

January 31, 2021



## **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 January 31, 2021, with the distribution as of December 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

	January 31, 2021 Market Value	Net New Inv.	Inv. Return	December 31, 2020 Market Value
<b>North Carolina SRP 401k &amp; 457</b>				
<b>Tier II Passive</b>	<b>\$4,151,663,184</b>	<b>\$(13,398,884)</b>	<b>\$(22,760,596)</b>	<b>\$4,187,822,663</b>
Fixed Income Passive	110,182,171	(516,292)	(801,464)	111,499,928
Treasury Inflation Protected	318,436,383	5,116,938	1,900,619	311,418,827
Large Cap Passive	3,255,456,119	(20,340,799)	(33,022,878)	3,308,819,796
SMID Cap Passive	376,686,996	1,630,198	9,000,194	366,056,604
International Passive	90,901,514	711,071	162,933	90,027,509
<b>Tier II Active</b>	<b>\$10,364,410,763</b>	<b>\$(12,045,068)</b>	<b>\$(12,466,684)</b>	<b>\$10,388,922,514</b>
Stable Value Fund	2,376,254,188	16,224,030	3,783,316	2,356,246,842
Fixed Income Fund	2,122,029,232	5,943,852	(14,953,443)	2,131,038,823
Inflation Responsive Fund	487,275,177	1,029,354	1,423,036	484,822,787
Large Cap Core Equity Fund	2,186,861,024	(29,640,314)	(24,462,627)	2,240,963,965
Small/Mid Cap Equity Fund	1,008,559,710	(2,277,446)	5,866,367	1,004,970,789
International Equity Fund	2,183,431,431	(3,324,545)	15,876,667	2,170,879,309
<b>Total Fund</b>	<b>\$14,516,073,947</b>	<b>\$(25,443,952)</b>	<b>\$(35,227,279)</b>	<b>\$14,576,745,178</b>

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## Investment Manager Returns

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The table below details the rates of return for the fund's investment managers over various time periods ended January 31, 2021. 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 January 31, 2021

	Last Month	Last 3 Months	Last Year
<b>Tier 2: Passive (Net of Fee)</b>			
Fixed Income Passive	(0.72%)	0.39%	4.69%
Blmbg Barclays Aggregate	(0.72%)	0.40%	4.72%
Treasury Inflation Protected Securities	0.60%	2.58%	7.64%
Blmbg US TIPS 1-10 Yr	0.62%	2.65%	7.66%
Large Cap Passive	(1.01%)	14.05%	17.29%
S&P 500 Index	(1.01%)	14.05%	17.25%
SMID Cap Passive	2.49%	28.23%	25.35%
Russell 2500 Index	2.45%	28.21%	25.48%
International Passive	0.21%	19.86%	14.86%
MSCI ACWI ex US	0.22%	19.84%	13.95%

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### Returns for Periods Ended January 31, 2021

	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
<b>Tier 2: Passive (Net of Fee)</b>				
Fixed Income Passive	5.44%	3.95%	3.71%	3.66%
Blmbg Barclays Aggregate	5.49%	4.00%	3.76%	3.75%
Large Cap Passive	11.73%	16.16%	13.27%	13.43%
S&P 500 Index	11.70%	16.16%	13.32%	13.50%
SMID Cap Passive	11.02%	16.02%	10.87%	12.05%
Russell 2500 Index	11.11%	16.11%	10.92%	12.09%
International Passive	3.32%	10.58%	5.74%	4.94%
MSCI ACWI ex US	3.08%	10.52%	5.56%	4.84%

## Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended January 31, 2021. 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 January 31, 2021

	Last Month	Last 3 Months	Last Year
<b>Tier 2: Active (Net of Fee)</b>			
<b>Stable Value Fund</b>	<b>0.16%</b>	<b>0.54%</b>	<b>2.35%</b>
3 Yr Constant Maturity Yield	0.01%	0.04%	0.25%
T-Bill + 1.5%	0.13%	0.40%	2.04%
<b>Fixed Income Fund</b>	<b>(0.70%)</b>	<b>1.69%</b>	<b>6.30%</b>
Blmbg Barclays Aggregate	(0.72%)	0.40%	4.72%
TCW Core Plus	(0.56%)	1.01%	6.83%
Blmbg Barclays Aggregate	(0.72%)	0.40%	4.72%
Prudential Core Plus	(0.84%)	2.41%	5.89%
Blmbg Barclays Aggregate	(0.72%)	0.40%	4.72%
<b>Inflation Responsive Fund</b>	<b>0.29%</b>	<b>9.60%</b>	<b>3.26%</b>
Inflation Responsive Benchmark	0.28%	9.58%	2.95%
BlackRock Strategic Completion	0.29%	9.59%	3.32%
BlackRock Custom Benchmark	0.28%	9.58%	2.95%
<b>Large Cap Core Equity Fund</b>	<b>(1.13%)</b>	<b>17.28%</b>	<b>24.34%</b>
Russell 1000 Index	(0.82%)	15.54%	19.84%
Hotchkis & Wiley Large Cap Value	0.23%	27.76%	8.90%
Russell 1000 Value Index	(0.92%)	16.72%	4.09%
Macquarie Large Cap Value	(1.54%)	16.69%	2.79%
Russell 1000 Value Index	(0.92%)	16.72%	4.09%
Sands Capital Large Cap Growth	(1.33%)	17.87%	64.26%
Russell 1000 Growth Index	(0.74%)	14.46%	34.46%
Loomis Sayles Large Cap Growth	(2.23%)	9.00%	28.99%
Russell 1000 Growth Index	(0.74%)	14.46%	34.46%
BlackRock Russell 1000 Index	(0.81%)	15.70%	19.91%
Russell 1000 Index	(0.82%)	15.54%	19.84%
<b>Small/Mid Cap Equity Fund</b>	<b>0.58%</b>	<b>25.42%</b>	<b>21.16%</b>
Russell 2500 Index	2.45%	28.21%	25.48%
Earnest Partners Small/Mid Cap Value	0.19%	24.97%	23.65%
Russell 2500 Value Index	2.21%	28.44%	11.25%
Wedge Small/Mid Cap Value	(0.45%)	25.15%	5.67%
Russell 2500 Value Index	2.21%	28.44%	11.25%
Brown Advisory Small/Mid Cap Growth	(0.29%)	22.85%	29.54%
Russell 2500 Growth Index	2.80%	27.90%	44.24%
BlackRock Russell 2500 Index	2.51%	28.34%	26.89%
Russell 2500 Index	2.45%	28.21%	25.48%
<b>International Equity Fund</b>	<b>0.72%</b>	<b>20.49%</b>	<b>18.10%</b>
Mondrian ACWI ex-US Value	1.26%	23.33%	7.40%
Baillie Gifford ACWI ex-US Growth	0.22%	17.77%	29.03%
MSCI ACWI ex US	0.22%	19.84%	13.95%

## Investment Manager Returns

The table below details the rates of return for the fund's investment managers over various time periods ended January 31, 2021. 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 January 31, 2021

	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
<b>Tier 2: Active (Net of Fee)</b>				
<b>Stable Value Fund</b>	<b>2.43%</b>	<b>2.25%</b>	<b>2.13%</b>	<b>2.29%</b>
3 Yr Constant Maturity Yield	1.55%	1.46%	1.32%	1.08%
T-Bill + 1.5%	3.07%	2.70%	2.37%	2.14%
<b>Fixed Income Fund</b>	<b>6.61%</b>	<b>5.31%</b>	<b>4.60%</b>	<b>4.48%</b>
Blmbg Barclays Aggregate	5.49%	4.00%	3.76%	3.75%
TCW Core Plus	6.53%	-	-	-
Blmbg Barclays Aggregate	5.49%	4.00%	3.76%	3.75%
Prudential Core Plus	6.76%	6.10%	-	-
Blmbg Barclays Aggregate	5.49%	4.00%	3.76%	3.75%
<b>Inflation Responsive Fund</b>	<b>3.46%</b>	<b>6.03%</b>	<b>3.23%</b>	<b>-</b>
Inflation Responsive Benchmark	3.08%	4.20%	1.65%	1.44%
<b>Large Cap Core Equity Fund</b>	<b>13.11%</b>	<b>-</b>	<b>-</b>	<b>-</b>
Russell 1000 Index	12.48%	16.69%	13.43%	13.64%
Hotchkis & Wiley Large Cap Value	3.20%	12.41%	9.07%	10.77%
Russell 1000 Value Index	4.41%	10.71%	8.62%	10.15%
Macquarie Large Cap Value	3.78%	10.09%	-	-
Russell 1000 Value Index	4.41%	10.71%	8.62%	10.15%
Sands Capital Large Cap Growth	29.71%	28.20%	19.36%	19.83%
Russell 1000 Growth Index	19.92%	22.22%	17.90%	16.83%
Loomis Sayles Large Cap Growth	15.85%	20.51%	-	-
Russell 1000 Growth Index	19.92%	22.22%	17.90%	16.83%
<b>Small/Mid Cap Equity Fund</b>	<b>9.09%</b>	<b>-</b>	<b>-</b>	<b>-</b>
Russell 2500 Index	11.11%	16.11%	10.92%	12.09%
Earnest Partners Small/Mid Cap Value	9.73%	16.65%	11.85%	12.18%
Russell 2500 Value Index	4.66%	11.31%	7.58%	9.40%
Wedge Small/Mid Cap Value	1.42%	9.22%	6.99%	-
Russell 2500 Value Index	4.66%	11.31%	7.58%	9.40%
Brown Advisory Small/Mid Cap Growth	18.08%	20.13%	14.06%	14.54%
Russell 2500 Growth Index	19.07%	21.85%	14.85%	15.19%
<b>International Equity Fund</b>	<b>5.47%</b>	<b>12.22%</b>	<b>7.73%</b>	<b>6.86%</b>
Mondrian ACWI ex-US Value	0.92%	7.70%	4.70%	4.59%
Baillie Gifford ACWI ex-US Growth	10.33%	17.02%	11.07%	9.52%
MSCI ACWI ex US	3.08%	10.52%	5.56%	4.84%

December 31, 2020



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

**Investment Measurement Service  
Quarterly Review**

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**December 31, 2020**

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**U.S. EQUITY**

**Record highs in 2020**

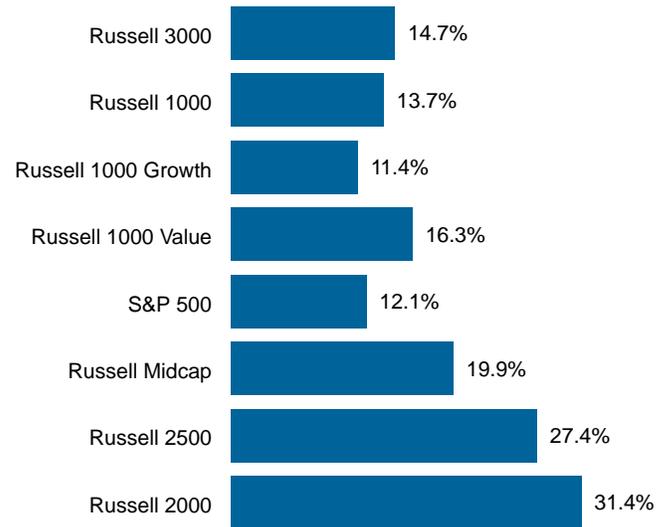
The S&P 500 Index hit a record high in 4Q20. The Index was up 12.1% for the quarter, bringing the 2020 gain to 18.4%.

- Since its March low, the S&P is up over 70%, with all sectors posting increases greater than 40%.
- 4Q winner: Energy (+28%), but down 34% for the year
- Top 2020 sector: Technology with 44% gain (+12% in 4Q)
- Pandemic has cast a pall over certain sectors while rewarding others: online retail soared 69% in 2020, while hotels/cruise lines, airlines, and retail REITs dropped ~30%.
- Apple, Microsoft, Amazon, Facebook, and Alphabet made up 22% of S&P 500 market cap at year-end, and for 2020, accounted for 12.1% of 18.4% Index return.

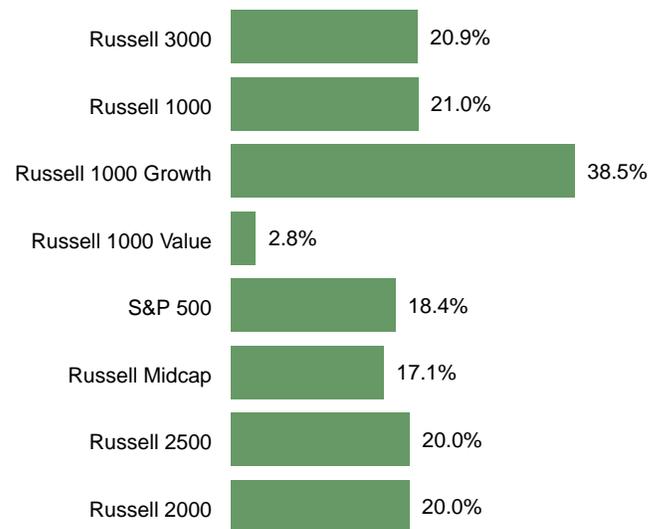
**Anti-momentum rally**

- In 4Q, value outperformed growth across the cap spectrum driven by vaccine progress, political clarity, and further stimulus. For the year, however, value trails growth by a significant margin due to Tech's outperformance.
- Fueled by the prospect of an economic recovery, small cap outperformed large in 4Q but was even on the year. Small value was the best performer for the quarter, but 2020 gain is a mere 4.6%.
- 4Q experienced a shift in YTD 2020 trends, attributed to expectations of broader economic recovery from the vaccine roll-out and the presidential election outcome.
- Cyclical sectors such as Energy, Financials, Industrials, and Materials outperformed during the quarter.
- Although stocks with the highest P/E's significantly outperformed for the year, the trend shifted after the vaccine announcement and stocks with zero earnings estimates or P/E's less than 10 shot up.

**U.S. Equity: Quarterly Returns**

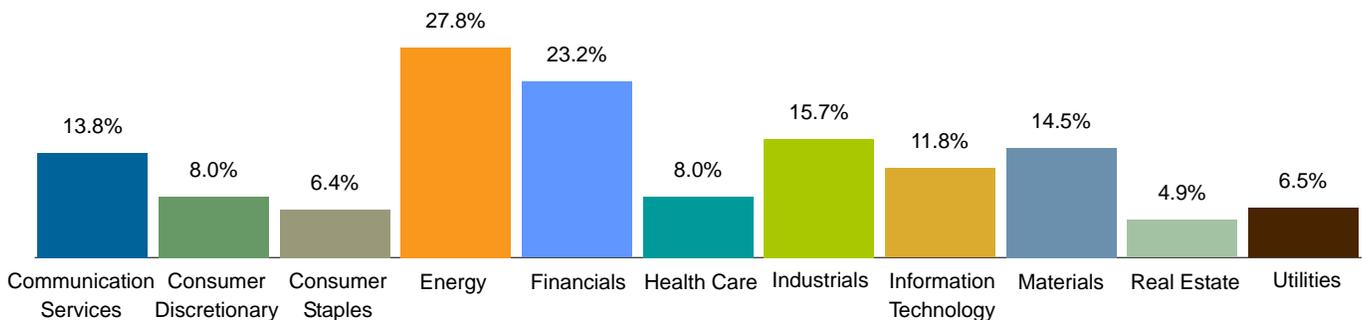


**U.S. Equity: One-Year Returns**



Sources: FTSE Russell, S&P Dow Jones Indices

**S&P Sector Returns, Quarter Ended December 31, 2020**



Source: S&P Dow Jones Indices

**GLOBAL/GLOBAL EX-U.S. EQUITY**

**Vaccine rollouts extend and expand risk-on rally**

- Prospects of global economic recovery propelled by COVID-19 vaccination fueled double-digit returns broadly across developed and emerging markets.
- Expectations of reverting back to normal economic activity by late 2021 enabled risk assets to thrive.
- Emerging markets outperformed developed markets, led by Latam—specifically Brazil.
- Small cap outperformed large as business confidence improved with news of vaccination.

**Market rotates to cyclicals**

- Positive outlook on reflation trade stoked Energy, Materials, and Financials to drive the market.
- Beta and volatility led factor performance due to market rotation.

**U.S. dollar vs. other currencies**

- U.S. dollar continued to lose ground as appetite for risk increased with the expectation that a path to global economic recovery is on the horizon.

**Growth vs. value**

- Value topped growth as sentiment shifted to cyclical sectors.

**4Q20 belonged to value; does it have staying power?**

- COVID-19 benefited value as the quarter brought news of successful vaccines.
- Financials, Travel, and Energy rebounded
- MSCI World Growth (+12.4%) trailed MSCI World Value (+15.2%) over the three-month period.
- Even with this divergence of style in 4Q20, growth still outpaced value globally by over 35% for the full year.

