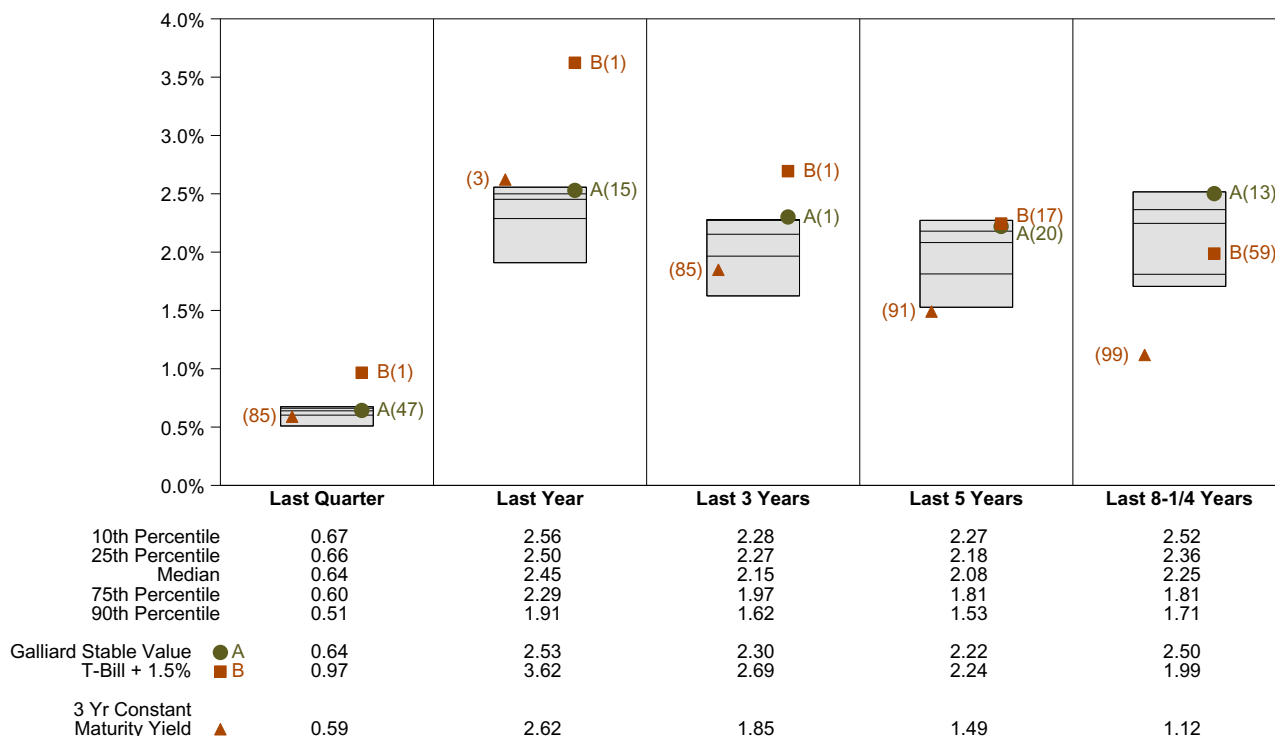
### Investment Philosophy

Galliard's primary emphasis in managing the stable value is safety of principal. Investment strategies and security selection are designed and implemented with this primary objective in mind. Liquidity is another key concern, for it must be sufficient to accommodate participant changes and provide plan sponsor flexibility.

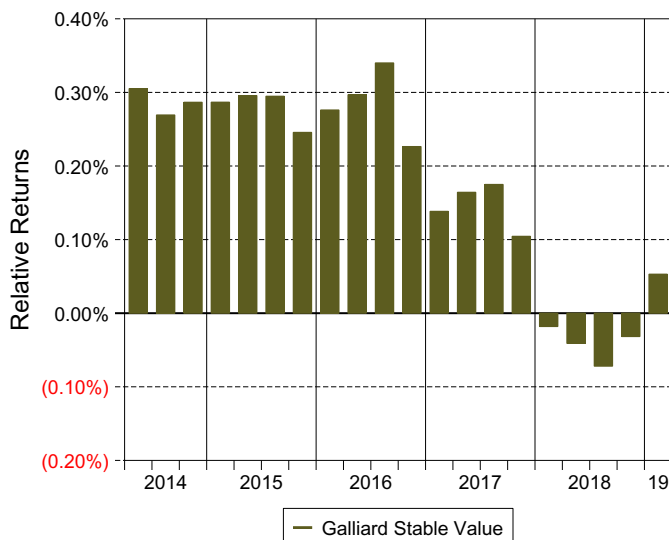
### Quarterly Summary and Highlights

- Galliard Stable Value's portfolio posted a 0.64% return for the quarter placing it in the 47 percentile of the Callan Stable Value SA group for the quarter and in the 15 percentile for the last year.
- Galliard Stable Value's portfolio outperformed the 3 Yr Constant Maturity Yield by 0.05% for the quarter and underperformed the 3 Yr Constant Maturity Yield for the year by 0.09%.

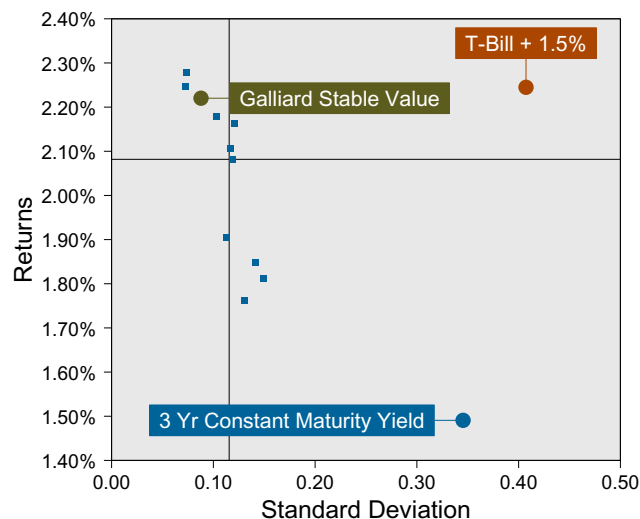
### Performance vs Callan Stable Value SA (Gross)



