

April 30, 2020



The North Carolina Supplemental Retirement Plans

**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 April 30, 2020, with the distribution as of March 31, 2020. 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

	April 30, 2020 Market Value	Net New Inv.	Inv. Return	March 31, 2020 Market Value
North Carolina SRP 401k & 457				
Tier II Passive	\$3,373,959,434	\$7,755,394	\$350,735,422	\$3,015,468,618
Fixed Income Passive	100,311,103	2,590,354	1,746,814	95,973,936
Treasury Inflation Protected	250,298,854	412,716	5,028,623	244,857,515
Large Cap Passive	2,695,478,866	5,120,793	306,374,265	2,383,983,808
SMID Cap Passive	260,648,062	(131,689)	32,997,120	227,782,631
International Passive	67,222,549	(236,780)	4,588,601	62,870,728
Tier II Active	\$8,550,165,089	\$15,126,173	\$480,704,307	\$8,054,334,609
Stable Value Fund	2,230,677,959	9,906,508	4,393,694	2,216,377,757
Fixed Income Fund	1,802,441,126	(2,770,024)	50,436,203	1,754,774,947
Inflation Responsive Fund	375,269,848	1,703,370	14,034,967	359,531,511
Large Cap Core Equity Fund	1,713,429,981	(4,877,491)	198,450,805	1,519,856,667
Small/Mid Cap Equity Fund	757,427,831	3,448,408	99,015,637	654,963,785
International Equity Fund	1,670,918,344	7,715,402	114,373,001	1,548,829,941
Total Fund	\$11,924,124,523	\$22,881,567	\$831,439,729	\$11,069,803,227

Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended April 30, 2020. 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 April 30, 2020

	Last Month	Year to Date	Last Year	Last 3 Years	Last 5 Years
Tier 2: Passive (Net of Fee)					
Fixed Income Passive	1.80%	4.94%	10.78%	5.12%	3.73%
Blmbg Barclays Aggregate	1.78%	4.98%	10.84%	5.17%	3.80%
Treasury Inflation Protected Securities	2.05%	2.43%	6.27%	-	-
Blmbg US TIPS 1-10 Yr	2.03%	2.34%	6.16%	3.07%	2.41%
Large Cap Passive	12.82%	(9.27%)	0.90%	9.06%	9.10%
S&P 500 Index	12.82%	(9.29%)	0.86%	9.04%	9.12%
SMID Cap Passive	14.47%	(19.60%)	(14.36%)	1.00%	3.58%
Russell 2500 Index	14.55%	(19.50%)	(14.20%)	1.13%	3.62%
International Passive	7.29%	(17.67%)	(11.54%)	(0.09%)	(0.01%)
MSCI ACWI ex US	7.58%	(17.55%)	(11.51%)	(0.25%)	(0.17%)


Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended April 30, 2020. 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 April 30, 2020

	Last Month	Year to Date	Last Year	Last 3 Years	Last 5 Years
Tier 2: Active (Net of Fee)					
Stable Value Fund	0.20%	0.81%	2.59%	2.36%	2.18%
3 Yr Constant Maturity Yield	(0.00%)	0.21%	1.30%	1.93%	1.59%
T-Bill + 1.5%	0.13%	1.07%	3.57%	3.31%	2.69%
Fixed Income Fund	2.87%	2.77%	9.18%	5.25%	4.18%
Blmbg Barclays Aggregate	1.78%	4.98%	10.84%	5.17%	3.80%
TCW Core Plus	2.58%	5.06%	11.15%	5.49%	-
Blmbg Barclays Aggregate	1.78%	4.98%	10.84%	5.17%	3.80%
Prudential Core Plus	3.19%	0.57%	7.31%	5.02%	4.37%
Blmbg Barclays Aggregate	1.78%	4.98%	10.84%	5.17%	3.80%
Inflation Responsive Fund	3.89%	(11.06%)	(6.39%)	0.50%	0.73%
BlackRock Strategic Completion	3.89%	(11.01%)	(6.33%)	-	-
Large Cap Core Equity Fund	13.07%	(9.79%)	(2.68%)	-	-
Russell 1000 Index	13.21%	(9.68%)	0.09%	8.68%	8.74%
Hotchkis & Wiley Large Cap Value	12.45%	(26.34%)	(20.81%)	(2.12%)	1.66%
Russell 1000 Value Index	11.24%	(18.49%)	(11.01%)	1.42%	3.90%
Macquarie Large Cap Value	11.89%	(16.95%)	(10.61%)	2.79%	-
Russell 1000 Value Index	11.24%	(18.49%)	(11.01%)	1.42%	3.90%
Sands Capital Large Cap Growth	15.49%	5.41%	10.26%	19.93%	14.02%
Russell 1000 Growth Index	14.80%	(1.39%)	10.84%	15.69%	13.34%
Loomis Sayles Large Cap Growth	12.20%	(0.35%)	7.67%	15.63%	14.28%
Russell 1000 Growth Index	14.80%	(1.39%)	10.84%	15.69%	13.34%
BlackRock Russell 1000 Index	13.22%	(9.74%)	(0.12%)	-	-
Russell 1000 Index	13.21%	(9.68%)	0.09%	8.68%	8.74%
Small/Mid Cap Equity Fund	15.05%	(18.78%)	(15.57%)	-	-
Russell 2500 Index	14.55%	(19.50%)	(14.20%)	1.13%	3.62%
Earnest Partners Small/Mid Cap Value	14.21%	(16.77%)	(11.58%)	1.90%	4.78%
Russell 2500 Value Index	13.22%	(26.00%)	(21.90%)	(4.49%)	0.61%
Wedge Small/Mid Cap Value	16.52%	(25.71%)	(22.68%)	(6.01%)	(0.40%)
Russell 2500 Value Index	13.22%	(26.00%)	(21.90%)	(4.49%)	0.61%
Brown Advisory Small/Mid Cap Growth	15.23%	(12.61%)	(7.03%)	7.90%	9.05%
Russell 2500 Growth Index	16.03%	(10.91%)	(4.03%)	7.98%	7.22%
BlackRock Russell 2500 Index	14.51%	(19.54%)	(14.27%)	-	-
Russell 2500 Index	14.55%	(19.50%)	(14.20%)	1.13%	3.62%
International Equity Fund	7.35%	(17.26%)	(9.82%)	1.01%	1.53%
Mondrian ACWI ex-US Value	5.29%	(21.80%)	(16.95%)	(2.58%)	(1.32%)
Baillie Gifford ACWI ex-US Growth	9.39%	(12.96%)	(2.73%)	4.89%	4.63%
MSCI ACWI ex US	7.58%	(17.55%)	(11.51%)	(0.25%)	(0.17%)

March 31, 2020



The North Carolina Supplemental Retirement Plans Executive Summary

**Investment Measurement Service
Quarterly Review**

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U.S. EQUITY

During the 1st quarter of 2020, the COVID-19 pandemic coupled with an oil price war between Saudi Arabia and Russia spurred extreme global market volatility, which was further exacerbated by the realization that a shelter-in-place mandate was required to overcome the spread of the disease, subsequently inducing an all-but-certain global recession.

Large cap (S&P 500: -19.6%; Russell 1000: -20.2%)

- Cyclical were punished while Technology, Staples, and Health Care were more resilient.
- Energy (-50.5%) plunged as demand declined and OPEC and Russia refused to cut production, driving down oil prices globally.
- Financials (-31.9%) and Industrials (-27.1%) fell sharply as interest rates were cut by the Fed in an emergency session, and due to expectations of a steep GDP decline because of COVID-19.
- Technology fared the best (-11.9%). The FAANG stocks had an average return of -7.9% in Q1, led by Amazon (+5.5%) and Microsoft (+0.3%); Health Care (-12.7%) and Consumer Staples (-12.7%) also held up better than the index average.

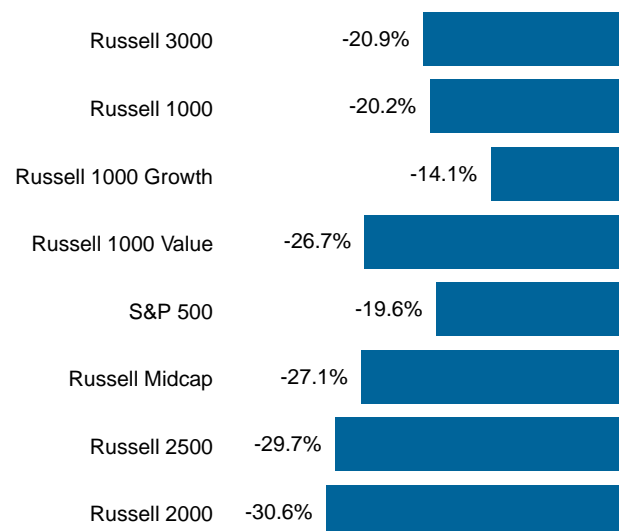
Large cap outpaced small cap for the quarter

- The Russell 2000 (-30.6%) experienced its worst quarter on record.
- The perceived safety of larger companies combined with more acute exposure to COVID-19 impact (e.g., restaurants, hotels, airlines, REITs) drove the sell-off.
- The performance of the Russell 2000 Value (-35.7%) was driven by its exposure to Energy (especially exploration and production companies) and Financials (banks).

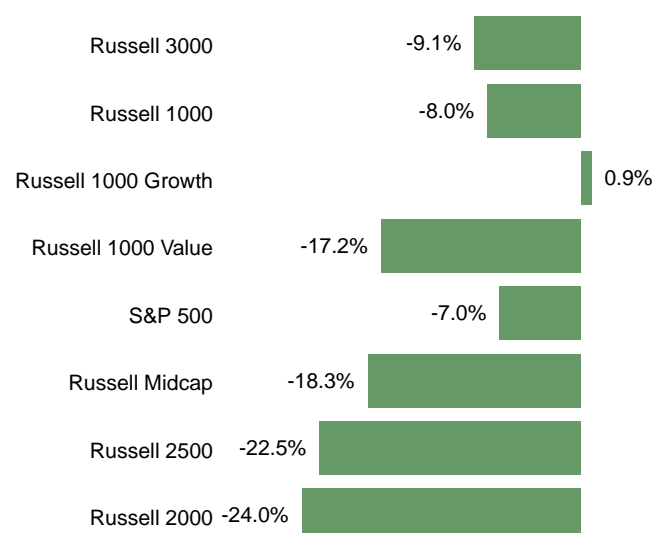
Growth outpaces value across market capitalizations

- The spread between Russell 1000 Growth (-14.1%) and Russell 2000 Value (-35.7%) was one of the widest ever.
- Russell MidCap Value (-0.8%) and Russell 2000 Value (-2.4%) now have negative annualized returns over a trailing five-year time period.

U.S. Equity: Quarterly Returns

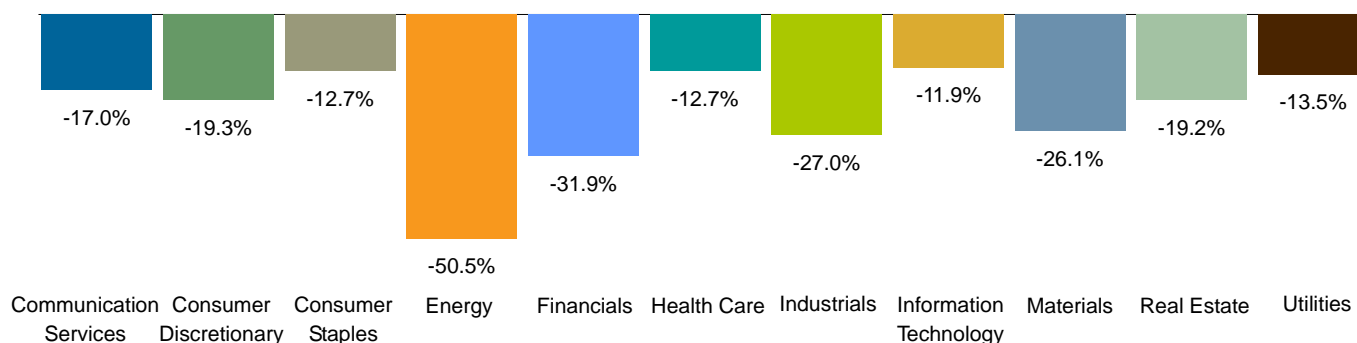


U.S. Equity: One-Year Returns



Sources: FTSE Russell, Standard & Poor's

S&P Sector Returns, Quarter Ended March 31, 2020



Source: Standard & Poor's

GLOBAL/GLOBAL EX-U.S. EQUITY

The COVID-19 pandemic coupled with the oil price war between Saudi Arabia and Russia injected significant volatility into the global equity markets, with most major indices entering bear market territory.

Global/Developed ex-U.S. (MSCI EAFE: -22.8%; MSCI World ex USA: -23.3%; MSCI ACWI ex USA: -23.4%; MSCI Japan: -16.8%; MSCI Pacific ex Japan: -27.6%)

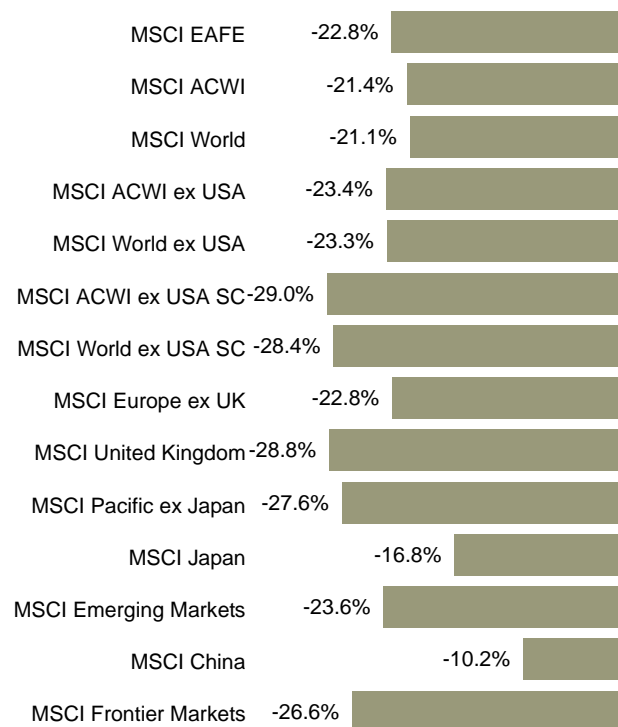
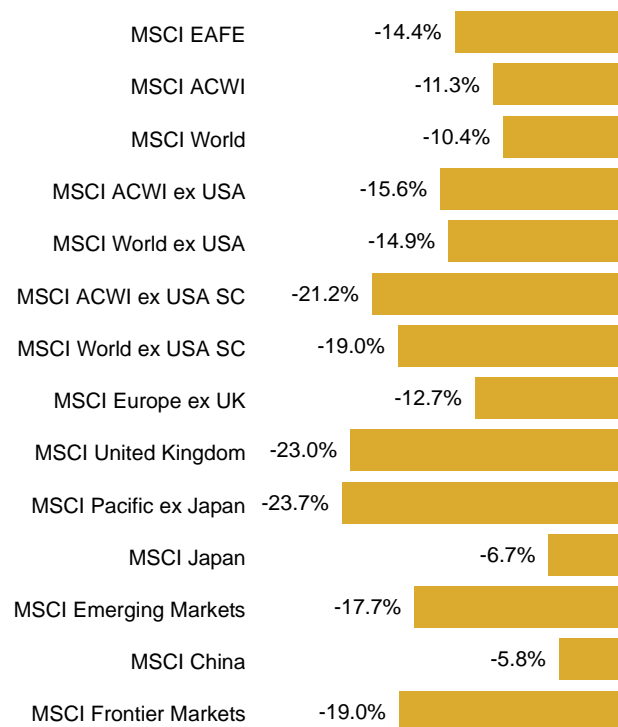
- Fears of the pandemic and a global recession stoked the worst quarterly sell off since 2008 as economic activity halted worldwide.
- The oil price war further exacerbated the market meltdown, bidding up safe-haven assets and currencies.
- The U.S. dollar outperformed the euro, the British pound, and other major currencies, while underperforming the Swiss franc and yen.
- Every sector posted negative returns, led by cyclicals like travel-related industries, Energy, and Financials given the state of the economy and oil prices.
- Defensive sectors generally were under less pressure as demand for basic necessities to function (i.e., e-commerce and mobility) and combat the pandemic (i.e., diagnostics and treatment) helped stabilize Health Care, Consumer Staples, and Information Technology.
- Factor performance in developed ex-U.S. markets reflected risk aversion, including beta, size, and volatility.

Emerging Markets (MSCI Emerging Markets Index: -23.6%)

- Decisive actions to contain the pandemic and stimulate the economy allowed China to outperform every developed and developing country.
- A looming global recession and the collapse in oil prices decimated commodities-levered economies like Brazil, South Africa, and Russia.
- Every sector posted negative returns, led by cyclicals such as travel-related industries, Energy, and Financials.
- Defensive sectors generally were under less pressure as demand for basic necessities and for diagnostics and treatment helped stabilize Health Care, Consumer Staples, and Information Technology.

