

February 25, 2022



**Pennsylvania State Employees'  
Retirement System – Defined  
Benefit Plan**

Fourth Quarter 2021

Executive Summary

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**Thomas H. Shingler**  
Senior Vice President

**Bud Pellecchia**  
Senior Vice President

**Britton M. Murdoch**  
Vice President

Callan

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**Market Environment**

# Resurgent U.S. Equity Market in 4Q21

Strong performance across both growth and value strategies during 2021

## U.S. equity 2021 returns are eye-popping:

- S&P 500: +28.7%
- Russell 2000: +14.8%

## Global ex-U.S. markets lagged in 2021:

- MSCI World ex USA: +12.6%
- MSCI Emerging Markets: -2.5%
- Economic data recovered in 4Q after softening in 3Q. Tight labor market and mismatch between jobs and job seekers is vexing employers.
- Inflation spiked and recorded 7% for the first time in decades.
- 4Q GDP hit a robust 6.9%, after dropping in 3Q. Growth for the year was 5.7%. The recovery is still solid. Supply chain issues and sentiment surrounding the end of fiscal stimulus, the Omicron variant, and the Fed taper vex investors as we head into 2022.

## Returns for Periods ended 12/31/21

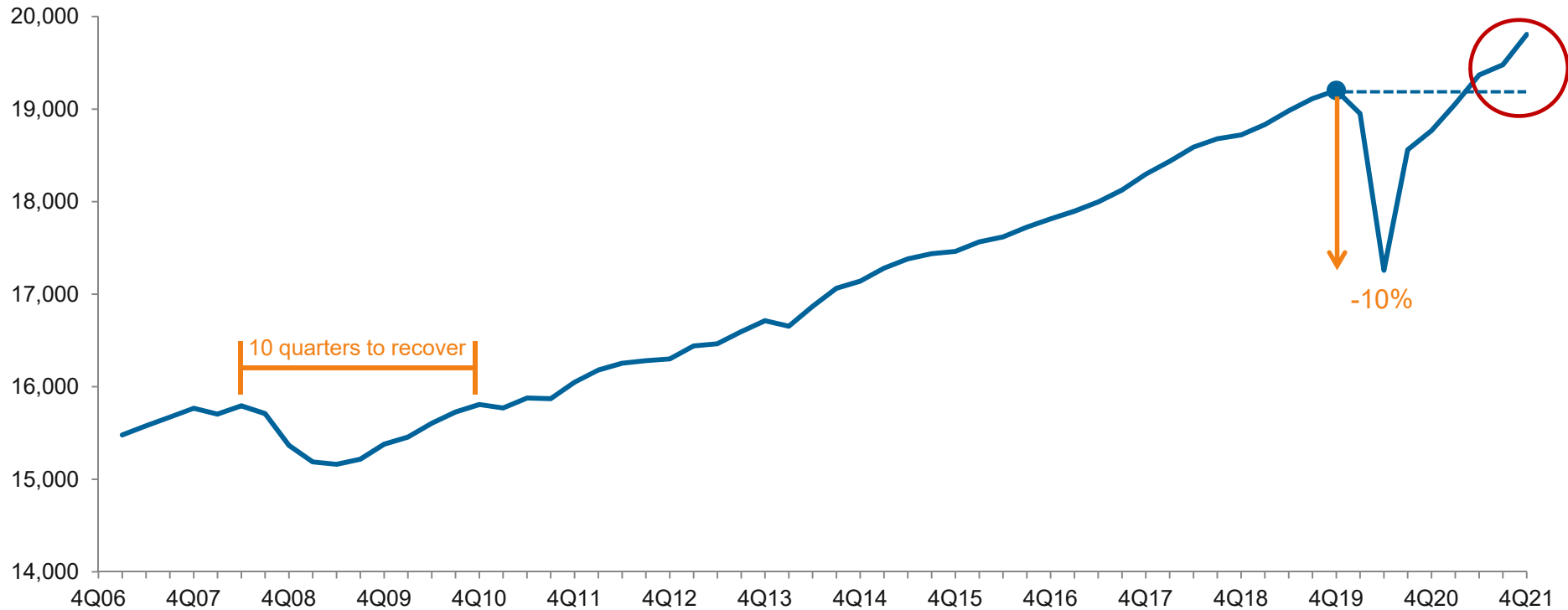
	1 Quarter	1 Year	5 Years	10 Years	25 Years
<b>U.S. Equity</b>					
Russell 3000	9.28	25.66	17.97	16.30	9.81
S&P 500	11.03	28.71	18.47	16.55	9.76
Russell 2000	2.14	14.82	12.02	13.23	8.99
<b>Global ex-U.S. Equity</b>					
MSCI World ex USA	3.14	12.62	9.63	7.84	5.39
MSCI Emerging Markets	-1.31	-2.54	9.88	5.49	--
MSCI ACWI ex USA Small Cap	0.62	12.93	11.21	9.46	6.93
<b>Fixed Income</b>					
Bloomberg Aggregate	0.01	-1.54	3.57	2.90	4.94
90-day T-Bill	0.01	0.05	1.14	0.63	2.06
Bloomberg Long Gov/Credit	2.15	-2.52	7.39	5.72	7.31
Bloomberg Global Agg ex-US	-1.18	-7.05	3.07	0.82	3.40
<b>Real Estate</b>					
NCREIF Property	6.15	17.70	7.75	9.32	9.38
FTSE Nareit Equity	16.31	43.24	10.75	11.38	9.89
<b>Alternatives</b>					
CS Hedge Fund	0.94	8.23	5.47	4.90	6.74
Cambridge Private Equity*	5.01	48.82	21.29	17.11	15.64
Bloomberg Commodity	-1.56	27.11	3.66	-2.85	1.13
Gold Spot Price	4.08	-3.51	9.69	1.56	6.61
<b>Inflation - CPI-U</b>	1.64	7.04	2.92	2.14	2.28

\*Cambridge PE data through 09/30/21.

Sources: Bloomberg, Callan, Cambridge, Credit Suisse, FTSE Russell, MSCI, NCREIF, S&P Dow Jones Indices

# GDP Recovered Pre-Pandemic Level in 2Q21 After Deepest Drop in 75 Years

Seasonally Adjusted Real GDP in Billions of Dollars



- After the Global Financial Crisis, it took 2½ years before real GDP reclaimed its pre-recession highs.
  - GFC peak to trough down 4%
- 2Q20 real GDP level was down over 10% from 4Q19.
  - Pre-pandemic peak level of GDP reached in 2Q21: \$19.368T vs. \$19.202T for 4Q19
- 2021 GDP showed annual growth of 5.7%, with consensus estimates just north of 4.0% for 2022, followed by return to trend.