### Relative Returns vs 3 Yr Constant Maturity Yield



### Callan Stable Value SA (Gross) Annualized Five Year Risk vs Return

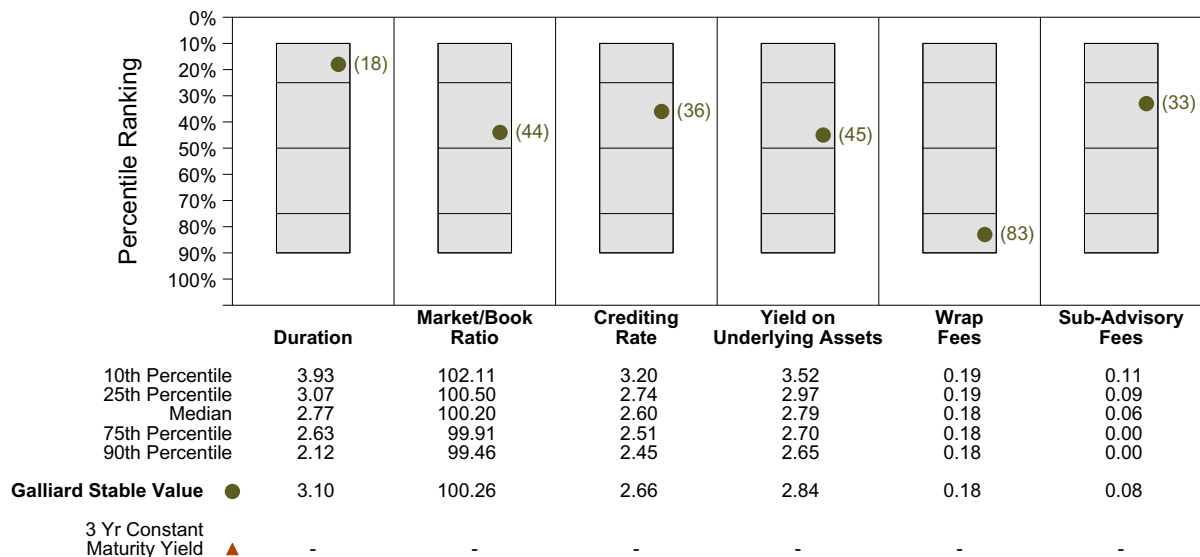


## Galliard Stable Value Stable Value Characteristics Analysis Summary

### Portfolio Characteristics

This graph compares the stable value fund's portfolio characteristics with the range of characteristics for the portfolios which make up the fund's style group. This analysis illustrates whether the fund's current structure is consistent with other funds employing the same style.

### Portfolio Characteristics Percentile Rankings Rankings Against Callan Stable Value SA as of March 31, 2019



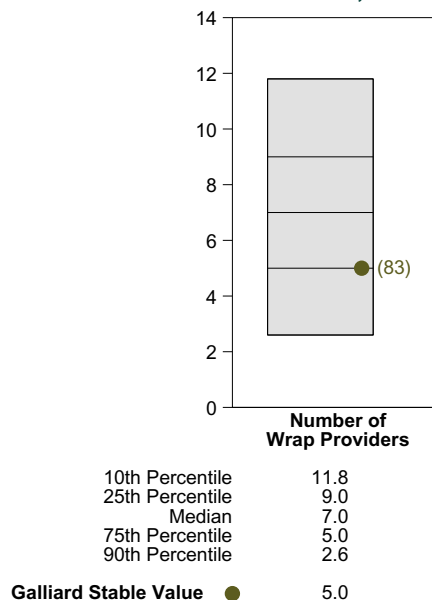
### Wrap Structure and Diversification

The graph below represents the stable value fund's wrap contract structure as of the most recent reporting period. The fund's overall wrap structure may include exposure to constant duration or maturing synthetic GIC contracts, traditional GIC contracts, cash, or other exposures. These contracts allow stable value portfolios to maintain book value accounting practices and a stable net asset value.