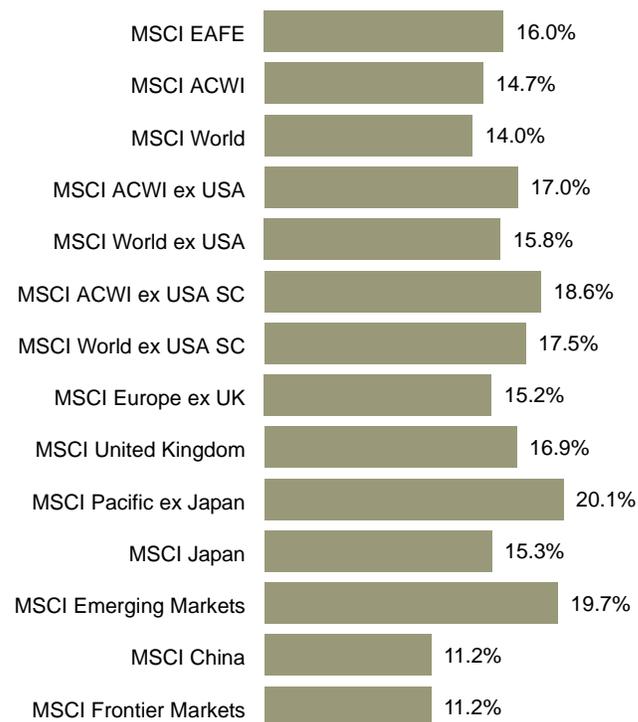
**Potential tailwinds for value**

- Higher interest rates on the heels of potentially higher inflation with government stimulus and businesses reopening
- Continued rebound of discretionary spending in areas neglected in 2020 as markets reopen: lodging, travel

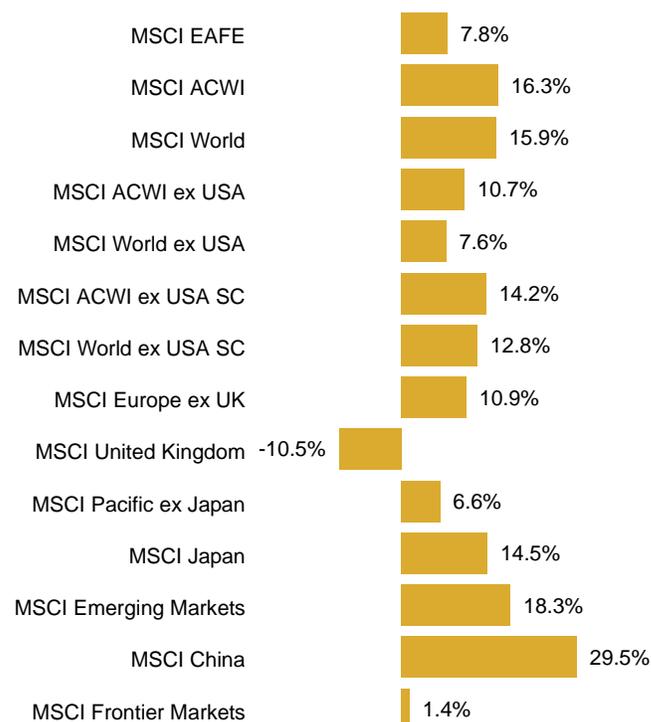
**The good news**

- Recent dollar weakness supports emerging markets.
- Could continue in 2021—wider U.S. fiscal deficit plus stronger emerging market currencies on the heels of higher growth

**Global Equity: Quarterly Returns**



**Global Equity: One-Year Returns**



Source: MSCI

**U.S. FIXED INCOME**

**Treasury yields rose**

- The 10-year U.S. Treasury yield closed 4Q20 at 0.93%, up 24 bps from 3Q20 but off from the year-end level of 1.92%.
- TIPS outperformed nominal U.S. Treasuries as 10-year breakeven spreads widened from 163 bps to 199 bps.
- No rate hikes are expected until at least 2023.

**Bloomberg Barclays Aggregate gained slightly**

- Corporate credit outperformed treasuries as investors continued to hunt for yield.
- Corporate credit ended the year up 9.9% despite record issuance in 2020.

**High yield bonds gained on the quarter as rally extended**

- High yield bonds outperformed IG in 4Q, returning 6.5%, but trailed IG for the year.
- Leveraged loans gained 3.8% as demand remained strong to finish the year.

**Munis boosted by favorable supply/demand dynamics**

- Municipals outperformed Treasuries for the quarter, but remained down for the year.
- Tax-exempt issuance was muted amid strong demand.
- Lower quality outperformed for the quarter; however, higher quality outperformed for the year.

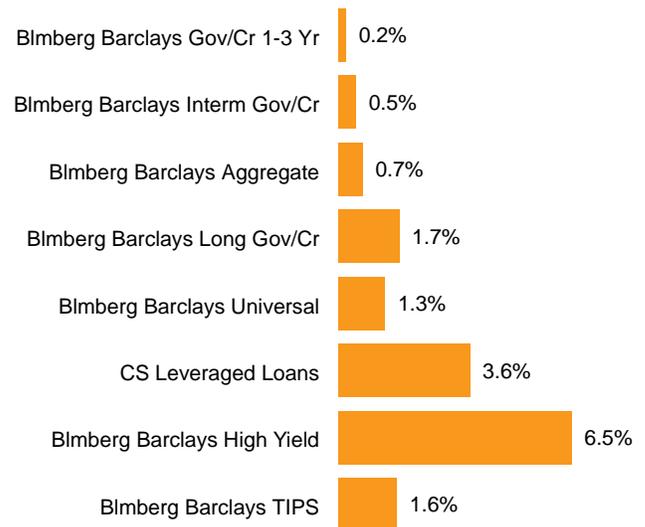
**U.S. credit attractive to non-U.S. investors**

- Central banks globally are adopting a “lower for longer” mindset toward rates.
- 89% of positive yields globally are in the U.S., spurring demand for U.S. corporate credit.
- Lower LIBOR rates have decreased currency hedging costs; combined with a steep Treasury curve, that makes U.S. credit attractive to non-U.S. investors.

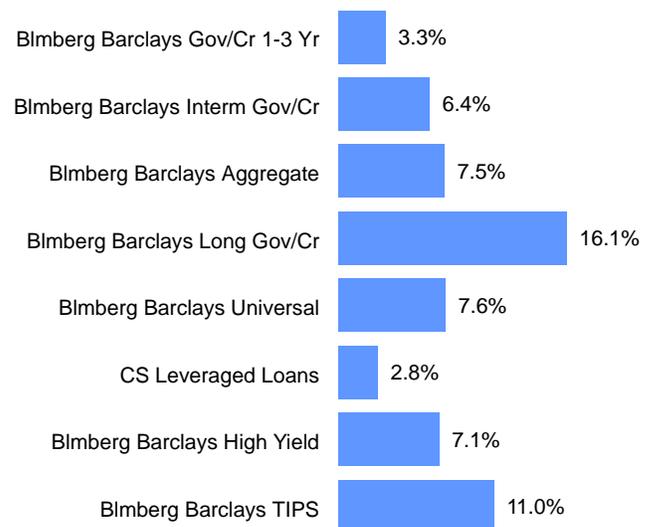
**Implications of U.S. rates rising in 4Q**

- U.S. Treasury rates rose in 4Q, most notably in the intermediate and long portions of the yield curve.
- As Democrats won both seats in the Georgia run-off, greater fiscal stimulus is likely. This may lead to further steepening of the yield curve and increased inflation expectations.
- A rising rate environment opens opportunities for floating-rate securities like leveraged loans, and makes securities with shorter durations such as securitized credit more attractive.

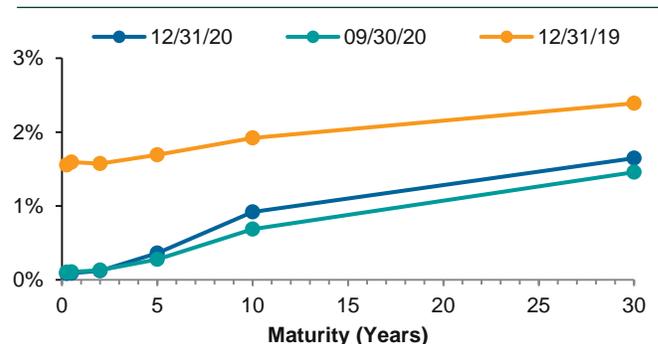
**U.S. Fixed Income: Quarterly Returns**



**U.S. Fixed Income: One-Year Returns**



**U.S. Treasury Yield Curves**



Sources: Bloomberg, Bloomberg Barclays, Credit Suisse

**GLOBAL FIXED INCOME**

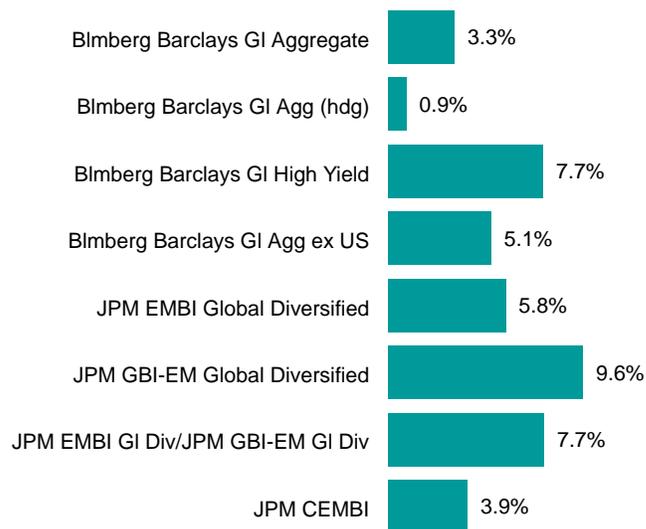
**Global fixed income rose amid monetary backdrop**

- Low rates and asset purchase programs continued to prop up the global bond market.
- Broad-based U.S. dollar weakness resulting from continued confidence in risk assets dampened hedged returns as the USD lost 4.27% versus the euro, 5.43% versus the British pound, and 2.02% versus the yen.

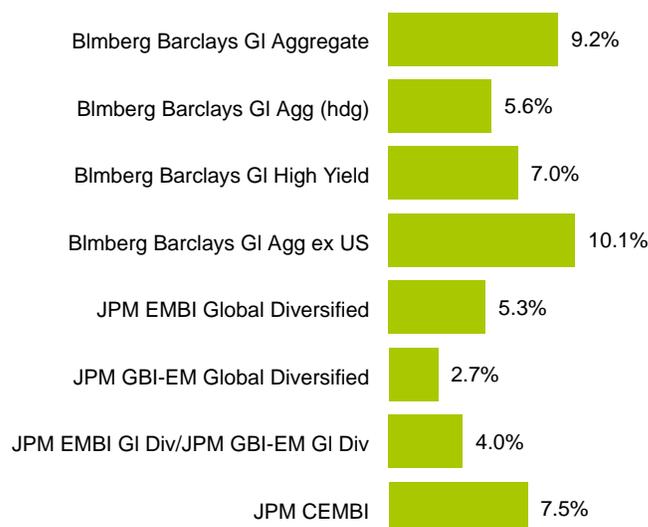
**Emerging market debt ended the year positive**

- Emerging market debt indices gained in 4Q20, finishing the year in positive territory amid a global search for yield and renewed growth expectations.
- U.S. dollar-denominated index (EMBI Global Diversified) underperformed local currency emerging market debt as U.S. rates rose; returns were mixed across the 70+ constituents.
- Local currency index (GBI-EM Global Diversified) was up significantly, with broad-based gains across constituents.

**Global Fixed Income: Quarterly Returns**



**Global Fixed Income: One-Year Returns**



**Change in 10-Year Global Government Bond Yields**

**3Q20 to 4Q20**



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 <sup>1</sup>	NC Budget <sup>2</sup>	Total Estimated Expense (%)	Total Estimated Expenses (\$) <sup>3</sup>	Callan Median Expense <sup>4</sup>	Difference
<b>North Carolina Stable Value Fund</b>	<b>\$2,356,246,842</b>	<b>0.273%</b>	<b>0.0017%</b>	<b>0.025%</b>	<b>0.30%</b>	<b>\$7,052,247</b>	<b>0.33%</b>	<b>-0.03%</b>
Galliard	\$2,360,523,758	0.273%	0.0000%			\$6,434,788	0.28%	-0.01%
<b>North Carolina Fixed Income Passive Fund</b>	<b>\$111,499,928</b>	<b>0.020%</b>	<b>0.0226%</b>	<b>0.025%</b>	<b>0.07%</b>	<b>\$75,374</b>	<b>0.10%</b>	<b>-0.03%</b>
Blackrock	\$111,499,928	0.020%	0.0100%			\$22,300	0.02%	0.00%
<b>North Carolina Fixed Income Fund</b>	<b>\$2,131,038,823</b>	<b>0.124%</b>	<b>0.0102%</b>	<b>0.025%</b>	<b>0.16%</b>	<b>\$3,388,352</b>	<b>0.39%</b>	<b>-0.23%</b>
50% TCW	\$1,062,952,539	0.138%	0.0000%			\$1,462,623	0.21%	-0.07%
50% Prudential	\$1,068,086,328	0.110%	0.0100%			\$1,174,895	0.21%	-0.10%
<b>North Carolina Inflation Sensitive Fund</b>	<b>\$484,822,787</b>	<b>0.090%</b>	<b>0.0152%</b>	<b>0.025%</b>	<b>0.13%</b>	<b>\$631,239</b>	<b>0.83%</b>	<b>-0.70%</b>
Blackrock	\$484,822,780	0.090%	0.0100%			\$436,341	0.75%	-0.66%
<b>North Carolina Large Cap Passive Fund</b>	<b>\$3,308,819,796</b>	<b>0.005%</b>	<b>0.0115%</b>	<b>0.025%</b>	<b>0.04%</b>	<b>\$1,373,160</b>	<b>0.17%</b>	<b>-0.13%</b>
Blackrock	\$3,308,819,796	0.005%	0.0100%			\$165,441	0.03%	-0.03%
<b>North Carolina Large Cap Core Fund</b>	<b>\$2,240,963,965</b>	<b>0.281%</b>	<b>0.0090%</b>	<b>0.025%</b>	<b>0.31%</b>	<b>\$7,052,314</b>	<b>0.64%</b>	<b>-0.33%</b>
18.75% Hotchkis & Wiley	\$419,068,045	0.400%	0.0000%			\$1,676,272	0.39%	0.01%
18.75% Macquarie Large Cap Value	\$419,167,982	0.266%	0.0000%			\$1,113,310	0.39%	-0.12%
18.75% Sands Capital Management	\$428,019,945	0.450%	0.0000%			\$1,926,090	0.43%	0.02%
18.75% Loomis Sayles	\$418,608,358	0.369%	0.0000%			\$1,545,921	0.43%	-0.06%
25% BlackRock Advisors Inc., Large Cap Index*	\$556,099,642	0.005%	0.0100%			\$27,805	0.03%	-0.03%
<b>North Carolina SMID Cap Passive Fund</b>	<b>\$366,056,604</b>	<b>0.005%</b>	<b>0.0156%</b>	<b>0.025%</b>	<b>0.05%</b>	<b>\$166,922</b>	<b>0.17%</b>	<b>-0.12%</b>
Blackrock	\$366,056,604	0.005%	0.0100%			\$18,303	0.03%	-0.03%
<b>North Carolina SMID Cap Core Fund</b>	<b>\$1,004,970,789</b>	<b>0.310%</b>	<b>0.0180%</b>	<b>0.025%</b>	<b>0.35%</b>	<b>\$3,548,552</b>	<b>0.85%</b>	<b>-0.50%</b>
23.75% Earnest Partners	\$235,330,930	0.470%	0.0000%			\$1,106,055	0.66%	-0.19%
23.75% Wedge	\$236,379,593	0.448%	0.0000%			\$1,059,217	0.66%	-0.21%
23.75% Brown Advisory	\$244,125,331	0.038%	0.0000%			\$93,720	0.72%	-0.68%
28.75% BlackRock Advisors Inc., SMID Index*	\$289,134,944	0.005%	0.0100%			\$14,457	0.03%	-0.03%
<b>North Carolina International Passive Fund</b>	<b>\$90,027,509</b>	<b>0.021%</b>	<b>0.0384%</b>	<b>0.025%</b>	<b>0.08%</b>	<b>\$75,983</b>	<b>0.13%</b>	<b>-0.05%</b>
Blackrock	\$90,027,509	0.021%	0.0200%			\$18,906	0.08%	-0.06%
<b>North Carolina International Equity</b>	<b>\$2,170,879,309</b>	<b>0.321%</b>	<b>0.0258%</b>	<b>0.025%</b>	<b>0.37%</b>	<b>\$8,073,500</b>	<b>0.81%</b>	<b>-0.44%</b>
50% Baillie Gifford Growth	\$1,088,020,393	0.257%	0.0000%			\$2,794,036	0.51%	-0.25%
50% Mondrian Investment Partners Value	\$1,081,777,644	0.386%	0.0000%			\$4,170,253	0.52%	-0.13%
<b>North Carolina TIPS Fund</b>	<b>\$311,418,827</b>	<b>0.025%</b>	<b>0.0104%</b>	<b>0.025%</b>	<b>0.06%</b>	<b>\$188,097</b>	<b>0.16%</b>	<b>-0.10%</b>
Blackrock	\$311,418,827	0.025%	0.0000%			\$77,855	0.14%	-0.12%
<b>Total</b>	<b>\$14,576,745,179</b>	<b>0.174%</b>	<b>0.0162%</b>	<b>0.025%</b>	<b>0.22%</b>	<b>\$31,625,740</b>	<b>0.27%</b>	