Global ex-U.S. Small Cap (MSCI World ex USA Small Cap: -28.4%; MSCI EM Small Cap: -31.4%; MSCI ACWI ex USA Small Cap: -29.0%)

- “Risk-off” market environment challenged small cap relative to large cap in both developed and emerging markets.
- Growth significantly outperformed value both within developed and emerging markets, supported by strong performance in Health Care, Consumer Staples, and Information Technology.

Global Equity: Quarterly Returns**Global Equity: One-Year Returns**

Source: MSCI

U.S. FIXED INCOME

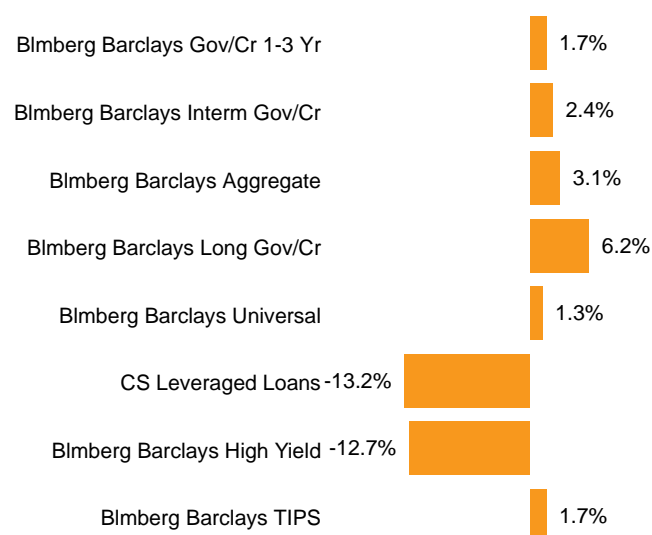
Treasuries rallied as investors sought safety

- The 10-year U.S. Treasury yield reached a low in March of 0.31% before closing the quarter at 0.70%, down sharply from the 2019 year-end level of 1.92%.
- The Treasury yield curve steepened as the Fed cut rates to 0%-0.25%.
- TIPS underperformed nominal Treasuries as expectations for inflation sank. The 10-year breakeven spread ended the quarter at 87 bps, down sharply from 177 bps at year-end.

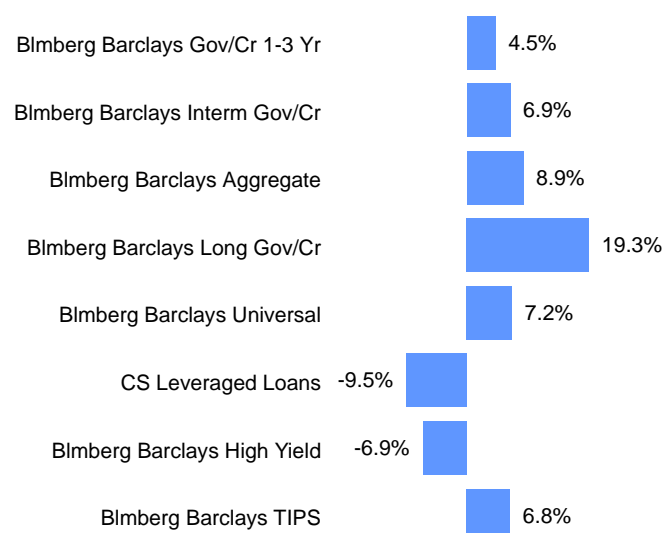
Investors spurned credit risk

- Investment grade and high yield bond funds experienced record outflows as investors flocked to cash.
- Investment grade corporate spreads widened by 149 bps to 272 bps, representing the hardest hit sector in the Bloomberg Barclays US Aggregate Bond Index, particularly within Industrials, where several well-known issuers were downgraded to below investment grade, including Occidental Petroleum and Ford.
- The quality bias was evident as BBB-rated credit (-7.4%) underperformed single A or higher (+0.5%).
- CCC-rated high yield corporates (-20.6%) lagged BB-rated corporates (-10.2%).
- Energy (-38.9%) was the lowest-performing high yield bond sub-sector as oil prices collapsed.

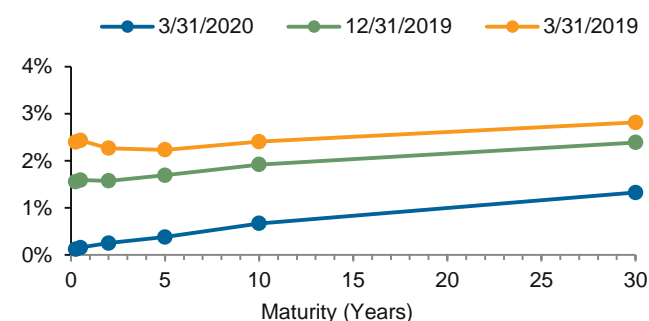
U.S. Fixed Income: Quarterly Returns



U.S. Fixed Income: One-Year Returns



U.S. Treasury Yield Curves



Sources: Bloomberg, Bloomberg Barclays, Credit Suisse

GLOBAL FIXED INCOME

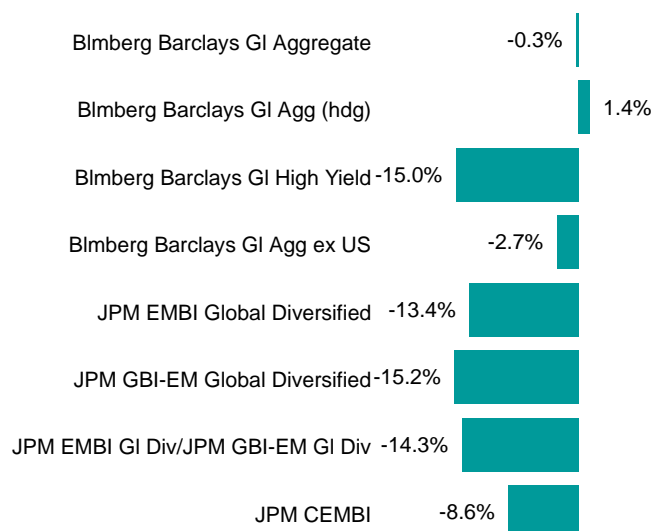
Global ex-U.S. fixed income ended slightly down

- Developed market sovereign bond yields ended the quarter slightly higher even as central banks stepped in to provide support to their economies; the European Central Bank launched a €750 billion stimulus program and the Bank of England cut interest rates.
- The U.S. dollar rose against the Australian dollar, British pound, and euro as investors sought safety within the greenback.

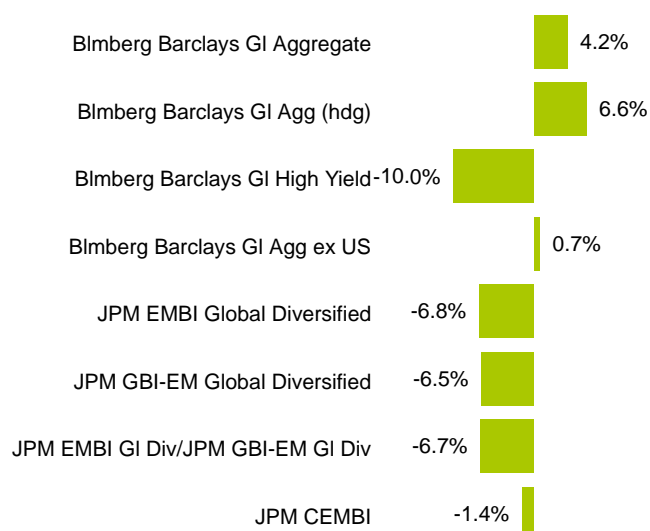
Emerging market debt plummeted in the risk-off environment

- Within the dollar-denominated benchmark, returns were mixed amongst its 60+ constituents.
- Within the local currency-denominated benchmark, several local market returns in Latin America dropped about 20% (Brazil, Mexico, and Colombia) and South Africa dropped 29% as oil-sensitive economies suffered from the drop in oil prices.

Global Fixed Income: Quarterly Returns

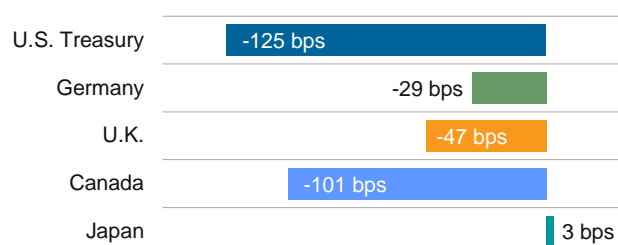


Global Fixed Income: One-Year Returns



Change in 10-Year Global Government Bond Yields

4Q19 to 1Q20



Sources: Bloomberg, Bloomberg Barclays, JP Morgan

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 ¹	NC Budget ²	Total Estimated Expense (%)	Total Estimated Expenses (\$) ³	Callan Median Expense ⁴	Difference
North Carolina Stable Value Fund	\$2,216,377,757	0.276%	0.0018%	0.025%	0.30%	\$6,708,975	0.36%	-0.06%
Galliard	\$2,221,844,602	0.276%	0.0000%			\$6,130,069	0.29%	-0.01%
North Carolina Fixed Income Passive Fund	\$95,973,936	0.020%	0.0255%	0.025%	0.07%	\$67,662	0.15%	-0.08%
Blackrock	\$95,973,936	0.020%	0.0100%			\$19,195	0.02%	0.00%
North Carolina Fixed Income Fund	\$1,754,774,947	0.127%	0.0103%	0.025%	0.16%	\$2,851,509	0.40%	-0.24%
50% TCW	\$899,791,612	0.145%	0.0000%			\$1,300,199	0.22%	-0.08%
50% Prudential	\$854,983,298	0.110%	0.0100%			\$940,482	0.22%	-0.11%
North Carolina Inflation Sensitive Fund	\$359,531,511	0.090%	0.0153%	0.025%	0.13%	\$468,470	0.85%	-0.72%
Blackrock	\$359,531,527	0.090%	0.0100%			\$323,578	0.75%	-0.66%
North Carolina Large Cap Passive Fund	\$2,383,983,808	0.005%	0.0115%	0.025%	0.04%	\$989,353	0.04%	0.00%
Blackrock	\$2,383,983,808	0.005%	0.0100%			\$119,199	0.03%	-0.03%
North Carolina Large Cap Core Fund	\$1,519,856,667	0.296%	0.0081%	0.025%	0.33%	\$5,003,368	0.66%	-0.33%
18.75% Hotchkis & Wiley	\$277,379,413	0.400%	0.0000%			\$1,109,518	0.42%	-0.02%
18.75% Macquarie Large Cap Value	\$288,240,141	0.295%	0.0000%			\$851,461	0.42%	-0.12%
18.75% Sands Capital Management	\$298,301,153	0.450%	0.0000%			\$1,342,355	0.44%	0.01%
18.75% Loomis Sayles	\$296,518,066	0.398%	0.0000%			\$1,179,549	0.44%	-0.04%
25% BlackRock Advisors Inc., Large Cap Index*	\$359,417,894	0.005%	0.0100%			\$17,971	0.03%	-0.03%
North Carolina SMID Cap Passive Fund	\$227,782,631	0.005%	0.0146%	0.025%	0.04%	\$101,591	0.20%	-0.16%
Blackrock	\$227,782,631	0.005%	0.0100%			\$11,389	0.03%	-0.03%
North Carolina SMID Cap Core Fund	\$654,963,785	0.363%	0.0154%	0.025%	0.40%	\$2,642,124	0.88%	-0.48%
23.75% Earnest Partners	\$162,196,408	0.470%	0.0000%			\$762,323	0.67%	-0.20%
23.75% Wedge	\$154,048,021	0.497%	0.0000%			\$766,235	0.67%	-0.17%
23.75% Brown Advisory	\$156,756,129	0.535%	0.0000%			\$838,175	0.76%	-0.23%
28.75% BlackRock Advisors Inc., SMID Index*	\$181,409,627	0.005%	0.0100%			\$9,070	0.03%	-0.03%
North Carolina International Passive Fund	\$62,870,728	0.021%	0.0359%	0.025%	0.08%	\$51,491	0.08%	0.00%
Blackrock	\$62,870,728	0.021%	0.0200%			\$13,203	0.08%	-0.06%
North Carolina International Equity	\$1,548,829,941	0.336%	0.0258%	0.025%	0.39%	\$5,992,423	0.81%	-0.42%
50% Baillie Gifford Growth	\$784,566,177	0.283%	0.0000%			\$2,217,184	0.52%	-0.24%
50% Mondrian Investment Partners Value	\$763,121,961	0.390%	0.0000%			\$2,973,123	0.53%	-0.14%
North Carolina TIPS Fund	\$244,857,515	0.025%	0.0127%	0.025%	0.06%	\$153,526	0.26%	-0.20%
Blackrock	\$244,857,515	0.025%	0.0000%			\$61,214	0.14%	-0.12%
Total	\$11,069,803,226	0.190%	0.0161%	0.025%	0.23%	\$25,030,492	0.33%	

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

¹ Based on annualized monthly fee accruals as of 03/31/2020

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

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

⁴ The 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. The total fund median represents asset-weighted investment management fees for plans greater than \$1 billion in the Callan DC index.

North Carolina Supplemental Retirement Plans Active Management Scorecard - Rolling 3 Years

	Large Cap Equity								
	3 Years to 03/31/2020		3 Years to 12/31/2019		3 Years to 09/30/2019		3 Years to 06/31/2019		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 03/31/2020		3 Years to 12/31/2019		3 Years to 09/30/2019		3 Years to 06/31/2019		5 Year Risk
	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	
EARNEST Partners SMID Cap Value									
WEDGE SMID Cap Value									
Brown Advisory									
	International Equity								
	3 Years to 03/31/2020		3 Years to 12/31/2019		3 Years to 09/30/2019		3 Years to 06/31/2019		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 03/31/2020		3 Years to 12/31/2019		3 Years to 09/30/2019		3 Years to 06/31/2019		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 03/31/2020		3 Years to 12/31/2019		3 Years to 09/30/2019		3 Years to 06/31/2019		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									

*Composite returns used to populate history

North Carolina Supplemental Retirement Plans Active Management Scorecard - Rolling 5 Years

	Large Cap Equity								
	5 Years to 03/31/2020		5 Years to 12/31/2019		5 Years to 09/30/2019		5 Years to 06/30/2019		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								
	5 Years to 03/31/2020		5 Years to 12/31/2019		5 Years to 09/30/2019		5 Years to 06/30/2019		5 Year Risk
	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	Above Benchmark	Above Peer Median	
EARNEST Partners SMID Cap Value									
WEDGE SMID Cap Value									
Brown Advisory									
	International Equity								
	5 Years to 03/31/2020		5 Years to 12/31/2019		5 Years to 09/30/2019		5 Years to 06/30/2019		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								
	5 Years to 03/31/2020		5 Years to 12/31/2019		5 Years to 09/30/2019		5 Years to 06/30/2019		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								
	5 Years to 03/31/2020		5 Years to 12/31/2019		5 Years to 09/30/2019		5 Years to 06/30/2019		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									

*Composite returns used to populate history

North Carolina Supplemental Retirement Plans Quarterly Manager Review

Spotlight Report

1st Quarter 2020

Manager Assessment

	Organization	People	Process and Philosophy	Product Dynamics	Short Term Performance	Long Term Performance	Overall	OVERALL STATUS	NOTES
LARGE CAP CORE									
BlackRock	●	●	●	●	●	●	●	Satisfactory	
LARGE CAP VALUE									
Hotchkis & Wiley Large Cap Fundamental Value	●	●	●	●	●	●	●	Satisfactory	Severe relative underperformance in 1Q 2020 leading to lagged results over short- and long-term periods; results driven by overweight to cyclical sectors and low multiple stocks - within expectations for process.
Macquarie Large Cap Value Focus	●	●	●	●	●	●	●	Cautionary	Lead PM Ty Nutt retired in July 2019, transitioned role to Nik Lalvani; continuing to monitor the team, process, and performance. Macquarie promoted analyst Erin Ksenak to Associate PM at the end of the year. Performance in line with expectations.
LARGE CAP GROWTH									
Loomis Sayles Large Cap Growth	●	●	●	●	●	●	●	Satisfactory	Positive short- and long-term results driven by weight to Technology; notable growth in asset base but mitigated by Loomis' policy to limit inflows.
Sands Capital Management Select Growth	●	●	●	●	●	●	●	Satisfactory	Trailed the Russell 1000 Growth Index for 2019 but three-year results remain competitive
SMID CAP CORE									
BlackRock	●	●	●	●	●	●	●	Satisfactory	
SMID CAP VALUE									
EARNEST Partners SMID Value	●	●	●	●	●	●	●	Satisfactory	Results outpaced benchmark in 1Q20 due to stock selection in Health Care and Technology and not owning stocks with cyclical exposure; short- and long-term results outpace benchmark within expectations.
Wedge Capital US SMID Cap Value	●	●	●	●	●	●	●	Satisfactory (on NC watch list)	Stable team and process; firm is focused on value investing utilizing a combination of quantitative tools and fundamental research. Portfolio trails benchmark over the trailing 3-, 5-, and 7-year periods due to a combination of poor stock selection (PG&E), cyclical exposure, and value style headwinds.
SMID CAP GROWTH									
Brown Advisory US SMID Cap Growth	●	●	●	●	●	●	●	Satisfactory	AUM near \$4 billion; holdings at an all-time high of 75 - notable but not actionable
INTERNATIONAL EQUITY									
Baillie Gifford ACWI Ex-US Alpha	●	●	●	●	●	●	●	Satisfactory	The depth and breadth of the team enabled a seamless transition after the

● 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.