#### Portfolio Wrap Exposure March 31, 2019



#### Wrap Contract Diversification March 31, 2019

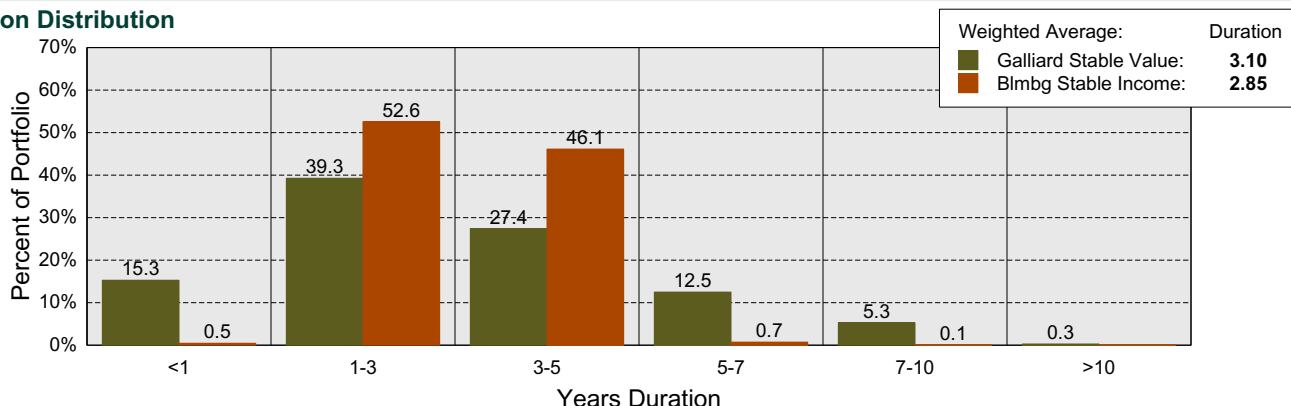


## Galliard Stable Value Stable Value Portfolio Characteristics Summary As of March 31, 2019

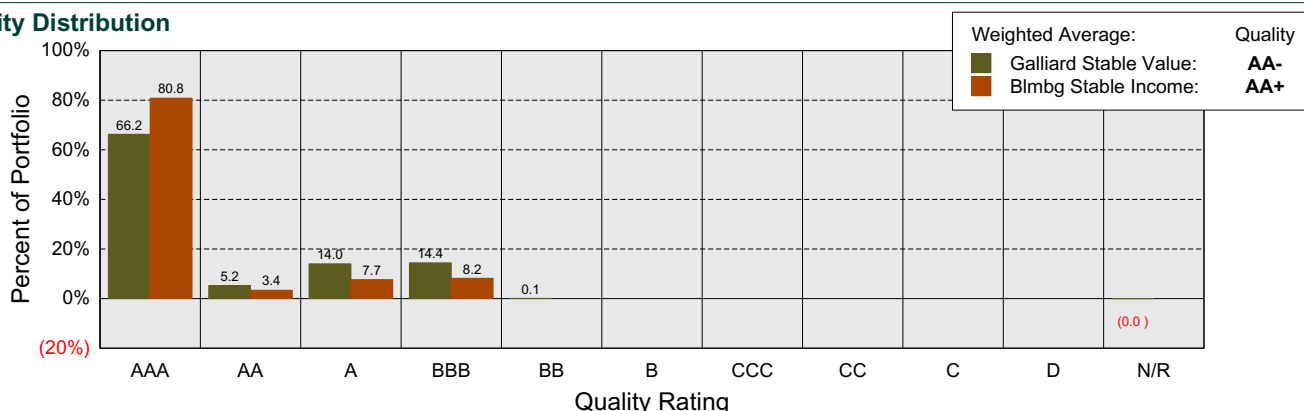
### Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from two perspectives that have the greatest influence on return. The first chart compares the portfolio's duration distribution versus the benchmark, and the second chart compares the distributions across quality ratings.

### Duration Distribution



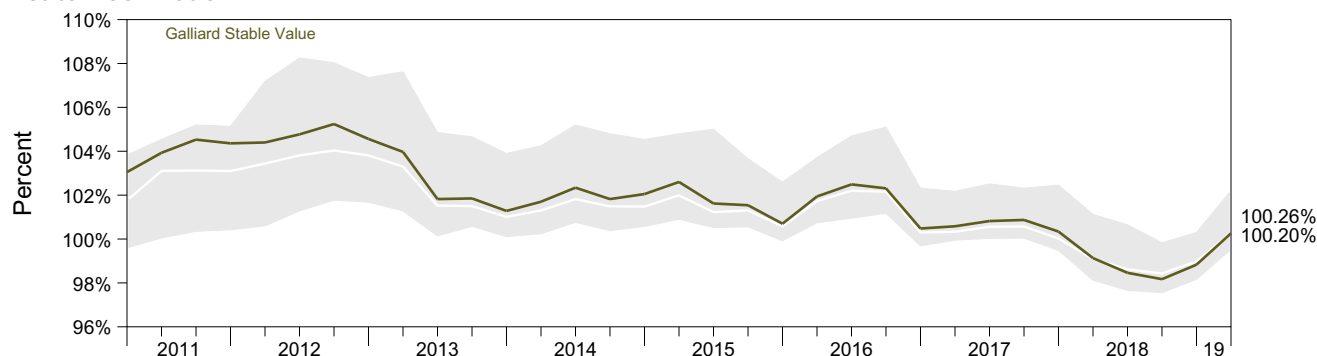
### Quality Distribution



### Market-to-Book Ratio Over Time

The chart below depicts the historical movement of the stable value portfolio's market-to-book ratio over time. This statistic measures the overall "health" of the underlying portfolio. Portfolios with market-to-book ratios closer to 100% will be better positioned to absorb flows and should offer greater return stability over time. As a backdrop the range (from 10th to 90th percentile) is shown along with a white median line for the Callan Stable Value SA Universe.

### Market-to-Book Ratio





### Compensation Applied Incorrectly Costs Big Bucks – January 16, 2019

Translating the legal definition of compensation, as captured in the plan document, to payroll programming is complex. When it is applied incorrectly, it leads to high costs to calculate and fund missed deferrals or contributions, along with the costs to correct the error via the Internal Revenue Service Employee Plans Compliance Resolution System.

Compensation as a defined term in the written plan documents can be applied differently to various aspects of plan administration—deferrals, employer contributions, and testing can all use different definitions of eligible compensation. And that definition of eligible compensation covers a wide variety of elements, including salary, hourly wages, tips, overtime, premiums for shift differential, and call-in premiums, vacation pay, bonuses, taxable benefits, or severance pay.

In *Karlson v. ConAgra Brands Inc.*, the plaintiff (who, prior to termination, was the senior director of global benefits and a member of its administrative committee) alleged that the plan sponsor should have considered certain post-termination bonuses as eligible compensation. The suit alleges that, according to the plan document, participants could defer from their compensation and the employer would match those deferrals and the plan defined “compensation” to include certain post-termination payments.

The plaintiff alleged that in 2016 the plan fiduciaries altered their reading of the plan document to exclude those bonuses and, therefore, failed to apply elective deferrals from these bonuses and match such deferrals. According to the complaint, the alleged failure could potentially affect several thousand participants.

In the instance of a compensation failure, if too much compensation was recognized, the plan sponsor may have to issue distributions of the excess deferrals plus earnings and matching contributions. If the reverse occurred and all eligible compensation was not included (as alleged in this instance), the plan sponsor may have to make corrective contributions to make up for missed savings opportunities. When corrective contributions are required, the employer is required to fund both the missed deferral and matching components, and related earnings.

The IRS calls out compensation errors in its “Plan Fix-It Guide” [here](#).

This lawsuit calls out a common plan failure. Plan sponsors should be aware of the issue and take the opportunity to review their plan language against actual administrative practices. It is also important to review compensation when the definition in the plan document changes, when programming is altered, or following changes to the payroll vendor or software.

### Lesson from University Lawsuit – January 21, 2019

Duke University will pay nearly \$11 million to settle the 2016 class action filed over management of its 403(b) plan.

Duke University has agreed to settle a lawsuit alleging the university violated the Employee Retirement Income Security

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## First Quarter 2019 DC Trends

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Act by causing its defined contribution plan to pay excessive recordkeeping and investment fees. A second lawsuit filed in 2018 alleged that the plan sponsor used plan assets to pay for salaries and fringe benefits of Duke University employees who provided services to the plan. The Duke University lawsuit was one of almost a dozen lawsuits against universities filed by Schlichter, Bogard & Denton in 2016. This represents the 15th settlement out of more than 30 similar complaints filed by Schlichter.

The proposed settlement provides that Duke admits no wrongdoing. In addition to the financial terms of the settlement, Duke agreed to engage an independent consultant to conduct a search for recordkeeping services, make it easier for participants to transfer out of frozen annuity accounts, review the cost of different share classes of mutual funds considered for the plan, and avoid the use of plan assets to pay salaries of Duke employees who work on the plan.