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

<sup>1</sup> Based on annualized monthly fee accruals as of 12/31/2020

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

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

<sup>4</sup> 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

<b>Large Cap Equity</b>									
	3 Years to 12/31/2020		3 Years to 09/30/2020		3 Years to 06/31/2020		3 Years to 03/31/2020		5 Year Risk
	Above Benchmark	Above Peer Median							
Hotchkis & Wiley Large Cap Value									
Macquarie Large Cap Value									
Sands Capital Large Cap Growth									
Loomis Large Cap Growth									
<b>Small/Mid Cap</b>									
	3 Years to 12/31/2020		3 Years to 09/30/2020		3 Years to 06/31/2020		3 Years to 03/31/2020		5 Year Risk
	Above Benchmark	Above Peer Median							
EARNEST Partners SMID Cap Value									
WEDGE SMID Cap Value									
Brown Advisory									
<b>International Equity</b>									
	3 Years to 12/31/2020		3 Years to 09/30/2020		3 Years to 06/31/2020		3 Years to 03/31/2020		5 Year Risk
	Above Benchmark	Above Peer Median							
Baillie Gifford ACWI ex US Growth									
Mondrian ACWI ex US Value									
<b>Fixed Income</b>									
	3 Years to 12/31/2020		3 Years to 09/30/2020		3 Years to 06/31/2020		3 Years to 03/31/2020		5 Year Risk
	Above Benchmark	Above Peer Median							
TCW Core Plus*									
Prudential Core Plus									
<b>Stable Value</b>									
	3 Years to 12/31/2020		3 Years to 09/30/2020		3 Years to 06/31/2020		3 Years to 03/31/2020		5 Year Risk
	Above Benchmark	Above Peer Median							
Stable Value									

\*Composite returns used to populate history

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

<b>Large Cap Equity</b>									
	5 Years to 12/31/2020		5 Years to 09/30/2020		5 Years to 06/30/2020		5 Years to 03/31/2020		
	Above Benchmark	Above Peer Median	5 Year Risk						
Hotchkis & Wiley Large Cap Value									
Macquarie Large Cap Value*									
Sands Capital Large Cap Growth									
Loomis Large Cap Growth*									
<b>Small/Mid Cap</b>									
	5 Years to 12/31/2020		5 Years to 09/30/2020		5 Years to 06/30/2020		5 Years to 03/31/2020		
	Above Benchmark	Above Peer Median	5 Year Risk						
EARNEST Partners SMID Cap Value									
WEDGE SMID Cap Value									
Brown Advisory									
<b>International Equity</b>									
	5 Years to 12/31/2020		5 Years to 09/30/2020		5 Years to 06/30/2020		5 Years to 03/31/2020		
	Above Benchmark	Above Peer Median	5 Year Risk						
Baillie Gifford ACWI ex US Growth									
Mondrian ACWI ex US Value									
<b>Fixed Income</b>									
	5 Years to 12/31/2020		5 Years to 09/30/2020		5 Years to 06/30/2020		5 Years to 03/31/2020		
	Above Benchmark	Above Peer Median	5 Year Risk						
TCW Core Plus*									
Prudential Core Plus									
<b>Stable Value</b>									
	5 Years to 12/31/2020		5 Years to 09/30/2020		5 Years to 06/30/2020		5 Years to 03/31/2020		
	Above Benchmark	Above Peer Median	5 Year Risk						
Stable Value									

\*Composite returns used to populate history

Manager Assessment

	Organization	People	Process and Philosophy	Product Dynamics	Short Term Performance	Long Term Performance	Overall	<u>OVERALL STATUS</u>	<u>NOTES</u>
<b>LARGE CAP CORE</b>									
BlackRock	●	●	●	●	●	●	●	Satisfactory	
<b>LARGE CAP VALUE</b>									
Hotchkis & Wiley Large Cap Fundamental Value	●	●	●	●	●	●	●	Satisfactory	Organization and personnel stable following 1Q20 market dislocation; large relative underperformance in 1Q20 followed by large relative outperformance in 4Q20; portfolio slightly behind index for 2020. Results also lag index over trailing 1 and 3 year periods, driven by overweight to more cyclical industries/sectors and greater exposure to value factor headwinds. Results are within expectations given process.
Macquarie Large Cap Value Focus	●	●	●	●	●	●	●	Cautionary	In December 2020, Macquarie acquired Waddell & Reed Financial and entered into a long-term partnership with LPL Financial. Lead PM Ty Nutt retired in July 2019, transitioned role to Nik Lalvani; continuing to monitor the team, process, and performance. Macquarie promoted Associate PM Erin Ksenak to PM in December 2020, making her the fourth voting member on the team. They also promoted analyst Vincent Celentano to Associate PM. Cautionary on short-term performance as the portfolio has underperformed the RU1V in the last two years. Stock selection and allocation to Energy was the main detractor during the last two years, and an underweight to Financials detracted in the second half of 2020.
<b>LARGE CAP GROWTH</b>									
Loomis Sayles Large Cap Growth	●	●	●	●	●	●	●	Satisfactory	Below benchmark returns in both 2019 and 2020 have weighed on trailing short-term performance numbers.
Sands Capital Management Select Growth	●	●	●	●	●	●	●	Satisfactory	Firm remains stable and in good financial condition. Current four-person PM team in place for three years (10/17). Very strong performance as concentrated, high growth, disruption/innovation continue to be rewarded in the market. Short and long-term results top decile.
<b>SMID CAP CORE</b>									
BlackRock	●	●	●	●	●	●	●	Satisfactory	

● Positive status; no issues ● Notable status; noteworthy item with no concerns ● Cautionary status; noteworthy item & monitoring closely ● Under Review status; noteworthy item with concerns

*Product Dynamics:* reflects noteworthy highlights of the portfolio and strategy including assets and portfolio characteristics.  
*Short-Term Performance:* reflects periods of three years and under with a focus on whether or not the manager is performing within expectations.  
*Long-Term Performance:* reflects periods of five years and longer with a focus on whether or not the manager is performing within expectations.

Manager Assessment

	Organization	People	Process and Philosophy	Product Dynamics	Short Term Performance	Long Term Performance	Overall	<u>OVERALL STATUS</u>	<u>NOTES</u>
<b>SMID CAP VALUE</b>									
EARNEST Partners SMID Value	●	●	●	●	●	●	●	Satisfactory	Portfolio slightly lagged index 4Q20 but produced large relative outperformance in 2020, outpacing index and peers. Positive attribution was due to stock selection in Health Care and Technology and avoiding stocks with cyclical exposure; short- and long-term results outpace benchmark over multiple trailing periods. Portfolio market cap tends to be larger than benchmark and peers but within expectations.
WEDGE Capital US SMID Cap Value	●	●	●	●	●	●	●	Satisfactory <i>(on NC watch list)</i>	In November 2020, Brian Pratt, co-lead of mid cap research, left the firm due to a serious health issue. Andrew Rosenberg, lead of the large cap team, joined Mike Ritzer as the new co-lead of mid cap research. Stable 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), value style headwinds, and underperformance of quality factors in 2020.
<b>SMID CAP GROWTH</b>									
Brown Advisory US SMID Cap Growth	●	●	●	●	●	●	●	Satisfactory	Portfolio significantly underperformed the Russell 2000 Growth Index in 4Q20 due to a larger cap and quality bias. The fund outperformed the benchmark over trailing 3/5/7 periods. Notable strategy AUM above \$6.0 billion and holdings (81) at an all-time high (previously 79) - notable but not actionable.
<b>INTERNATIONAL EQUITY</b>									
Baillie Gifford ACWI Ex-US Alpha	●	●	●	●	●	●	●	Satisfactory	The depth and breadth of the team enabled a seamless transition after the retirements of PMs Andrew Strathdee and Jonathan Bates in 2019. The strategy is expected to perform well in up markets while protecting on the downside due to the quality growth process employed. The long-term investment horizon of the team has shown to add significant alpha over time.
BlackRock	●	●	●	●	●	●	●	Satisfactory	

● Positive status; no issues ● Notable status; noteworthy item with no concerns ● Cautionary status; noteworthy item & monitoring closely ● Under Review status; noteworthy item with concerns

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

Manager Assessment

	Organization	People	Process and Philosophy	Product Dynamics	Short Term Performance	Long Term Performance	Overall	<b>OVERALL STATUS</b>	<b>NOTES</b>
Mondrian Investment Partners Focused ACWI Ex-US	●	●	●	●	●	●	●	Satisfactory <i>(on NC watch list)</i>	Hamish Parker, who serves as chair on the ESG Steering Committee, plans to retire in the first quarter of 2021. Alex Simcox, senior portfolio manager on the international strategy, will assume Parker's role as chair. Liz Desmond appointed Deputy CEO in 2018; Desmond's day to day responsibilities did not change and she continues to manage the International Equity group and portfolios. The value-oriented process and its ability to protect in down markets are still intact, as witnessed by historical performance. Notably the strategy is outperforming the value index over annualized time periods.
<b>CORE &amp; CORE PLUS FIXED INCOME</b>									
BlackRock	●	●	●	●	●	●	●	Satisfactory	
PGIM Core Plus Bond	●	●	●	●	●	●	●	Satisfactory	Deep bench of investors leverage a robust risk management process to implement portfolios; strong risk-adjusted performance; focus on structured credit, particularly CLOs, proved to be a major headwind through Q1 2020, however, focus has been at the top of the capital structure where technicals were drivers of returns; David Brown, a vice president on the Agency MBS team, announced retirement in May 2020.
TCW Core Plus	●	●	●	●	●	●	●	Satisfactory	More conservative approach versus Core Plus peers, defensive posture fared well during Q1 2020 volatility; Head of Credit Research, Jamie Farnham, was replaced by special situations analyst Steve Purdy in 2018, transition has been well received. "Notable" status for the organization reflects a cyberattack in June 2020 - TCW's response was swift and they followed the firm's recovery plan. Continuing to monitor AUM growth and any potential impact on consistency of the investment strategy.
<b>INFLATION SENSITIVE</b>									
BlackRock Strategic Completion Fund	●	●	●	●	●	●	●	Satisfactory	

● Positive status; no issues ● Notable status; noteworthy item with no concerns ● Cautionary status; noteworthy item & monitoring closely ● Under Review status; noteworthy item with concerns

*Product Dynamics:* reflects noteworthy highlights of the portfolio and strategy including assets and portfolio characteristics.  
*Short-Term Performance:* reflects periods of three years and under with a focus on whether or not the manager is performing within expectations.  
*Long-Term Performance:* reflects periods of five years and longer with a focus on whether or not the manager is performing within expectations.

Manager Assessment

	Organization	People	Process and Philosophy	Product Dynamics	Short Term Performance	Long Term Performance	Overall	<u>OVERALL STATUS</u>	<u>NOTES</u>
STABLE VALUE									
Galliard Stable Value	●	●	●	●	●	●	●	Under Review (on NC watch list)	Organizational stability remains uncertain. Parent company WF announced planned sale of the asset management division to GTCR and Reverence Capital Partners. Hypothetically if Galliard were to be carved out, it maintains the investment capabilities and front office to stand on its own, however, back office and compliance would need to be rebuilt due to 2019's business realignment. Additional recent organizational changes include the founding partners' retirements in late 2019 and the sale of WF's recordkeeping business which represented a third of the Wells Fargo Stable Return Fund's AUM at the time of sale. The Fund's put queue has increased since the sale. The renegotiation of long-term compensation arrangements was a positive in regards to retaining talent and assets.

● Positive status; no issues   ● Notable status; noteworthy item with no concerns   ● Cautionary status; noteworthy item & monitoring closely   ● 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.

### **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.

Performance in down markets has been mixed more recently as the selloff in Q1 of 2020 was unlike past market downturns. Different from past downturns, the more speculative and expensive stocks held their value, while lower priced stocks with better fundamentals sold off more in the first quarter. While Mondrian's underperformance year-to-date is disappointing, it is to be expected given their value oriented and defensive style. However, all eyes are on performance should markets rotate back to more valuation sensitive approaches. The growth style of investing has 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 remains cautionary in light of the recent performance and modest AUM decline.

During the fourth quarter of 2020, Mondrian outperformed the benchmark with a return of 19.97% versus the benchmark return of 17.01%. Portfolio returns exceeded index returns, driven by positive stock selection. The portfolio benefitted from the overweight positions in the strong Italian and Spanish equity markets. Strong stock selection in Germany, Spain and China added to relative returns. The overweight position in the strong energy sector and the underweight position in the relatively weak consumer staples sector were only partially offset by the overweight position in the relatively weak communication services sector. Stock selection within sectors added to relative returns, driven by returns from holdings in the consumer discretionary and financials sectors. The underweight position in the strong Australian dollar weighed on relative returns.

### **WEDGE Smid Cap Value – Virtual Onsite Update**

Both Callan and NCSRP Staff regularly meet with WEDGE to review the organization, team, and to discuss positioning and performance of the SMID Value strategy. Recognizing the Board recently adopted a new SMID Equity Fund structure that increases the allocations to active equity managers, the NCSRP Board requested additional due diligence be conducted with the WEDGE team and a recommendation to retain or terminate the WEDGE. On January 20, 2020, members of Callan Global Manager Research (Mark Stahl, CFA, Irina Sushch, CFA, David Wang), the Callan Consulting team (Weston Lewis, CFA, CAIA, Elizabeth Hood, CFA, and Lisa Pickelsimer), and NCSRP Staff (Loren de Mey) met with team members from Wedge (Don Cleven – Head of SC Research; Andrew Rosenberg – Co-head of MC Research; Mike Ritzer – Co-head of MC Research; Darrin Witt – Financials Sector Research; John Norman – Client PM; John Carr – Client PM). The virtual “on-site” discussion confirmed that the organization remains stable and despite recent performance challenges, WEDGE continues to execute the strategy NCSRP hired them to manage and remains appropriate for participants and their beneficiaries. **Callan recommends retaining Wedge and keeping the SMID Value strategy on the watch list.**

### **WEDGE Overview**

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 portfolios. 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.

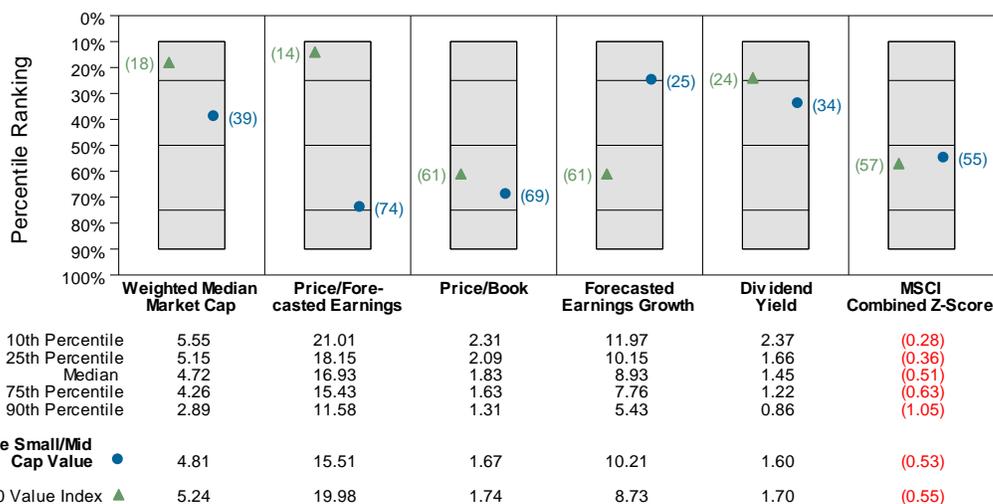
On Nov 3, 2020, WEDGE announced Brian Pratt, General Partner, would be stepping down as a result of a medical issue. Callan believes the departure is notable, but is not cause for immediate action due to the team approach and experience/tenure of remaining team members at WEDGE. The Smid Value strategy is supported by nine investment team members, including three that also support the Large Cap Value strategies. WEDGE drew from the large cap team for Pratt’s replacement as institutional demand for active large cap strategies continue to wane. While the team remains well-resourced, there have been more departures than additions in the last five years, at a time when the firm’s asset base and number of accounts has come down as well.

Callan has been monitoring assets under management for the firm in general and SMID Value strategy in particular. The firm manages approximately \$11 billion in assets for 203 clients as of 12/31/2020, and 97% of their client base is institutional. Net flows for 2020 were positive for the SMID Value strategy, up \$60 million, though Small Cap Value and Mid Cap Value saw modest outflows from newer client relationships. Overall, AUM for this strategy remains stable and at levels viable to support the organization.

**Performance**

While performance over the last three years has been disappointing, they remain in line with expectations in light of the market environment over this time. There have been both errors of omission and errors of commission over the time frame in question. A notable detractor within the utilities sector was PG&E, which was sold in mid-January 2020 prior to the bankruptcy filing. Some errors of omission, include WEDGE's quality and valuation emphasis. In addition to more traditional valuation metrics (low price/earnings), the strategy also emphasizes quality components, such as earnings consistency and return on invested capital (ROIC). Characteristics for 12/31/20 are below, but the current portfolio holdings are forecasted to grow earnings at a 17% premium relative to the index (10.21 vs 8.73), while offering a near 29% discount (P/E of 15.51 vs 19.98).

**Portfolio Characteristics Percentile Rankings  
 Rankings Against Callan Small/MidCap Value  
 as of December 31, 2020**



These characteristics were a notable headwind in 2020 (and prior years) where lower quality and higher valuations were in favor. The chart below demonstrates how the two cheapest quintiles in the index had negative returns in 2020. It is also important to note how well companies with negative earnings performed.