Source: Federal Reserve Bank of St. Louis

# Inflation in the U.S.

## Powell pivot: Inflation at the peak?

### Inflation sets a 40-year high

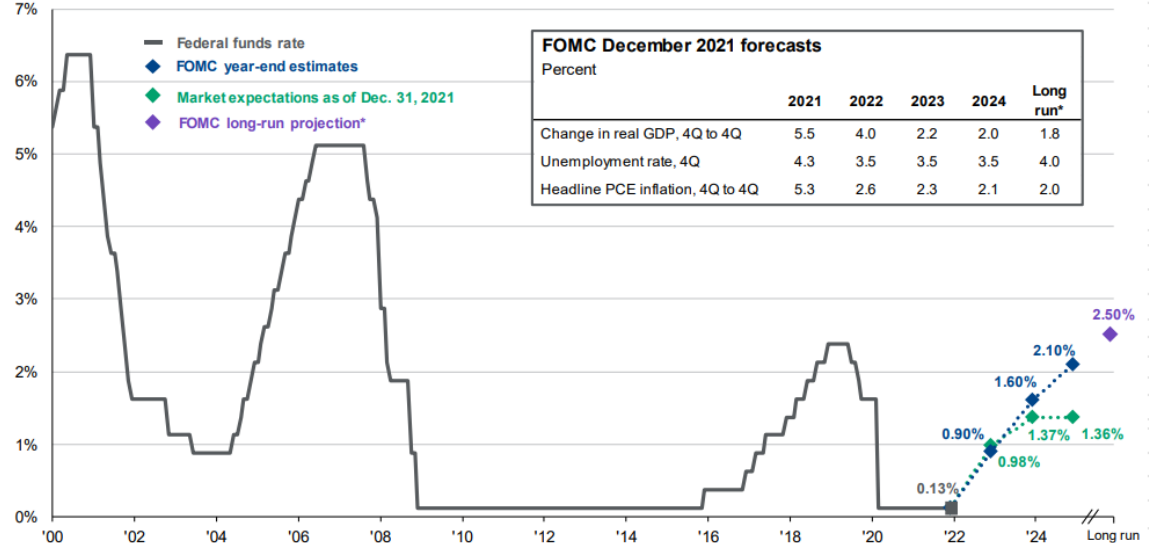
- Annual CPI jumped again to 7.0% in December—its eighth consecutive reading above 5% and the largest 12-month increase since the period ending June 1982.
- Increases for shelter and for used cars/trucks were the largest contributors to the seasonally adjusted all-items increase.
- Even service inflation, which had declined initially, has since recovered and is on an upward trend.

### Fed more hawkish than expected

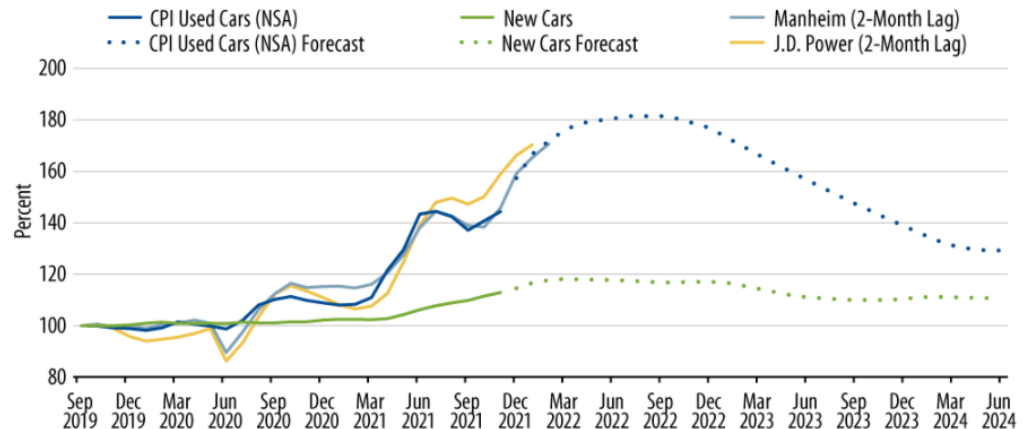
- Fed announced a doubling of the pace of tapering and an upward revision to the anticipated path of rate hikes.
- FOMC participants now expect three rate hikes in 2022 to bring the targeted range to 0.75%-1.0% by year-end.

### Federal funds rate expectations

FOMC and market expectations for the federal funds rate



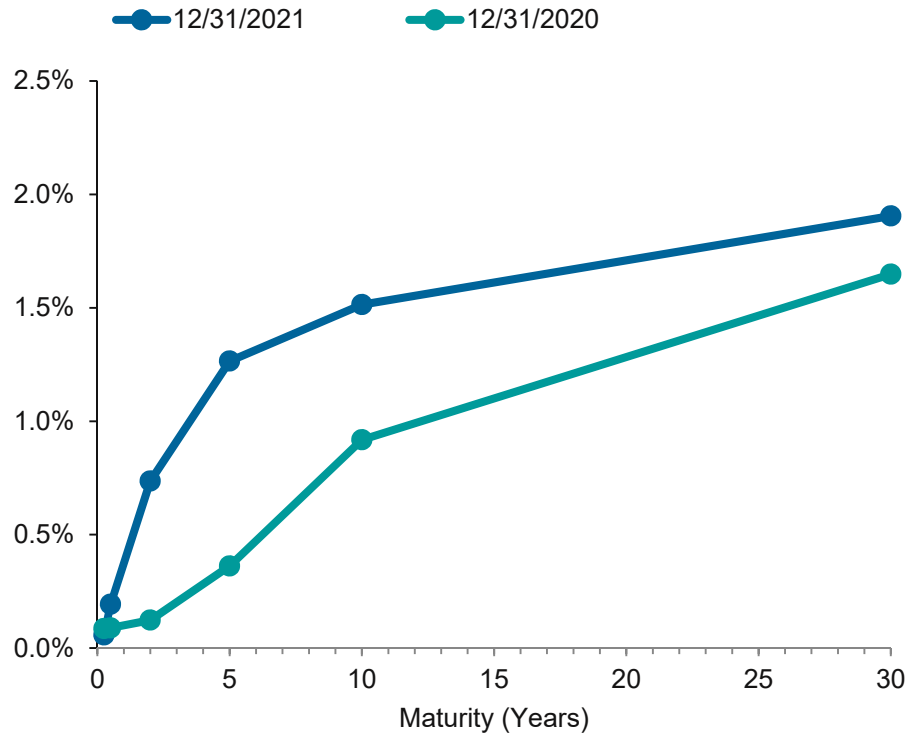
### Used Car Indexes (NSA) – Rebased to 100 Pre-Covid



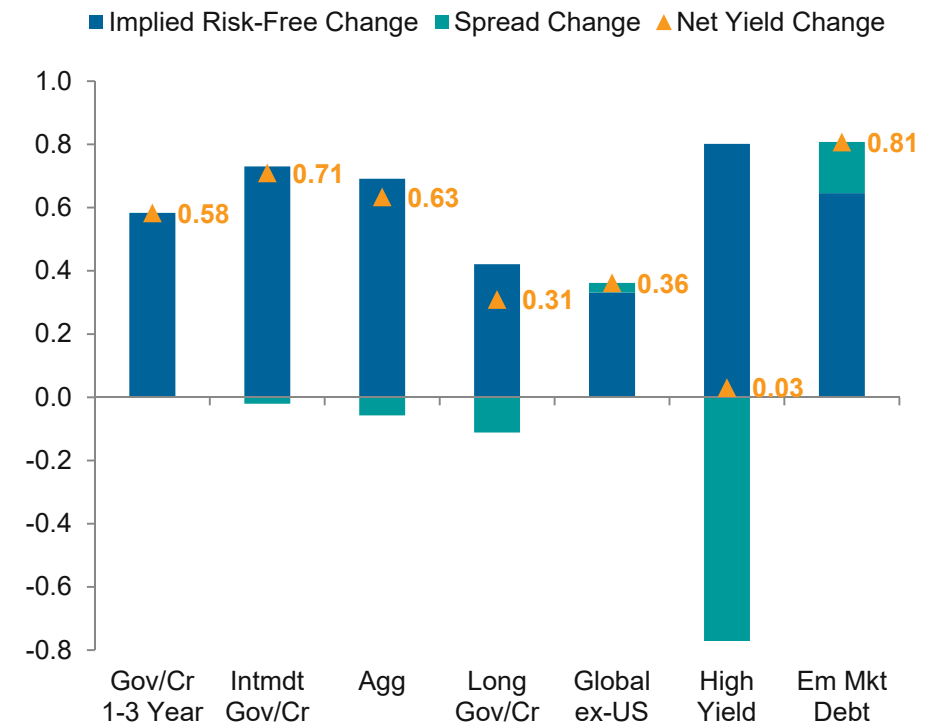
Sources: (top-right) Bloomberg, FactSet, Federal Reserve, J.P. Morgan Asset Management, (bottom-left) Western Asset, U.S. Bureau of Labor Statistics, J.D. Power, Manheim.