Other defendants in similar university suits have prevailed. Claims against New York University were dismissed after an eight-day trial, although the plaintiffs have appealed. Similar, appeals are pending in claims against the University of Pennsylvania and Northwestern University.

The current litigation environment highlights risks and opportunities for plan sponsors. The cost of litigation is high, and pursuing a settlement may be a viable option for some plan sponsors. Plan sponsors should continue to carefully monitor investment options, confirm plan fees, and follow any written governance documentation, including the IPS. Additionally, plan fiduciaries should document the process and decisions made around vendor selection and fees to demonstrate their due diligence.

### **Disparate Outcomes in Litigation – January 30, 2019**

American Century defeated a class action lawsuit that challenged the inclusion of affiliated mutual funds in its 401(k) plan. This is contrasted by similar litigation involving Putnam Investments where the allegations were largely defeated at trial, but later reversed on appeal. That case has been appealed to the U.S. Supreme Court.

The American Century defined contribution plan covered 1,300 participants as of 2016, and the plan's investment options included a selection of American Century mutual funds and collective investment trusts, company stock, and a self-directed brokerage window. During the period in question, the plan offered between 33 and 46 investment options.

The lawsuit, filed in mid-2016, alleged that American Century did not satisfy the duties of loyalty and prudence as the fund lineup was limited to affiliated funds that generated revenue for the company by selecting unnecessarily expensive share classes. The lawsuit contends American Century failed to remove poor performing funds and neglected to monitor third-party recordkeepers.

The ruling was sympathetic to American Century and stated that "the Court finds the Committee members' testimony credible," while giving "no weight to the testimony of Plaintiffs' process expert." The court found that American Century did

not act disloyally or imprudently by limiting the available investments to affiliated funds in its 401(k) plan. This finding was based on the rationale that the fund selection was prudent and well-diversified, and that the company “truly believed” in the quality of these funds and thought that participants would benefit from familiarity with the funds and access to the people managing them.

The court found that the committee followed prudent processes, including regular meetings, fiduciary tools, and an investment policy statement (IPS). One fund was removed in 2011 for underperformance and six funds in 2017, but the ruling noted that “no other funds were ever removed from the Plan for underperformance, though some funds were removed because they were no longer offered at American Century.”

The ruling also found that it was not imprudent for American Century to offer only actively managed funds instead of lower-cost passive funds, as the “experts in an actively managed fund... had a greater ability to manage risk and lessen the effect of downturns in the market.”

Finally, the ruling indicated that the plaintiffs presented no evidence or testimony, suggesting the company put its own interests ahead of their own. Additionally, the court asserted that the company had no particular incentive to “push” its own funds because its 401(k) plan represented only 0.35% of American Century’s assets under management.

More than 30 companies have been sued over the affiliated mutual funds in their 401(k) plans since 2015. The American Century lawsuit is only the second case filed since 2015 to go to trial. The first, which involved Putnam Investments with comparable facts, similarly found for the defendant although the decision was based on an analysis of the prohibited transaction exemption and the treatment of revenue sharing.

This ruling was vacated in part by the First U.S. Circuit Court of Appeals and remanded back to the lower court for further review of the prohibited transaction analysis to reassess the claim that Putnam violated the duty of prudence. The First Circuit joined the Fourth, Fifth, and Eighth Circuits in holding that once an ERISA plan participant shows a loss allegedly tied to a plan fiduciary’s imprudent behavior, the burden to show that the loss wasn’t caused by the fiduciary shifts to the fiduciary. The Sixth, Ninth, Tenth, and Eleventh circuits have held differently. Following the appellate court’s decision, Putnam filed a petition for writ of certiorari with the U.S. Supreme Court asking it to resolve this issue and opine on the comparison of active and passive benchmarks.

The current litigation environment highlights risks and opportunities for plan sponsors. We recommend that plan sponsors continue to carefully monitor investment options, review plan fees, and follow any written governance documentations, including the IPS. Additionally, plan fiduciaries should document the process and decisions made around vendor selection and fees to demonstrate their due diligence.

**Gimme Shelter – Another Legislative Proposal Targets an Annuity Safe Harbor – March 7, 2019**

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## First Quarter 2019 DC Trends

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An annuity selection safe harbor has been the common theme among recently proposed retirement legislation, such as the Family Savings Act and the Retirement Enhancement and Savings Act. While proposals may come and go, this latest iteration illustrates the continued importance of an annuity selection safe harbor to any proposed retirement legislation.

In theory, the promise of guaranteed income in retirement seems like a great idea. The 2006 Pension Protection Act took steps to limit the fiduciary implications of including annuities in defined contribution (DC) plans by removing the “safest available annuity” requirement. However, according to Callan’s [2019 DC Trends Survey](#), few plans offer either annuities as a form of distribution payment (10.8%) or as an in-plan guarantee (4.1%). Discomfort around the fiduciary implications of such options consistently ranks as the top reason for the reluctance to add an annuity-type option.

Congress has long heard of this hesitation and once again resurrected legislation aimed at providing an annuity safe harbor. On February 28, Reps. Lisa Blunt Rochester (D-DE) and Tim Walberg (R-MI) proposed legislation in the House to ease the way for annuities within DC plans. The Increasing Access to a Secure Retirement Act ([H.R. 1439](#)) would provide a fiduciary safe harbor to the selection of an annuity provider. To qualify for the safe harbor, the fiduciary would need to meet several obligations in the consideration and selection of a provider, including that the cost is reasonable and the insurer is financially capable of satisfying the contract’s obligations. The full text of the proposal is still pending.

As DC plans have matured and participants have taken a greater role in building retirement savings, retirement income has become a key consideration. Plan sponsors should consider the plan objectives and how differing retirement income solutions could support participants.

### **SEC: Investment Managers Must Repay Clients Millions in Settlements – March 14, 2019**

The Securities and Exchange Commission (SEC) announced a settlement whereby roughly 80 investment managers will repay over \$125 million to clients who utilized higher-cost mutual funds when cheaper funds were available.

The settlement, announced on March 11, focuses on funds with 12b-1 fees, which are embedded into the expense ratio and paid to brokers to distribute mutual funds. At issue is whether advisors adequately disclosed potential conflicts of interest in the sale of higher-cost mutual funds when lower-cost share classes were available.

According to the SEC: “The advisors placed their clients in mutual fund share classes that charged 12b-1 fees—which are recurring fees deducted from the fund’s assets—when lower-cost share classes of the same fund were available to their clients without adequately disclosing that the higher-cost share class would be selected.”