North Carolina Supplemental Retirement Plans Quarterly Manager Review Stoplight Report

1st Quarter 2020

Manager Assessment

	Organization	People	Process and Philosophy	Product Dynamics	Short Term Performance	Long Term Performance	Overall	OVERALL STATUS	NOTES
									retirements of PMs Andrew Strathee and Jonathan Bates in 2019.
BlackRock	●	●	●	●	●	●	●	Satisfactory	
Mondrian Investment Partners Focused ACWI Ex-US	●	●	●	●	●	●	●	Satisfactory (on NC watch list)	Liz Desmond appointed Deputy CEO in 2018; Desmond's day to day responsibilities remain unchanged and she continues to manage the International Equity group and portfolios. The process and its ability to protect in down markets are still intact, as witnessed by the outperformance in 2018; but performance in 2019, first quarter 2020 and over short-term time periods has lagged slightly as growth continues to outperform value.
CORE & CORE PLUS FIXED INCOME									
BlackRock	●	●	●	●	●	●	●	Satisfactory	
PGIM Core Plus Bond	●	●	●	●	●	●	●	Satisfactory	
TCW Core Plus	●	●	●	●	●	●	●	Satisfactory	
INFLATION SENSITIVE									
BlackRock Strategic Completion Fund	●	●	●	●	●	●	●	Satisfactory	
STABLE VALUE									
Galliard Stable Value	●	●	●	●	●	●	●	Under Review (on NC watch list)	Some concerns over key executive turnover, however, Galliard had spent several years planning for succession; recent organizational changes including the founding partners' retirements, appointment of Andrew Owen as co-president, and the sale of WF's recordkeeping business warrant continued monitoring of the firm's stability; renegotiation of long-term compensation arrangements was a positive in regards to retaining talent and assets; recently hired two portfolio specialists, replacing two that departed in October 2019.

● 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.

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. Effective August 31, 2019, Wedge has agreed to a new fee schedule that lowered the investment management fee from 0.61% to 0.52%. With the proceeds from the Hotchkis and Wiley termination, the effective fee schedule is 0.47%.

The Small/Mid Cap Value composite return for the most recent quarter was -37.72% (-37.88% net of fee) versus the benchmark Russell 2500 Value Index return of -34.64%. The main detractors in the quarter included Finance, Health Care and Transportation stock selection. The top contributors in the quarter included positive stock selection in Utilities and Basic Materials. An overweight to Utilities and Healthcare also added value.

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 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.

During the first quarter of 2020, Mondrian underperformed the benchmark with a return of -26.6% versus the benchmark return of -23.4%. Investors' sudden risk aversion created a very tough quarter for value-focused investors, and portfolio returns lagged the broader MSCI ACW ex-US index but exceeded the value sub-index. While this market environment was challenging for the portfolio, it is not unusual to experience this race to safe havens at all cost approach in very sharp bear market periods. In previous similar sell-offs, markets have subsequently rewarded valuations once they begin to refocus on underlying fundamentals.

Investment Fund Balances

The table below compares the fund's investment fund balances as of March 31, 2020 with that of December 31, 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 Funds

	March 31, 2020		Net New Invest.	Invest. Return	December 31, 2019	
	Market Value	Weight			Market Value	Weight
North Carolina SRP 401k & 457						
Tier II Passive	\$3,015,468,618	27.24%	\$4,248,564	\$(697,773,556)	\$3,708,993,609	28.61%
Fixed Income Passive	95,973,936	0.87%	4,505,010	2,764,428	88,704,498	0.68%
Treasury Inflation Protected	244,857,515	2.21%	7,081,394	829,595	236,946,526	1.83%
Large Cap Passive	2,383,983,808	21.54%	(742,486)	(584,715,579)	2,969,441,872	22.91%
International Passive	62,870,728	0.57%	(830,034)	(19,215,056)	82,915,819	0.64%
SMID Cap Passive	227,782,631	2.06%	(5,765,320)	(97,436,944)	330,984,894	2.55%
Tier II Active	\$8,054,334,609	72.76%	\$(30,366,529)	\$(1,168,187,057)	\$9,252,888,195	71.39%
Stable Value Fund	2,216,377,757	20.02%	65,614,469	13,182,170	2,137,581,118	16.49%
Fixed Income Fund	1,754,774,947	15.85%	(89,924,881)	2,424,514	1,842,275,314	14.21%
Inflation Responsive Fund	359,531,511	3.25%	(11,328,654)	(61,242,632)	432,102,798	3.33%
Large Cap Core Equity Fund	1,519,856,667	13.73%	(58,745,042)	(391,478,033)	1,970,079,742	15.20%
International Equity Fund	1,548,829,941	13.99%	36,522,922	(460,350,251)	1,972,657,270	15.22%
Small/Mid Cap Equity Fund	654,963,785	5.92%	27,494,657	(270,722,825)	898,191,953	6.93%
Total Fund	\$11,069,803,227	100.0%	\$(26,117,965)	\$(1,865,960,613)	\$12,961,881,805	100.0%

Investment Fund Balances

The table below compares the fund's investment fund balances as of March 31, 2020 with that of December 31, 2019.

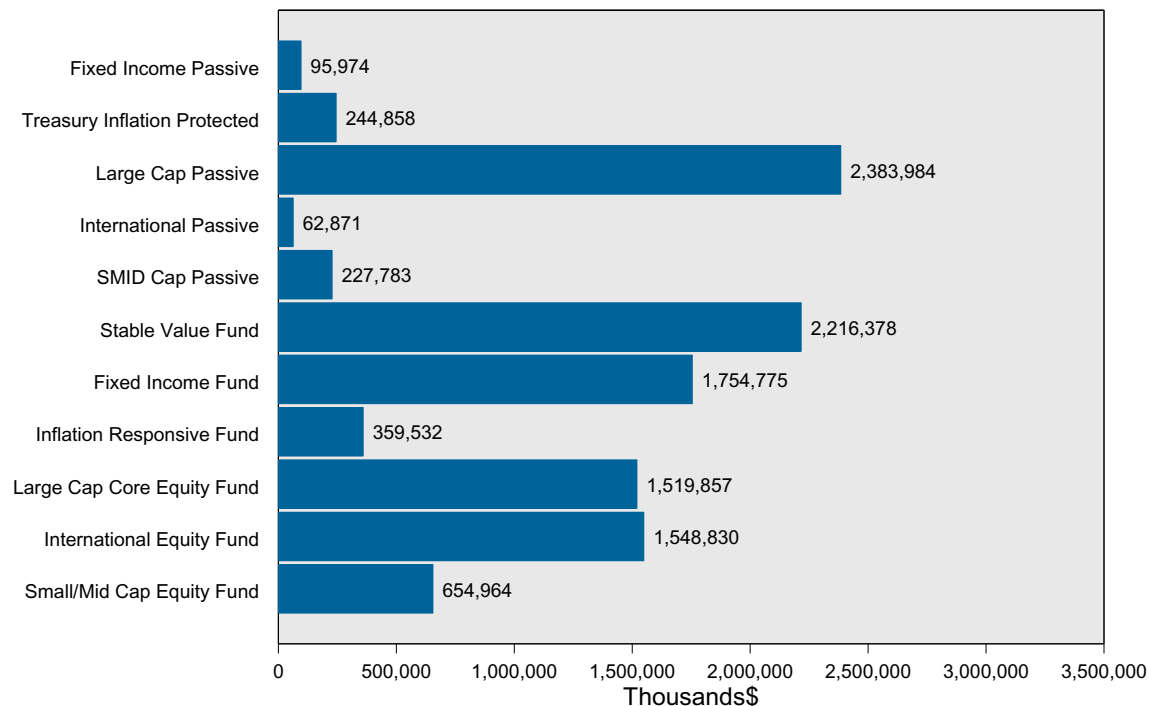
Asset Distribution Across Investment Funds

	March 31, 2020		December 31, 2019	
	Market Value	Weight	Market Value	Weight
North Carolina SRP 401k & 457				
Tier I: GoalMaker				
Post Retirement Conservative 11+	14,730,038	0.28%	14,735,004	0.24%
Post Retirement Conservative 6-10	80,923,720	1.53%	82,171,712	1.32%
Post Retirement Conservative 0-5	302,062,697	5.72%	311,867,269	5.02%
Pre Retirement Conservative 0-5	270,192,709	5.11%	264,020,304	4.25%
Pre Retirement Conservative 6-10	154,055,598	2.91%	155,222,116	2.50%
Pre Retirement Conservative 11-15	110,266,736	2.09%	113,555,709	1.83%
Pre Retirement Conservative 16-20	83,721,923	1.58%	86,875,307	1.40%
Pre Retirement Conservative 21-25	60,868,274	1.15%	67,164,248	1.08%
Pre Retirement Conservative 26+	76,145,040	1.44%	88,341,241	1.42%
Post Retirement Moderate 11+	18,198,162	0.34%	17,499,401	0.28%
Post Retirement Moderate 6-10	76,015,536	1.44%	81,120,905	1.31%
Post Retirement Moderate 0-5	314,689,637	5.95%	350,729,126	5.65%
Pre Retirement Moderate 0-5	481,874,051	9.12%	562,312,800	9.06%
Pre Retirement Moderate 6-10	472,949,304	8.95%	557,303,287	8.98%
Pre Retirement Moderate 11-15	360,426,939	6.82%	432,876,626	6.97%
Pre Retirement Moderate 16-20	288,569,619	5.46%	354,025,144	5.70%
Pre Retirement Moderate 21-25	197,686,367	3.74%	247,219,731	3.98%
Pre Retirement Moderate 26+	216,549,392	4.10%	275,668,961	4.44%
Post Retirement Aggressive 11+	8,155,577	0.15%	9,122,085	0.15%
Post Retirement Aggressive 6-10	25,958,957	0.49%	28,217,778	0.45%
Post Retirement Aggressive 0-5	110,720,999	2.09%	133,517,782	2.15%
Pre Retirement Aggressive 0-5	232,915,837	4.41%	284,892,135	4.59%
Pre Retirement Aggressive 6-10	326,106,983	6.17%	398,840,636	6.42%
Pre Retirement Aggressive 11-15	317,520,633	6.01%	404,965,913	6.52%
Pre Retirement Aggressive 16-20	298,139,750	5.64%	386,942,597	6.23%
Pre Retirement Aggressive 21-25	199,701,615	3.78%	257,043,008	4.14%
Pre Retirement Aggressive 26+	186,026,623	3.52%	242,169,885	3.90%
Tier I: GoalMaker Total	\$5,285,172,716	100.0%	\$6,208,420,710	100.0%

Changes in Investment Fund Balances Period Ended March 31, 2020

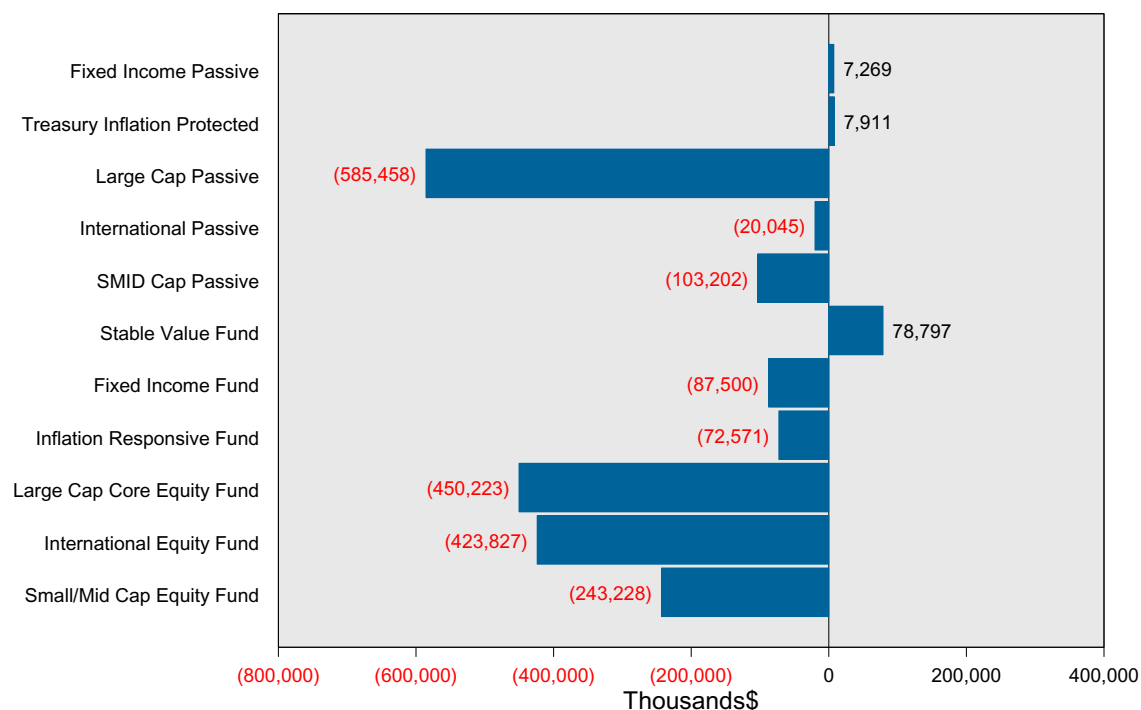
Allocation Across Investment Options

The chart below illustrates the allocation of the aggregate fund assets across the various investment options for the quarter ended March 31, 2020.



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, 2020. 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 and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns and Rankings for Periods Ended March 31, 2020

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
Tier 2: Passive (Net of Fee)										
Fixed Income Passive	3.09%	13	8.84%	12	4.77%	14	3.29%	35	3.35%	(10/10)
Blmbg Barclays Aggregate	3.15%	12	8.93%	11	4.82%	9	3.36%	28	3.45%	(10/10)
Callan Core Bond MFs	1.54%		7.36%		4.27%		3.19%		-	
Treasury Inflation Protected Securities	0.38%	44	4.57%	53	-		-		3.81%	(7/18)
Blmbg US TIPS 1-10 Yr	0.31%	44	4.50%	53	2.54%	53	2.18%	37	3.77%	(7/18)
Callan TIPS MFs	0.06%		4.64%		2.70%		1.94%		-	
Large Cap Passive	(19.58%)	39	(6.95%)	32	5.12%	28	6.70%	16	13.54%	(4/09)
S&P 500 Index	(19.60%)	39	(6.98%)	33	5.10%	28	6.73%	16	13.62%	(4/09)
Callan Large Cap Core MFs	(20.02%)		(8.76%)		3.07%		5.05%		-	
International Passive	(23.27%)	54	(15.31%)	53	(1.71%)	48	(0.43%)	45	6.43%	(4/09)
MSCI ACWI ex US	(23.36%)	55	(15.57%)	55	(1.96%)	49	(0.64%)	48	6.36%	(4/09)
Callan Non US Equity MFs	(22.82%)		(14.66%)		(2.03%)		(0.79%)		-	
SMID Cap Passive	(29.76%)	31	(22.55%)	42	(3.20%)	29	0.46%	28	11.97%	(4/09)
Russell 2500 Index	(29.72%)	31	(22.47%)	41	(3.10%)	28	0.49%	28	12.03%	(4/09)
Callan SMID Core MFs	(31.15%)		(24.44%)		(5.16%)		(1.15%)		-	

Investment Fund Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns and Rankings for Periods Ended March 31, 2020