# Rate Movement in the Last Year

U.S. Treasury Yield Curve Change



Net Yield Changes After Spread Tightening (12/31/2021)



**The Treasury yield curve rose meaningfully in the last year.**

- However, spreads also tightened and absorbed some of the rise in rates.
- In the case of high yield, spreads tightened so much the overall yield on the sector dropped by over 1.7%.

Sources: Bloomberg, Federal Reserve

# Diversification Remains Key Risk Control

## Periodic Table of Investment Returns

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Non-U.S. Fixed	Emerging Markets	Emerging Markets	Emerging Markets	Emerging Markets	Emerging Markets	U.S. Fixed	Emerging Markets	Small Cap	Real Estate Funds	Emerging Markets	Small Cap	Large Cap	Real Estate Funds	Small Cap	Emerging Markets	Real Estate Funds	Large Cap	Small Cap	Large Cap
22.37%	55.82%	25.55%	34.00%	32.17%	39.38%	5.24%	78.51%	26.85%	14.96%	18.23%	38.82%	13.69%	13.95%	21.31%	37.28%	7.36%	31.49%	19.96%	28.71%
U.S. Fixed	Small Cap	Non-U.S. Equity	Real Estate Funds	Non-U.S. Equity	Real Estate Funds	Non-U.S. Fixed	High Yield	Emerging Markets	U.S. Fixed	Non-U.S. Equity	Large Cap	Real Estate Funds	Large Cap	High Yield	Non-U.S. Equity	Cash Equivalent	Small Cap	Large Cap	Real Estate Funds
10.26%	47.25%	20.38%	20.15%	25.71%	14.84%	4.39%	58.21%	18.88%	7.84%	16.41%	32.39%	11.46%	1.38%	17.13%	24.21%	1.87%	25.52%	18.40%	21.02%
Real Estate Funds	Non-U.S. Equity	Small Cap	Non-U.S. Equity	Small Cap	Hedge Funds	Cash Equivalent	Non-U.S. Equity	Real Estate Funds	High Yield	Small Cap	Non-U.S. Equity	U.S. Fixed	U.S. Fixed	Large Cap	Large Cap	U.S. Fixed	Non-U.S. Equity	Emerging Markets	Small Cap
4.57%	39.42%	18.33%	14.47%	18.37%	12.56%	2.06%	33.67%	15.26%	4.98%	16.35%	21.02%	5.97%	0.55%	11.96%	21.83%	0.01%	22.49%	18.31%	14.82%
Hedge Funds	High Yield	Non-U.S. Fixed	Hedge Funds	Large Cap	Non-U.S. Equity	Real Estate Funds	Small Cap	High Yield	Non-U.S. Fixed	Large Cap	Real Estate Funds	Small Cap	Cash Equivalent	Emerging Markets	Small Cap	High Yield	Emerging Markets	Non-U.S. Fixed	Non-U.S. Equity
3.04%	28.97%	12.54%	7.61%	15.79%	12.44%	-10.70%	27.17%	15.12%	4.36%	16.00%	12.90%	4.89%	0.05%	11.19%	14.65%	-2.08%	18.44%	10.11%	12.62%
Cash Equivalent	Large Cap	Real Estate Funds	Large Cap	Real Estate Funds	Non-U.S. Fixed	Hedge Funds	Large Cap	Large Cap	Large Cap	High Yield	Hedge Funds	Hedge Funds	Hedge Funds	Real Estate Funds	Non-U.S. Fixed	Non-U.S. Fixed	High Yield	Non-U.S. Equity	Hedge Funds
1.78%	28.68%	12.00%	4.91%	15.27%	11.03%	-19.07%	26.47%	15.06%	2.11%	15.81%	9.73%	4.13%	-0.71%	7.79%	10.51%	-2.15%	14.32%	7.59%	8.23%
High Yield	Non-U.S. Fixed	High Yield	Small Cap	Hedge Funds	U.S. Fixed	High Yield	Hedge Funds	Hedge Funds	Cash Equivalent	Real Estate Funds	High Yield	High Yield	Non-U.S. Equity	Non-U.S. Equity	High Yield	Hedge Funds	Hedge Funds	U.S. Fixed	High Yield
-1.37%	19.36%	11.13%	4.55%	13.86%	6.97%	-26.16%	18.57%	10.95%	0.10%	9.79%	7.44%	2.45%	-3.04%	2.75%	7.50%	-3.19%	9.31%	7.51%	5.28%
Emerging Markets	Hedge Funds	Large Cap	Cash Equivalent	High Yield	Large Cap	Small Cap	Non-U.S. Fixed	Non-U.S. Equity	Hedge Funds	Hedge Funds	Cash Equivalent	Cash Equivalent	Small Cap	U.S. Fixed	Hedge Funds	Large Cap	U.S. Fixed	High Yield	Cash Equivalent
-6.16%	15.44%	10.88%	3.06%	11.85%	5.49%	-33.79%	7.53%	8.95%	-2.52%	7.67%	0.07%	0.04%	-4.41%	2.65%	7.12%	-4.38%	8.72%	7.11%	0.05%
Non-U.S. Equity	Real Estate Funds	Hedge Funds	High Yield	Non-U.S. Fixed	Cash Equivalent	Large Cap	U.S. Fixed	U.S. Fixed	Small Cap	U.S. Fixed	U.S. Fixed	Emerging Markets	High Yield	Non-U.S. Fixed	Real Estate Funds	Small Cap	Non-U.S. Fixed	Hedge Funds	U.S. Fixed
-15.80%	8.28%	9.64%	2.74%	8.16%	5.00%	-37.00%	5.93%	6.54%	-4.18%	4.21%	-2.02%	-2.19%	-4.47%	1.49%	6.66%	-11.01%	5.09%	6.36%	-1.54%
Small Cap	U.S. Fixed	U.S. Fixed	U.S. Fixed	Cash Equivalent	High Yield	Non-U.S. Equity	Cash Equivalent	Non-U.S. Fixed	Non-U.S. Equity	Non-U.S. Fixed	Emerging Markets	Non-U.S. Fixed	Non-U.S. Fixed	Hedge Funds	U.S. Fixed	Non-U.S. Equity	Real Estate Funds	Cash Equivalent	Emerging Markets
-20.48%	4.10%	4.34%	2.43%	4.86%	1.87%	-43.56%	0.21%	4.95%	-12.21%	4.09%	-2.60%	-3.09%	-6.02%	1.25%	3.54%	-14.09%	4.39%	0.67%	-2.54%
Large Cap	Cash Equivalent	Cash Equivalent	Non-U.S. Fixed	U.S. Fixed	Small Cap	Emerging Markets	Real Estate Funds	Cash Equivalent	Emerging Markets	Cash Equivalent	Non-U.S. Fixed	Non-U.S. Equity	Emerging Markets	Cash Equivalent	Cash Equivalent	Emerging Markets	Cash Equivalent	Real Estate Funds	Non-U.S. Fixed
-22.10%	1.15%	1.33%	-8.65%	4.33%	-1.57%	-53.33%	-30.40%	0.13%	-18.42%	0.11%	-3.08%	-4.32%	-14.92%	0.33%	0.86%	-14.57%	2.28%	0.34%	-7.05%

- Bloomberg Barclays Corp High Yield ● Bloomberg Barclays Global Aggregate ex US ● Bloomberg Barclays US Aggregate
- Credit Suisse Hedge Fund ● ICE BofAML US 3-Month Treasury Bill ● MSCI Emerging Markets ● MSCI World ex USA
- NFI-ODCE (value-weighted net) ● Russell 2000 ● S&P 500