As part of the settlement, the firms avoided SEC penalties while agreeing to pay back the fees. This marks another instance of the SEC waiving penalties when firms cooperate in investigations. As an additional term of the settlement, the companies will determine which investors should be moved to share classes without 12b-1 fees and to correct any shortcomings in disclosures.

This settlement springs from the SEC's [Share Class Selection Disclosure Initiative](#). Launched in February 2018, this initiative aims to correct potential harm to investors due to share class selection. Although this settlement affects mainly retail investors, it shows that the SEC is focused squarely on abuses related to fees.

### **Legislating the Student Debt Tsunami – March 20, 2019**

Proposed legislation aims to sanction student loan repayment programs, allowing employers to support employee efforts to pay off student loan debt—both their own and any debt taken on for their children—while recognizing that paying down debt may hinder employees' ability to save for retirement.

One in four Americans has student loans, and the U.S. student debt burden grew to \$1.5 trillion in 2018. This issue impacts new employees entering the workforce, career workers, and parents who have borrowed to finance their children's education. As financial wellness becomes a common theme in employee benefits and as employers look to manage workforce retirement planning, managing student loan debt has become an increasingly significant concern for many employers. Congress has introduced a number of bills that seek to address the widespread student loan debt tsunami. Two key pieces of proposed legislation signal the track that Congress may take:

The Employer Participation in Repayment Act intends to expand the existing tuition assistance program. Currently, the Education Assistance Program only covers workers pursuing additional education, but does not cover employees who have already acquired student loan debt. The proposed expansion would allow employers to contribute up to \$5,250 tax-free to employee student loans per year. However, employer repayment assistance may be considered an uneven employee benefit, providing additional monetary benefits for only those employees who hold student loan debt.

The Retirement Parity for Student Loans Act would allow employers to make matching contributions under 401(k) and 403(b) plans based on ongoing student loan repayments. This bill follows a private letter ruling (PLR) issued by the Internal Revenue Service in 2018. The PLR confirmed that employers can tie employer contributions under a 401(k) plan to the amount of student loan repayments made by the employee outside the plan. However, the PLR only applied to the specific plan requesting the ruling, and only addressed the specific issue and facts presented by the plan sponsor. The Student Loans Act would treat student loan repayments as if they were deferrals into the defined contribution plan, which could then be matched within the plan (rather than the special non-elective contributions described in the PLR). In addition, the Student Loan Act would clarify nondiscrimination testing requirements and safe harbor plans. This type of legislation promotes retirement readiness while recognizing that paying down debt may limit the ability for employees to save for retirement.

Market forces continue to drive innovation in this area. In addition to the legislation described above, some employers are exploring boosting student loan repayments with forfeited vacation time. This perk complements the reality that most Americans don't use all of their paid time off.

Employers continue to consider how financial benefits support their employees, while looking to balance competing needs. Depending on the employee population and labor planning needs, a student loan repayment program may be a meaningful employee benefit. Plan sponsors should consider how these programs could be implemented, if needed, and how to continually manage them.

### **Another Higher Ed Plan Faces Court Battle – March 25, 2019**

Brown University has settled a lawsuit for breach of fiduciary duties under the Employment Retirement Income Security Act (ERISA) for \$3.5 million as the plaintiff's bar continues focusing attention on higher education plans.

The 2017 lawsuit was filed with a series of specific claims, including that the plans offered 199 investment choices in 2014 between Fidelity Investments and TIAA. The plans subsequently reduced the number of choices significantly, but still offered a total of 61 investment options, many of which were proprietary funds from the two recordkeepers. The plaintiffs also alleged that the choice of an older version of the TIAA Traditional Annuity was improper, as alternative versions with higher rates of return and greater liquidity were available.

The university did not admit wrongdoing, but in a statement indicated that it settled the lawsuit given the prospect of years of costly litigation.

Higher education plans continue to be the most recent preferred target of the plaintiff's bar, and the large fund menus offered within the plans are one of the most consistent targets of new lawsuits.

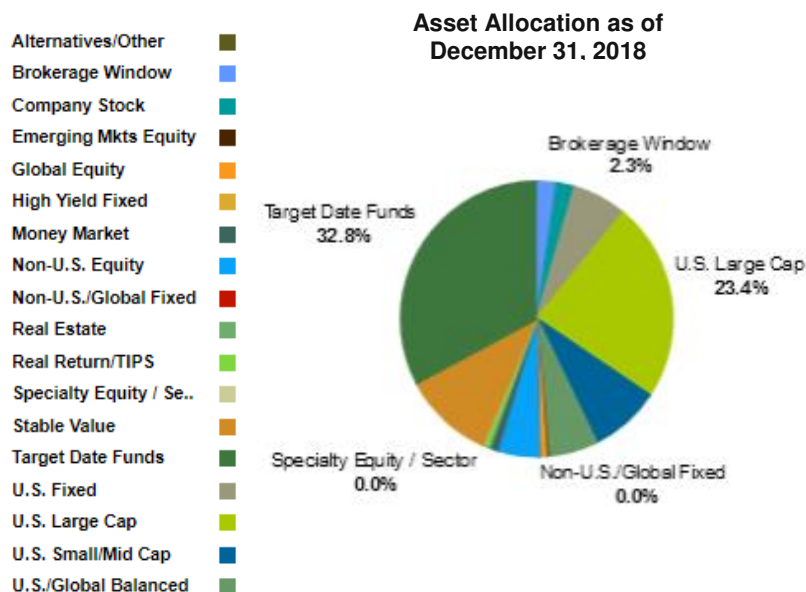


# Structure Utilization

## Asset Allocation

### Despite Bumpy Quarter, TDFs Continue to Ascend

With consistent inflows (though not nearly as large during the fourth quarter), target date funds ended the year with a 33% share of assets, up from 31% a year ago. For the year, stable value also increased its share (10.7% vs. 9.1%), while both small/mid-cap and international equity dipped 1.3% and 1.0% respectively.