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception
Tier 2: Active (Net of Fee)									
Stable Value Fund	0.61%	1	2.60%	1	2.34%	6	2.17%	6	2.53% (7/09)
3 Yr US Treas Rolling	0.21%	99	1.49%	100	1.97%	37	1.61%	57	1.17% (7/09)
T-Bill + 1.5%	0.94%	1	3.76%	1	3.33%	1	2.69%	1	2.10% (7/09)
Callan Stable Value CT	0.49%		2.11%		1.88%		1.68%		-
Fixed Income Fund	(0.10%)	42	6.37%	23	4.57%	8	3.53%	14	4.78% (4/09)
Blmbg Barclays Aggregate	3.15%	6	8.93%	4	4.82%	3	3.36%	21	4.23% (4/09)
Callan Core Plus MFs	(0.57%)		5.30%		3.80%		3.09%		-
TCW Core Plus	2.42%	9	8.54%	6	4.86%	2	-		4.72% (1/17)
Blmbg Barclays Aggregate	3.15%	6	8.93%	4	4.82%	3	3.36%	21	4.71% (1/17)
Callan Core Plus MFs	(0.57%)		5.30%		3.80%		3.09%		-
Prudential Core Plus	(2.54%)	79	4.30%	72	4.28%	25	3.66%	9	3.89% (1/15)
Blmbg Barclays Aggregate	3.15%	6	8.93%	4	4.82%	3	3.36%	21	3.51% (1/15)
Callan Core Plus MFs	(0.57%)		5.30%		3.80%		3.09%		-
Inflation Responsive Fund	(14.39%)	44	(10.34%)	46	(0.62%)	31	0.30%	30	0.13% (9/11)
Inflation Responsive Benchmark	(14.47%)	44	(10.56%)	47	(1.83%)	48	(0.94%)	36	(1.47%) (9/11)
Callan Real Assets MFs	(15.74%)		(11.01%)		(2.02%)		(1.83%)		-
BlackRock Strategic Completion	(14.35%)	44	(10.30%)	46	-		-		(4.56%) (12/18)
BlackRock Custom Benchmark	(14.47%)	44	(10.56%)	47	(1.34%)	42	(0.77%)	35	(4.83%) (12/18)
Callan Real Assets MFs	(15.74%)		(11.01%)		(2.02%)		(1.83%)		-
Large Cap Core Equity Fund	(20.23%)	57	(10.35%)	60	-	-	-	2.32%	(10/17)
Russell 1000 Index	(20.22%)	57	(8.03%)	53	4.64%	50	6.22%	47	2.52% (10/17)
Callan Lg Cap Broad MF	(19.15%)		(7.01%)		4.67%		5.95%		-
Hotchkis & Wiley Large Cap Value	(34.50%)	95	(25.75%)	95	(5.70%)	86	(0.38%)	86	11.69% (4/09)
Russell 1000 Value Index	(26.73%)	45	(17.17%)	46	(2.18%)	50	1.90%	45	11.20% (4/09)
Callan Lg Cap Value MF	(26.98%)		(18.53%)		(2.23%)		1.83%		-
Macquarie Large Cap Value	(25.77%)	31	(18.92%)	52	(1.17%)	39	-		1.90% (6/15)
Russell 1000 Value Index	(26.73%)	45	(17.17%)	46	(2.18%)	50	1.90%	45	1.52% (6/15)
Callan Lg Cap Value MF	(26.98%)		(18.53%)		(2.23%)		1.83%		-
Sands Capital Large Cap Growth	(8.73%)	1	(0.29%)	46	15.63%	3	10.89%	19	19.19% (4/09)
Russell 1000 Growth Index	(14.10%)	62	0.91%	32	11.32%	50	10.36%	29	15.90% (4/09)
Callan Large Cap Grwth MF	(13.25%)		(0.62%)		11.33%		9.48%		-
Loomis Sayles Large Cap Growth	(11.19%)	11	1.23%	26	12.26%	37	12.02%	4	12.87% (8/14)
Russell 1000 Growth Index	(14.10%)	62	0.91%	32	11.32%	50	10.36%	29	11.32% (8/14)
Callan Large Cap Grwth MF	(13.25%)		(0.62%)		11.33%		9.48%		-
BlackRock Russell 1000 Index	(20.28%)	55	(8.22%)	43	-		-		1.50% (11/17)
Russell 1000 Index	(20.22%)	55	(8.03%)	43	4.64%	34	6.22%	29	1.65% (11/17)
Callan Large Cap Core MFs	(20.02%)		(8.76%)		3.07%		5.05%		-

Investment Fund Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns and Rankings for Periods Ended March 31, 2020

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception
Tier 2: Active (Net of Fee)									
International Equity Fund	(22.93%)	50	(12.99%)	46	(0.47%)	38	0.91%	28	7.44% (4/09)
MSCI ACWI ex US	(23.36%)	55	(15.57%)	55	(1.96%)	49	(0.64%)	48	6.36% (4/09)
Callan Non US Equity MFs	(22.82%)		(14.66%)		(2.03%)		(0.79%)		-
 Mondrian ACWI ex-US Value	 (25.72%)	 74	 (19.05%)	 77	 (3.76%)	 69	 (1.71%)	 70	 5.35% (4/09)
MSCI ACWI ex US	(23.36%)	55	(15.57%)	55	(1.96%)	49	(0.64%)	48	6.36% (4/09)
Callan Non US Equity MFs	(22.82%)		(14.66%)		(2.03%)		(0.79%)		-
 Baillie Gifford ACWI ex-US Growth	 (20.42%)	 22	 (7.03%)	 6	 3.09%	 3	 3.77%	 4	 10.02% (4/09)
MSCI ACWI ex US	(23.36%)	55	(15.57%)	55	(1.96%)	49	(0.64%)	48	6.36% (4/09)
Callan Non US Equity MFs	(22.82%)		(14.66%)		(2.03%)		(0.79%)		-
 Small/Mid Cap Equity Fund	 (29.40%)	 57	 (23.55%)	 66	 -		 -		 (7.19%) (10/17)
Russell 2500 Index	(29.72%)	60	(22.47%)	64	(3.10%)	58	0.49%	54	(6.27%) (10/17)
Callan SMID Broad MFs	(25.28%)		(19.07%)		1.00%		2.02%		-
 Earnest Partners Small/Mid Cap Value	 (27.12%)	 12	 (18.37%)	 9	 (2.24%)	 6	 1.66%	 2	 11.97% (4/09)
Russell 2500 Value Index	(34.64%)	63	(28.60%)	71	(8.40%)	45	(2.14%)	35	10.15% (4/09)
Callan SMID Value MFs	(33.90%)		(25.77%)		(8.53%)		(2.86%)		-
 Wedge Small/Mid Cap Value	 (36.24%)	 77	 (30.89%)	 86	 (10.57%)	 87	 (3.80%)	 75	 5.52% (1/12)
Russell 2500 Value Index	(34.64%)	63	(28.60%)	71	(8.40%)	45	(2.14%)	35	5.65% (1/12)
Callan SMID Value MFs	(33.90%)		(25.77%)		(8.53%)		(2.86%)		-
 Brown Advisory Small/Mid Cap Growth	 (24.16%)	 76	 (15.85%)	 73	 3.71%	 47	 5.57%	 33	 14.22% (4/09)
Russell 2500 Growth Index	(23.22%)	58	(14.40%)	59	3.35%	50	3.64%	59	14.16% (4/09)
Callan SMID Growth MFs	(21.59%)		(13.82%)		3.35%		4.27%		-
 BlackRock Russell 2500 Index	 (29.74%)	 31	 (22.50%)	 42	 -		 -		 (7.16%) (11/17)
Russell 2500 Index	(29.72%)	31	(22.47%)	41	(3.10%)	28	0.49%	28	(7.08%) (11/17)
Callan SMID Core MFs	(31.15%)		(24.44%)		(5.16%)		(1.15%)		-

Investment Fund Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings 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 3/2020		3 Years Ended 12/2019		3 Years Ended 9/2019		3 Years Ended 6/2019	
Tier 2: Passive (Net of Fee)								
Fixed Income Passive	4.77%	14	3.99%	70	2.87%	72	2.26%	80
Blmbg Barclays Aggregate	4.82%	9	4.03%	64	2.92%	70	2.31%	77
Callan Core Bond MFs	4.27%		4.17%		3.12%		2.53%	
Large Cap Passive	5.12%	28	15.28%	20	13.40%	22	14.18%	26
S&P 500 Index	5.10%	28	15.27%	20	13.39%	22	14.19%	26
Callan Large Cap Core MFs	3.07%		13.63%		12.11%		13.33%	
International Passive	(1.71%)	48	10.18%	49	6.60%	40	9.67%	31
MSCI ACWI ex US	(1.96%)	49	9.87%	50	6.33%	45	9.39%	33
Callan Non US Equity MFs	(2.03%)		9.96%		5.94%		8.51%	
SMID Cap Passive	(3.20%)	29	10.23%	25	9.44%	35	12.24%	29
Russell 2500 Index	(3.10%)	28	10.33%	24	9.51%	35	12.34%	28
Callan SMID Core MFs	(5.16%)		8.56%		8.59%		10.54%	

Investment Fund Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings 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 3/2020		3 Years Ended 12/2019		3 Years Ended 9/2019		3 Years Ended 6/2019	
Tier 2: Active (Net of Fee)								
Stable Value Fund	2.34%	6	2.29%	6	2.24%	7	2.19%	7
3 Yr US Treas Rolling	1.97%	37	2.03%	21	2.00%	17	1.94%	20
T-Bill + 1.5%	3.33%	1	3.17%	1	3.04%	1	2.88%	1
Callan Stable Value CT	1.88%		1.82%		1.79%		1.73%	
Fixed Income Fund	4.57%	8	5.03%	13	3.90%	18	3.38%	30
Blmbg Barclays Aggregate	4.82%	3	4.03%	81	2.92%	85	2.31%	95
Callan Core Plus MFs	3.80%		4.39%		3.45%		3.25%	
Prudential Core Plus	4.28%	25	5.79%	4	4.65%	4	4.24%	11
Blmbg Barclays Aggregate	4.82%	3	4.03%	81	2.92%	85	2.31%	95
Callan Core Plus MFs	3.80%		4.39%		3.45%		3.25%	
Inflation Responsive Fund	(0.62%)	31	5.45%	43	4.27%	21	4.22%	31
Inflation Responsive Benchmark	(1.83%)	48	3.99%	67	2.39%	71	1.72%	84
Callan Real Assets MFs	(2.02%)		4.98%		3.15%		3.85%	
Large Cap Core Equity Fund								
Hotchkis & Wiley Large Cap Value	(5.70%)	86	10.22%	47	10.83%	37	13.20%	13
Russell 1000 Value Index	(2.18%)	50	9.68%	57	9.43%	69	10.19%	73
Callan Lg Cap Value MF	(2.23%)		10.14%		10.12%		11.17%	
Macquarie Large Cap Value	(1.17%)	39	10.33%	46	9.39%	69	8.63%	89
Russell 1000 Value Index	(2.18%)	50	9.68%	57	9.43%	69	10.19%	73
Callan Lg Cap Value MF	(2.23%)		10.14%		10.12%		11.17%	
Sands Capital Large Cap Growth	15.63%	3	24.52%	3	17.41%	30	23.82%	1
Russell 1000 Growth Index	11.32%	50	20.49%	50	16.89%	35	18.07%	59
Callan Large Cap Grwth MF	11.33%		20.50%		16.24%		18.85%	
Loomis SaylesLarge Cap Growth	12.26%	37	20.17%	57	14.76%	73	18.47%	53
Russell 1000 Growth Index	11.32%	50	20.49%	50	16.89%	35	18.07%	59
Callan Large Cap Grwth MF	11.33%		20.50%		16.24%		18.85%	
International Equity Fund	(0.47%)	38	11.57%	34	6.77%	37	9.99%	26
MSCI ACWI ex US	(1.96%)	49	9.87%	50	6.33%	45	9.39%	33
Callan Non US Equity MFs	(2.03%)		9.96%		5.94%		8.51%	
Mondrian ACWI ex-US Value	(3.76%)	69	8.91%	62	5.06%	66	7.23%	68
MSCI ACWI ex US	(1.96%)	49	9.87%	50	6.33%	45	9.39%	33
Callan Non US Equity MFs	(2.03%)		9.96%		5.94%		8.51%	
Baillie Gifford ACWI ex-US Growth	3.09%	3	14.68%	4	8.87%	7	13.23%	3
MSCI ACWI ex US	(1.96%)	49	9.87%	50	6.33%	45	9.39%	33
Callan Non US Equity MFs	(2.03%)		9.96%		5.94%		8.51%	
Small/Mid Cap Equity Fund								
Earnest Partners Small/Mid Cap Value	(2.24%)	6	10.97%	3	11.01%	6	13.08%	1
Russell 2500 Value Index	(8.40%)	45	6.12%	55	6.87%	54	8.98%	46
Callan SMID Value MFs	(8.53%)		6.63%		7.18%		8.83%	
Wedge Small/Mid Cap Value	(10.57%)	87	5.13%	64	5.99%	62	7.80%	77
Russell 2500 Value Index	(8.40%)	45	6.12%	55	6.87%	54	8.98%	46
Callan SMID Value MFs	(8.53%)		6.63%		7.18%		8.83%	
Brown Advisory Small/Mid Cap Growth	3.71%	47	15.63%	50	12.28%	69	17.53%	33
Russell 2500 Growth Index	3.35%	50	15.17%	62	12.33%	67	16.14%	59
Callan SMID Growth MFs	3.35%		15.64%		13.13%		16.44%	

Investment Fund Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns and Rankings for Periods Ended March 31, 2020

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
Tier 2: Active (Gross of Fee)										
Stable Value Fund										
Galliard Stable Value	0.65%	15	2.74%	12	2.50%	17	2.35%	11	2.53%	(1/11)
3 Yr US Treas Rolling	0.21%	98	1.49%	97	1.97%	89	1.61%	93	1.16%	(1/11)
T-Bill + 1.5%	0.94%	1	3.76%	1	3.33%	1	2.69%	1	2.18%	(1/11)
Callan Stable Value SA	0.62%		2.58%		2.37%		2.27%		-	
Fixed Income Fund										
TCW Core Plus	2.45%	41	8.68%	30	5.04%	22	-		4.88%	(1/17)
Blmbg Barclays Aggregate	3.15%	18	8.93%	21	4.82%	41	3.36%	75	4.71%	(1/17)
Callan Core Bond FI	2.17%		8.13%		4.77%		3.56%		-	
Prudential Core Plus	(2.54%)	100	4.30%	100	4.43%	84	3.85%	9	4.09%	(1/15)
Blmbg Barclays Aggregate	3.15%	18	8.93%	21	4.82%	41	3.36%	75	3.51%	(1/15)
Callan Core Bond FI	2.17%		8.13%		4.77%		3.56%		-	
Inflation Responsive Fund										
BlackRock Strategic Completion	(14.32%)	25	(10.21%)	34	-		-		(3.39%)	(11/18)
BlackRock Custom Benchmark	(14.47%)	27	(10.56%)	38	(1.34%)	56	(0.77%)	48	(3.75%)	(11/18)
Callan Real Assets	(18.70%)		(12.96%)		(1.04%)		(0.83%)		-	
Large Cap Core Equity Fund										
Hotchkis & Wiley Large Cap Value	(34.41%)	91	(25.43%)	89	(5.31%)	84	0.06%	84	12.22%	(4/09)
Russell 1000 Value Index	(26.73%)	42	(17.17%)	49	(2.18%)	50	1.90%	50	11.20%	(4/09)
Callan Large Cap Value	(27.20%)		(17.39%)		(2.11%)		1.87%		-	
Macquarie Large Cap Value	(25.70%)	24	(18.67%)	56	(0.89%)	31	-		2.19%	(6/15)
Russell 1000 Value Index	(26.73%)	42	(17.17%)	49	(2.18%)	50	1.90%	50	1.52%	(6/15)
Callan Large Cap Value	(27.20%)		(17.39%)		(2.11%)		1.87%		-	
Sands Capital Large Cap Growth	(8.61%)	2	0.18%	43	16.16%	5	11.42%	20	19.78%	(4/09)
Russell 1000 Growth Index	(14.10%)	55	0.91%	35	11.32%	48	10.36%	39	15.90%	(4/09)
Callan Large Cap Growth	(14.00%)		(0.36%)		11.11%		9.41%		-	
Loomis SaylesLarge Cap Growth	(11.08%)	9	1.64%	25	12.69%	32	12.46%	6	13.31%	(8/14)
Russell 1000 Growth Index	(14.10%)	55	0.91%	35	11.32%	48	10.36%	39	11.32%	(8/14)
Callan Large Cap Growth	(14.00%)		(0.36%)		11.11%		9.41%		-	
BlackRock Russell 1000 Index	(20.27%)	68	(8.22%)	54	-		-		1.50%	(11/17)
Russell 1000 Index	(20.22%)	67	(8.03%)	47	4.64%	44	6.22%	37	1.65%	(11/17)
Callan Large Cap Core	(19.66%)		(8.11%)		4.30%		5.89%		-	
International Equity Fund										
Mondrian ACWI ex-US Value	(25.63%)	34	(18.71%)	32	(3.38%)	28	(1.29%)	28	5.84%	(4/09)
MSCI ACWI ex US	(23.36%)	11	(15.57%)	15	(1.96%)	12	(0.64%)	20	6.36%	(4/09)
Callan NonUS AC Value Eq	(27.11%)		(20.22%)		(4.80%)		(1.84%)		-	
Baillie Gifford ACWI ex-US Growth	(20.35%)	45	(6.76%)	33	3.41%	33	4.14%	23	10.49%	(4/09)
MSCI ACWI ex US	(23.36%)	89	(15.57%)	93	(1.96%)	99	(0.64%)	94	6.36%	(4/09)
Callan NonUS AC Gr Eq	(20.53%)		(9.53%)		1.76%		1.95%		-	
Small/Mid Cap Equity Fund										
Earnest Partners Small/Mid Cap Value	(27.01%)	8	(17.99%)	10	(1.78%)	9	2.16%	7	12.56%	(4/09)
Russell 2500 Value Index	(34.64%)	41	(28.60%)	53	(8.40%)	48	(2.14%)	47	10.15%	(4/09)
Callan Small/MidCap Value	(35.34%)		(27.65%)		(8.62%)		(2.38%)		-	
Wedge Small/Mid Cap Value	(36.14%)	62	(30.52%)	66	(10.05%)	72	(3.17%)	69	6.23%	(1/12)
Russell 2500 Value Index	(34.64%)	41	(28.60%)	53	(8.40%)	48	(2.14%)	47	5.65%	(1/12)
Callan Small/MidCap Value	(35.34%)		(27.65%)		(8.62%)		(2.38%)		-	
Brown Advisory Small/Mid Cap Growth	(24.02%)	74	(15.38%)	70	4.26%	57	6.15%	47	14.84%	(4/09)
Russell 2500 Growth Index	(23.22%)	72	(14.40%)	65	3.35%	68	3.64%	65	14.16%	(4/09)
Callan Sm/MidCap Growth	(21.35%)		(11.72%)		6.66%		5.42%		-	
BlackRock Russell 2500 Index	(29.74%)	42	(22.49%)	56	-		-		(7.15%)	(11/17)
Russell 2500 Index	(29.72%)	42	(22.47%)	56	(3.10%)	44	0.49%	52	(7.08%)	(11/17)
Callan Small/MidCap Core	(30.22%)		(21.11%)		(3.36%)		0.60%		-	