Callan

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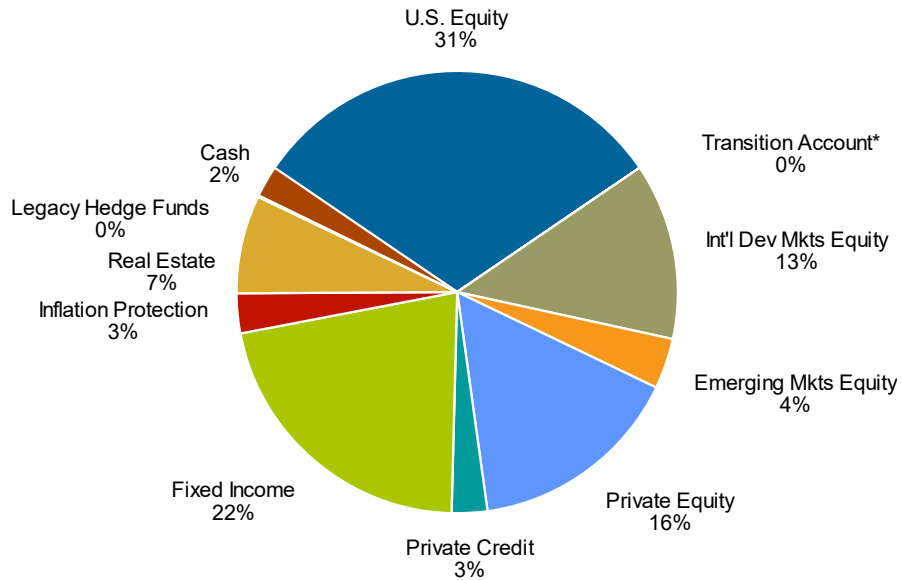
**PA SERS Defined Benefit Plan  
Performance Review**



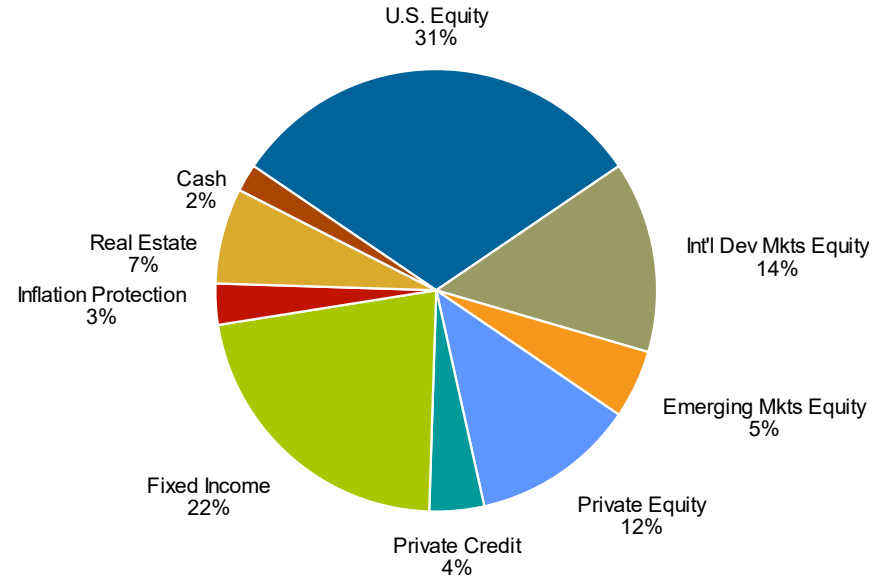
# Total Fund

## Actual Asset Allocation versus Target as of December 31, 2021

**Actual Asset Allocation**



**Target Asset Allocation**



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
U.S. Equity	12,430,523	31.1%	31.0%	0.1%	55,173
Transition Account*	1,109	0.0%	0.0%	0.0%	1,109
Int'l Dev Mkts Equity	5,147,117	12.9%	14.0%	(1.1%)	(441,751)
Emerging Mkts Equity	1,488,692	3.7%	5.0%	(1.3%)	(507,332)
Private Equity	6,263,770	15.7%	12.0%	3.7%	1,473,312
Private Credit	1,036,569	2.6%	4.0%	(1.4%)	(560,250)
Fixed Income	8,604,962	21.6%	22.0%	(0.4%)	(177,545)
Inflation Protection	1,156,071	2.9%	3.0%	(0.1%)	(41,544)
Real Estate	2,870,293	7.2%	7.0%	0.2%	75,859
Legacy Hedge Funds	22,816	0.1%	0.0%	0.1%	22,816
Cash	898,561	2.3%	2.0%	0.3%	100,152
<b>Total</b>	<b>39,920,483</b>	<b>100.0%</b>	<b>100.0%</b>		

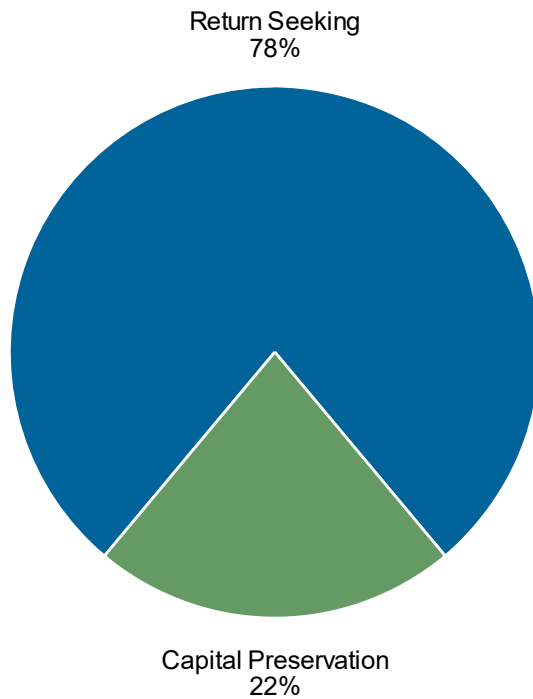
\*Market values are shown net of accrued fees.

\*Transition account market values are not included in any asset class and are excluded from these charts.

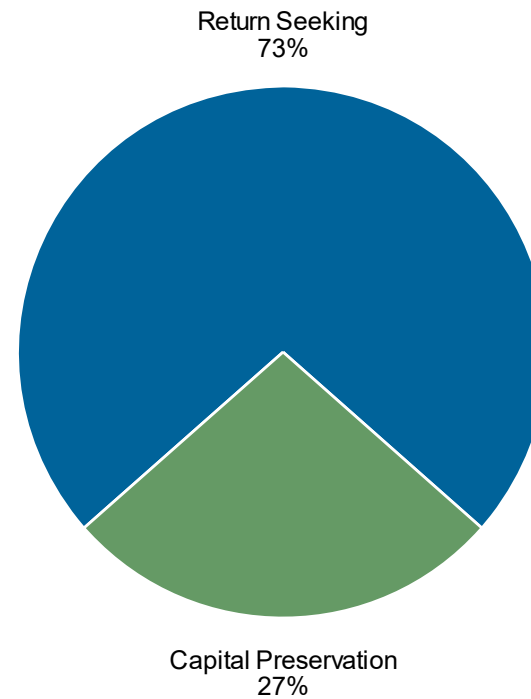
# Return Seeking and Capital Preservation Assets

As of December 31, 2021

### Actual Asset Allocation



### Target Asset Allocation



\*Return Seeking Assets: U.S. Equity, Int'l Developed Markets Equity, Emerging Markets Equity, Transition Account, Opportunistic Fixed Income, High Yield, Private Equity, Private Credit, Real Estate and Legacy Hedge Funds.

\*Capital Preservation Assets: Core FI, Nominal Treas, Inflation Protection (TIPS), Intern Treas, Long Duration, Securitized, Intern Credit and Cash.

\*Market values are shown net of accrued fees.