Jefferies Factor Analysis	
R2000 PE Quintiles	2020
Q1 (lowest)	-3.5%
Q2	-5.4%
Q3	6.8%
Q4	14.3%
Q5	32.1%
Non-Earners	52.2%

Jefferies Factor Analysis	
R2000 Value PE Quintiles	2020
Q1 (lowest)	-5.3%
Q2	-7.2%
Q3	-1.9%
Q4	7.0%
Q5	5.7%
Non-Earners	24.4%

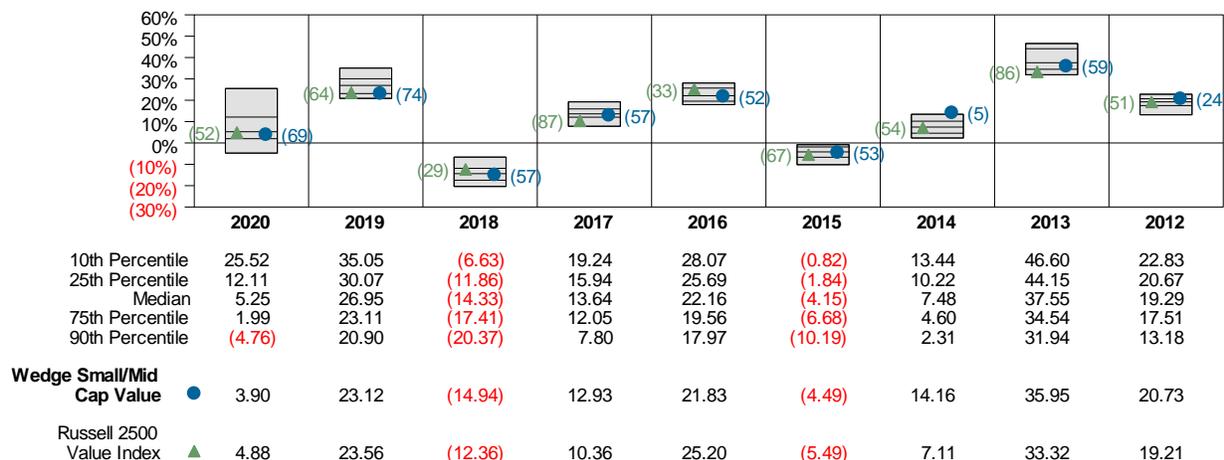
In addition, quality was a notable detractor in 2020. The tables below show that the lowest return on equity, performed better than those with higher return on equity.

Jefferies Factor Analysis	
R2000 ROE Quintiles	2020
Q1 (highest)	19.7%
Q2	-1.8%
Q3	7.1%
Q4	45.9%
Q5	55.5%

Jefferies Factor Analysis	
R2000 Value ROE Quintiles	2020
Q1 (highest)	12.1%
Q2	-7.7%
Q3	-2.9%
Q4	16.8%
Q5	18.4%

From 2012 to 2017, Wedge consistently outperformed the Russell 2500 Value Index 5 of 7 years. Performance has been more challenged over the last 3 years, with modest underperformance each year.

**Performance vs Callan Small/MidCap Value (Gross)**



Given the characteristic and philosophy/process, we believe that some reversion to value and/or quality would be a positive for the strategy.

**Summary**

The WEDGE Smid Value strategy remains an important component of the NC SMID Cap Active equity option. In summary:

- The organization and strategy remain well resourced.
- The investment philosophy and process have been stable over time.
- We believe the potential for future excess returns remain high given the strategies disciplined positioning in cheaper market segments.

## Investment Fund Balances

The table below compares the fund's investment fund balances as of December 31, 2020 with that of September 30, 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 Funds

	December 31, 2020		Net New Invest.	Invest. Return	September 30, 2020	
	Market Value	Weight			Market Value	Weight
<b>North Carolina SRP 401k &amp; 457</b>						
<b>Tier II Passive</b>	<b>\$4,187,822,663</b>	<b>28.73%</b>	<b>\$(5,551,442)</b>	<b>\$456,708,352</b>	<b>\$3,736,665,754</b>	<b>28.32%</b>
Fixed Income Passive	111,499,928	0.76%	640,504	740,601	110,118,822	0.83%
Treasury Inflation Protected	311,418,827	2.14%	22,088,792	4,580,571	284,749,464	2.16%
Large Cap Passive	3,308,819,796	22.70%	(22,237,448)	359,110,744	2,971,946,500	22.52%
International Passive	90,027,509	0.62%	476,448	13,000,123	76,550,938	0.58%
SMID Cap Passive	366,056,604	2.51%	(6,519,739)	79,276,313	293,300,030	2.22%
<b>Tier II Active</b>	<b>\$10,388,922,514</b>	<b>71.27%</b>	<b>\$(44,282,444)</b>	<b>\$974,033,728</b>	<b>\$9,459,171,230</b>	<b>71.68%</b>
Stable Value Fund	2,356,246,842	16.16%	64,915,552	13,335,914	2,277,995,376	17.26%
Fixed Income Fund	2,131,038,823	14.62%	110,673,932	39,093,028	1,981,271,863	15.01%
Inflation Responsive Fund	484,822,787	3.33%	15,794,732	33,867,329	435,160,726	3.30%
Large Cap Core Equity Fund	2,240,963,965	15.37%	(52,632,178)	326,144,597	1,967,451,546	14.91%
International Equity Fund	2,170,879,309	14.89%	(107,272,492)	338,568,229	1,939,583,572	14.70%
Small/Mid Cap Equity Fund	1,004,970,789	6.89%	(75,761,989)	223,024,631	857,708,147	6.50%
<b>Total Fund</b>	<b>\$14,576,745,178</b>	<b>100.0%</b>	<b>\$(49,833,886)</b>	<b>\$1,430,742,080</b>	<b>\$13,195,836,984</b>	<b>100.0%</b>

## Investment Fund Balances

The table below compares the fund's investment fund balances as of December 31, 2020 with that of September 30, 2020.

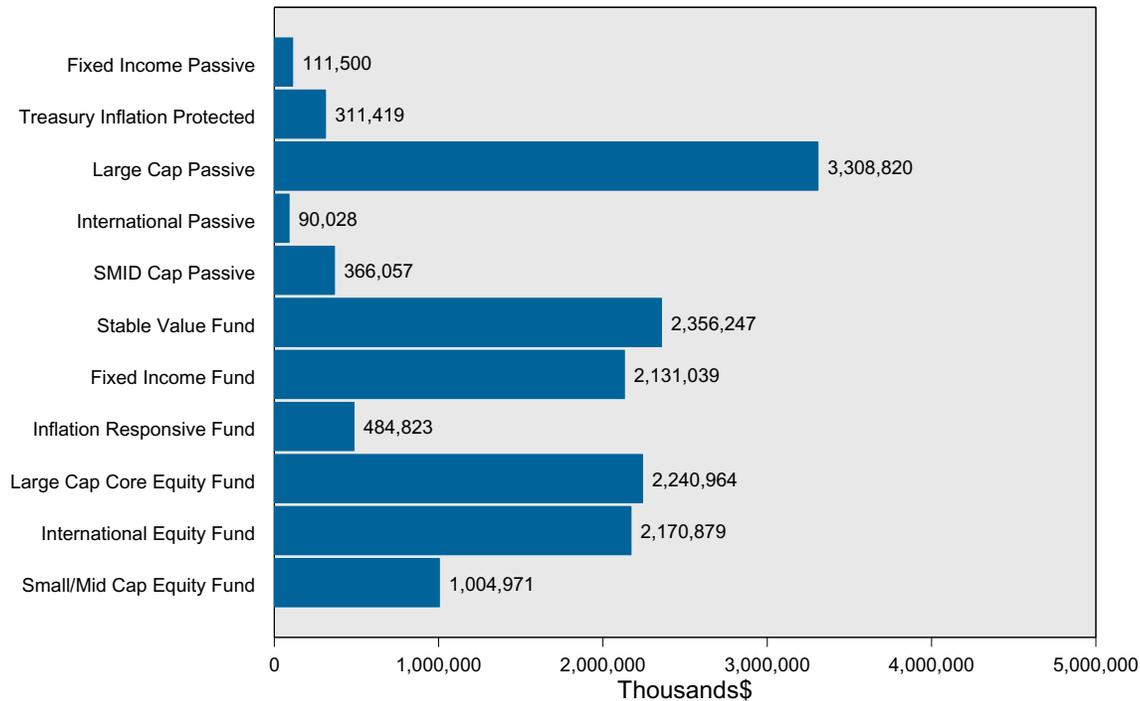
### Asset Distribution Across Investment Funds

	December 31, 2020		September 30, 2020	
	Market Value	Weight	Market Value	Weight
<b>North Carolina SRP 401k &amp; 457</b>				
<b>Tier I: GoalMaker</b>				
Post Retirement Conservative 11+	25,214,091	0.36%	22,902,094	0.36%
Post Retirement Conservative 6-10	103,177,073	1.47%	94,852,680	1.48%
Post Retirement Conservative 0-5	374,429,980	5.35%	345,873,409	5.39%
Pre Retirement Conservative 0-5	331,561,902	4.73%	295,601,344	4.60%
Pre Retirement Conservative 6-10	192,839,126	2.75%	174,402,184	2.72%
Pre Retirement Conservative 11-15	134,233,630	1.92%	121,355,713	1.89%
Pre Retirement Conservative 16-20	98,211,542	1.40%	90,101,662	1.40%
Pre Retirement Conservative 21-25	77,796,197	1.11%	70,379,903	1.10%
Pre Retirement Conservative 26+	98,426,842	1.41%	89,139,803	1.39%
Post Retirement Moderate 11+	27,679,771	0.40%	23,249,977	0.36%
Post Retirement Moderate 6-10	107,786,188	1.54%	97,958,934	1.53%
Post Retirement Moderate 0-5	411,408,156	5.87%	371,212,783	5.78%
Pre Retirement Moderate 0-5	617,884,579	8.82%	573,224,576	8.93%
Pre Retirement Moderate 6-10	615,147,711	8.78%	559,805,635	8.72%
Pre Retirement Moderate 11-15	478,786,600	6.84%	431,552,831	6.72%
Pre Retirement Moderate 16-20	383,358,974	5.47%	343,879,676	5.35%
Pre Retirement Moderate 21-25	275,029,450	3.93%	243,706,561	3.79%
Pre Retirement Moderate 26+	307,310,167	4.39%	270,367,515	4.21%
Post Retirement Aggressive 11+	12,699,819	0.18%	10,915,408	0.17%
Post Retirement Aggressive 6-10	36,458,255	0.52%	127,045,110	1.98%
Post Retirement Aggressive 0-5	151,271,705	2.16%	138,838,092	2.16%
Pre Retirement Aggressive 0-5	313,078,452	4.47%	285,506,529	4.45%
Pre Retirement Aggressive 6-10	443,599,586	6.33%	404,734,565	6.30%
Pre Retirement Aggressive 11-15	435,445,562	6.22%	390,931,526	6.09%
Pre Retirement Aggressive 16-20	412,995,801	5.90%	366,904,426	5.71%
Pre Retirement Aggressive 21-25	280,051,174	4.00%	248,127,756	3.86%
Pre Retirement Aggressive 26+	257,251,139	3.67%	229,899,527	3.58%
<b>Tier I: GoalMaker Total</b>	<b>\$7,003,133,472</b>	<b>100.0%</b>	<b>\$6,422,470,219</b>	<b>100.0%</b>

## Changes in Investment Fund Balances Period Ended December 31, 2020

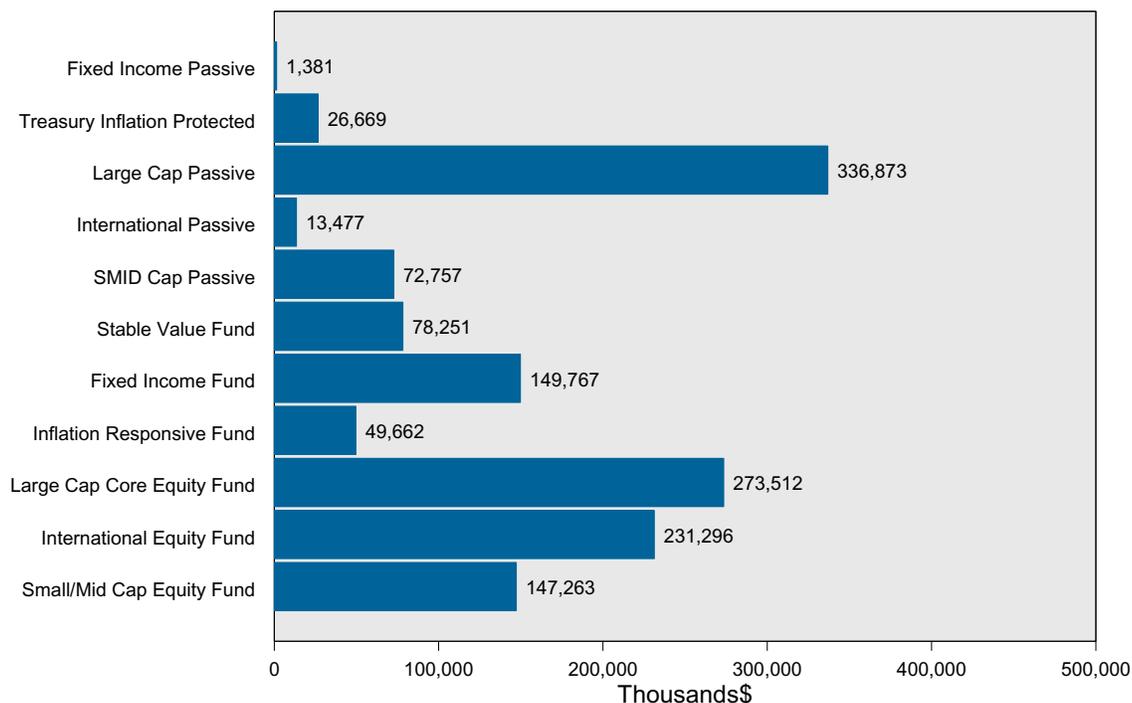
### Allocation Across Investment Options

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

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception
<b>Tier 2: Passive (Net of Fee)</b>									
Fixed Income Passive	0.67%	90	7.48%	90	5.28%	85	4.40%	94	3.52% <sup>(10/10)</sup>
Blmbg Barclays Aggregate	0.67%	90	7.51%	90	5.34%	80	4.44%	83	3.61% <sup>(10/10)</sup>
Callan Core Bond MFs	1.28%		8.65%		5.83%		4.86%		-
Treasury Inflation Protected Securities	1.52%	87	8.44%	70	-		-		5.87% <sup>(7/18)</sup>
Blmbg US TIPS 1-10 Yr	1.60%	78	8.39%	71	4.93%	71	4.13%	72	5.85% <sup>(7/18)</sup>
Callan TIPS MFs	1.87%		10.29%		5.56%		4.88%		-
Large Cap Passive	12.16%	55	18.43%	35	14.21%	26	15.22%	22	16.40% <sup>(4/09)</sup>
S&P 500 Index	12.15%	55	18.40%	35	14.18%	27	15.22%	22	16.48% <sup>(4/09)</sup>
Callan Large Cap Core MFs	12.67%		14.87%		11.69%		13.58%		-
International Passive	17.03%	44	10.86%	52	5.13%	45	9.31%	39	9.38% <sup>(4/09)</sup>
MSCI ACWI ex US	17.01%	45	10.65%	53	4.88%	48	8.93%	40	9.31% <sup>(4/09)</sup>
Callan Non US Equity MFs	16.48%		11.12%		4.48%		7.75%		-
SMID Cap Passive	27.39%	25	19.80%	12	11.22%	13	13.56%	15	16.33% <sup>(4/09)</sup>
Russell 2500 Index	27.41%	24	19.99%	12	11.33%	12	13.64%	15	16.40% <sup>(4/09)</sup>
Callan SMID Core MFs	24.92%		10.24%		7.13%		10.73%		-

## 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 December 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 December 31, 2020