Investment Fund Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings 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 3/2020		3 Years Ended 12/2019		3 Years Ended 9/2019		3 Years Ended 6/2019	
Tier 2: Active (Gross of Fee)								
Stable Value Fund								
Galliard Stable Value	2.50%	17	2.45%	20	2.40%	25	2.35%	34
3 Yr US Treas Rolling	1.97%	89	2.03%	83	2.00%	82	1.94%	89
T-Bill + 1.5%	3.33%	1	3.17%	4	3.04%	11	2.88%	19
Callan Stable Value SA	2.37%		2.34%		2.31%		2.30%	
Fixed Income Fund								
Prudential Core Plus	4.43%	84	5.96%	1	4.84%	1	4.45%	1
Blmbg Barclays Aggregate	4.82%	41	4.03%	89	2.92%	94	2.31%	92
Callan Core Bond FI	4.77%		4.38%		3.32%		2.73%	
Large Cap Core Equity Fund								
Hotchkis & Wiley Large Cap Value	(5.31%)	84	10.67%	35	11.30%	24	13.69%	10
Russell 1000 Value Index	(2.18%)	50	9.68%	67	9.43%	70	10.19%	76
Callan Large Cap Value	(2.11%)		10.28%		10.02%		11.16%	
Macquarie Large Cap Value	(0.89%)	31	10.63%	37	9.70%	60	8.93%	92
Russell 1000 Value Index	(2.18%)	50	9.68%	67	9.43%	70	10.19%	76
Callan Large Cap Value	(2.11%)		10.28%		10.02%		11.16%	
Sands Capital Large Cap Growth	16.16%	5	25.08%	6	17.94%	34	24.39%	3
Russell 1000 Growth Index	11.32%	48	20.49%	51	16.89%	48	18.07%	56
Callan Large Cap Growth	11.11%		20.60%		16.62%		18.34%	
Loomis SaylesLarge Cap Growth	12.69%	32	20.62%	50	15.19%	66	18.91%	45
Russell 1000 Growth Index	11.32%	48	20.49%	51	16.89%	48	18.07%	56
Callan Large Cap Growth	11.11%		20.60%		16.62%		18.34%	
International Equity Fund								
Mondrian ACWI ex-US Value	(3.38%)	28	9.33%	47	5.48%	52	7.66%	67
MSCI ACWI ex US	(1.96%)	12	9.87%	28	6.33%	33	9.39%	45
Callan NonUS AC Value Eq	(4.80%)		9.31%		5.49%		8.67%	
Baillie Gifford ACWI ex-US Growth	3.41%	33	15.03%	27	9.22%	27	13.62%	18
MSCI ACWI ex US	(1.96%)	99	9.87%	100	6.33%	79	9.39%	75
Callan NonUS AC Gr Eq	1.76%		13.03%		7.81%		10.86%	
Small/Mid Cap Equity Fund								
Earnest Partners Small/Mid Cap Value	(1.78%)	9	11.48%	9	11.53%	10	13.62%	19
Russell 2500 Value Index	(8.40%)	48	6.12%	51	6.87%	60	8.98%	72
Callan Small/MidCap Value	(8.62%)		6.25%		7.39%		10.08%	
Wedge Small/Mid Cap Value	(10.05%)	72	5.75%	53	6.66%	63	8.49%	77
Russell 2500 Value Index	(8.40%)	48	6.12%	51	6.87%	60	8.98%	72
Callan Small/MidCap Value	(8.62%)		6.25%		7.39%		10.08%	
Brown Advisory Small/Mid Cap Growth	4.26%	57	16.22%	58	12.86%	63	18.15%	41
Russell 2500 Growth Index	3.35%	68	15.17%	70	12.33%	77	16.14%	70
Callan Sm/MidCap Growth	6.66%		18.22%		14.25%		17.23%	

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2020					
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
Tier 1: GoalMaker Funds (Net of Fee)					
Post Retirement Conservative 11+	(4.25%)	1.59%	-	-	2.76% ^(7/18)
Post Ret Conservative 11+ Index	(3.48%)	1.81%	-	-	2.77% ^(7/18)
Post Retirement Conservative 6-10	(4.70%)	1.42%	-	-	2.75% ^(7/18)
Post Ret Conservative 6-10 Index	(3.80%)	1.73%	-	-	2.80% ^(7/18)
Post Retirement Conservative 0-5	(5.67%)	0.71%	-	-	2.41% ^(7/18)
Post Ret Conservative 0-5 Index	(4.66%)	1.18%	-	-	2.54% ^(7/18)
Pre Retirement Conservative 0-5	(6.80%)	0.19%	3.23%	3.07%	5.28% ^(7/09)
Pre Ret Conservative 0-5 Index	(5.62%)	0.75%	3.19%	2.87%	4.44% ^(7/09)
Pre Retirement Conservative 6-10	(8.69%)	(1.20%)	3.25%	3.25%	6.05% ^(7/09)
Pre Ret Conservative 6-10 Index	(7.48%)	(0.63%)	3.14%	3.01%	5.12% ^(7/09)
Pre Retirement Conservative 11-15	(10.51%)	(2.57%)	3.61%	3.75%	7.22% ^(7/09)
Pre Ret Conservative 11-15 Index	(9.32%)	(1.97%)	3.42%	3.51%	6.65% ^(7/09)
Pre Retirement Conservative 16-20	(12.88%)	(4.31%)	3.86%	4.20%	8.44% ^(7/09)
Pre Ret Conservative 16-20 Index	(11.83%)	(3.95%)	3.50%	3.88%	7.96% ^(7/09)
Pre Retirement Conservative 21-25	(15.10%)	(6.11%)	-	-	(1.68%) ^(7/18)
Pre Ret Conservative 21-25 Index	(14.25%)	(5.90%)	-	-	(1.88%) ^(7/18)
Pre Retirement Conservative 26+	(17.32%)	(8.11%)	-	-	(3.08%) ^(7/18)
Pre Ret Conservative 26+ Index	(16.83%)	(8.27%)	-	-	(3.52%) ^(7/18)

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2020					
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
Tier 1: GoalMaker Funds (Net of Fee)					
Post Retirement Moderate 11+	(6.90%)	(0.32%)	-	-	1.63% ^(7/18)
Post Ret Moderate 11+ Index	(6.33%)	(0.29%)	-	-	1.52% ^(7/18)
Post Retirement Moderate 6-10	(7.94%)	(0.91%)	-	-	1.39% ^(7/18)
Post Ret Moderate 6-10 Index	(10.68%)	(3.94%)	-	-	(1.01%) ^(7/18)
Post Retirement Moderate 0-5	(9.22%)	(1.66%)	-	-	1.08% ^(7/18)
Post Ret Moderate 0-5 Index	(8.27%)	(1.28%)	-	-	1.12% ^(7/18)
Pre Retirement Moderate 0-5	(10.52%)	(2.52%)	3.06%	3.24%	6.28% ^(7/09)
Pre Ret Moderate 0-5 Index	(9.50%)	(2.14%)	2.87%	2.95%	5.52% ^(7/09)
Pre Retirement Moderate 6-10	(12.82%)	(4.34%)	2.91%	3.33%	6.90% ^(7/09)
Pre Ret Moderate 6-10 Index	(11.91%)	(4.10%)	2.57%	3.00%	6.41% ^(7/09)
Pre Retirement Moderate 11-15	(15.08%)	(6.20%)	2.85%	3.50%	7.83% ^(7/09)
Pre Ret Moderate 11-15 Index	(14.34%)	(6.12%)	2.38%	3.11%	7.25% ^(7/09)
Pre Retirement Moderate 16-20	(17.32%)	(8.11%)	3.00%	3.85%	8.97% ^(7/09)
Pre Ret Moderate 16-20 Index	(16.83%)	(8.27%)	2.38%	3.40%	8.53% ^(7/09)
Pre Retirement Moderate 21-25	(18.96%)	(9.52%)	-	-	(4.06%) ^(7/18)
Pre Ret Moderate 21-25 Index	(18.75%)	(10.01%)	-	-	(4.74%) ^(7/18)
Pre Retirement Moderate 26+	(20.59%)	(11.01%)	-	-	(5.11%) ^(7/18)
Pre Ret Moderate 26+ Index	(20.62%)	(11.70%)	-	-	(5.92%) ^(7/18)

Investment Fund Returns

The table below details the rates of return for the Fund's investment funds over various time periods ended March 31, 2020. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized.

Returns for Periods Ended March 31, 2020					
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
Tier 1: GoalMaker Funds (Net of Fee)					
Post Retirement Aggressive 11+	(10.05%)	(2.48%)	-	-	0.38% ^(7/18)
Post Ret Aggressive 11+ Index	(9.62%)	(2.60%)	-	-	0.16% ^(7/18)
Post Retirement Aggressive 6-10	(11.36%)	(3.30%)	-	-	(0.07%) ^(7/18)
Post Ret Aggressive 6-10 Index	(10.92%)	(3.46%)	-	-	(0.35%) ^(7/18)
Post Retirement Aggressive 0-5	(12.58%)	(4.11%)	-	-	(0.44%) ^(7/18)
Post Ret Aggressive 0-5 Index	(11.90%)	(4.00%)	-	-	(0.59%) ^(7/18)
Pre Retirement Aggressive 0-5	(14.59%)	(5.69%)	2.58%	3.18%	7.19% ^(7/09)
Pre Ret Aggressive 0-5 Index	(13.87%)	(5.54%)	2.19%	2.83%	6.51% ^(7/09)
Pre Retirement Aggressive 6-10	(16.78%)	(7.50%)	2.31%	3.18%	7.77% ^(7/09)
Pre Ret Aggressive 6-10 Index	(16.28%)	(7.70%)	1.73%	2.71%	7.06% ^(7/09)
Pre Retirement Aggressive 11-15	(18.96%)	(9.52%)	2.18%	3.29%	8.47% ^(7/09)
Pre Ret Aggressive 11-15 Index	(18.75%)	(10.01%)	1.42%	2.75%	8.00% ^(7/09)
Pre Retirement Aggressive 16-20	(20.40%)	(10.86%)	2.49%	3.73%	9.65% ^(7/09)
Pre Ret Aggressive 16-20 Index	(20.39%)	(11.53%)	1.64%	3.16%	9.30% ^(7/09)
Pre Retirement Aggressive 21-25	(21.38%)	(11.73%)	-	-	(5.62%) ^(7/18)
Pre Ret Aggressive 21-25 Index	(21.55%)	(12.60%)	-	-	(6.57%) ^(7/18)
Pre Retirement Aggressive 26+	(21.38%)	(11.73%)	-	-	(5.62%) ^(7/18)
Pre Ret Aggressive 26+ Index	(21.55%)	(12.60%)	-	-	(6.57%) ^(7/18)

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 3/2020	3 Years Ended 12/2019	3 Years Ended 9/2019	3 Years Ended 6/2019
Tier 1: GoalMaker Funds (Net of Fee)				
Pre Retirement Conservative 0-5	3.23%	6.41%	5.20%	5.45%
Pre Ret Conservative 0-5 Index	3.19%	5.85%	4.79%	4.99%
Pre Retirement Conservative 6-10	3.25%	7.39%	6.04%	6.53%
Pre Ret Conservative 6-10 Index	3.14%	6.70%	5.56%	5.97%
Pre Retirement Conservative 11-15	3.61%	8.85%	7.38%	8.23%
Pre Ret Conservative 11-15 Index	3.42%	8.05%	6.86%	7.59%
Pre Retirement Conservative 16-20	3.86%	10.49%	8.87%	10.15%
Pre Ret Conservative 16-20 Index	3.50%	9.53%	8.29%	9.44%

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 3/2020	3 Years Ended 12/2019	3 Years Ended 9/2019	3 Years Ended 6/2019
Tier 1: GoalMaker Funds (Net of Fee)				
Pre Retirement Moderate 0-5	3.06%	8.02%	6.48%	7.12%
Pre Ret Moderate 0-5 Index	2.87%	7.32%	6.01%	6.57%
Pre Retirement Moderate 6-10	2.91%	9.06%	7.25%	8.18%
Pre Ret Moderate 6-10 Index	2.57%	8.21%	6.71%	7.52%
Pre Retirement Moderate 11-15	2.85%	10.26%	8.28%	9.56%
Pre Ret Moderate 11-15 Index	2.38%	9.31%	7.69%	8.83%
Pre Retirement Moderate 16-20	3.00%	11.83%	9.76%	11.54%
Pre Ret Moderate 16-20 Index	2.38%	10.78%	9.15%	10.76%

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 3/2020	3 Years Ended 12/2019	3 Years Ended 9/2019	3 Years Ended 6/2019
Tier 1: GoalMaker Funds (Net of Fee)				
Pre Retirement Aggressive 0-5	2.58%	9.52%	7.50%	8.53%
Pre Ret Aggressive 0-5 Index	2.19%	8.68%	6.97%	7.85%
Pre Retirement Aggressive 6-10	2.31%	10.43%	8.18%	9.53%
Pre Ret Aggressive 6-10 Index	1.73%	9.44%	7.59%	8.78%
Pre Retirement Aggressive 11-15	2.18%	11.56%	9.22%	10.98%
Pre Ret Aggressive 11-15 Index	1.42%	10.48%	8.60%	10.17%
Pre Retirement Aggressive 16-20	2.49%	12.99%	10.66%	12.92%
Pre Ret Aggressive 16-20 Index	1.64%	11.87%	10.07%	12.12%

The North Carolina Supplemental Retirement Plans
Investment Manager Performance Monitoring Summary Report
March 31, 2020

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
Tier 2: Passive vs. Net of Fee Groups								
Fixed Income Passive (i)								
Callan Core Bond MFs	3.1 13	8.8 12	4.8 14	3.3 35		0.6 46	-1.1 96	0.1 100
Blmbg Barclays Aggregate	3.1 12	8.9 11	4.8 9	3.4 28		0.6 36		
Treasury Inflation Protected (i)								
Callan TIPS MFs	0.4 44	4.6 53	3.4 21	2.7 21		0.4 10	0.4 2	1.2 84
Blmbg US TIPS 1-10 Yr	0.3 44	4.5 53	2.5 53	2.2 37		0.4 24		
Large Cap Passive (i)								
Callan Large Cap Core MFs	-19.6 39	-7.0 32	5.1 28	6.7 16		0.4 22	-0.6 46	0.0 99
S&P 500 Index	-19.6 39	-7.0 33	5.1 28	6.7 16		0.4 22		
International Passive (i)								
Callan Non US Equity MFs	-23.3 54	-15.3 53	-1.7 48	-0.4 45		-0.1 46	0.4 28	0.5 100
MSCI ACWI ex US	-23.4 55	-15.6 55	-2.0 49	-0.6 48		-0.1 50		
SMID Cap Passive (i)								
Callan SMID Core MFs	-29.8 31	-22.5 42	-3.2 29	0.5 28		-0.0 28	-0.4 47	0.1 99
Russell 2500 Index	-29.7 31	-22.5 41	-3.1 28	0.5 28		-0.0 28		
Tier 2: Active vs. Net of Fee Groups								
Stable Value Fund								
Callan Stable Value CT	0.6 1	2.6 1	2.3 6	2.2 6		6.9 37	-1.6 42	0.3 40
T-Bill + 1.5%	0.9 1	3.8 1	3.3 1	2.7 1		3.3 90		
Fixed Income Fund								
Callan Core Plus MFs	-0.1 42	6.4 23	4.6 8	3.5 14		0.7 18	0.1 12	1.6 73
Blmbg Barclays Aggregate	3.1 6	8.9 4	4.8 3	3.4 21		0.6 26		
TCW Core Plus								
Callan Core Plus MFs	2.4 9	8.5 6	4.9 2					
Blmbg Barclays Aggregate	3.1 6	8.9 4	4.8 3	3.4 21		0.6 26		
Prudential Core Plus								
Callan Core Plus MFs	-2.5 79	4.3 72	4.3 25	3.7 9		0.6 42	0.1 13	2.9 24
Blmbg Barclays Aggregate	3.1 6	8.9 4	4.8 3	3.4 21		0.6 26		