# Projected Risk, Liquidity and Correlation

	Capital Preservation Assets			Return Seeking Assets					
	Cash	Inflation Protection (TIPS)	Fixed Income <sup>^</sup>	U.S. Equity	Developed International Equity	Emerging Markets Equity	Private Credit	Real Estate	Private Equity
<b>Policy Target Asset Allocation</b>	2%	3%	22%	31%	14%	5%	4%	7%	12%
<b>Projected Return* (Geometric)</b>	1.20%	1.25%	1.75%	6.60%	6.50%	6.90%	5.50%	5.75%	8.00%
<b>Projected Risk* (Standard Deviation)</b>	0.90%	5.05%	3.75%	17.95%	19.90%	25.15%	14.60%	14.20%	27.60%
<b>Liquidity</b>	High	High	High	High	High	Medium	Low	Low	Low
<b>Correlation to U.S. Equity*</b>	-0.06	-0.08	-0.10	1.00	0.77	0.79	0.68	0.64	0.77
<b>Months of Benefit Payments**</b>	2.9	3.7	19.9						
<b>Months of Benefit Payments (Includes EE &amp; ER Contributions)**</b>	11.9	15.3	81.1						
<b>Cumulative Months of Benefit Payments (Includes EE &amp; ER Contributions)**</b>		108.3							

\*Callan 2022 Capital Market Projections

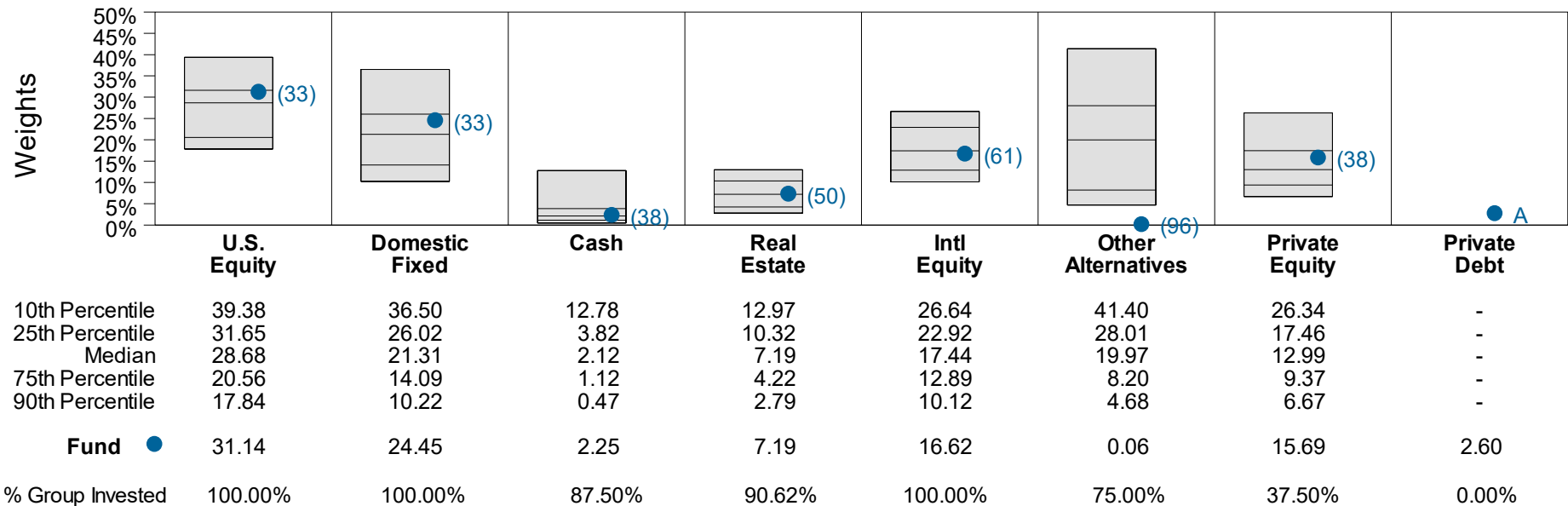
\*\*SERS IO as of 12/31/2021. Benefit payment calculations for fixed income represent core fixed income & treasury allocations.

<sup>^</sup>Core and Opportunistic fixed Income combined until new fixed income structure has been fully implemented.

# Total Fund

Actual Asset Allocation versus Very Large Public DB Plan (>\$10B) Peers and Large Public DB Plan (>\$1B) Peers as of December 31, 2021

## Asset Class Weights vs Callan Public Fund Spons- V Lg DB (>10B)



\* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 12% Private Equity, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

# Total Fund

## One Quarter Attribution Analysis versus Target – Gross of Fees as of December 31, 2021

Note: Attribution is a snapshot in time. Asset allocation effect utilizes monthly asset class weights to calculate the overall effect on attribution. Asset class weights fluctuate month to month and are combined to calculate a quarterly attribution effect.

### Relative Attribution Effects for Quarter ended December 31, 2021

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
U.S. Equity	31%	31%	8.11%	9.28%	(0.35%)	(0.05%)	(0.40%)
Int'l Dev. Mkts Equity	13%	14%	3.80%	2.71%	0.14%	0.01%	0.15%
Emerging Markets	4%	5%	(0.21%)	(0.98%)	0.03%	0.07%	0.10%
Private Equity	16%	12%	8.49%	8.49%	0.00%	0.12%	0.12%
Private Credit	3%	4%	5.48%	1.35%	0.12%	0.01%	0.13%
Fixed Income	22%	22%	0.37%	0.01%	0.08%	0.01%	0.09%
Inflation Protection	3%	3%	2.27%	2.36%	(0.00%)	0.00%	(0.00%)
Real Estate	7%	7%	7.00%	7.70%	(0.05%)	0.01%	(0.04%)
Legacy Hedge Funds	0%	0%	(0.17%)	(0.17%)	0.00%	(0.00%)	(0.00%)
Cash	2%	2%	0.01%	0.01%	0.00%	(0.01%)	(0.01%)
<b>Total</b>			<b>5.03%</b>	<b>4.90%</b>	<b>+ (0.04%)</b>	<b>+ 0.17%</b>	<b>0.13%</b>

#### • What helped relative attribution?

- Outperformance relative to target from International Developed Markets Equity, Private Credit and Fixed Income managers
- An overweight to Private Equity (attribution based on target return)
- An underweight to Emerging Markets Equity (attribution based on target return)

#### • What hurt relative attribution?

- Underperformance relative to target from U.S. Equity (structural overweight to small cap) and Real Estate managers
- A slight underweight to U.S. Equity (attribution based on target return)

\* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 12% Private Equity, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index. Returns are shown gross of fees.

# Total Fund

## One Year Attribution Analysis versus Target – Gross of Fees as of December 31, 2021

Note: Attribution is a snapshot in time. Asset allocation effect utilizes monthly asset class weights to calculate the overall effect on attribution. Asset class weights fluctuate month to month and are combined to calculate an annual attribution effect.

### One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
U.S. Equity	27%	27%	24.67%	25.66%	(0.28%)	(0.18%)	(0.46%)
Int'l Dev. Mkts Equity	13%	13%	14.62%	12.40%	0.30%	0.01%	0.31%
Emerging Markets	4%	4%	0.10%	(0.28%)	0.02%	0.10%	0.12%
Private Equity	14%	13%	66.14%	66.14%	0.00%	0.47%	0.47%
Private Credit	4%	4%	23.68%	9.41%	0.59%	(0.04%)	0.56%
Fixed Income	24%	25%	(0.60%)	(1.54%)	0.28%	0.07%	0.35%
Inflation Protection	4%	4%	5.27%	5.96%	(0.02%)	0.02%	(0.01%)
Real Estate	7%	8%	19.96%	17.48%	0.17%	0.03%	0.20%
Multi-Strategy	0%	0%	-	-	0.00%	0.00%	0.00%
Legacy Hedge Funds	0%	0%	20.79%	14.22%	0.00%	(0.00%)	0.00%
Cash	2%	2%	0.07%	0.05%	0.00%	0.01%	0.02%