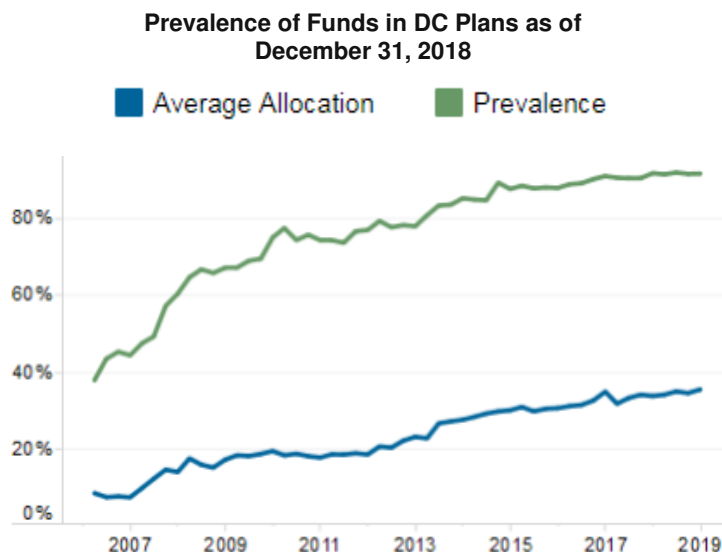


## Prevalence

### TDF Allocations Dominate

In the prevalence of funds table, the green bars indicate the prevalence of asset classes in DC plans and the blue bars measure the average allocation to that particular asset class when offered as an option.

Fewer plans offer company stock (21% vs. 28%) relative to a year ago, while stable value rose in overall prevalence from 71% to 75% for the year.





**Total Pure Equity** - The sum of “pure” equity across the glide path. Pure equity is composed of large-cap domestic equity, small/mid-cap domestic equity, international equity, emerging market equity and global equity. Excluded are REIT exposures.

**Total Target Date Family Performance** - The weighted performance across all of the underlying target date vintages. Family performance can be weighted equally, according to client assets within each vintage or according to manager assets within each vintage.

**Callan Consensus** - An equally weighted index of the universe of available TDF “series” or “families” (currently 44) – including both mutual funds and collective trusts. The funds’ glidepaths are mapped into 26 asset classes. The CAI Consensus Glidepath Index is created as an equal-weighted average of all the provider glidepaths, and will change dynamically over time as provider glidepaths evolve and/or the provider universe expands.



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## Equity Market Indicators

The market indicators included in this report are regarded as measures of equity or fixed income performance results. The returns shown reflect both income and capital appreciation.

**Russell 1000 Growth** measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

**Russell 1000 Value** measures the performance of those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values.

**Russell 2000 Value** contains those Russell 2000 securities with a less than average growth orientation. Securities in this index tend to exhibit lower price-to-book and price-earning ratios, higher dividend yields and lower forecasted growth values than the Growth universe.

**Russell 2500 Growth Index** measures the performance of those Russell 2500 companies with higher price-to-book ratios and higher forecasted growth values.

**Russell Mid Cap Growth** measures the performance of those Russell Mid Cap Companies with higher price-to-book ratios and higher forecasted growth values. The stocks are also members of the Russell 1000 Growth Index.

**Standard & Poor's 500 Index** is designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries. The index is capitalization-weighted, with each stock weighted by its proportion of the total market value of all 500 issues. Thus, larger companies have a greater effect on the index.

## Fixed Income Market Indicators

**90-Day U.S. Treasury Bills** provide a measure of riskless return. The rate of return is the average interest rate available on the beginning of each month for a Treasury Bill maturing in ninety days.

**Bloomberg Barclays Aggregate Bond Index** is a combination of the Mortgage Backed Securities Index and the intermediate and long-term components of the Government/Credit Bond Index.

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## International Equity Market Indicators

**Morgan Stanley Capital International (MSCI) EAFE Index** is composed of approximately 1000 equity securities representing the stock exchanges of Europe, Australia, New Zealand and the Far East. The index is capitalization-weighted and is expressed in terms of U.S. dollars.

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## Callan Databases

In order to provide comparative investment results for use in evaluating a fund's performance, Callan gathers rate of return data from investment managers. These data are then grouped by type of assets managed and by the type of investment manager. Except for mutual funds, the results are for tax-exempt fund assets. The databases, excluding mutual funds, represent investment managers who handle over 80% of all tax-exempt fund assets.

### Equity Funds

Equity funds concentrate their investments in common stocks and convertible securities. The funds included maintain well-diversified portfolios.

**Core Equity** - Mutual funds whose portfolio holdings and characteristics are similar to that of the broader market as represented by the Standard & Poor's 500 Index, with the objective of adding value over and above the index, typically from sector or issue selection. The core portfolio exhibits similar risk characteristics to the broad market as measured by low residual risk with Beta and R-Squared close to 1.00.

**Large Cap Growth** - Mutual Funds that invest mainly in large companies that are expected to have above average prospects for long-term growth in earnings and profitability. Future growth prospects take precedence over valuation levels in the stock selection process. Invests in companies with P/E ratios, Price-to-Book values, Return-on-Assets values, Growth-in-Earnings values above the broader market. The companies typically have zero dividends or dividend yields below the broader market. Invests in securities which exhibit greater volatility than the broader market as measured by the securities' Beta and Standard Deviation.

**Large Cap Value** - Mutual funds that invest in predominantly large capitalization companies believed to be currently undervalued in the general market. The companies are expected to have a near-term earnings rebound and eventual realization of expected value. Valuation issues take precedence over near-term earnings prospects in the stock selection process. Invests in companies with P/E ratios and Price-to-Book values below the broader market. Usually exhibits lower risk than the broader market as measured by the Beta and Standard Deviation.

**Non-U.S. Equity Style Mutual Funds** - Mutual funds that invest their assets only in non-U.S. equity securities but exclude regional and index funds.

**Small Capitalization (Value)** - Mutual funds that invest in small capitalization companies that are believed to be currently undervalued in the general market. Valuation issues take precedence over near-term earnings prospects in the stock selection process. The companies are expected to have a near-term earnings rebound and eventual realization of expected value. Invests in companies with P/E ratios, Return-on-Equity values, and Price-to-Book values below the broader market as well as the small capitalization market segment. The companies typically have dividend yields in the high range for the small capitalization market. Invests in securities with risk/reward profiles in the lower risk range of the small capitalization market.

**Small/Middle Capitalization** - Managers who invest primarily in small to middle capitalization range companies with market capitalization below core equity companies. The market capitalization is about the upper quartile of the Small Cap group and the lower decile of the Mid Cap group. The Small/Mid Cap Broad style invests in securities with greater volatility than the broader market as measured by the risk statistics Beta and Standard Deviation. This style consists of the Small/Mid Cap Growth and the Small/Mid Cap Value Style Groups and other funds classified strictly as Small/Mid Cap Broad.