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 Plans
Investment Manager Performance Monitoring Summary Report
March 31, 2020

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
Inflation Responsive Fund Callan Real Assets MFs Inflation Responsive Benchmark	-14.4 44	-10.3 46	-0.6 31	0.3 30		-0.1 37	0.8 15	1.6 99
	-14.5 44	-10.6 47	-1.8 48	-0.9 36		-0.2 88		
BlackRock Strategic Completion Callan Real Assets MFs BlackRock Custom Benchmark	-14.3 44	-10.3 46						
	-14.5 44	-10.6 47	-1.3 42	-0.8 35		-0.2 38		
Large Cap Core Equity Fund Callan Lg Cap Broad MF Russell 1000 Index	-20.2 57	-10.3 60						
	-20.2 57	-8.0 53	4.6 50	6.2 47		0.3 47		
Hotchkis & Wiley Large Cap Value Callan Lg Cap Value MF Russell 1000 Value Index	-34.5 95	-25.7 95	-5.7 86	-0.4 86		-0.1 86	-0.4 64	6.1 7
	-26.7 45	-17.2 46	-2.2 50	1.9 45		0.0 45		
Macquarie Large Cap Value Callan Lg Cap Value MF Russell 1000 Value Index	-25.8 31	-18.9 52	-1.2 39					
	-26.7 45	-17.2 46	-2.2 50	1.9 45		0.0 45		
Sands Capital Large Cap Growth Callan Large Cap Grwth MF Russell 1000 Growth Index	-8.7 1	-0.3 46	15.6 3	10.9 19		0.5 56	0.1 25	10.3 2
	-14.1 62	0.9 32	11.3 50	10.4 29		0.6 23		
Loomis Sayles Large Cap Growth Callan Large Cap Grwth MF Russell 1000 Growth Index	-11.2 11	1.2 26	12.3 37	12.0 4		0.8 4	0.3 8	5.3 17
	-14.1 62	0.9 32	11.3 50	10.4 29		0.6 23		
BlackRock Russell 1000 Index (i) Callan Large Cap Core MFs Russell 1000 Index	-20.3 55	-8.2 43						
	-20.2 55	-8.0 43	4.6 34	6.2 29		0.3 31		
International Equity Fund Callan Non US Equity MFs MSCI ACWI ex US	-22.9 50	-13.0 46	-0.5 38	0.9 28		-0.0 27	1.0 2	1.6 100
	-23.4 55	-15.6 55	-2.0 49	-0.6 48		-0.1 50		
Mondrian ACWI ex-US Value Callan Non US Equity MFs MSCI ACWI ex US	-25.7 74	-19.0 77	-3.8 69	-1.7 70		-0.2 71	-0.4 71	3.0 80
	-23.4 55	-15.6 55	-2.0 49	-0.6 48		-0.1 50		

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

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The North Carolina Supplemental Retirement Plans
Investment Manager Performance Monitoring Summary Report
March 31, 2020

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
Baillie Gifford ACWI ex-US Growth Callan Non US Equity MFs MSCI ACWI ex US	-20.4 22	-7.0 6	3.1 3	3.8 4		0.1 4	1.2 1	3.7 60
Small/Mid Cap Equity Fund Callan SMID Broad MFs Russell 2500 Index	-29.4 57	-23.6 66						
	-29.7 60	-22.5 64	-3.1 58	0.5 54		-0.0 54		
Earnest Partners Small/Mid Cap Value Callan SMID Value MFs Russell 2500 Value Index	-27.1 12	-18.4 9	-2.2 6	1.7 2		0.0 2	0.7 14	5.7 23
	-34.6 63	-28.6 71	-8.4 45	-2.1 35		-0.2 33		
Wedge Small/Mid Cap Value Callan SMID Value MFs Russell 2500 Value Index	-36.2 77	-30.9 86	-10.6 87	-3.8 75		-0.2 74	-0.8 88	2.0 98
	-34.6 63	-28.6 71	-8.4 45	-2.1 35		-0.2 33		
Brown Advisory Small/Mid Cap Growth Callan SMID Growth MFs Russell 2500 Growth Index	-24.2 76	-15.8 73	3.7 47	5.6 33		0.2 35	0.4 34	5.3 22
	-23.2 58	-14.4 59	3.4 50	3.6 59		0.1 60		
BlackRock Russell 2500 Index (i) Callan SMID Core MFs Russell 2500 Index	-29.7 31	-22.5 42						
	-29.7 31	-22.5 41	-3.1 28	0.5 28		-0.0 28		

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:
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■ third quartile
■ fourth quartile

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

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The North Carolina Supplemental Retirement Plans
Investment Manager Performance Monitoring Summary Report
March 31, 2020

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
Tier 2: Active vs. Gross of Fee Groups								
Stable Value Fund								
Galliard Stable Value	0.6 15	2.7 12	2.5 17	2.4 11		9.2 30	-1.0 14	0.3 31
Callan Stable Value SA								
T-Bill + 1.5%	0.9 1	3.8 1	3.3 1	2.7 1		3.3 90		
Fixed Income Fund								
TCW Core Plus	2.4 41	8.7 30	5.0 22	3.7 26		0.8 10	0.5 27	0.6 60
Callan Core Bond FI								
Blmbg Aggregate	3.1 18	8.9 21	4.8 41	3.4 75		0.6 79		
Prudential Core Plus	-2.5 100	4.3 100	4.4 84	3.9 9		0.6 76	0.2 57	2.9 1
Callan Core Bond FI								
Blmbg Aggregate	3.1 18	8.9 21	4.8 41	3.4 75		0.6 79		
Inflation Responsive Fund								
BlackRock Strategic Completion	-14.3 25	-10.2 34	-1.0 46	-0.5 41		-0.2 59	2.9 5	0.1 95
Callan Real Assets								
BlackRock Custom Benchmark	-14.5 27	-10.6 38	-1.3 56	-0.8 48		-0.2 65		
Large Cap Core Equity Fund								
Hotchkis & Wiley Large Cap Value	-34.4 91	-25.4 89	-5.3 84	0.1 84		-0.1 83	-0.3 68	6.1 9
Callan Large Cap Value								
Russell 1000 Value Index	-26.7 42	-17.2 49	-2.2 50	1.9 50		0.0 50		
Macquarie Large Cap Value	-25.7 24	-18.7 56	-0.9 31	2.5 34		0.1 33	0.1 38	4.1 33
Callan Large Cap Value								
Russell 1000 Value Index	-26.7 42	-17.2 49	-2.2 50	1.9 50		0.0 50		
Sands Capital Large Cap Growth	-8.6 2	0.2 43	16.2 5	11.4 20		0.5 56	0.1 32	10.3 1
Callan Large Cap Growth								
Russell 1000 Growth Index	-14.1 55	0.9 35	11.3 48	10.4 39		0.6 30		
Loomis Sayles Large Cap Growth	-11.1 9	1.6 25	12.7 32	12.5 6		0.8 6	0.4 14	5.3 20
Callan Large Cap Growth								
Russell 1000 Growth Index	-14.1 55	0.9 35	11.3 48	10.4 39		0.6 30		

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 Plans
Investment Manager Performance Monitoring Summary Report
March 31, 2020

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	
BlackRock Russell 1000 Index (i)	-20.3 68	-8.2 54	4.7 43	6.3 36		0.3 41	2.0 1	0.0 99	
Callan Large Cap Core									
Russell 1000 Index	-20.2 67	-8.0 47	4.6 44	6.2 37		0.3 41			
International Fund									
Mondrian ACWI ex-US Value	-25.6 34	-18.7 32	-3.4 28	-1.3 28		-0.2 44	-0.2 37	3.0 77	
Callan NonUS AC Value Eq									
MSCI ACWI ex US	-23.4 11	-15.6 15	-2.0 12	-0.6 20		-0.1 21			
Baillie Gifford ACWI ex-US Growth	-20.4 45	-6.8 33	3.4 33	4.1 23		0.2 25	1.3 1	3.7 62	
Callan NonUS AC Gr Eq									
MSCI ACWI ex US	-23.4 89	-15.6 93	-2.0 99	-0.6 94		-0.1 94			
Small/Mid Cap Equity Fund									
Earnest Partners Small/Mid Cap Value	-27.0 8	-18.0 10	-1.8 9	2.2 7		0.0 7	0.8 12	5.7 29	
Callan Small/MidCap Value									
Russell 2500 Value Index	-34.6 41	-28.6 53	-8.4 48	-2.1 47		-0.2 49			
Wedge Small/Mid Cap Value	-36.1 62	-30.5 66	-10.1 72	-3.2 69		-0.2 65	-0.5 79	2.0 98	
Callan Small/MidCap Value									
Russell 2500 Value Index	-34.6 41	-28.6 53	-8.4 48	-2.1 47		-0.2 49			
Brown Advisory Small/Mid Cap Growth	-24.0 74	-15.4 70	4.3 57	6.1 47		0.2 47	0.5 48	5.3 34	
Callan Sm/MidCap Growth									
Russell 2500 Growth Index	-23.2 72	-14.4 65	3.4 68	3.6 65		0.1 65			
BlackRock Russell 2500 Index (i)	-29.7 42	-22.5 56	-3.1 46	0.5 52		-0.0 52	-0.4 82	0.1 100	
Callan Small/MidCap Core									
Russell 2500 Index	-29.7 42	-22.5 56	-3.1 44	0.5 52		-0.0 51			

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:
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■ third quartile
■ fourth quartile

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■ second quartile
■ first quartile

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Galliard Stable Value Period Ended March 31, 2020

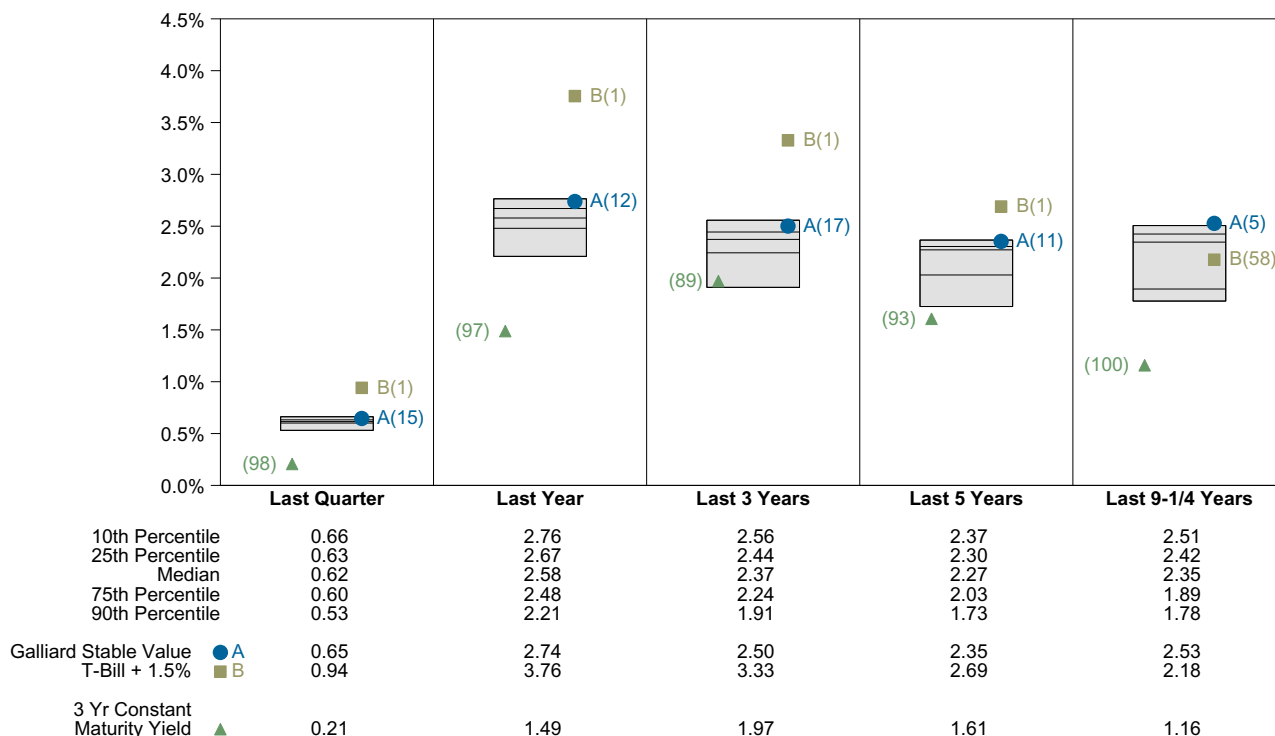
Investment Philosophy

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.

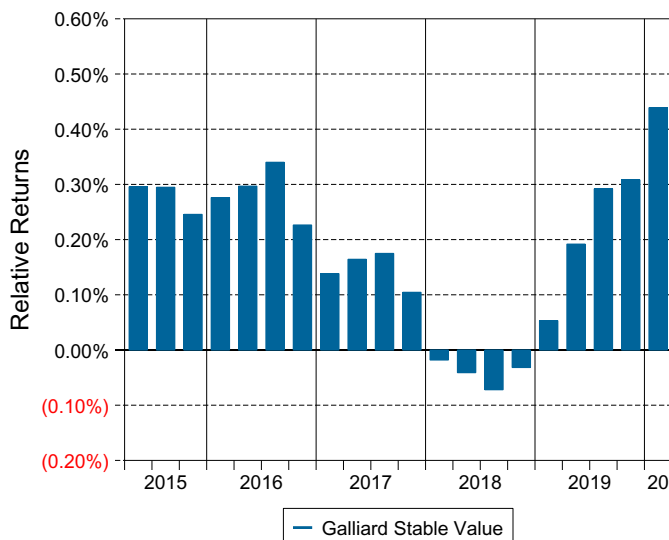
Quarterly Summary and Highlights

- Galliard Stable Value's portfolio posted a 0.65% return for the quarter placing it in the 15 percentile of the Callan Stable Value SA group for the quarter and in the 12 percentile for the last year.
- Galliard Stable Value's portfolio outperformed the 3 Yr Constant Maturity Yield by 0.44% for the quarter and outperformed the 3 Yr Constant Maturity Yield for the year by 1.25%.

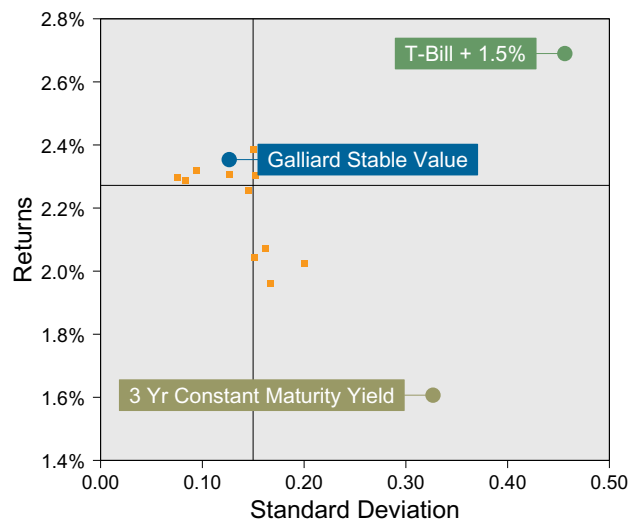
Performance vs Callan Stable Value SA (Gross)



Relative Returns vs 3 Yr Constant Maturity Yield



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

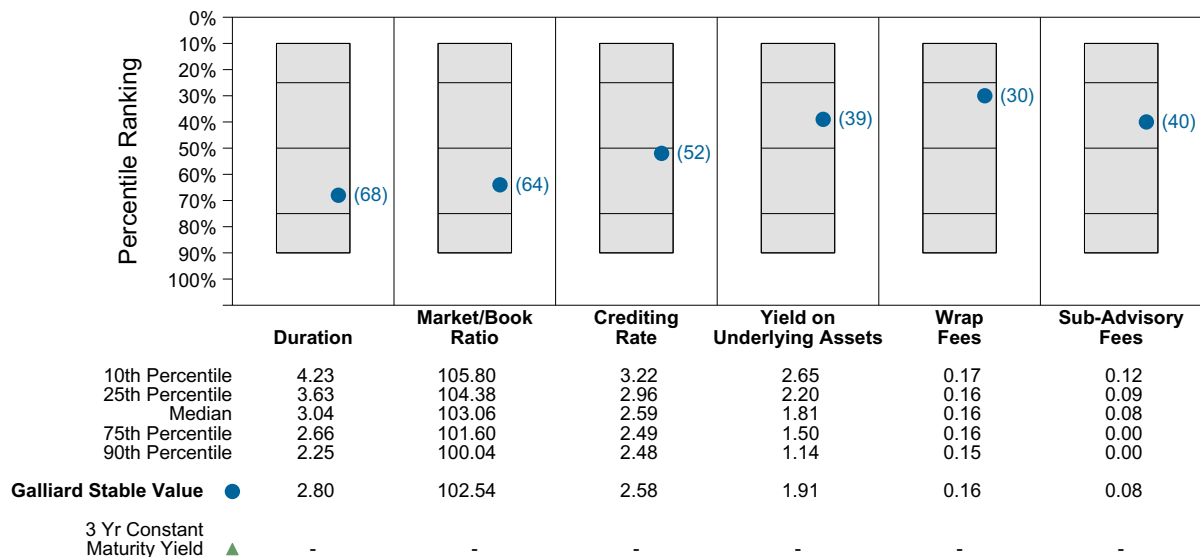


Galliard Stable Value Stable Value Characteristics Analysis Summary

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.