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
<b>Tier 2: Active (Net of Fee)</b>										
<b>Stable Value Fund</b>	<b>0.57%</b>	<b>3</b>	<b>2.41%</b>	<b>1</b>	<b>2.43%</b>	<b>1</b>	<b>2.25%</b>	<b>2</b>	<b>2.52%</b>	(7/09)
3 Yr US Treas Rolling	0.05%	99	0.34%	99	1.61%	86	1.48%	87	1.10%	(7/09)
T-Bill + 1.5%	0.40%	38	2.17%	5	3.11%	1	2.70%	1	2.07%	(7/09)
Callan Stable Value CT	0.38%		1.75%		1.92%		1.73%		-	
<b>Fixed Income Fund</b>	<b>1.92%</b>	<b>61</b>	<b>9.55%</b>	<b>25</b>	<b>6.53%</b>	<b>14</b>	<b>5.71%</b>	<b>30</b>	<b>5.29%</b>	(4/09)
Blmbg Barclays Aggregate	0.67%	100	7.51%	82	5.34%	79	4.44%	95	4.32%	(4/09)
Callan Core Plus MFs	2.00%		8.94%		5.89%		5.31%		-	
TCW Core Plus	1.27%	88	9.64%	21	6.35%	16	-		5.60%	(1/17)
Blmbg Barclays Aggregate	0.67%	100	7.51%	82	5.34%	79	4.44%	95	4.89%	(1/17)
Callan Core Plus MFs	2.00%		8.94%		5.89%		5.31%		-	
Prudential Core Plus	2.60%	18	9.55%	25	6.78%	11	6.50%	8	5.43%	(1/15)
Blmbg Barclays Aggregate	0.67%	100	7.51%	82	5.34%	79	4.44%	95	3.78%	(1/15)
Callan Core Plus MFs	2.00%		8.94%		5.89%		5.31%		-	
<b>Inflation Responsive Fund</b>	<b>7.73%</b>	<b>66</b>	<b>2.59%</b>	<b>61</b>	<b>3.48%</b>	<b>42</b>	<b>5.86%</b>	<b>32</b>	<b>2.08%</b>	(9/11)
Inflation Responsive Benchmark	7.71%	66	2.32%	62	3.08%	53	4.20%	81	0.56%	(9/11)
Callan Real Assets MFs	10.54%		3.78%		3.21%		5.35%		-	
BlackRock Strategic Completion	7.72%	66	2.65%	61	-		-		5.86%	(12/18)
BlackRock Custom Benchmark	7.71%	66	2.32%	62	3.12%	52	4.43%	77	5.59%	(12/18)
Callan Real Assets MFs	10.54%		3.78%		3.21%		5.35%		-	
<b>Large Cap Core Equity Fund</b>	<b>16.84%</b>	<b>16</b>	<b>25.20%</b>	<b>41</b>	<b>16.23%</b>	<b>44</b>	<b>-</b>	<b>44</b>	<b>16.92%</b>	(10/17)
Russell 1000 Index	13.69%	39	20.96%	47	14.82%	47	15.60%	44	15.86%	(10/17)
Callan Lg Cap Broad MF	12.79%		18.47%		13.50%		14.42%		-	
Hotchkis & Wiley Large Cap Value	29.69%	4	3.70%	38	5.11%	60	10.89%	21	15.32%	(4/09)
Russell 1000 Value Index	16.25%	39	2.80%	46	6.07%	48	9.74%	47	13.68%	(4/09)
Callan Lg Cap Value MF	15.57%		2.65%		5.97%		9.51%		-	
Macquarie Large Cap Value	15.31%	58	1.60%	60	6.22%	43	9.40%	59	7.52%	(6/15)
Russell 1000 Value Index	16.25%	39	2.80%	46	6.07%	48	9.74%	47	7.65%	(6/15)
Callan Lg Cap Value MF	15.57%		2.65%		5.97%		9.51%		-	
Sands Capital Large Cap Growth	17.99%	2	73.00%	1	35.14%	1	25.38%	1	24.45%	(4/09)
Russell 1000 Growth Index	11.39%	50	38.49%	41	22.99%	46	21.00%	21	19.58%	(4/09)
Callan Large Cap Grwth MF	11.41%		37.35%		22.59%		19.66%		-	
Loomis Sayles Large Cap Growth	8.69%	88	33.00%	74	19.95%	83	19.66%	50	18.51%	(8/14)
Russell 1000 Growth Index	11.39%	50	38.49%	41	22.99%	46	21.00%	21	18.43%	(8/14)
Callan Large Cap Grwth MF	11.41%		37.35%		22.59%		19.66%		-	
BlackRock Russell 1000 Index	13.84%	32	21.07%	28	14.75%	23	-		15.40%	(11/17)
Russell 1000 Index	13.69%	32	20.96%	28	14.82%	23	15.60%	18	15.48%	(11/17)
Callan Large Cap Core MFs	12.67%		14.87%		11.69%		13.58%		-	

## 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 December 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 December 31, 2020

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception
<b>Tier 2: Active (Net of Fee)</b>									
<b>International Equity Fund</b>	<b>17.62%</b>	<b>34</b>	<b>14.25%</b>	<b>36</b>	<b>7.18%</b>	<b>39</b>	<b>10.84%</b>	<b>23</b>	<b>10.60%</b> <sup>(4/09)</sup>
MSCI ACWI ex US	17.01%	45	10.65%	53	4.88%	48	8.93%	40	9.31% <sup>(4/09)</sup>
Callan Non US Equity MFs	16.48%		11.12%		4.48%		7.75%		-
Mondrian ACWI ex-US Value	19.87%	24	1.91%	87	2.35%	74	6.66%	66	7.87% <sup>(4/09)</sup>
MSCI ACWI ex US	17.01%	45	10.65%	53	4.88%	48	8.93%	40	9.31% <sup>(4/09)</sup>
MSCI ACWI ex US Value	20.42%	21	(0.77%)	94	(0.41%)	88	5.71%	79	7.46% <sup>(4/09)</sup>
Callan Non US Equity MFs	16.48%		11.12%		4.48%		7.75%		-
Baillie Gifford ACWI ex-US Growth	15.50%	62	27.19%	10	12.32%	11	15.31%	3	13.80% <sup>(4/09)</sup>
MSCI ACWI ex US	17.01%	45	10.65%	53	4.88%	48	8.93%	40	9.31% <sup>(4/09)</sup>
MSCI ACWI ex US Growth	13.92%	79	22.20%	18	10.02%	20	11.97%	14	11.05% <sup>(4/09)</sup>
Callan Non US Equity MFs	16.48%		11.12%		4.48%		7.75%		-
<b>Small/Mid Cap Equity Fund</b>	<b>26.49%</b>	<b>24</b>	<b>19.23%</b>	<b>56</b>	<b>10.25%</b>	<b>57</b>	<b>-</b>		<b>10.95%</b> <sup>(10/17)</sup>
Russell 2500 Index	27.41%	19	19.99%	55	11.33%	57	13.64%	52	12.16% <sup>(10/17)</sup>
Callan SMID Broad MFs	23.61%		24.00%		14.72%		14.73%		-
Earnest Partners Small/Mid Cap Value	27.42%	33	21.42%	1	10.53%	6	14.76%	2	16.10% <sup>(4/09)</sup>
Russell 2500 Value Index	28.51%	30	4.88%	44	4.34%	59	9.43%	50	13.97% <sup>(4/09)</sup>
Callan SMID Value MFs	26.09%		4.45%		4.80%		9.45%		-
Wedge Small/Mid Cap Value	28.86%	29	3.44%	69	2.32%	74	7.77%	75	10.85% <sup>(1/12)</sup>
Russell 2500 Value Index	28.51%	30	4.88%	44	4.33%	59	9.43%	50	10.84% <sup>(1/12)</sup>
Callan SMID Value MFs	26.09%		4.45%		4.80%		9.45%		-
Brown Advisory Small/Mid Cap Growth	22.37%	56	33.06%	62	20.25%	40	17.95%	46	18.81% <sup>(4/09)</sup>
Russell 2500 Growth Index	25.89%	19	40.47%	40	19.91%	43	18.68%	39	19.17% <sup>(4/09)</sup>
Callan SMID Growth MFs	22.72%		34.19%		19.53%		17.50%		-
BlackRock Russell 2500 Index	27.69%	19	21.26%	10	11.66%	10	-		12.26% <sup>(11/17)</sup>
Russell 2500 Index	27.41%	24	19.99%	12	11.33%	12	13.64%	15	11.95% <sup>(11/17)</sup>
Callan SMID Core MFs	24.92%		10.24%		7.13%		10.73%		-

## 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 12/2020		3 Years Ended 9/2020		3 Years Ended 6/2020		3 Years Ended 3/2020	
<b>Tier 2: Passive (Net of Fee)</b>								
Fixed Income Passive	5.28%	85	5.18%	69	5.26%	59	4.77%	14
Blmbg Barclays Aggregate	5.34%	80	5.24%	64	5.32%	48	4.82%	9
Callan Core Bond MFs	5.83%		5.43%		5.31%		4.27%	
Large Cap Passive	14.21%	26	12.30%	24	10.75%	22	5.12%	28
S&P 500 Index	14.18%	27	12.28%	24	10.73%	23	5.10%	28
Callan Large Cap Core MFs	11.69%		9.82%		8.89%		3.07%	
International Passive	5.13%	45	1.40%	50	1.38%	49	(1.71%)	48
MSCI ACWI ex US	4.88%	48	1.16%	51	1.14%	50	(1.96%)	49
Callan Non US Equity MFs	4.48%		1.35%		1.04%		(2.03%)	
SMID Cap Passive	11.22%	13	4.34%	21	3.97%	19	(3.20%)	29
Russell 2500 Index	11.33%	12	4.45%	20	4.08%	18	(3.10%)	28
Callan SMID Core MFs	7.13%		0.94%		1.07%		(5.16%)	

## 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 12/2020		3 Years Ended 9/2020		3 Years Ended 6/2020		3 Years Ended 3/2020	
<b>Tier 2: Active (Net of Fee)</b>								
<b>Stable Value Fund</b>	<b>2.43%</b>	<b>1</b>	<b>2.41%</b>	<b>2</b>	<b>2.38%</b>	<b>3</b>	<b>2.34%</b>	<b>6</b>
3 Yr US Treas Rolling T-Bill + 1.5%	1.61%	86	1.75%	79	1.86%	58	1.97%	38
Callan Stable Value CT	3.11%	1	3.19%	1	3.27%	1	3.33%	1
	1.92%		1.92%		1.90%		1.88%	
<b>Fixed Income Fund</b>	<b>6.53%</b>	<b>14</b>	<b>6.12%</b>	<b>8</b>	<b>5.93%</b>	<b>4</b>	<b>4.57%</b>	<b>8</b>
Blmbg Barclays Aggregate Callan Core Plus MFs	5.34%	79	5.24%	60	5.32%	43	4.82%	3
	5.89%		5.34%		5.12%		3.80%	
Prudential Core Plus Blmbg Barclays Aggregate Callan Core Plus MFs	6.78%	11	6.28%	5	5.97%	4	4.28%	25
	5.34%	79	5.24%	60	5.32%	43	4.82%	3
	5.89%		5.34%		5.12%		3.80%	
<b>Inflation Responsive Fund</b>	<b>3.48%</b>	<b>42</b>	<b>1.93%</b>	<b>33</b>	<b>1.58%</b>	<b>35</b>	<b>(0.62%)</b>	<b>31</b>
Inflation Responsive Benchmark Callan Real Assets MFs	3.08%	53	1.29%	43	0.48%	59	(1.83%)	48
	3.21%		1.22%		0.92%		(2.03%)	
<b>Large Cap Core Equity Fund</b>								
Hotchkis & Wiley Large Cap Value Russell 1000 Value Index Callan Lg Cap Value MF	5.11%	60	(1.60%)	89	(0.91%)	87	(5.70%)	86
	6.07%	48	2.63%	51	1.82%	61	(2.18%)	50
	5.97%		2.65%		2.32%		(2.23%)	
Macquarie Large Cap Value Russell 1000 Value Index Callan Lg Cap Value MF	6.22%	43	3.08%	43	3.80%	30	(1.17%)	39
	6.07%	48	2.63%	51	1.82%	61	(2.18%)	50
	5.97%		2.65%		2.32%		(2.23%)	
Sands Capital Large Cap Growth Russell 1000 Growth Index Callan Large Cap Grwth MF	35.14%	1	29.48%	1	26.08%	1	15.63%	3
	22.99%	46	21.67%	40	18.99%	50	11.32%	50
	22.59%		21.08%		19.02%		11.33%	
Loomis Sayles Large Cap Growth Russell 1000 Growth Index Callan Large Cap Grwth MF	19.95%	83	19.06%	73	17.46%	60	12.26%	37
	22.99%	46	21.67%	40	18.99%	50	11.32%	50
	22.59%		21.08%		19.02%		11.33%	
<b>International Equity Fund</b>	<b>7.18%</b>	<b>39</b>	<b>3.33%</b>	<b>40</b>	<b>2.95%</b>	<b>38</b>	<b>(0.47%)</b>	<b>38</b>
MSCI ACWI ex US Callan Non US Equity MFs	4.88%	48	1.16%	51	1.14%	50	(1.96%)	49
	4.48%		1.35%		1.04%		(2.03%)	
Mondrian ACWI ex-US Value MSCI ACWI ex US MSCI ACWI ex US Value Callan Non US Equity MFs	2.35%	74	(2.16%)	78	(1.66%)	77	(3.76%)	69
	4.88%	48	1.16%	51	1.14%	50	(1.96%)	49
	(0.41%)	88	(5.09%)	83	(3.95%)	83	(6.48%)	82
	4.48%		1.35%		1.04%		(2.03%)	
Baillie Gifford ACWI ex-US Growth MSCI ACWI ex US MSCI ACWI ex US Growth Callan Non US Equity MFs	12.32%	11	9.19%	6	7.86%	4	3.09%	3
	4.88%	48	1.16%	51	1.14%	50	(1.96%)	49
	10.02%	20	7.33%	14	6.07%	13	2.53%	10
	4.48%		1.35%		1.04%		(2.03%)	
<b>Small/Mid Cap Equity Fund</b>								
Earnest Partners Small/Mid Cap Value Russell 2500 Value Index Callan SMID Value MFs	10.53%	6	4.00%	6	4.44%	3	(2.24%)	6
	4.33%	59	(2.69%)	63	(2.60%)	57	(8.40%)	45
	4.80%		(2.36%)		(1.90%)		(8.53%)	
Wedge Small/Mid Cap Value Russell 2500 Value Index Callan SMID Value MFs	2.32%	74	(4.84%)	96	(4.74%)	89	(10.57%)	87
	4.33%	59	(2.69%)	63	(2.60%)	57	(8.40%)	45
	4.80%		(2.36%)		(1.90%)		(8.53%)	
Brown Advisory Small/Mid Cap Growth Russell 2500 Growth Index Callan SMID Growth MFs	20.25%	40	13.02%	58	12.13%	48	3.71%	47
	19.91%	43	13.36%	56	12.10%	48	3.35%	50
	19.53%		13.83%		12.03%		3.35%	

## 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 December 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 December 31, 2020

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
<b>Tier 2: Active (Gross of Fee)</b>										
<b>Stable Value Fund</b>										
Galliard Stable Value	0.59%	15	2.52%	19	2.57%	24	2.40%	23	2.52%	(1/11)
3 Yr US Treas Rolling	0.05%	97	0.34%	98	1.61%	95	1.48%	95	1.08%	(1/11)
T-Bill + 1.5%	0.40%	88	2.17%	82	3.11%	4	2.70%	11	2.14%	(1/11)
Callan Stable Value SA	0.52%		2.33%		2.43%		2.31%		-	
<b>Fixed Income Fund</b>										
TCW Core Plus	1.30%	26	9.77%	12	6.50%	10	-		5.76%	(1/17)
Blmbg Barclays Aggregate	0.67%	88	7.51%	94	5.34%	100	4.44%	98	4.89%	(1/17)
Callan Core Bond FI	1.11%		8.82%		5.94%		5.05%		-	
Prudential Core Plus	2.60%	1	9.55%	19	6.87%	3	6.66%	1	5.61%	(1/15)
Blmbg Barclays Aggregate	0.67%	88	7.51%	94	5.34%	100	4.44%	98	3.78%	(1/15)
Callan Core Bond FI	1.11%		8.82%		5.94%		5.05%		-	
<b>Inflation Responsive Fund</b>										
BlackRock Strategic Completion	7.74%	73	2.74%	69	-		-		6.32%	(11/18)
BlackRock Custom Benchmark	7.71%	74	2.32%	76	3.12%	72	4.43%	86	5.94%	(11/18)
Callan Real Assets	10.76%		4.74%		4.31%		6.70%		-	
<b>Large Cap Core Equity Fund</b>										
Hotchkis & Wiley Large Cap Value	29.80%	3	4.09%	36	5.52%	55	11.36%	21	15.86%	(4/09)
Russell 1000 Value Index	16.25%	57	2.80%	52	6.07%	46	9.74%	50	13.68%	(4/09)
Callan Large Cap Value	16.80%		3.04%		5.98%		9.77%		-	
Macquarie Large Cap Value	15.38%	71	1.88%	62	6.50%	39	9.71%	51	7.82%	(6/15)
Russell 1000 Value Index	16.25%	57	2.80%	52	6.07%	46	9.74%	50	7.65%	(6/15)
Callan Large Cap Value	16.80%		3.04%		5.98%		9.77%		-	
Sands Capital Large Cap Growth	18.11%	2	73.71%	4	35.71%	2	25.95%	5	25.06%	(4/09)
Russell 1000 Growth Index	11.39%	50	38.49%	35	22.99%	46	21.00%	27	19.58%	(4/09)
Callan Large Cap Growth	11.37%		35.53%		22.71%		19.88%		-	
Loomis Sayles Large Cap Growth	8.79%	89	33.48%	66	20.39%	71	20.11%	43	18.96%	(8/14)
Russell 1000 Growth Index	11.39%	50	38.49%	35	22.99%	46	21.00%	27	18.43%	(8/14)
Callan Large Cap Growth	11.37%		35.53%		22.71%		19.88%		-	
BlackRock Russell 1000 Index	13.84%	28	21.07%	35	14.76%	30	-		15.41%	(11/17)
Russell 1000 Index	13.69%	29	20.96%	36	14.82%	27	15.60%	30	15.48%	(11/17)
Callan Large Cap Core	12.49%		18.84%		13.89%		14.73%		-	
<b>International Equity Fund</b>										
Mondrian ACWI ex-US Value	19.97%	18	2.30%	89	2.73%	72	7.08%	74	8.36%	(4/09)
MSCI ACWI ex US	17.01%	35	10.65%	52	4.88%	57	8.93%	46	9.31%	(4/09)
MSCI ACWI ex US Value	20.42%	17	(0.77%)	95	(0.41%)	95	5.71%	90	7.46%	(4/09)
Callan NonUS Eq	16.00%		11.45%		5.69%		8.74%		-	
Baillie Gifford ACWI ex-US Growth	15.57%	57	27.53%	10	12.62%	12	15.68%	4	14.28%	(4/09)
MSCI ACWI ex US	17.01%	35	10.65%	52	4.88%	57	8.93%	46	9.31%	(4/09)
MSCI ACWI ex US Growth	13.92%	83	22.20%	17	10.02%	20	11.97%	20	11.05%	(4/09)
Callan NonUS Eq	16.00%		11.45%		5.69%		8.74%		-	
<b>Small/Mid Cap Equity Fund</b>										
Earnest Partners Small/Mid Cap Value	27.55%	59	21.98%	12	11.02%	13	15.29%	10	16.70%	(4/09)
Russell 2500 Value Index	28.51%	54	4.88%	52	4.33%	49	9.43%	47	13.97%	(4/09)
Callan Small/MidCap Value	28.86%		5.25%		4.27%		9.35%		-	
Wedge Small/Mid Cap Value	28.99%	39	3.90%	69	2.86%	73	8.41%	69	11.57%	(1/12)
Russell 2500 Value Index	28.51%	54	4.88%	52	4.33%	49	9.43%	47	10.84%	(1/12)
Callan Small/MidCap Value	28.86%		5.25%		4.27%		9.35%		-	
Brown Advisory Small/Mid Cap Growth	22.45%	60	33.61%	71	20.82%	57	18.54%	59	19.43%	(4/09)
Russell 2500 Growth Index	25.89%	35	40.47%	51	19.91%	68	18.68%	59	19.17%	(4/09)
Callan Smi/MidCap Growth	23.03%		41.48%		22.55%		20.47%		-	
BlackRock Russell 2500 Index	27.69%	26	21.26%	13	11.66%	29	-		12.26%	(11/17)
Russell 2500 Index	27.41%	30	19.99%	15	11.33%	30	13.64%	33	11.95%	(11/17)
Callan Small/MidCap Core	25.55%		12.63%		9.02%		12.22%		-	