<b>Total</b>	<b>19.08% = 17.51% + 1.07% + 0.49%</b>	<b>1.56%</b>
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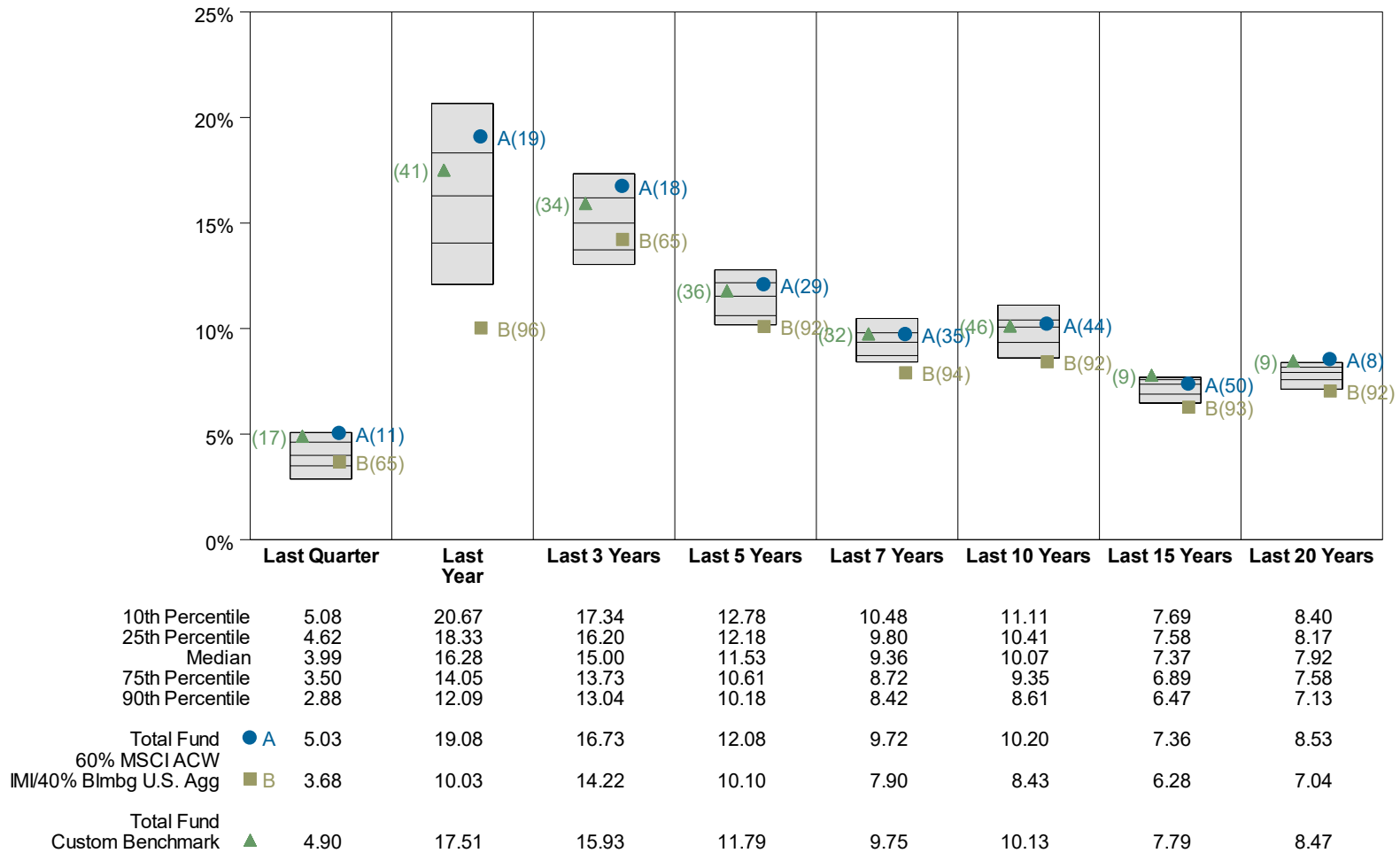
- **What helped relative attribution?**
  - Outperformance relative to target from Private Credit, International Developed Markets Equity, Fixed Income and Real Estate managers
  - An overweight to Private Equity (attribution based on target return)
  - A slight underweight to Emerging Markets Equity and Fixed Income (attribution based on target return)
- **What hurt relative attribution?**
  - Underperformance relative to target from U.S. Equity managers (structural overweight to small cap)
  - A slight underweight to U.S. Equity (attribution based on target return)

\* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 12% Private Equity, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index. Returns are shown gross of fees.

# Total Fund

## Gross of Fee Performance versus Very Large Public DB Plan (>\$10B) Peers and Benchmark as of December 31, 2021

Performance vs Callan Public Fund Spons- V Lg DB (>10B) (Gross)



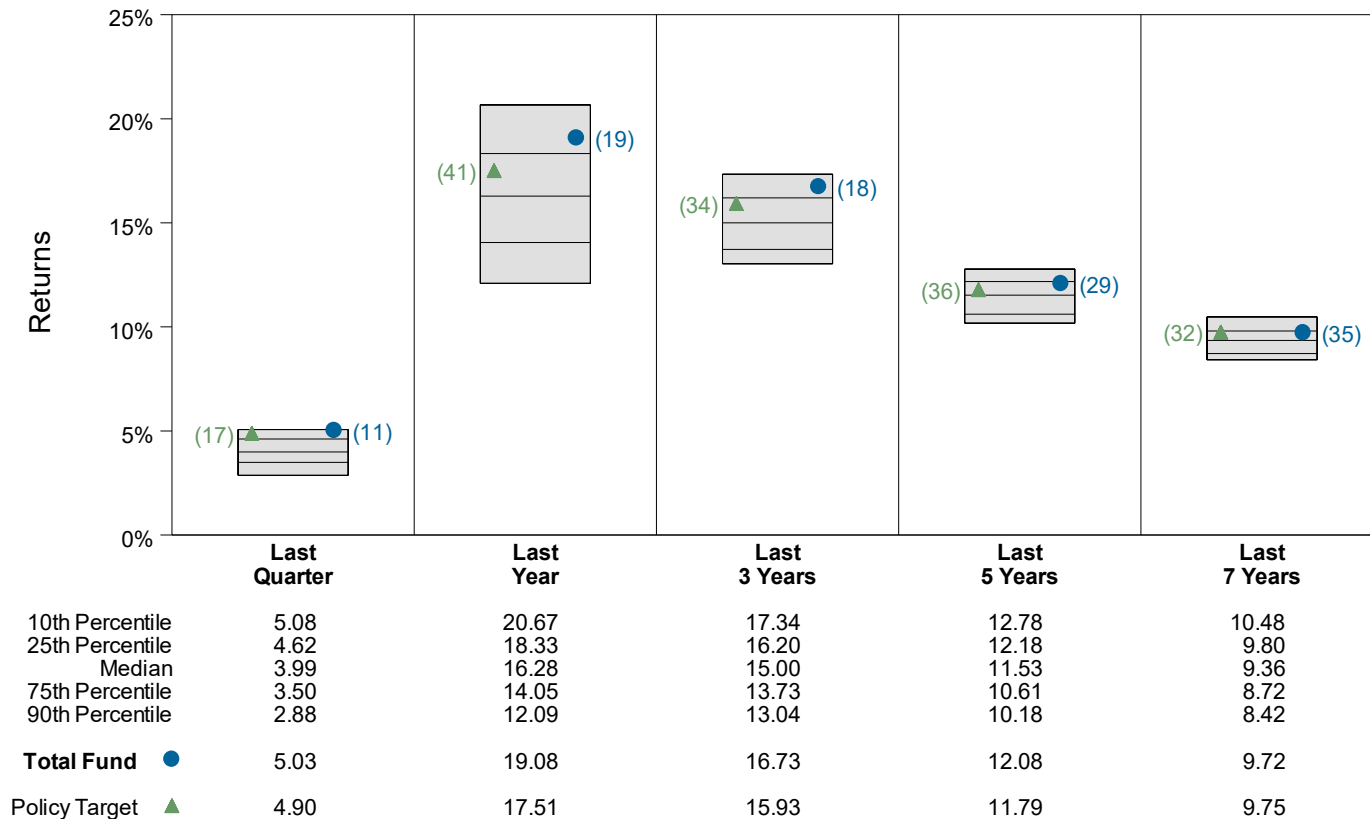
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# Total Fund

## Asset Allocation-Adjusted Gross of Fee Performance versus Very Large Public DB Plan (>\$10B) Peers as of December 31, 2021

- For this comparison, each fund in the Database is adjusted to have the same asset allocation as Pennsylvania SERS. This removes large asset allocation variances among plans and allows for a greater focus on manager performance.