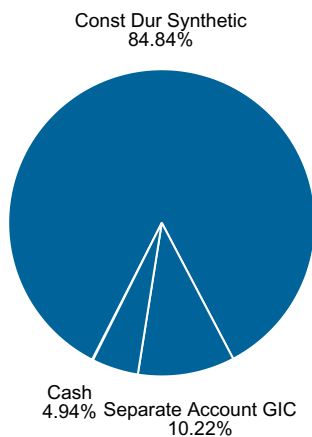
Portfolio Characteristics Percentile Rankings Rankings Against Callan Stable Value SA as of March 31, 2020



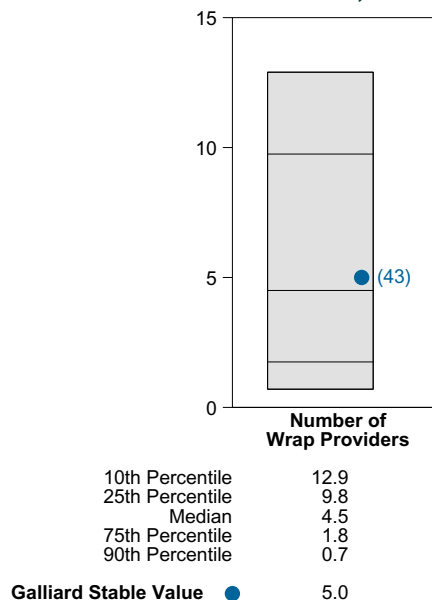
Wrap Structure and Diversification

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, 2020



Wrap Contract Diversification March 31, 2020

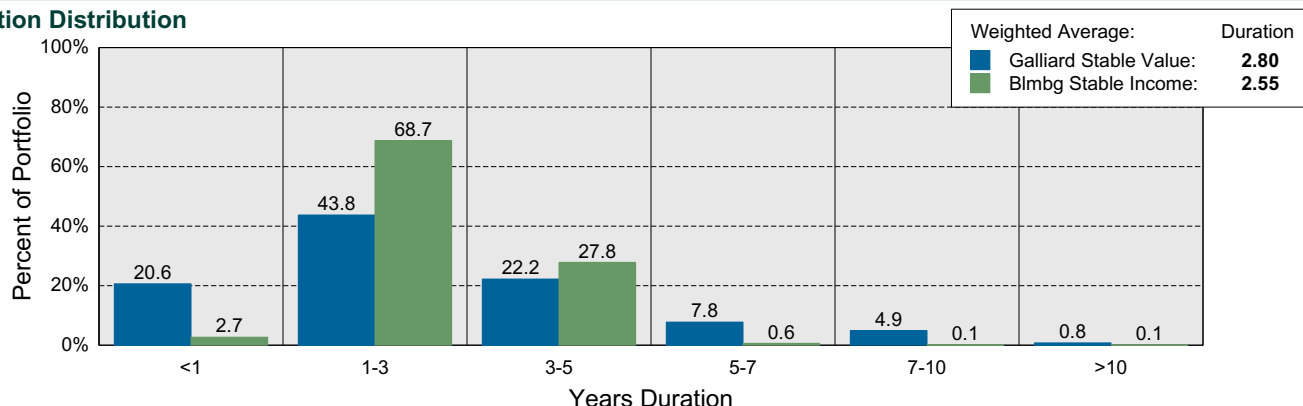


Galliard Stable Value Stable Value Portfolio Characteristics Summary As of March 31, 2020

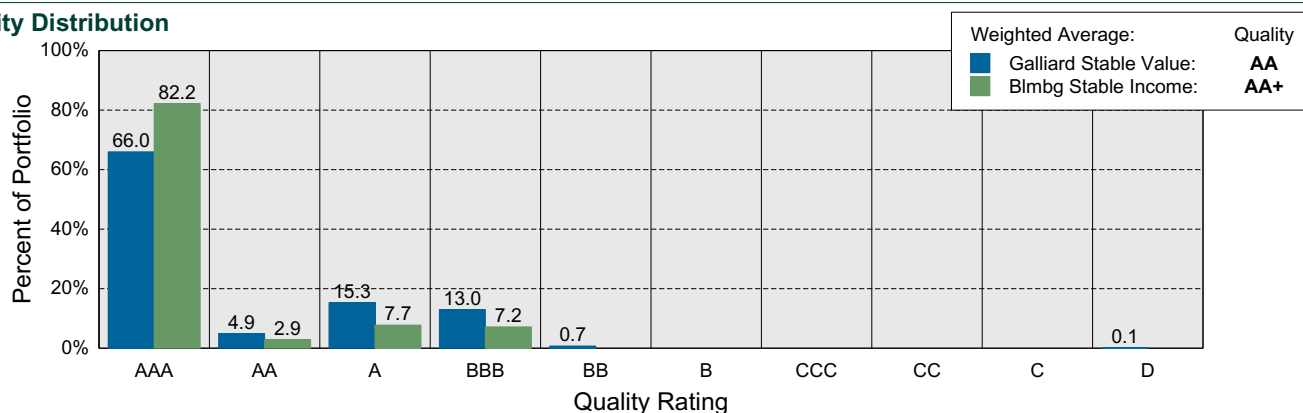
Portfolio Structure Comparison

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



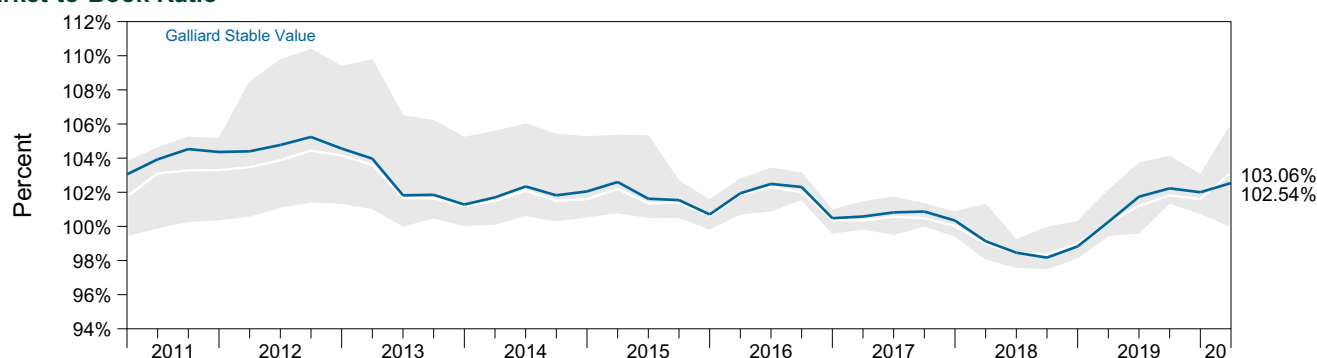
Quality Distribution



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



SCOTUS Decides Not to Decide – January 17, 2020

Two recent Supreme Court of the United States (SCOTUS) decisions, or lack thereof, may increase uncertainty around the use of actively managed funds, as well as the inclusion of company stock, in a defined contribution (DC) plan's investment lineup.

Putnam Investments v. Brotherston

More than 30 companies have been sued over the affiliated mutual funds in their 401(k) plans since 2015. In this lawsuit, Putnam was accused of engaging in self-dealing by including expensive, underperforming proprietary funds in its 401(k) plan. Initially, the federal court heard only the plaintiffs' arguments and, after the plaintiffs had rested their case, Putnam requested that the case be dismissed—arguing that the plaintiffs had not proven that the plan suffered any losses. The court agreed and, as a result, did not rule on whether Putnam had breached its fiduciary duties.

That ruling was vacated in part by the First U.S. Circuit Court of Appeals and remanded back to the lower court for further review. Additionally, the appellate court ruled that the burden is on Putnam to disprove that plan losses resulted from the alleged breaches. Of note, the appellate court also suggested in its decision that plans could stave off litigation by steering clear of actively managed funds.

Putnam filed a petition for writ of certiorari with the U.S. Supreme Court, asking it to review certain questions of law. The first dealt with which party was responsible to prove the cause of a loss. The appellate courts have split on this issue. The second issue requested that SCOTUS opine on the comparison of active and passive benchmarks.

SCOTUS's denial of Putnam's petition for writ of certiorari will leave these questions unresolved, and Putnam will now have to defend itself in the lower courts.

IBM v. Jander

The plaintiffs alleged that IBM imprudently managed company stock investments in one of its retirement plans. The lower courts found that IBM had violated guidelines set by the Supreme Court's unanimous 2014 decision in *Fifth Third Bancorp v. Dudenhoeffer*.

The *Dudenhoeffer* decision sought to balance the fiduciary duties outlined in ERISA with the Securities and Exchange Commission (SEC) duties of corporate officers with three broad principles:

- ERISA's duty of prudence cannot require a fiduciary to violate securities laws (e.g., selling company stock in a retirement plan based on insider information).
- Courts must balance ERISA rules with the SEC's "complex insider trading and corporate disclosure requirements".

- Courts must analyze whether a plaintiff "plausibly alleged" that a prudent fiduciary would not have viewed an alternative action as more likely to harm the fund than to help.

SCOTUS's decision to vacate and remand the decision was based on the finding that "petitioners (fiduciaries of the employee stock ownership plan at issue here) and the federal government (presenting the views of the SEC as well as the Department of Labor) focused their arguments primarily upon other matters" that should be reviewed by the appellate court. The lack of clarity raises questions about the correct application of Dudenhoeffer at the pleadings stage and may encourage additional litigation.

The current litigation environment highlights risks and opportunities for plan sponsors. By declining to review *Putnam v. Brotherston*, the SCOTUS leaves the matter of which party has the burden of proof in such suits unresolved. By remanding the *IBM v. Jander* case, SCOTUS leaves an open question for plan fiduciaries regarding how to balance SEC regulations regarding insider trading and ERISA fiduciary duties with respect to company stock held within an ERISA plan.

Plan sponsors should continue to carefully monitor investment options, review plan fees, and follow any written governance documentation, including the investment policy statement. Additionally, plan fiduciaries should document the process and decisions made around vendor selection and fees to demonstrate their due diligence.

Supreme Court Rules That "Actual Knowledge" Means What It Says – March 2, 2020

A decision issued by the Supreme Court on February 26 ruled that the statute of limitations for lawsuits alleging breach of fiduciary duty under ERISA will only be reduced to three years "when a plaintiff actually is aware" of facts of a breach, "not when he should be."

ERISA lawsuits alleging breach of fiduciary duty are typically restricted by a six-year statute of limitations. However, that timeframe can be cut in half if the participant had "actual knowledge" of an alleged fiduciary breach (29 U.S.C. §1113(2)). The Supreme Court's unanimous decision in *Intel Corporation Investment Policy Committee et al. v. Sulyma* hinges on the use of the word "actual." The distinction being, just because a reasonably diligent person should be aware of something, doesn't mean they actually are. The decision states that the Court assumes Congress acted deliberately in drafting this particular provision in ERISA to include this higher standard. The decision also assumes that plaintiffs who "recall reading particular disclosures will...be bound by oath to say so in their depositions," and that actual knowledge can be inferred from the participant's actions.

Although Intel was able to demonstrate that the plaintiff had visited a website that hosted various disclosures (e.g., QDIA notice, SPD) multiple times and received emails directing him to disclosures documenting fees and returns, the plaintiff testified that he did not remember reviewing the relevant disclosures. This decision is limited to defining the standard of actual knowledge. The case now goes back to the district court to determine whether the plaintiff's claims in this case are credible or sufficient to meet the actual knowledge standard.

Plan sponsors may wish to undergo a communications audit or redistribute important communication materials to participants. In addition, plan sponsors can work with their recordkeepers to document affirmative confirmations that participants have reviewed relevant plan information.

Managing Panic: Practical Considerations for DC Plan Sponsors – March 12, 2020

Market volatility and fears of the coronavirus (COVID-19) have introduced novel concerns that have the potential to strain resources. Plan sponsors should consider what the impacts may be to the DC plan and how to mitigate them.

While recordkeepers have implemented business continuity for hurricanes and fires in prior years, those disasters have been localized. Plan sponsors should look to understand how business continuity will be managed from a national perspective:

- Internet availability: High-traffic events have caused issues for participants trying to access information or make transactions. While plan sponsors have limited ability to improve this circumstance, it would be valuable to track participant statistics and document the review.
- Call center staffing: Plan sponsors should seek to understand how the recordkeeper will support call center operations in the event recordkeepers need to quarantine staff or locations.
- Paper check-cutting and statement production: Both functions require in-person interaction at the recordkeeper to manage the process. Plan sponsors may wish to communicate to participants that they may expect delays and that electronic options may streamline the process.
- Payroll processing: The Department of Labor has historically viewed late payroll contributions negatively. In the event payroll contributions are held up due to limited resources to manage edits and reconciliation at either the plan sponsor or the recordkeeper, the timing to fund payroll may become an issue. Plan sponsors may wish to include extra time/resources for processing payroll during this time period.
- Participant communications: Plan sponsors may wish to preemptively identify communication needs and opportunities for participants visiting the website, experiencing longer call volumes, or managing distribution and loan checks.
- Onsite education or advisor sessions: In-person, face-to-face outreach may need to be canceled or postponed. While participants may want to meet with an adviser due to volatility, the method of delivery may be impacted by social distancing guidance.
- Cybersecurity: When large groups of employees suddenly work from home, it also raises novel cybersecurity issues. This may be a time to understand what stresses are placed upon vendors and consider hardening cybersecurity defenses.
- Service-level guarantees: Recordkeepers may include service-level guarantees in their agreements. However, these contracts typically include a force majeure provision that limits their responsibility for “acts of god.” Plan sponsors should proactively monitor call center and online hits to understand how participants may be impacted by constrained resources.

First Quarter 2020 DC Trends

Don't panic. Be thoughtful and wash your hands. From a fiduciary perspective, it is a good practice to check in from time to time with vendors to make sure they have contingency plans and open lines of communication when/if problems do arise.

Rapid Shift to Working from Home Increases Cybersecurity Risks – March 20, 2020

Plan sponsors should be careful to remind employees and plan participants of proper cybersecurity practices in a time of increased cyber vulnerability.

With much of the US workforce engaging in social distancing and isolation best practices, we have seen a shift to working remotely at an unheard-of pace. Additionally, there is a significant appetite for information about the novel coronavirus (COVID-19) and turmoil within financial markets. Recordkeepers have reported an increase in participant inquiries of 20%-30%, and are working to provide relevant messaging to participants on the evolving situation.

These two factors have produced an explosion of exploitable targets for hackers. Unfortunately, this comes at a critical time, when online systems are more important than ever for facilitating work and maintaining productivity. There have been numerous reports of increased activity by cybercriminals and fraudsters, and in many cases their targets are new websites that are being rapidly created to disseminate information about COVID-19. Clicking on unfamiliar links can potentially lead to increased risk of malware being introduced to a network or phishing attempts to solicit personal information, and hackers are using these websites as points of attack.

Callan is participating in regular briefings on these risks conducted by the Department of Homeland Security's Cybersecurity and Infrastructure Agency (CISA) and Federal Emergency Management Agency (FEMA), and we will share episodic updates as appropriate.

Targeted guidance regarding how to protect your organizations from increased cybersecurity risks associated with COVID-19 is available at <https://www.cisa.gov/coronavirus>.

Cybersecurity best practices are more important in this moment than ever, and there are resources for employers and best practices available from the Department of Homeland Security. Retaining functioning and secure networks is both more difficult and more critical at a time when a significant portion of the workforce has rapidly shifted to working from home. It is of particular importance at this time to document and follow a prudent process regarding steps taken to secure retirement plan data.

Balancing ERISA Rules with Current Economic Concerns – March 25, 2020

Plan sponsors have traditionally sought to limit "leakage" from defined contribution (DC) plans. However, in these chaotic times, plan sponsors should consider how they can support participants in financial distress.

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The coronavirus pandemic has led to significant economic tremors, including income insecurity and job reductions. As a result, plan sponsors and participants are looking to manage cash flow and minimize long-term impacts.