## 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 12/2020		3 Years Ended 9/2020		3 Years Ended 6/2020		3 Years Ended 3/2020	
<b>Tier 2: Active (Gross of Fee)</b>								
<b>Stable Value Fund</b>								
Galliard Stable Value	2.57%	24	2.56%	23	2.54%	21	2.50%	20
3 Yr US Treas Rolling	1.61%	95	1.75%	86	1.86%	86	1.97%	85
T-Bill + 1.5%	3.11%	4	3.19%	4	3.27%	3	3.33%	3
Callan Stable Value SA	2.43%		2.43%		2.40%		2.37%	
<b>Fixed Income Fund</b>								
Prudential Core Plus	6.87%	3	6.39%	5	6.10%	10	4.43%	83
Blmbg Barclays Aggregate	5.34%	100	5.24%	96	5.32%	87	4.82%	41
Callan Core Bond FI	5.94%		5.68%		5.66%		4.77%	
<b>Large Cap Core Equity Fund</b>								
Hotchkis & Wiley Large Cap Value	5.52%	55	(1.22%)	90	(0.52%)	84	(5.31%)	84
Russell 1000 Value Index	6.07%	46	2.63%	52	1.82%	62	(2.18%)	52
Callan Large Cap Value	5.98%		2.81%		2.33%		(1.99%)	
Macquarie Large Cap Value	6.50%	39	3.36%	39	4.09%	22	(0.89%)	32
Russell 1000 Value Index	6.07%	46	2.63%	52	1.82%	62	(2.18%)	52
Callan Large Cap Value	5.98%		2.81%		2.33%		(1.99%)	
Sands Capital Large Cap Growth	35.71%	2	30.03%	4	26.63%	3	16.16%	6
Russell 1000 Growth Index	22.99%	46	21.67%	47	18.99%	44	11.32%	48
Callan Large Cap Growth	22.71%		20.98%		18.34%		11.11%	
Loomis Sayles Large Cap Growth	20.39%	71	19.50%	64	17.89%	55	12.69%	32
Russell 1000 Growth Index	22.99%	46	21.67%	47	18.99%	44	11.32%	48
Callan Large Cap Growth	22.71%		20.98%		18.34%		11.11%	
<b>International Equity Fund</b>								
Mondrian ACWI ex-US Value	2.73%	72	(1.79%)	76	(1.28%)	74	(3.38%)	72
MSCI ACWI ex US	4.88%	57	1.16%	58	1.14%	56	(1.96%)	62
MSCI ACWI ex US Value	(0.41%)	95	(5.09%)	95	(3.95%)	95	(6.48%)	94
Callan NonUS Eq	5.69%		2.30%		1.94%		(1.23%)	
Baillie Gifford ACWI ex-US Growth	12.62%	12	9.49%	12	8.17%	11	3.41%	15
MSCI ACWI ex US	4.88%	57	1.16%	58	1.14%	56	(1.96%)	62
MSCI ACWI ex US Growth	10.02%	20	7.33%	18	6.07%	18	2.53%	20
Callan NonUS Eq	5.69%		2.30%		1.94%		(1.23%)	
<b>Small/Mid Cap Equity Fund</b>								
Earnest Partners Small/Mid Cap Value	11.02%	13	4.46%	12	4.91%	8	(1.78%)	9
Russell 2500 Value Index	4.33%	49	(2.69%)	46	(2.60%)	42	(8.40%)	48
Callan Small/MidCap Value	4.27%		(3.18%)		(2.96%)		(8.62%)	
Wedge Small/Mid Cap Value	2.86%	73	(4.34%)	69	(4.21%)	71	(10.05%)	72
Russell 2500 Value Index	4.33%	49	(2.69%)	46	(2.60%)	42	(8.40%)	48
Callan Small/MidCap Value	4.27%		(3.18%)		(2.96%)		(8.62%)	
Brown Advisory Small/Mid Cap Growth	20.82%	57	13.57%	74	12.70%	65	4.26%	57
Russell 2500 Growth Index	19.91%	68	13.36%	75	12.10%	67	3.35%	68
Callan Sm/MidCap Growth	22.55%		15.47%		13.79%		6.69%	

## Investment Fund Returns

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

### Returns for Periods Ended December 31, 2020

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Tier 1: GoalMaker Funds (Net of Fee)</b>					
Post Retirement Conservative 11+	4.26%	9.50%	-	-	7.55% <sup>(7/18)</sup>
Post Ret Conservative 11+ Index	3.75%	8.13%	-	-	6.67% <sup>(7/18)</sup>
Post Retirement Conservative 6-10	4.55%	9.82%	-	-	7.86% <sup>(7/18)</sup>
Post Ret Conservative 6-10 Index	3.98%	8.37%	-	-	6.92% <sup>(7/18)</sup>
Post Retirement Conservative 0-5	5.26%	10.45%	-	-	8.30% <sup>(7/18)</sup>
Post Ret Conservative 0-5 Index	4.69%	9.06%	-	-	7.39% <sup>(7/18)</sup>
Pre Retirement Conservative 0-5	6.02%	11.28%	7.63%	6.96%	6.55% <sup>(7/09)</sup>
Pre Ret Conservative 0-5 Index	5.39%	9.84%	6.75%	6.26%	5.52% <sup>(7/09)</sup>
Pre Retirement Conservative 6-10	7.39%	12.30%	8.27%	7.88%	7.56% <sup>(7/09)</sup>
Pre Ret Conservative 6-10 Index	6.76%	10.85%	7.29%	7.14%	6.44% <sup>(7/09)</sup>
Pre Retirement Conservative 11-15	8.62%	13.18%	8.85%	9.22%	8.93% <sup>(7/09)</sup>
Pre Ret Conservative 11-15 Index	8.03%	11.85%	7.86%	8.48%	8.16% <sup>(7/09)</sup>
Pre Retirement Conservative 16-20	10.15%	13.98%	9.50%	10.63%	10.41% <sup>(7/09)</sup>
Pre Ret Conservative 16-20 Index	9.59%	12.60%	8.36%	9.84%	9.74% <sup>(7/09)</sup>
Pre Retirement Conservative 21-25	11.64%	14.80%	-	-	11.50% <sup>(7/18)</sup>
Pre Ret Conservative 21-25 Index	11.17%	13.53%	-	-	10.40% <sup>(7/18)</sup>
Pre Retirement Conservative 26+	13.12%	15.18%	-	-	11.71% <sup>(7/18)</sup>
Pre Ret Conservative 26+ Index	12.77%	13.91%	-	-	10.60% <sup>(7/18)</sup>

## Investment Fund Returns

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

### Returns for Periods Ended December 31, 2020

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Tier 1: GoalMaker Funds (Net of Fee)</b>					
Post Retirement Moderate 11+	6.01%	10.92%	-	-	8.48% <sup>(7/18)</sup>
Post Ret Moderate 11+ Index	5.59%	9.65%	-	-	7.63% <sup>(7/18)</sup>
Post Retirement Moderate 6-10	6.65%	11.46%	-	-	9.00% <sup>(7/18)</sup>
Post Ret Moderate 6-10 Index	8.30%	10.66%	-	-	8.18% <sup>(7/18)</sup>
Post Retirement Moderate 0-5	7.60%	12.43%	-	-	9.76% <sup>(7/18)</sup>
Post Ret Moderate 0-5 Index	7.07%	11.12%	-	-	8.82% <sup>(7/18)</sup>
Pre Retirement Moderate 0-5	8.46%	12.99%	8.75%	8.51%	8.02% <sup>(7/09)</sup>
Pre Ret Moderate 0-5 Index	7.90%	11.62%	7.79%	7.77%	7.08% <sup>(7/09)</sup>
Pre Retirement Moderate 6-10	10.06%	13.87%	9.28%	9.48%	8.94% <sup>(7/09)</sup>
Pre Ret Moderate 6-10 Index	9.54%	12.52%	8.23%	8.70%	8.26% <sup>(7/09)</sup>
Pre Retirement Moderate 11-15	11.60%	14.58%	9.76%	10.52%	10.14% <sup>(7/09)</sup>
Pre Ret Moderate 11-15 Index	11.15%	13.29%	8.65%	9.73%	9.39% <sup>(7/09)</sup>
Pre Retirement Moderate 16-20	13.12%	15.18%	10.20%	11.86%	11.53% <sup>(7/09)</sup>
Pre Ret Moderate 16-20 Index	12.77%	13.91%	9.05%	11.08%	10.94% <sup>(7/09)</sup>
Pre Retirement Moderate 21-25	14.12%	15.30%	-	-	11.85% <sup>(7/18)</sup>
Pre Ret Moderate 21-25 Index	13.84%	13.96%	-	-	10.66% <sup>(7/18)</sup>
Pre Retirement Moderate 26+	15.23%	15.58%	-	-	12.01% <sup>(7/18)</sup>
Pre Ret Moderate 26+ Index	15.04%	14.24%	-	-	10.84% <sup>(7/18)</sup>

## Investment Fund Returns

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

### Returns for Periods Ended December 31, 2020

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Since Inception
<b>Tier 1: GoalMaker Funds (Net of Fee)</b>					
Post Retirement Aggressive 11+	12.62%	17.34%	-	-	11.51% <sup>(7/18)</sup>
Post Ret Aggressive 11+ Index	7.73%	11.39%	-	-	8.84% <sup>(7/18)</sup>
Post Retirement Aggressive 6-10	13.28%	17.81%	-	-	12.00% <sup>(7/18)</sup>
Post Ret Aggressive 6-10 Index	8.55%	12.03%	-	-	9.34% <sup>(7/18)</sup>
Post Retirement Aggressive 0-5	14.05%	18.42%	-	-	12.56% <sup>(7/18)</sup>
Post Ret Aggressive 0-5 Index	9.42%	12.84%	-	-	9.95% <sup>(7/18)</sup>
Pre Retirement Aggressive 0-5	14.75%	18.40%	10.97%	10.65%	9.78% <sup>(7/09)</sup>
Pre Ret Aggressive 0-5 Index	10.80%	13.58%	8.84%	9.24%	8.65% <sup>(7/09)</sup>
Pre Retirement Aggressive 6-10	15.08%	17.55%	10.86%	11.19%	10.51% <sup>(7/09)</sup>
Pre Ret Aggressive 6-10 Index	12.28%	13.77%	8.94%	9.90%	9.47% <sup>(7/09)</sup>
Pre Retirement Aggressive 11-15	15.29%	16.48%	10.71%	11.90%	11.35% <sup>(7/09)</sup>
Pre Ret Aggressive 11-15 Index	13.84%	13.96%	9.11%	10.85%	10.67% <sup>(7/09)</sup>
Pre Retirement Aggressive 16-20	15.54%	15.95%	10.65%	12.96%	12.62% <sup>(7/09)</sup>
Pre Ret Aggressive 16-20 Index	14.93%	14.19%	9.30%	12.08%	12.13% <sup>(7/09)</sup>
Pre Retirement Aggressive 21-25	15.50%	15.30%	-	-	11.92% <sup>(7/18)</sup>
Pre Ret Aggressive 21-25 Index	15.56%	14.11%	-	-	10.77% <sup>(7/18)</sup>
Pre Retirement Aggressive 26+	15.50%	15.30%	-	-	11.92% <sup>(7/18)</sup>
Pre Ret Aggressive 26+ Index	15.56%	14.11%	-	-	10.77% <sup>(7/18)</sup>

## Investment Fund Returns

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

	<b>3 Years Ended 12/2020</b>	<b>3 Years Ended 9/2020</b>	<b>3 Years Ended 6/2020</b>	<b>3 Years Ended 3/2020</b>
<b>Tier 1: GoalMaker Funds (Net of Fee)</b>				
Pre Retirement Conservative 0-5	7.63%	6.16%	5.60%	3.23%
Pre Ret Conservative 0-5 Index	6.75%	5.51%	5.14%	3.19%
Pre Retirement Conservative 6-10	8.27%	6.50%	5.95%	3.25%
Pre Ret Conservative 6-10 Index	7.29%	5.76%	5.42%	3.14%
Pre Retirement Conservative 11-15	8.85%	6.97%	6.54%	3.61%
Pre Ret Conservative 11-15 Index	7.86%	6.21%	5.97%	3.42%
Pre Retirement Conservative 16-20	9.50%	7.44%	7.08%	3.86%
Pre Ret Conservative 16-20 Index	8.36%	6.54%	6.37%	3.50%

## Investment Fund Returns

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

	<b>3 Years Ended 12/2020</b>	<b>3 Years Ended 9/2020</b>	<b>3 Years Ended 6/2020</b>	<b>3 Years Ended 3/2020</b>
<b>Tier 1: GoalMaker Funds (Net of Fee)</b>				
Pre Retirement Moderate 0-5	8.75%	6.73%	6.08%	3.06%
Pre Ret Moderate 0-5 Index	7.79%	5.98%	5.52%	2.87%
Pre Retirement Moderate 6-10	9.28%	6.92%	6.27%	2.91%
Pre Ret Moderate 6-10 Index	8.23%	6.08%	5.60%	2.57%
Pre Retirement Moderate 11-15	9.76%	7.14%	6.52%	2.85%
Pre Ret Moderate 11-15 Index	8.65%	6.23%	5.77%	2.38%
Pre Retirement Moderate 16-20	10.20%	7.43%	6.92%	3.00%
Pre Ret Moderate 16-20 Index	9.05%	6.46%	6.09%	2.38%

## Investment Fund Returns

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

	<b>3 Years Ended 12/2020</b>	<b>3 Years Ended 9/2020</b>	<b>3 Years Ended 6/2020</b>	<b>3 Years Ended 3/2020</b>
<b>Tier 1: GoalMaker Funds (Net of Fee)</b>				
Pre Retirement Aggressive 0-5	10.97%	7.13%	6.34%	2.58%
Pre Ret Aggressive 0-5 Index	8.84%	6.34%	5.69%	2.19%
Pre Retirement Aggressive 6-10	10.86%	7.12%	6.32%	2.31%
Pre Ret Aggressive 6-10 Index	8.94%	6.15%	5.50%	1.73%
Pre Retirement Aggressive 11-15	10.71%	7.16%	6.41%	2.18%
Pre Ret Aggressive 11-15 Index	9.11%	6.10%	5.48%	1.42%
Pre Retirement Aggressive 16-20	10.65%	7.36%	6.80%	2.49%
Pre Ret Aggressive 16-20 Index	9.30%	6.29%	5.85%	1.64%