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## Callan Databases

In order to provide comparative investment results for use in evaluating a fund's performance, Callan gathers rate of return data from investment managers. These data are then grouped by type of assets managed and by the type of investment manager. Except for mutual funds, the results are for tax-exempt fund assets. The databases, excluding mutual funds, represent investment managers who handle over 80% of all tax-exempt fund assets.

### Fixed Income Funds

Fixed Income funds concentrate their investments in bonds, preferred stocks, and money market securities. The funds included maintain well-diversified portfolios.

**Core Bond** - Mutual Funds that construct portfolios to approximate the investment results of the Bloomberg Barclays Capital Government/Credit Bond Index or the Bloomberg Barclays Capital Aggregate Bond Index with a modest amount of variability in duration around the index. The objective is to achieve value added from sector and/or issue selection.

**Stable Value** - The Stable Value database group is comprised of funds that invest primarily in Guaranteed Investment Contracts (GICs) and Synthetic Investment Contracts (SICs) to provide principal protection, stable book value and a guaranteed rate of return over a contractually specified time period. Common benchmarks for the universe include but not limited to, are the Ryan Labs GIC Master indices and the Hueler Stable Value Index.

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## Risk/Reward Statistics

The risk statistics used in this report examine performance characteristics of a manager or a portfolio relative to a benchmark (market indicator) which assumes to represent overall movements in the asset class being considered. The main unit of analysis is the excess return, which is the portfolio return minus the return on a risk free asset (3 month T-Bill).

**Alpha** measures a portfolio's return in excess of the market return adjusted for risk. It is a measure of the manager's contribution to performance with reference to security selection. A positive alpha indicates that a portfolio was positively rewarded for the residual risk which was taken for that level of market exposure.

**Beta** measures the sensitivity of rates of portfolio returns to movements in the market index. A portfolio's beta measures the expected change in return per 1% change in the return on the market. If a beta of a portfolio is 1.5, a 1 percent increase in the return on the market will result, on average, in a 1.5 percent increase in the return on the portfolio. The converse would also be true.

**Downside Risk** stems from the desire to differentiate between "good risk" (upside volatility) and "bad risk" (downside volatility). Whereas standard deviation punishes both upside and downside volatility, downside risk measures only the standard deviation of returns below the target. Returns above the target are assigned a deviation of zero. Both the frequency and magnitude of underperformance affect the amount of downside risk.

**Excess Return Ratio** is a measure of risk adjusted relative return. This ratio captures the amount of active management performance (value added relative to an index) per unit of active management risk (tracking error against the index.) It is calculated by dividing the manager's annualized cumulative excess return relative to the index by the standard deviation of the individual quarterly excess returns. The Excess Return Ratio can be interpreted as the manager's active risk/reward tradeoff for diverging from the index when the index is mandated to be the "riskless" market position.

**Information Ratio** measures the manager's market risk-adjusted excess return per unit of residual risk relative to a benchmark. It is computed by dividing alpha by the residual risk over a given time period. Assuming all other factors being equal, managers with lower residual risk achieve higher values in the information ratio. Managers with higher information ratios will add value relative to the benchmark more reliably and consistently.

**R-Squared** indicates the extent to which the variability of the portfolio returns are explained by market action. It can also be thought of as measuring the diversification relative to the appropriate benchmark. An r-squared value of .75 indicates that 75% of the fluctuation in a portfolio return is explained by market action. An r-squared of 1.0 indicates that a portfolio's returns are entirely related to the market and it is not influenced by other factors. An r-squared of zero indicates that no relationship exists between the portfolio's return and the market.

**Relative Standard Deviation** is a simple measure of a manager's risk (volatility) relative to a benchmark. It is calculated by dividing the manager's standard deviation of returns by the benchmark's standard deviation of returns. A relative standard deviation of 1.20, for example, means the manager has exhibited 20% more risk than the benchmark over that time period. A ratio of .80 would imply 20% less risk. This ratio is especially useful when analyzing the risk of investment grade fixed-income products where actual historical durations are not available. By using this relative risk measure over rolling time periods one can illustrate the "implied" historical duration patterns of the portfolio versus the benchmark.

**Residual Portfolio Risk** is the unsystematic risk of a fund, the portion of the total risk unique to the fund (manager) itself and not related to the overall market. This reflects the "bets" which the manager places in that particular asset market. These bets may reflect emphasis in particular sectors, maturities (for bonds), or other issue specific factors which the manager considers a good investment opportunity. Diversification of the portfolio will reduce or eliminate the residual risk of that portfolio.

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## Risk/Reward Statistics

**Rising Declining Periods** refer to the sub-asset class cycles vis-a-vis the broader asset class. This is determined by evaluating the cumulative relative sub-asset class index performance to that of the broader asset class index. For example, to determine the Growth Style cycle, the S&P 500 Growth Index (sub-asset class) performance is compared to that of the S&P 500 Index (broader asset class).

**Sharpe Ratio** is a commonly used measure of risk-adjusted return. It is calculated by subtracting the "risk-free" return (usually 3 Month Treasury Bill) from the portfolio return and dividing the resulting "excess return" by the portfolio's risk level (standard deviation). The result is a measure of return gained per unit of risk taken.

**Sortino Ratio** is a downside risk-adjusted measure of value-added. It measures excess return over a benchmark divided by downside risk. The natural appeal is that it identifies value-added per unit of truly bad risk. The danger of interpretation, however, lies in these two areas: (1) the statistical significance of the denominator, and (2) its reliance on the persistence of skewness in return distributions.

**Standard Deviation** is a statistical measure of portfolio risk. It reflects the average deviation of the observations from their sample mean. Standard deviation is used as an estimate of risk since it measures how wide the range of returns typically is. The wider the typical range of returns, the higher the standard deviation of returns, and the higher the portfolio risk. If returns are normally distributed (ie. has a bell shaped curve distribution) then approximately 2/3 of the returns would occur within plus or minus one standard deviation from the sample mean.

**Total Portfolio Risk** is a measure of the volatility of the quarterly excess returns of an asset. Total risk is composed of two measures of risk: market (non-diversifiable or systematic) risk and residual (diversifiable or unsystematic) risk. The purpose of portfolio diversification is to reduce the residual risk of the portfolio.

**Tracking Error** is a statistical measure of a portfolio's risk relative to an index. It reflects the standard deviation of a portfolio's individual quarterly or monthly returns from the index's returns. Typically, the lower the Tracking Error, the more "index-like" the portfolio.