### Callan Public Fund Spons- V Lg DB (>10B)



\* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 12% Private Equity, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.



# Total Fund

Risk vs. Return versus Very Large Public DB Plan (>\$10B) Peers as of December 31, 2021

## Ten Year Annualized Risk vs Return



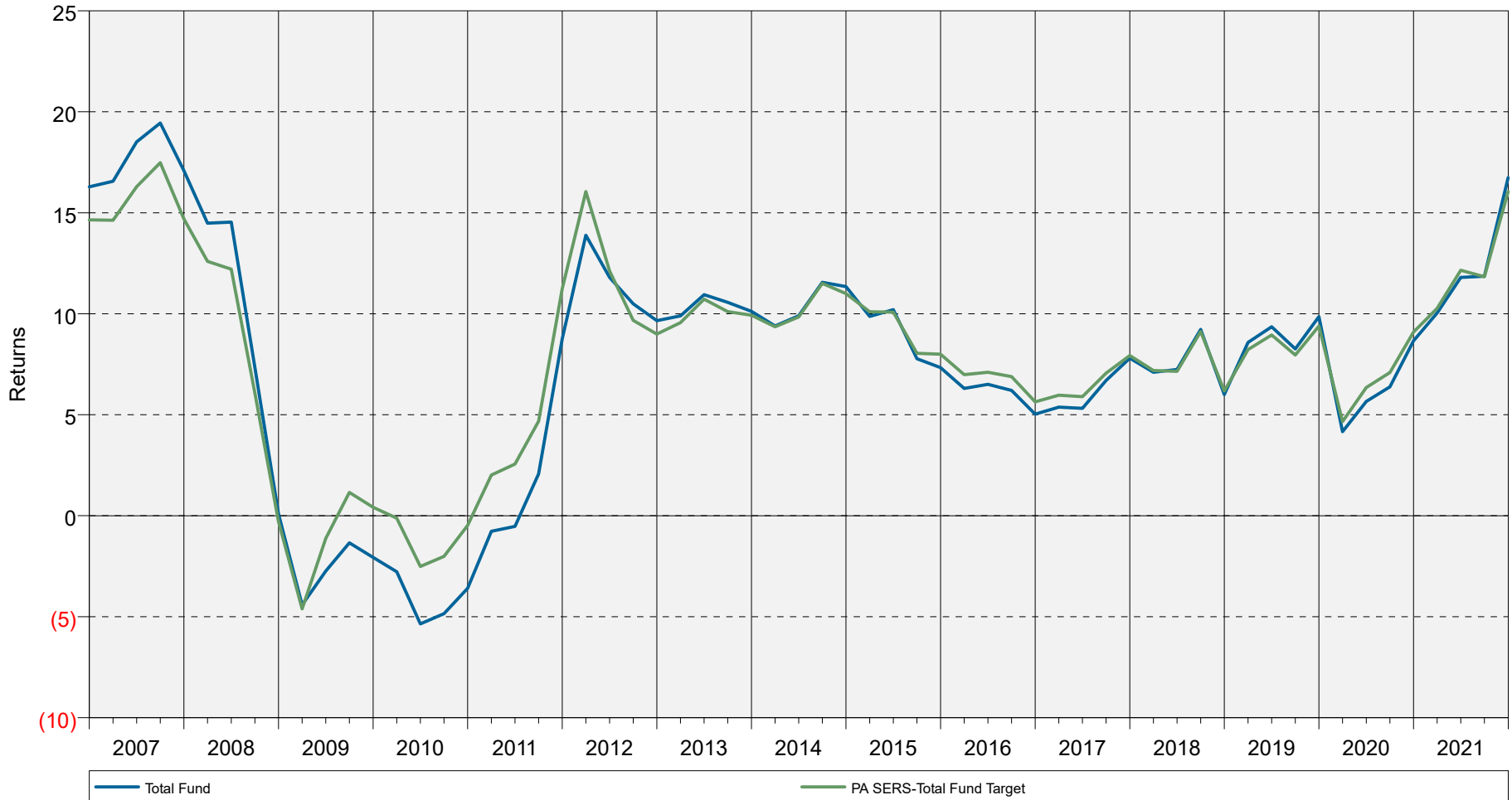
Squares represent membership of the Callan Public Fund Spons- V Lg DB (>10B)

\* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 12% Private Equity, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

# Total Fund

## Rolling 3-year Gross of Fee Performance versus Benchmark as of December 31, 2021

Rolling 12 Quarter Gross of Fee Returns  
for 15 Years Ended December 31, 2021



\* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 12% Private Equity, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

# Total Fund

## Rolling 5-year Gross of Fee Performance versus Benchmark as of December 31, 2021

Rolling 20 Quarter Gross of Fee Returns  
for 15 Years Ended December 31, 2021



\* Current Quarter Target = 22% Bloomberg U.S. Agg Bond Index, 12% Private Equity, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index.

# Asset Class Returns

As of December 31, 2021

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
<b>Net Performance</b>						
<b>Total Fund</b>	<b>\$39,920</b>	<b>100.00%</b>	<b>4.65%</b>	<b>17.24%</b>	<b>15.65%</b>	<b>11.19%</b>
Total Fund Custom Benchmark(1)	-	-	4.90%	17.51%	15.93%	11.79%
Public Market Equiv Benchmark(2)	-	-	3.55%	13.64%	14.38%	11.45%
60/40 Index(3)	-	-	3.68%	10.03%	14.22%	10.10%
<b>U.S. Equity</b>	<b>\$12,431</b>	<b>31.14%</b>	<b>8.10%</b>	<b>24.62%</b>	<b>25.37%</b>	<b>17.05%</b>
Russell 3000 Index	-	-	9.28%	25.66%	25.79%	17.97%
<b>Int'l Developed Mkts Equity</b>	<b>\$5,147</b>	<b>12.89%</b>	<b>3.77%</b>	<b>14.48%</b>	<b>15.85%</b>	<b>11.33%</b>
MSCI World ex US IMI	-	-	2.71%	12.40%	14.38%	9.83%
<b>Emerging Mkts Equity</b>	<b>\$1,489</b>	<b>3.73%</b>	<b>(0.34%)</b>	<b>(0.45%)</b>	<b>14.55%</b>	<b>12.33%</b>
MSCI EM IMI	-	-	(0.98%)	(0.28%)	11.58%	10.06%
<b>Private Equity</b>	<b>\$6,264</b>	<b>15.69%</b>	<b>6.71%</b>	<b>52.83%</b>	<b>25.61%</b>	<b>20.13%</b>
Burgiss Private Equity Index (Qtr lag)	-	-	3.73%	38.48%	18.87%	17.77%
Global Equity + 3% (Qtr lag)(4)	-	-	0.56%	33.88%	18.16%	19.38%
<b>Private Credit</b>	<b>\$1,037</b>	<b>2.60%</b>	<b>4.15%</b>	<b>19.12%</b>	<b>12.63%</b>	<b>-</b>
S&P Levered Loan Index + 1% (Qtr lag)	-	-	1.35%	9.41%	5.22%	5.63%
<b>Fixed Income</b>	<b>\$8,605</b>	<b>21.56%</b>	<b>0.28%</b>	<b>(0.75%)</b>	<b>4.76%</b>	<b>3.57%</b>
Blmbg U.S. Agg Bond Index	-	-	0.01%	(1.54%)	4.79%	3.57%
<b>Inflation Protection (TIPS)</b>	<b>\$1,156</b>	<b>2.90%</b>	<b>2.25%</b>	<b>5.16%</b>	<b>8.16%</b>	<b>5.25%</b>
Blmbg U.S. TIPS Index	-	-	2.36%	5.96%	8.44%	5.34%
<b>Real Estate</b>	<b>\$2,870</b>	<b>7.19%</b>	<b>6.35%</b>	<b>18.04%</b>	<b>10.18%</b>	<b>5.92%</b>
Real Estate Custom Bench (Qtr lag)(5)	-	-	7.70%	17.48%	7.25%	6.92%
CPI + 3% (Qtr lag)	-	-	1.68%	8.39%	5.81%	5.59%
<b>Cash</b>	<b>\$899</b>	<b>2.25%</b>	<b>0.01%</b>	<b>0.06%</b>	<b>1.00%</b>	<b>1.32%</b>
3-month Treasury Bill	-	-	0.01%	0.05%	0.99%	1.14%

(1) The current total fund benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 12% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% Real Estate Custom Benchmark, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index. See page 78 of Callan's performance report for full benchmark history.