**The North Carolina Supplemental Retirement Plans  
Investment Manager Performance Monitoring Summary Report  
December 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
<b>Tier 2: Passive vs. Net of Fee Groups</b>								
<b>Fixed Income Passive (i)</b> Callan Core Bond MFs	0.7 90	7.5 90	5.3 85	4.4 94		1.0 75	-0.6 100	0.1 100
Blmbg Barclays Aggregate	0.7 90	7.5 90	5.3 80	4.4 83		1.0 69		
<b>Treasury Inflation Protected (i)</b> Callan TIPS MFs	1.5 87	8.4 70	5.9 31	5.1 33		1.1 12	0.9 8	1.1 92
Blmbg US TIPS 1-10 Yr	1.6 78	8.4 71	4.9 71	4.1 72		1.1 27		
<b>Large Cap Passive (i)</b> Callan Large Cap Core MFs	12.2 55	18.4 35	14.2 26	15.2 22		0.8 23	0.2 18	0.0 99
S&P 500 Index	12.1 55	18.4 35	14.2 27	15.2 22		0.8 23		
<b>International Passive (i)</b> Callan Non US Equity MFs	17.0 44	10.9 52	5.1 45	9.3 39		0.4 36	1.0 3	0.4 100
MSCI ACWI ex US	17.0 45	10.7 53	4.9 48	8.9 40		0.4 38		
<b>SMID Cap Passive (i)</b> Callan SMID Core MFs	27.4 25	19.8 12	11.2 13	13.6 15		0.5 21	-0.9 67	0.1 99
Russell 2500 Index	27.4 24	20.0 12	11.3 12	13.6 15		0.5 21		
<b>Tier 2: Active vs. Net of Fee Groups</b>								
<b>Stable Value Fund</b> Callan Stable Value CT	0.6 3	2.4 1	2.4 1	2.2 2		8.0 9	-1.2 1	0.4 24
T-Bill + 1.5%	0.4 38	2.2 5	3.1 1	2.7 1		3.4 59		
<b>Fixed Income Fund</b> Callan Core Plus MFs	1.9 61	9.5 25	6.5 14	5.7 30		1.2 27	0.6 15	2.1 72
Blmbg Barclays Aggregate	0.7 100	7.5 82	5.3 79	4.4 95		1.0 67		
<b>TCW Core Plus</b> Callan Core Plus MFs	1.3 88	9.6 21	6.3 16					
Blmbg Barclays Aggregate	0.7 100	7.5 82	5.3 79	4.4 95		1.0 67		
<b>Prudential Core Plus</b> Callan Core Plus MFs	2.6 18	9.6 25	6.8 11	6.5 8		1.1 44	0.6 16	3.6 25
Blmbg Barclays Aggregate	0.7 100	7.5 82	5.3 79	4.4 95		1.0 67		

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  
December 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
<b>Inflation Responsive Fund</b> Callan Real Assets MFs Inflation Responsive Benchmark	7.7 66	2.6 61	3.5 42	5.9 32		0.5 23	1.5 2	1.1 99
<b>BlackRock Strategic Completion</b> Callan Real Assets MFs BlackRock Custom Benchmark	7.7 66	2.7 61						
<b>Large Cap Core Equity Fund</b> Callan Lg Cap Broad MF Russell 1000 Index	16.8 16	25.2 41	16.2 44			0.8 46		
<b>Hotchkis &amp; Wiley Large Cap Value</b> Callan Lg Cap Value MF Russell 1000 Value Index	29.7 4	3.7 38	5.1 60	10.9 21		0.4 75	0.1 36	9.0 6
<b>Macquarie Large Cap Value</b> Callan Lg Cap Value MF Russell 1000 Value Index	15.3 58	1.6 60	6.2 43	9.4 59		0.5 49	-0.1 56	4.3 32
<b>Sands Capital Large Cap Growth</b> Callan Large Cap Grwth MF Russell 1000 Growth Index	18.0 2	73.0 1	35.1 1	25.4 1		0.9 53	0.4 4	11.5 1
<b>Loomis Sayles Large Cap Growth</b> Callan Large Cap Grwth MF Russell 1000 Growth Index	8.7 88	33.0 74	19.9 83	19.7 50		1.1 6	-0.2 41	5.4 31
<b>BlackRock Russell 1000 Index (i)</b> Callan Large Cap Core MFs Russell 1000 Index	13.8 32	21.1 28	14.8 23			0.8 28		
<b>International Equity Fund</b> Callan Non US Equity MFs MSCI ACWI ex US	17.6 34	14.3 36	7.2 39	10.8 23		0.5 25	1.1 2	1.7 98
<b>Mondrian ACWI ex-US Value</b> Callan Non US Equity MFs MSCI ACWI ex US	19.9 24	1.9 87	2.4 74	6.7 66		0.3 64	-0.5 68	4.2 60

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  
December 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
<b>Baillie Gifford ACWI ex-US Growth</b> Callan Non US Equity MFs MSCI ACWI ex US	15.5 62	27.2 10	12.3 11	15.3 3		0.7 3	1.2 2	5.4 37
<b>Small/Mid Cap Equity Fund</b> Callan SMID Broad MFs Russell 2500 Index	26.5 24	19.2 56	10.3 57					
<b>Earnest Partners Small/Mid Cap Value</b> Callan SMID Value MFs Russell 2500 Value Index	27.4 33	21.4 1	10.5 6	14.8 2		0.6 3	0.9 2	5.7 25
<b>Wedge Small/Mid Cap Value</b> Callan SMID Value MFs Russell 2500 Value Index	28.9 29	3.4 69	2.3 74	7.8 75		0.3 71	-0.7 88	2.3 99
<b>Brown Advisory Small/Mid Cap Growth</b> Callan SMID Growth MFs Russell 2500 Growth Index	22.4 56	33.1 62	20.3 40	17.9 46		0.7 54	-0.1 44	5.1 51
<b>BlackRock Russell 2500 Index (i)</b> Callan SMID Core MFs Russell 2500 Index	27.7 19	21.3 10	11.7 10					
	27.4 24	20.0 12	11.3 12	13.6 15		0.5 21		

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  
December 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
<b>Tier 2: Active vs. Gross of Fee Groups</b>								
<b>Stable Value Fund</b>								
<b>Galliard Stable Value</b> Callan Stable Value SA T-Bill + 1.5%	0.6 15	2.5 19	2.6 24	2.4 23		9.8 37	-0.8 18	0.4 34
<b>Fixed Income Fund</b>								
<b>TCW Core Plus</b> Callan Core Bond FI Blmbg Aggregate	1.3 26	9.8 12	6.5 10	5.2 23		1.3 5	1.0 18	0.8 58
<b>Prudential Core Plus</b> Callan Core Bond FI Blmbg Aggregate	2.6 1	9.6 19	6.9 3	6.7 1		1.2 37	0.6 47	3.5 1
<b>Inflation Responsive Fund</b>								
<b>BlackRock Strategic Completion</b> Callan Real Assets BlackRock Custom Benchmark	7.7 73	2.7 69	3.5 70	4.8 85		0.4 65	6.0 5	0.1 95
<b>Large Cap Core Equity Fund</b>								
<b>Hotchkis &amp; Wiley Large Cap Value</b> Callan Large Cap Value Russell 1000 Value Index	29.8 3	4.1 36	5.5 55	11.4 21		0.4 74	0.2 36	9.0 4
<b>Macquarie Large Cap Value</b> Callan Large Cap Value Russell 1000 Value Index	15.4 71	1.9 62	6.5 39	9.7 51		0.5 40	-0.0 51	4.3 38
<b>Sands Capital Large Cap Growth</b> Callan Large Cap Growth Russell 1000 Growth Index	18.1 2	73.7 4	35.7 2	25.9 5		1.0 49	0.4 9	11.5 2
<b>Loomis Sayles Large Cap Growth</b> Callan Large Cap Growth Russell 1000 Growth Index	8.8 89	33.5 66	20.4 71	20.1 43		1.1 10	-0.2 39	5.4 25

Returns:  
■ above median  
■ third quartile  
■ fourth quartile

Return Consistency:  
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■ third quartile  
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Excess Return Ratio:  
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■ third quartile  
■ fourth quartile

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

**The North Carolina Supplemental Retirement Plans  
Investment Manager Performance Monitoring Summary Report  
December 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
<b>BlackRock Russell 1000 Index (i)</b> Callan Large Cap Core Russell 1000 Index	13.8 28	21.1 35	14.8 30	15.6 29		0.8 33	1.7 1	0.0 100
<b>International Fund</b>								
<b>Mondrian ACWI ex-US Value</b> Callan NonUS Eq MSCI ACWI ex US	20.0 18	2.3 89	2.7 72	7.1 74		0.3 68	-0.4 72	4.2 48
<b>Baillie Gifford ACWI ex-US Growth</b> Callan NonUS Eq MSCI ACWI ex US	15.6 57	27.5 10	12.6 12	15.7 4		0.7 10	1.3 2	5.4 29
<b>Small/Mid Cap Equity Fund</b>								
<b>Earnest Partners Small/Mid Cap Value</b> Callan Small/MidCap Value Russell 2500 Value Index	27.5 59	22.0 12	11.0 13	15.3 10		0.6 7	1.0 6	5.7 33
<b>Wedge Small/Mid Cap Value</b> Callan Small/MidCap Value Russell 2500 Value Index	29.0 39	3.9 69	2.9 73	8.4 69		0.3 68	-0.4 85	2.3 97
<b>Brown Advisory Small/Mid Cap Growth</b> Callan Sm/MidCap Growth Russell 2500 Growth Index	22.4 60	33.6 71	20.8 57	18.5 59		0.7 66	-0.0 59	5.1 67
<b>BlackRock Russell 2500 Index (i)</b> Callan Small/MidCap Core Russell 2500 Index	27.7 26	21.3 13	11.7 29	13.6 33		0.5 37		

Returns:  
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Return Consistency:  
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Sharpe Ratio:  
■ above median  
■ third quartile  
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# Galliard Stable Value

## Period Ended December 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.

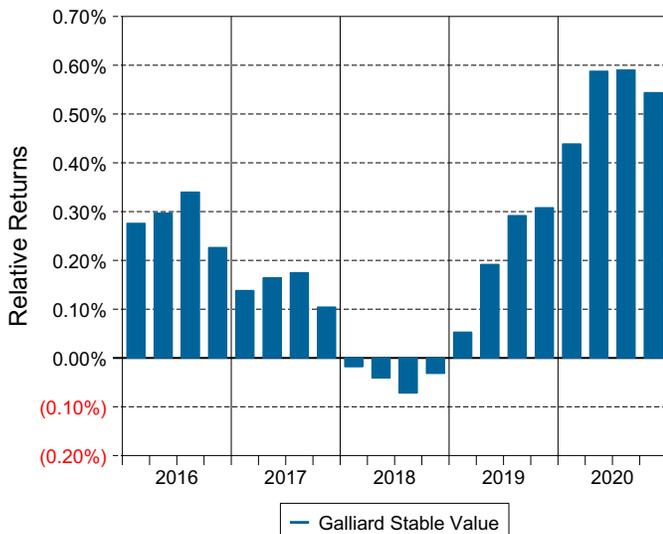
### Quarterly Summary and Highlights

- Galliard Stable Value's portfolio posted a 0.59% return for the quarter placing it in the 15 percentile of the Callan Stable Value SA group for the quarter and in the 19 percentile for the last year.
- Galliard Stable Value's portfolio outperformed the 3 Yr Constant Maturity Yield by 0.54% for the quarter and outperformed the 3 Yr Constant Maturity Yield for the year by 2.18%.

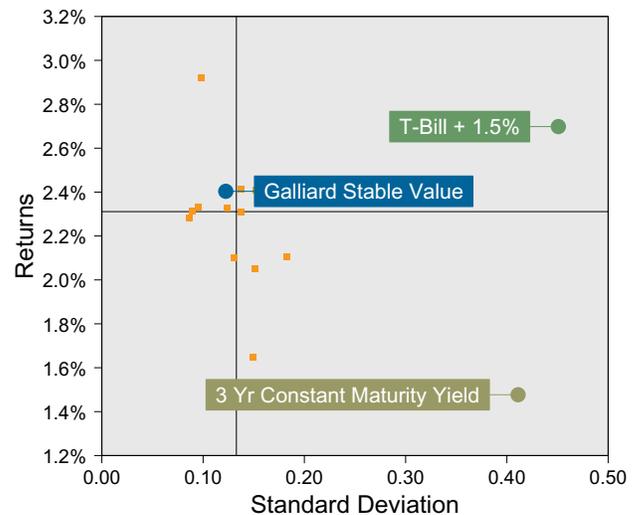
### Performance vs Callan Stable Value SA (Gross)



Relative Returns vs 3 Yr Constant Maturity Yield



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



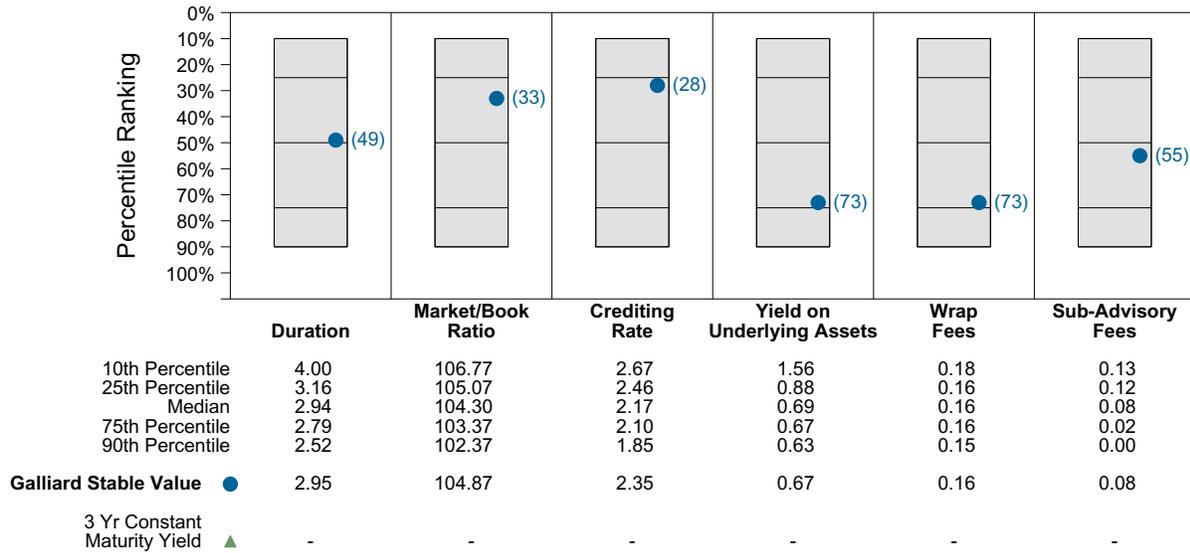
# Galliard Stable Value

## 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.

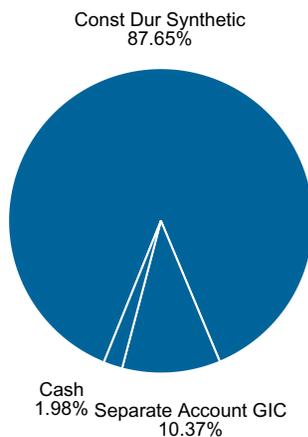
### Portfolio Characteristics Percentile Rankings Rankings Against Callan Stable Value SA as of December 31, 2020