**Treynor Ratio** represents the portfolio's average excess return over a specified period divided by the beta relative to its benchmark over that same period. This measure reflects the reward over the risk-free rate relative to the systematic risk assumed.

Note: Alpha, Total Risk, and Residual Risk are annualized.





### List of Callan's Investment Manager Clients

Confidential – For Callan Client Use Only

Callan takes its fiduciary and disclosure responsibilities to clients very seriously. We recognize that there are numerous potential conflicts of interest encountered in the investment consulting industry and that it is our responsibility to manage those conflicts effectively and in the best interest of our clients. At Callan, we employ a robust process to identify, manage, monitor and disclose potential conflicts on an on-going basis.

The list below is an important component of our conflicts management and disclosure process. It identifies those investment managers that pay Callan fees for educational, consulting, software, database or reporting products and services. We update the list quarterly because we believe that our fund sponsor clients should know the investment managers that do business with Callan, particularly those investment manager clients that the fund sponsor clients may be using or considering using. Please note that if an investment manager receives a product or service on a complimentary basis (e.g. attending and educational event), they are not included in the list below. Callan is committed to ensuring that we do not consider an investment manager's business relationship with Callan, or lack thereof, in performing evaluations for or making suggestions or recommendations to its other clients. Please refer to Callan's ADV Part 2A for a more detailed description of the services and products that Callan makes available to investment manager clients through our Institutional Consulting Group, Independent Adviser Group and Fund Sponsor Consulting Group. Due to the complex corporate and organizational ownership structures of many investment management firms, parent and affiliate firm relationships are not indicated on our list.

Fund sponsor clients may request a copy of the most currently available list at any time. Fund sponsor clients may also request specific information regarding the fees paid to Callan by particular fund manager clients. Per company policy, information requests regarding fees are handled exclusively by Callan's Compliance Department.

Manager Name
Aberdeen Standard Investments
Acadian Asset Management LLC
AEGON USA Investment Management
Alcentra
AllianceBernstein
Allianz Global Investors
Allianz Life Insurance Company of North America
AlphaSimplex Group, LLC
American Century Investments
Amundi Pioneer Asset Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Atlanta Capital Management Co., LLC
Aviva Investors Americas
AXA Investment Managers
Baillie Gifford International, LLC
Baird Advisors
Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
BlackRock
BMO Global Asset Management
BNP Paribas Asset Management
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
BrightSphere Investment Group
Brown Brothers Harriman & Company
Cambiar Investors, LLC
Capital Group
Carillon Tower Advisers
CastleArk Management, LLC
Causeway Capital Management

Manager Name
Chartwell Investment Partners
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Threadneedle Investments
Columbus Circle Investors
Cooke & Bieler, L.P.
Credit Suisse Asset Management
CS McKee, L.P.
DePrince, Race & Zollo, Inc.
Diamond Hill Capital Management, Inc.
Dimensional Fund Advisors LP
Doubleline
Duff & Phelps Investment Management Co.
DWS
EARNEST Partners, LLC
Eaton Vance Management
Epoch Investment Partners, Inc.
Fayez Sarofim & Company
Federated Investors
Fidelity Institutional Asset Management
Fiera Capital Corporation
Financial Engines
First Hawaiian Bank Wealth Management Division
First State Investments
Fisher Investments
Franklin Templeton
Fred Alger Management, Inc.
GAM (USA) Inc.
Glenmeade Investment Management, LP
GlobeFlex Capital, L.P.
Goldman Sachs Asset Management
Green Square Capital LLC
Guggenheim Investments
GW&K Investment Management

Manager Name
Harbor Capital Group Trust
Hartford Investment Management Co.
Heitman LLC
Hotchkis & Wiley Capital Management, LLC
HSBC Global Asset Management
Impax Asset Management Limited
Income Research + Management, Inc.
Insight Investment Management Limited
Intech Investment Management, LLC
Intercontinental Real Estate Corporation
Invesco
Investec Asset Management
Ivy Investments
J.P. Morgan
Janus
Jennison Associates LLC
Jobs Peak Advisors
KeyCorp
Lazard Asset Management
Legal & General Investment Management America
LGT Capital Partners Ltd.
Lincoln National Corporation
Longview Partners
Loomis, Sayles & Company, L.P.
Lord Abbett & Company
Los Angeles Capital Management
LSV Asset Management
MacKay Shields LLC
Macquarie Investment Management (MIM)
Manulife Asset Management
Marathon Asset Management, L.P.
McKinley Capital Management, LLC
MFS Investment Management
MidFirst Bank
Mondrian Investment Partners Limited
Montag & Caldwell, LLC
Morgan Stanley Investment Management
Mountain Lake Investment Management LLC
Mountain Pacific Advisors, LLC
MUFG Union Bank, N.A.
Natixis Investment Managers
Neuberger Berman
Newton Investment Management
Nikko Asset Management Co., Ltd.
Northern Trust Asset Management
Nuveen
OFI Global Asset Management
Osterweis Capital Management, LLC
P/E Investments

Manager Name
Pacific Investment Management Company
Pathway Capital Management
Peregrine Capital Management, Inc.
Perkins Investment Management
PFM Asset Management LLC
PGIM Fixed Income
PineBridge Investments
PNC Capital Advisors, LLC
Principal Global Investors
Putnam Investments, LLC
QMA LLC
RBC Global Asset Management
Record Currency Management Ltd.
Regions Financial Corporation
Robeco Institutional Asset Management, US Inc.
Rockefeller Capital Management
Rothschild & Co. Asset Management US
Russell Investments
Schroder Investment Management North America Inc.
Silvercrest Asset Management Group
Smith Graham & Co. Investment Advisors, L.P.
Smith Group Asset Management
South Texas Money Management, Ltd.
State Street Global Advisors
Stone Harbor Investment Partners, L.P.
Sun Life Investment Management
T. Rowe Price Associates, Inc.
The Boston Company Asset Management
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
VanEck
Velanne Asset Management Ltd.
Versus Capital Group
Victory Capital Management Inc.
Virtus Investment Partners, Inc.
Vontobel Asset Management, Inc.
Voya
WCM Investment Management
WEDGE Capital Management
Wellington Management Company, LLP
Wells Fargo Asset Management
Western Asset Management Company LLC
Westfield Capital Management Company, LP
William Blair & Company LLC