Under the Employee Retirement Income Security Act (ERISA), or other applicable law, the primary responsibility of fiduciaries is to run the DC plan solely in the interest of participants and beneficiaries and for the exclusive purpose of providing benefits and paying plan expenses. It is important that plan sponsors consider how to balance this duty with short-term financial needs:

- **Loan availability:** A loan from the DC plan may help mitigate short-term cash flow needs. But participants are required to make regular repayments, and those who miss loan repayments become subject to default. These are complicated issues addressed in full [here](#).
- **In-service withdrawals:** An in-service withdrawal allows active employees to tap their retirement savings prior to termination. There are limitations based on the money source (e.g., employee deferrals, employer contributions). Typically, age 59½ is the earliest participants can take in-service withdrawals from their deferrals, qualified non-elective contributions (QNECs), and qualified matching contributions (QMACs). Roth deferrals will be subject to penalties if distributed before the five-year clock¹ has expired. And any withdrawals prior to age 59½ may be subject to additional penalties.
- **Hardship withdrawals:** Hardship withdrawals are a form of in-service withdrawal that allows active employees of any age to withdraw amounts from their DC plan account. To be considered a hardship, it has to be an immediate and heavy financial need, and the withdrawal has to be necessary to meet that need.

Determining whether an employee has an immediate and heavy financial need is based on facts and circumstances. There are certain events that provide plans sponsors a “safe harbor” and limit their liability (e.g., Federal Emergency Management Agency (FEMA) expenses², burial expenses, repair costs). Unfortunately, currently COVID-19 does not fall under any of those safe harbor circumstances, although that may change. Some plans may also permit hardship withdrawals based on a more nebulous “facts and circumstances” standard. This standard requires discretion on the part of the plan sponsor or a delegated third party to determine if a hardship has occurred and may require additional resources to verify. Additionally, a hardship withdrawal may not exceed the amount of the employee's need (including taxes and penalties), which may be difficult to estimate and/or document at a single point in time.

457 plans offer similar “unforeseen emergency withdrawals” that are generally subject to the same rules.

¹ The five-year rule means that five tax years must pass from the date of the first contribution to any Roth IRA or Roth 401(k) before a qualified distribution can be made from the retirement account.

² “FEMA-Declared Disasters” is a new hardship category and is generally available for 401(k) or 403(b) plans. However, President Trump's national emergency declaration does not satisfy the requirements. We anticipate that the COVID-19 pandemic will eventually become a FEMA-declared disaster to allow participants to request hardship withdrawals for expenses and losses, including a loss of income.

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- Distributions: In general, participants may take distributions or withdrawals from the plan following a “distributable event,” which is generally defined as one of the following:
 - Termination from employment
 - Reaching “normal retirement age”
 - Disability or death
 - Attaining specific ages, depending on the source of the savings (employee deferrals versus employer contributions)

The terms of the plan can permit participants to structure their distributions as a lump sum, installments (a series of equal payments over a defined period of time), or partial distributions (flexible amounts and timing). Plan sponsors may wish to consider adding partial distributions, if not already available, so that participants can access a portion of their account without requiring a full distribution.

- Managing fees: Recordkeepers may charge fees for some or all of the above transactions. Plan sponsors may wish to work with their service providers to manage or mitigate fees.

Aside from the grave threat to public health, one of the greatest challenges COVID-19 presents is the lack of a clear timeline and endpoint. Plan sponsors and participants are seeking to make decisions based on circumstances that cannot be anticipated. Plan sponsors should seek to support their participants’ current needs, balanced with the long-term objectives of the DC plan as required by ERISA, while documenting their fiduciary decisions and the process to implement those decisions.

How DC Plans Should Prepare for Missed Loan Repayments – March 26, 2020

The significant economic tremors, including income insecurity and job reductions, stemming from the coronavirus pandemic may lead to increased loan defaults and impact long-term retirement readiness.

Defined contribution (DC) plans have the option of offering loans to participants. Generally, the participant must repay a plan loan within five years³ and must make payments at least quarterly. The plan document (or a separate written loan program) must identify what will happen if a loan repayment is missed, and the circumstances for determining when the loan defaults. IRS regulations specify that if the loan repayments are not made according to the repayment schedule, the entire outstanding balance of the loan is treated as a taxable distribution (“deemed distribution”) and reported on Form 1099-R. Deemed distributions are subject to income tax and may be subject to the 10% early distribution tax.

The plan administrator may (but is not required to) allow a “cure period” in which a missed payment may be made up to prevent the deemed distribution. The cure period cannot continue beyond the last day of the calendar quarter following the quarter in which the required payment was due. For example, if the quarterly payments were due March 31, June 30,

³ The law provides an exception to the five-year requirement if the participant uses the loan to purchase a primary residence.

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September 30, and December 31, and the participant made the March payment but missed the June payment, the loan would be in default as of the end of June, and the loan would be treated as a deemed distribution at the end of September. Note: missed loan payments have to be made by the end of the cure period and cannot be made by a balloon payment at the end of the loan term.

Plan sponsors have some ability to facilitate repayments and minimize defaults for participants who are unable to make loan repayments.

- Missed payments: Depending on the terms of the plan, the cure period described above may help participants make up missed payments.
- ACH repayments: For participants who are not terminated but also not receiving a paycheck or enough income to make loan repayments, plan sponsors can offer ACH repayment options.
- Loan repayments for terminated participants: Plan sponsors may require an employee to repay the outstanding balance of a loan if he or she terminates employment or if the plan is terminated. Plan sponsors may support participants by instead allowing them to make repayments following termination.
- Refinancing: Some plans offer the ability to refinance a loan, although generally the term of the loan cannot be extended.
- Impact on new loans: Deemed distributions count against future loan availability. For example, if a participant has a deemed distribution, that counts against the maximum number of loans allowed by the plan. Similarly, if a participant has a deemed distribution of \$10,000, that amount counts against the maximum available for any future loans.

Keep in mind that extensions are permitted for participants on leaves of absence:

- Military leave: If the employee is in the armed forces, the employer may suspend the loan repayments during the employee's active duty and then extend the loan repayment schedule by this period.
- Other leaves of absence: If during a leave of absence from their employer, an employee's salary is reduced to the point at which it is insufficient to repay the loan, the employer may suspend repayment up to a year. Unlike the exception for active members of the armed forces, the loan repayment period is not extended and the employee may be required to increase the scheduled payment amounts to pay off the loan in the originally scheduled period.

Loan availability and default provisions are complicated. Plan sponsors should consult with legal counsel on available options and with their recordkeeper on the systems' flexibility. Additionally, plan sponsors should look to communicate to participants in the event they may be subject to a loan default.

How the Coronavirus Relief Bill Affects DC Plans – March 27, 2020

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The coronavirus relief bill, known as the CARES Act, seeks to address the recent economic tremors stemming from the coronavirus pandemic. Certain provisions look to liberalize loan and distribution availability for certain participants (i.e., “qualified individuals”).

The CARES Act was signed into law on March 27, 2020. Drafting this legislation was expedited, which means there is a limited congressional record to clarify some provisions. It is noteworthy that the legislation is intended to be employee-friendly. Where there are questions about implementation and administration, plan sponsors may rely on good-faith interpretations until official guidance is available.

What changes have been made to loan requirements?

- Loan provisions in defined contribution (DC) plans have been liberalized for qualified individuals.
- The maximum amount for these loans has been raised to the lesser of \$100,000, or 100% of the vested balance, compared to loans to participants not considered qualified individuals (i.e., the lesser of \$50,000 or 50% of the vested balance). This provision applies to loans made during the 180-day period beginning on the date of the legislation’s enactment. This provision may be difficult for recordkeepers to administer, as their systems are designed to reject loans above the designated maximums in place currently.
- For outstanding loans and new loans to qualified individuals, loan repayments that would be due from the enactment date until Dec. 31, 2020, will be delayed for one year. Generally, the maximum loan term is five years. Under the CARES Act, these loans will be extended for one year. The remaining payments must be adjusted to reflect the delay in repayment, plus applicable interest resulting in a reamortization over the extended period.
- Missed loan repayments by participants who are not considered qualified individuals will continue to trigger a default and deemed distribution.
- These extension rules appear to be mandatory. It is not clear whether employees are allowed to opt out of having their loan due dates extended.

What changes have been made to distribution availability?

- Minimum required distributions under DC plans are waived for calendar year 2020, including the initial distribution payment related to 2019 that would have been required by April 2020.
- Employees can take “coronavirus-related distributions,” not to exceed \$100,000 in a taxable year. Typically, employees are not permitted to take withdrawals of deferrals prior to termination or attaining age 59½. This limitation has been waived for coronavirus-related distributions.
- The 10% additional tax on early distributions and mandatory 20% withholding would not apply to coronavirus-related distributions.
- Unless the taxpayer elects otherwise, any amount included in gross income due to a coronavirus-related distribution will be included ratably over the three-year period beginning with that taxable year.

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- A qualified individual may take a coronavirus-related distribution to repay it to an eligible retirement plan within three years of taking the distribution. Such repayment would be treated as a rollover contribution to such eligible retirement plan.

Who does this apply to?

According to the legislation, a qualified individual is any participant who has experienced adverse financial consequences resulting from a reduction in work hours; been laid off, quarantined, or furloughed; or is unable to work due to lack of childcare on account of the disease; and a participant, spouse or dependent who has been diagnosed with the virus. Recordkeepers will need to be able to identify and track participants who fall into this category.

What is a “coronavirus-related distribution”?

A coronavirus-related distribution is any distribution from a DC plan between Jan. 1, 2020, and Dec. 31, 2020, to a qualified individual. The plan administrator may rely on an employee’s certification that the employee satisfies the conditions of a coronavirus-related distribution. It appears that plans would be permitted, but not required, to offer these distributions.

When are amendments required?

Historically, plans would need to be amended in the year an optional provision becomes effective. For the CARES Act, DC plans would need to be amended to reflect these new rules by the last day of the plan year beginning on or after Jan. 1, 2022 (i.e., Dec. 31, 2022, for plans that use calendar years). Governmental plans would have an additional two years to adopt the amendment.

The extension of loan due dates could be more problematic to administer, as plan sponsors and recordkeepers would need to identify those participants who would be considered a qualified individual. They would also need to identify loans for these participants due in 2020, and reamortize those loans, communicate with employees, and update loan procedures. Adjusting the loan maximum will require manual intervention as these limits are hard coded into loan modeling tools and recordkeeping systems.

Waiving the minimum required distributions for 2020 may be the simplest provision to implement, as a similar waiver was granted in 2009.

Since it appears that plan sponsors may voluntarily decide to adopt the coronavirus-related distribution provisions of the legislation, they will need to decide, along with their plan service providers, whether their plans want to administer the new distributions.

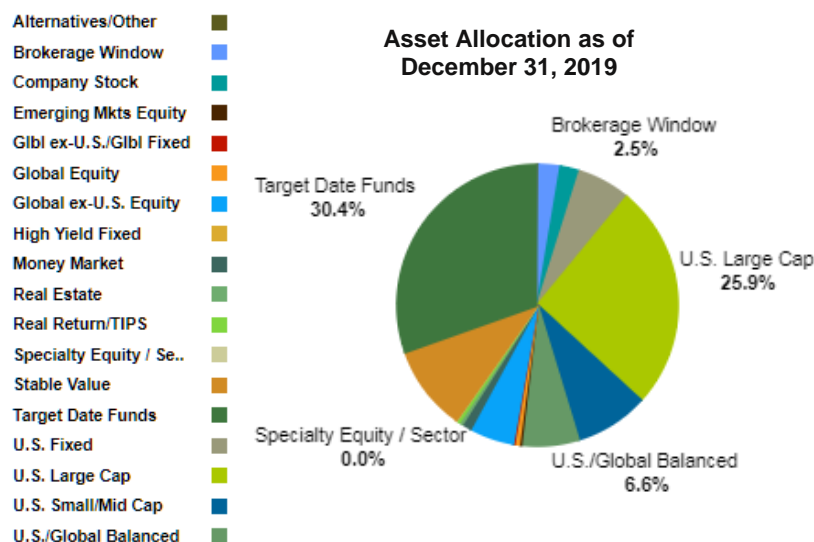
Structure Utilization

Asset Allocation

U.S. Fixed Income and Stable Value Lose Assets

The percentage of assets allocated to stable value decreased by 0.6%, bringing the overall allocation to 9.8%. Both outflows and underperformance relative to equity drove the decrease. The allocation to U.S. fixed income (6.1%) also decreased despite seeing positive flows, signaling that the asset class's relative underperformance was the primary driver of the decrease.

On the other hand, target date funds experienced the largest increase in asset allocation (30.4%), as a result of large inflows and solid performance. Following target date funds, balanced funds (6.6%) and global ex-U.S. equity (5.1%) had the next-largest increases in allocation.



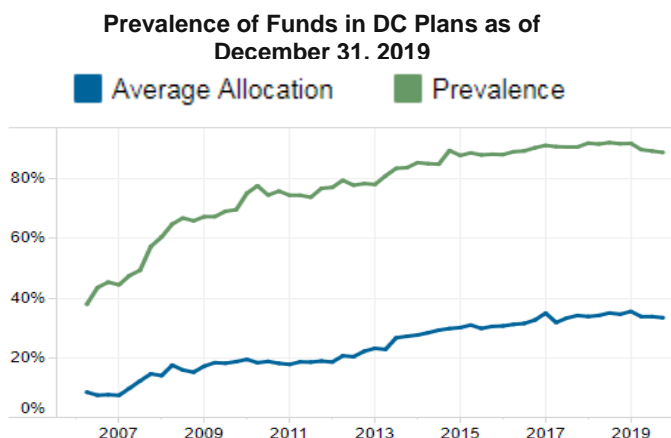
Prevalence

More Plans Offer Real Return/TIPS

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

The prevalence of real return/TIPS within DC plans increased by 3.4 percentage points from the previous quarter to 38.5%. On the contrary, fewer plans currently offer other specialty fixed income options such as high yield fixed income (3.9%) or global/global ex-U.S. fixed income (7.7%)

The presence of company stock (21.5%) decreased slightly and remains near historic lows. Conversely, the percentage of plans offering a brokerage window (41.4%) remains near all-time highs.



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.

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.

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.

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.

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.

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.

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 an 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 Inc.
AllianceBernstein
Allianz
American Century Investments
Amundi Pioneer Asset Management
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Aristotle Capital Management, 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
CapFinancial Partners, LLC
Capital Group
Carillon Tower Advisers
CastleArk Management, LLC
Causeway Capital Management LLC
Chartwell Investment Partners
ClearBridge Investments, LLC

Manager Name
Cohen & Steers Capital Management, Inc.
Columbia Threadneedle Investments
Columbus Circle Investors
Credit Suisse Asset Management
D.E. Shaw Investment Management, L.L.C.
DePrince, Race & Zollo, 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 Hermes, Inc.
Fidelity Institutional Asset Management
Fiera Capital Corporation
First Hawaiian Bank Wealth Management Division
First State Investments
Fisher Investments
Franklin Templeton
Fred Alger Management, Inc.
GAM (USA) Inc.
GCM Grosvenor
Glenmeade Investment Management, LP
GlobeFlex Capital, L.P.
Goldman Sachs
Green Square Capital Advisors, LLC
Guggenheim Investments
GW&K Investment Management
Harbor Capital Group Trust
Hartford Investment Management Co.
Heitman LLC
Hotchkis & Wiley Capital Management, LLC
Income Research + Management, Inc.

Manager Name
Insight Investment Management Limited
Intech Investment Management, LLC
Intercontinental Real Estate Corporation
Invesco
Investec Asset Management North America, Inc.
Ivy Investments
J.P. Morgan
Janus
Jennison Associates LLC
Jobs Peak Advisors
KeyCorp
Lazard Asset Management
Legal & General Investment Management America
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 Investment Management
Marathon Asset Management, L.P.
McKinley Capital Management, LLC
Mellon
MetLife Investment Management
MFS Investment Management
MidFirst Bank
Mondrian Investment Partners Limited
Montag & Caldwell, LLC
Morgan Stanley Investment Management
Mountain Pacific Advisors, LLC
MUFG Union Bank, N.A.
Natixis Investment Managers
Neuberger Berman
Newton Investment Management
Nikko Asset Management Co., Ltd.
Nile Capital Group LLC
Northern Trust Asset Management
Nuveen
P/E Investments
Pacific Investment Management Company
Parametric Portfolio Associates LLC

Manager Name
Pathway Capital Management
Peregrine Capital Management, LLC.
Perkins Investment Management
PFM Asset Management LLC
PGIM Fixed Income
PineBridge Investments
PNC Capital Advisors, LLC
Polen Capital Management
Principal Global Investors
Putnam Investments, LLC
QMA LLC
RBC Global Asset Management
Regions Financial Corporation
Robeco Institutional Asset Management, US Inc.
Rothschild & Co. Asset Management US
S&P Dow Jones Indices
Schroder Investment Management North America Inc.
SLC Management
Smith Graham & Co. Investment Advisors, L.P.
State Street Global Advisors
Stone Harbor Investment Partners L.P.
Strategic Global Advisors
T. Rowe Price Associates, Inc.
The TCW Group, Inc.
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
USAA Real Estate
VanEck
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