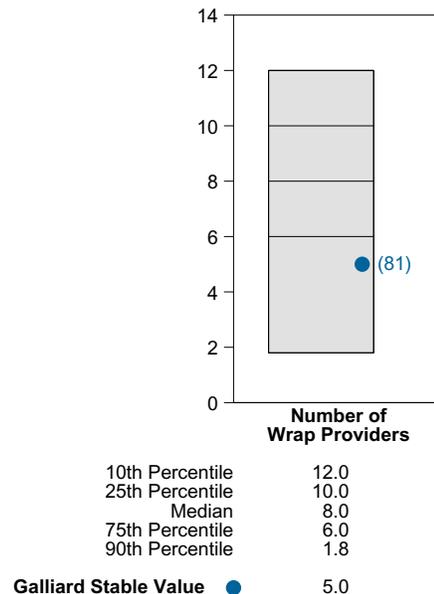
### Wrap Structure and Diversification

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 December 31, 2020



#### Wrap Contract Diversification December 31, 2020

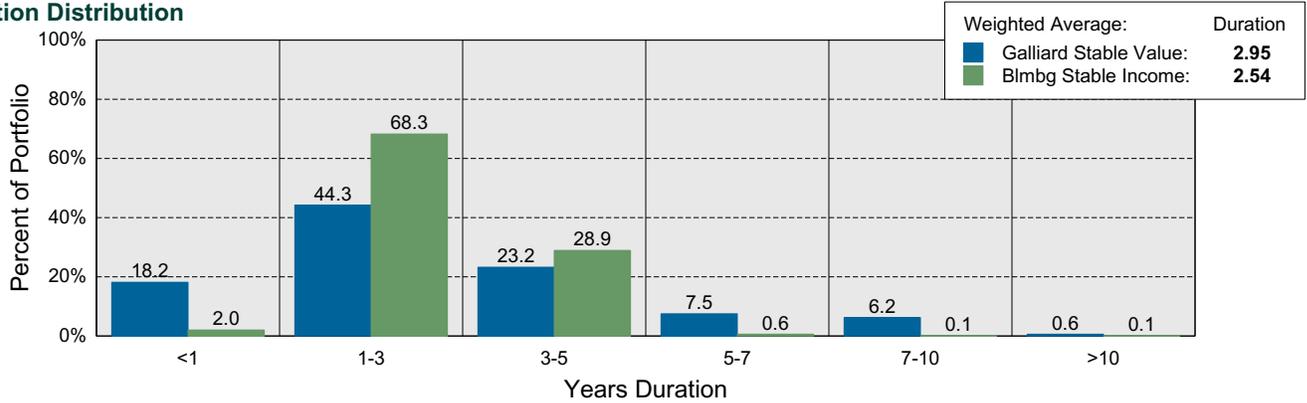


# Galliard Stable Value Stable Value Portfolio Characteristics Summary As of December 31, 2020

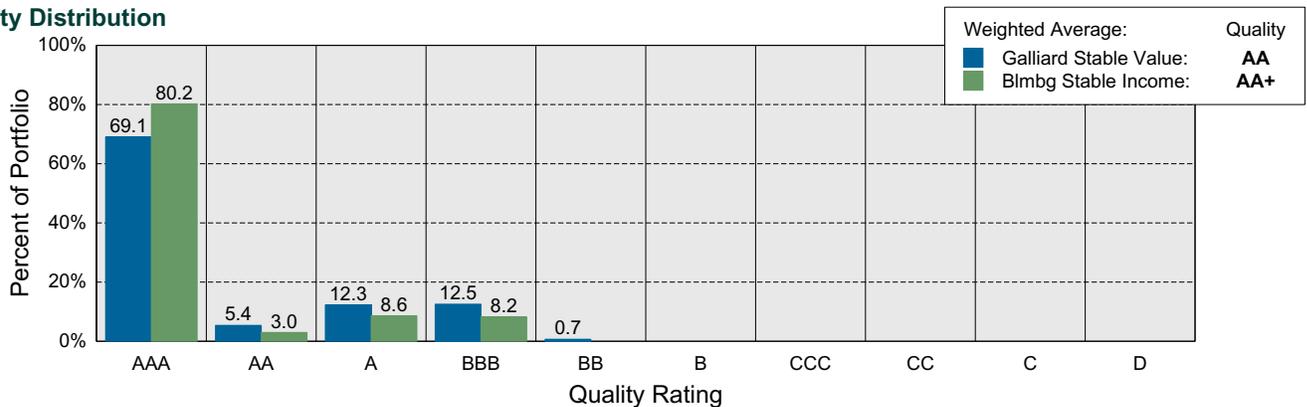
## Portfolio Structure Comparison

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



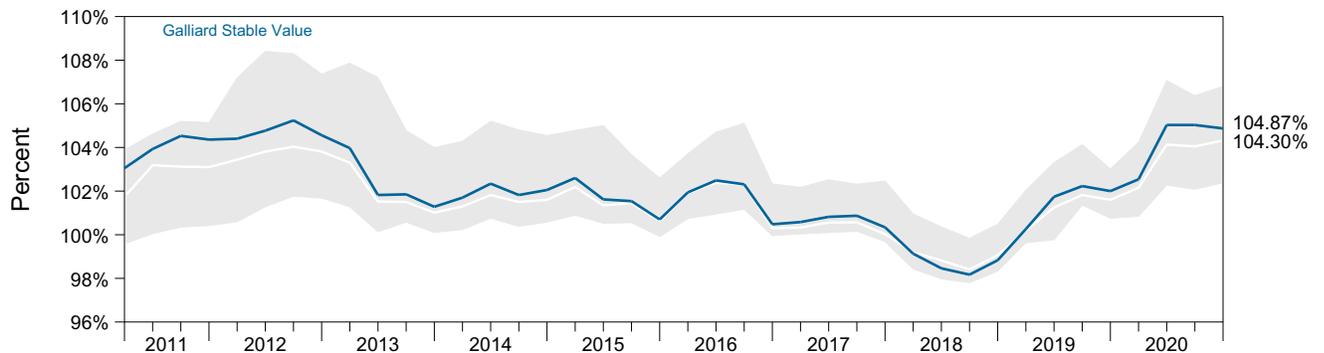
### Quality Distribution



### 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



### 2020 Litigation: Managed Accounts – October 2, 2020

Litigation filed during the first half of 2020 addressed managed account services within defined contribution (DC) plans through a number of different lenses.

Managed account services typically include independent third-party advice and are geared toward “do-it-for-me” investors who desire greater personalization. The managed account provider implements the advice by taking discretionary control of the participant’s account and adjusts the portfolio over time. Managed account services can also provide functionality, advising on an income draw-down through retirement and investment recommendations to support that strategy. Managed account services are paid for via an asset-based fee deducted from participant accounts, and a portion of that revenue can be shared with the recordkeeper.

While target date funds (TDF) and managed accounts may each act as the plan’s qualified default investment alternative, they can also be offered side-by-side in a DC plan. According to Callan’s annual DC Trends Survey, in 2019 87% of plans used a TDF as their default for non-participant directed monies, compared to 3% of plans that use the managed account product as the qualified default investment.

As ERISA-based litigation has matured, legal counsel has explored new allegations over the last several years. The allegations addressing managed accounts tend to focus on two main themes:

1. The managed account revenue shared with the recordkeeper should be considered when negotiating administration fees with the recordkeeper. The complaints describe the data-sharing requirements and revenue structure between recordkeepers and managed account providers, which can vary based on capabilities, relationship, and fiduciary responsibilities. The issue raised here is that the managed account provider shares revenue with the recordkeeper. The allegation: as the assets under management growth, so does the revenue without any additional scope of services.
2. Managed account investment recommendations and services should provide sufficient value to participants to justify the higher fees paid by those participants. The lawsuits allege that the managed account portfolio recommendations do not vary sufficiently from a target date allocation and glide path, and that it is imprudent to offer managed account services to participants at the current price points.

Managed account providers benefit from the dearth of available options and limited competition that can hinder more reasonable fee structures as the plan size and participation grow. Plan sponsors should consider the inclusion of managed account services carefully and document the process and rationale, if those services are added. When these services are utilized, plan sponsors should monitor the outcomes regularly, as well as indirect sources of revenue. Maintaining a close eye on the current legal climate should increase sponsors’ awareness and help them avoid potential legal issues of their own.

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## Fourth Quarter 2020 DC Trends

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### 2020 Litigation: Headshakers – October 6, 2020

In this final piece of our DC litigation series, we share some of the various elements of litigation that stood out as unusual but interesting.

- *I'm not an attorney, but I could play one on TV?* One of the lawsuits settled in the first half of 2020 had previously survived a request for dismissal. In true soap-opera style, the court history describes the somewhat elaborate attempts of one defendant to stymie the participants' requests for required information by, amongst other things, impersonating an attorney.
- *Short-timers:* Three lawsuits by relatively new players were dismissed in 2020 and had been filed only three months, four months, and nine months earlier, respectively.
- *A sequel or a threequel?* Three plan sponsors were sued by two different plaintiffs within days of each other.
- *Know your target:* One of the lawsuits clearly did not understand who the plan actors were. Instead of identifying the correct investment adviser of one major recordkeeper, they mistakenly identified a small brokerage firm with a similar name but no relation to the plan, which will likely be news to that broker.
- *The recordkeeper strikes back:* In September, one law firm was ordered to pay up to \$1.5 million toward the recordkeepers' costs and attorney fees. The sanction rested on charges that the law firm was pursuing reckless litigation.
- *The best offense is a good defense:* A recent *Bloomberg Law* analysis found approximately 20 ERISA lawsuits were filed in 2019. Our review identified 29 lawsuits filed during the first half of 2020. Subsequent monitoring by Callan has identified at least another 23 lawsuits filed during 3Q20.

Litigation has been increasingly common during 2020, likely influenced by a number of different factors. Speculation has tied the increase to more people staying at home with time on their hands, employees who may have lost their jobs and feel less loyalty to the plan sponsor, as well as the shocks to the stock market. Although it is disheartening, it is worth noting that proper due diligence and documentation cushion the plan sponsor and fiduciaries against allegations of wrongdoing.

### IRS Announces Updated Retirement Plan Limits for 2021 – October 27, 2020

The IRS announced the updated retirement plan limits for 2021. Below, we highlight the notable DC plan limits:

- The annual contribution limit will remain the same at \$19,500.
- The age 50 annual catch-up contribution limit will remain the same at \$6,500.
- The annual compensation limit will increase from \$285,000 to \$290,000.
- The Section 415(c) limit will increase from \$57,000 to \$58,000.
- The highly compensated employee threshold will remain the same at \$130,000.

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## Fourth Quarter 2020 DC Trends

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### What You've Been Waiting For: SECURE 2.0 – October 29, 2020

The House Ways and Means Committee released a proposal that would pick up where last year's SECURE Act left off. The bi-partisan "Securing a Strong Retirement Act of 2020" proposed by Richard Neal (D-MA) and Kevin Brady (R-TX) contains far-reaching provisions that would affect defined contribution plans and participants in a variety of ways.

This proposal can be viewed as SECURE 2.0 and includes the following provisions:

- Increases the required minimum distribution age from 72 to 75
- Allows 403(b) plans to offer collective investment trusts within their investment lineups
- Expands to 403(b) plans, provisions that paved the way for 401(k) plans to join pooled employer plans (PEP), such as revoking the "bad apple" rule and waiving necessity for a common nexus
- Increases the amount that can be used to purchase qualified longevity annuity contracts
- Expands catch-up contributions
- Further clarifies startup tax credits to help incentivize small businesses to join PEPs and multiple employer plans
- Permits employer matches to a 401(k) to pay off student loans
- Related to target date funds, the Department of Labor would be required to issue guidance allowing for benchmarking of target date funds to be decomposed into the separate components of the target date fund instead of in the aggregate
- A provision would require plans established after December 31, 2021 to auto-enroll participants (at a rate between 3% and 10%) and annually auto-escalate contributions by 1% (up to 10%)

Although this proposal is an encouraging show of bi-partisan cooperation, there is an election next week and a waning legislative calendar. With this in mind, implementation by year end remains a long shot, although not impossible. That being said, in its current form, the proposal would enact many popular features the defined contribution industry has long advocated.

### Final Rule on Financial Factors in Selecting Plan Investments – November 11, 2020

The Department of Labor (DOL) issued its final rule providing guidance to plan sponsors on the financial factors to consider when evaluating plan investments. This is a follow-up to its proposed Environmental, Social, and Governance (ESG) rule released four months ago.

In the final rule, entitled "Financial Factors in Selecting Plan Investments," the DOL modified the ESG rule, most notably removing references to ESG and instead focusing on pecuniary versus non-pecuniary factors. The DOL claimed the decision to forego the use of the term ESG was due to the lack of a commonly accepted definition of the term, either individually (E, S, or G) or collectively. That said, the DOL noted in both the proposed rule and the preamble to the final rule that ESG factors can be pecuniary.

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## Fourth Quarter 2020 DC Trends

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There are aspects of this final rule's preamble, which provides a review and response to comments received and insight on the DOL's thinking, and the rule itself that apply differently to defined contribution plans, defined benefit plans, multi-employer plans (e.g., union plans), and plans sponsored by religious organizations subject to ERISA. It is important for plan sponsors to incorporate applicable elements of the document into their fiduciary training and review it with their ERISA legal counsel to assess the impact to their specific ERISA-governed plan.

Highlights of the final rule include:

- The rule expands on the duty of prudence to require the consideration of different alternatives (review of multiple, similar types of options) in making investment selections. However, the DOL does not expect plan sponsors to “scour the marketplace” for all available alternatives, so this expansion of duty will likely not have an effect on fiduciaries already following sound processes for considering multiple options in investment manager selection (e.g., conducting a manager search process to select a new investment option).
- Rather than discussing ESG considerations specifically, the final rule states that investments must be evaluated based solely on pecuniary factors—i.e., factors that have a material impact on the risk and return of an investment based on a time horizon that is consistent with the plan's objectives and funding policy—and that participants' interests cannot be subordinated for non-pecuniary goals.
- The final rule does address the so-called “tiebreaker” rule in which non-pecuniary considerations could be used to break ties between investments that cannot be distinguished from one another based on pecuniary factors. The DOL removed the “economically indistinguishable” language that was in the proposed rule as the bar for tiebreakers in response to commenters deeming it too onerous. The final rule stipulates a three-step documentation process that a plan fiduciary must follow in the case of tiebreakers.
- Specific to DC plans, the DOL delineates between selecting investment options for a plan lineup versus selecting the qualified default investment alternative (QDIA). In the case of an investment option that is not a QDIA, the DOL permits the selection of funds or products that support non-pecuniary goals as long as 1) the option is one of a number that a participant can choose between in a lineup and 2) the evaluation of the fund or product is based solely on pecuniary attributes (i.e., a standard fiduciary assessment of an investment including its risk and return characteristics).
- Plan sponsors are not able to select QDIAs that have as a main objective or investment strategy the inclusion or consideration of non-pecuniary factors. The bottom line is that the DOL is differentiating between QDIAs, which participants can be defaulted into by definition, from other plan options. The DOL calculated that non-compliant target date fund series are a tiny portion of the target date fund market.
- The rule does not address accessing funds via the brokerage window that may include or support non-pecuniary factors.

Timing: All future fiduciary decisions including fund monitoring must reflect the final rule, as of 60 days after the rule is published in the Federal Register. However, QDIA compliance with the new rule must only be completed by April 30, 2022, to give sufficient time for fund changes for any plans that may require them.

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## Fourth Quarter 2020 DC Trends

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The DOL's new rule on a fiduciary's investment duties for investment selection and monitoring is underpinned by the principles 1) that these decisions should be based on evaluating pecuniary factors such as risk-return characteristics of an investment; 2) that ESG factors are pecuniary in some cases; and 3) that ERISA fiduciaries should focus solely on the interests of plan participants and beneficiaries and should not subordinate their interests to further other goals.



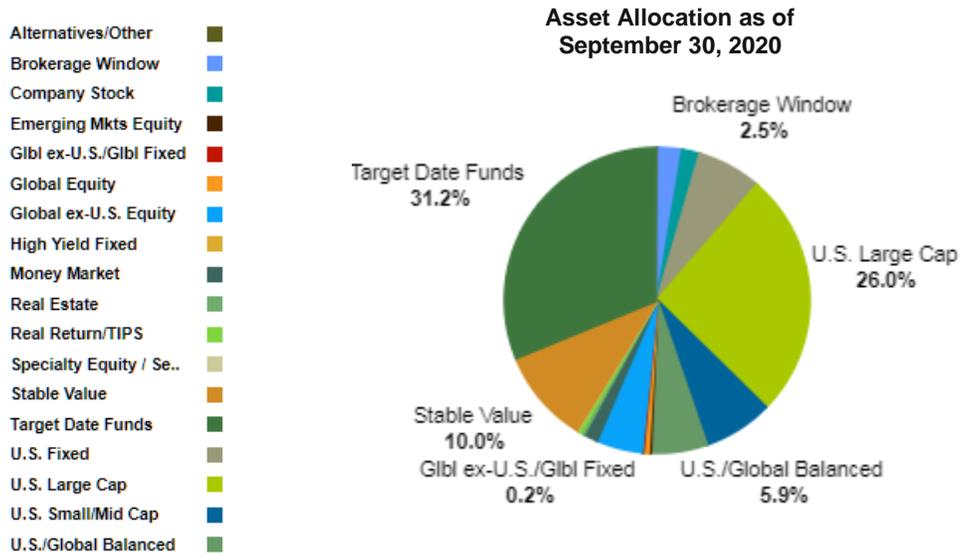
# Structure Utilization

## Asset Allocation

### U.S. Large Cap Gains Assets While Small/Mid Cap Drains Assets

U.S. large cap saw the largest percentage increase in allocation, rising by 60 basis points to bring the overall allocation to 26.0%. Strong performance relative to fixed income and other asset classes drove the increase and offset the effect of net outflows. On the other hand, U.S. small/mid cap had the largest percentage decrease in allocation, as the overall asset class allocation fell to 7.4% from 7.7% in 2Q.

Despite positive and sizable net inflows, stable value (10.0%) experienced the second largest decrease in allocation, signaling that the asset class was a relative underperformer. Following stable value, U.S./global balanced (6.0%) had the next largest decrease in allocation.



## Prevalence

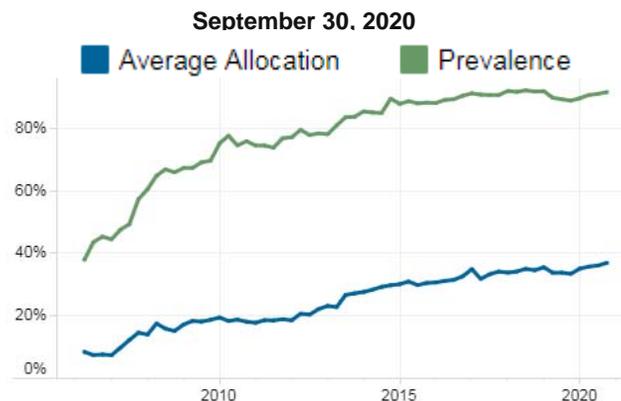
### Money Market Continues to Rise U.S. Large Cap Gains Assets While Small/Mid Cap Drains Assets

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 a money market offering (49.1%) increased by 1.4 percentage points from the previous quarter and sits at its highest mark since 3Q17. Despite increasing prevalence, many more DC plans still offer a stable value option (75.9%).

The percentage of plans offering a balanced fund (47.4%) dipped by more than 3 percentage points. Other offerings that saw decreasing prevalence included company stock (19.0%), global/global-ex U.S. fixed income (7.8%), and real estate (21.6%).

Prevalence of Funds in DC Plans as of



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## Glossary

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

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

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



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## Equity Market Indicators

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

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

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

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

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

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

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

## Fixed Income Market Indicators

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

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

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## International Equity Market Indicators

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

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## Callan Databases

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

### Equity Funds

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

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

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

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

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

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

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

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## Callan Databases

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

### Fixed Income Funds

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

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

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

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## Risk/Reward Statistics

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

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

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

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

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

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

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

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

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

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## Risk/Reward Statistics

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

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

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

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

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

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

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

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