(2) The current public equivalent benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 31% Russell 3000, 14% MSCI World ex US IMI Index, 9% Russell 3000+ 3% (Qtr lag), 7% CPI+3% (Qtr Lag), 4% S&P/LSTA Levered Loan Index +1% (Qtr lag), 3% Bloomberg US TIPS Index, 5% MSCI EM IMI Index, 3% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index. See page 78 for full benchmark history.

(3) Benchmark consists of 60% MSCI ACW IMI Index and 40% Bloomberg U.S. Agg Bond Index.

(4) As of 01/01/2020 benchmark consists of 25% MSCI World ex US +3% (Qtr lag) and 75% Russell 3000 + 3% (Qtr lag). Benchmark performance represents the historical benchmark (Russell 3000 +3% Qtr lag) linked to the current benchmark.

(5) As of 03/31/2019 benchmark consists of 90% NCREIF ODCE Index (Qtr lag) and 10% FTSE NAREIT Index (unlagged).

Prior to 03/31/2019, benchmark history was provided by RVK.

# Asset Class Returns

As of December 31, 2021

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception	
<b>Net Performance</b>						
<b>Total Fund</b>	<b>9.41%</b>	<b>6.52%</b>	<b>7.68%</b>	<b>7.99%</b>	<b>9.77%</b>	(1/81)
Total Fund Custom Benchmark(1)	10.13%	7.79%	8.47%	8.45%	-	
Public Market Equiv Benchmark(2)	10.43%	7.76%	8.44%	8.43%	-	
60/40 Index(3)	8.43%	6.28%	7.04%	6.80%	-	
<b>U.S. Equity</b>	<b>15.58%</b>	<b>9.18%</b>	<b>9.20%</b>	<b>9.35%</b>	<b>11.30%</b>	(1/81)
Russell 3000 Index	16.30%	10.59%	9.72%	9.76%	11.61%	(1/81)
<b>Int'l Developed Mkts Equity</b>	<b>9.09%</b>	<b>3.89%</b>	<b>6.95%</b>	<b>-</b>	<b>6.95%</b>	(1/02)
MSCI World ex US IMI	8.12%	3.95%	6.94%	5.63%	6.94%	(1/02)
<b>Emerging Mkts Equity</b>	<b>6.53%</b>	<b>3.23%</b>	<b>7.90%</b>	<b>-</b>	<b>7.90%</b>	(1/02)
MSCI EM IMI	5.71%	4.67%	9.69%	5.37%	9.69%	(1/02)
<b>Private Equity</b>	<b>14.97%</b>	<b>12.91%</b>	<b>11.95%</b>	<b>13.76%</b>	<b>12.10%</b>	(1/86)
Burgiss Private Equity Index (Qtr lag)	15.06%	12.83%	12.66%	14.53%	17.29%	(1/86)
Global Equity + 3% (Qtr lag)(4)	19.48%	13.69%	13.12%	13.11%	15.03%	(1/86)
<b>Private Credit</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>11.31%</b>	(12/17)
S&P Levered Loan Index + 1% (Qtr lag)	5.94%	5.64%	5.87%	-	5.47%	(12/17)
<b>Fixed Income</b>	<b>3.50%</b>	<b>4.50%</b>	<b>5.35%</b>	<b>5.54%</b>	<b>8.10%</b>	(1/81)
Bimbg U.S. Agg Bond Index	2.90%	4.09%	4.33%	4.94%	7.39%	(1/81)
<b>Inflation Protection (TIPS)</b>	<b>2.90%</b>	<b>3.98%</b>	<b>-</b>	<b>-</b>	<b>3.76%</b>	(2/03)
Bimbg U.S. TIPS Index	3.09%	4.69%	5.31%	-	4.73%	(2/03)
<b>Real Estate</b>	<b>7.68%</b>	<b>4.11%</b>	<b>6.83%</b>	<b>7.88%</b>	<b>8.46%</b>	(3/84)
Real Estate Custom Bench (Qtr lag)(5)	9.36%	5.78%	7.47%	8.30%	-	
CPI + 3% (Qtr lag)	4.92%	5.03%	5.18%	5.24%	5.67%	(3/84)
<b>Cash</b>	<b>0.89%</b>	<b>1.22%</b>	<b>1.59%</b>	<b>2.40%</b>	<b>3.44%</b>	(1/87)
3-month Treasury Bill	0.63%	0.91%	1.29%	2.06%	3.17%	(1/87)

(1) The current total fund benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 12% SERS Private Equity Composite, 31% Russell 3000 Index, 14% MSCI World ex US IMI Index, 7% Real Estate Custom Benchmark, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 5% MSCI Emerging Markets IMI Index, 3% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index. See page 78 of Callan' performance report for full benchmark history.

(2) The current public equivalent benchmark consists of: 22% Bloomberg U.S. Agg Bond Index, 31% Russell 3000, 14% MSCI World ex US IMI Index, 9% Russell 3000+ 3% (Qtr lag), 7% CPI+3% (Qtr Lag), 4% S&P/LSTA Levered Loan Index +1% (Qtr lag), 3% Bloomberg US TIPS Index, 5% MSCI EM IMI Index, 3% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index. See page 78 for full benchmark history.

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Prior to 03/31/2019, benchmark history was provided by RVK.

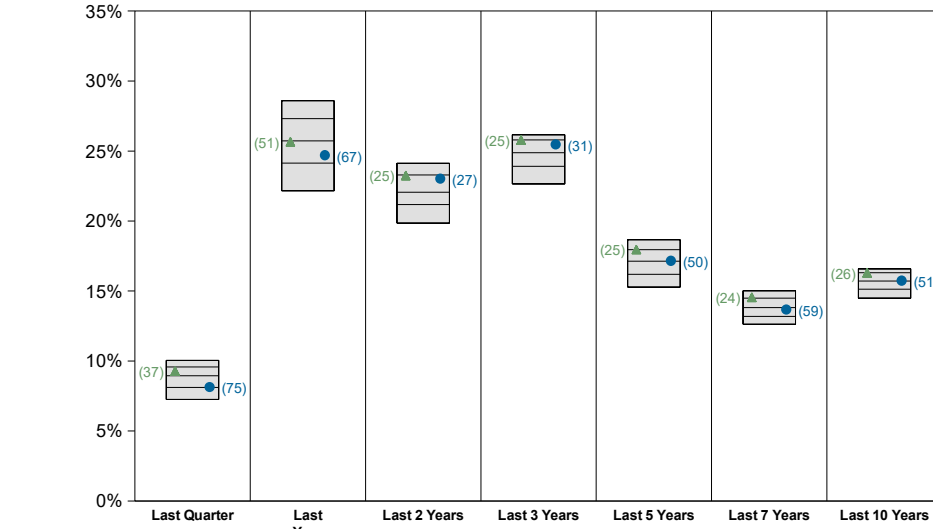
Callan

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**Appendix I – Asset Class and Manager  
Performance**

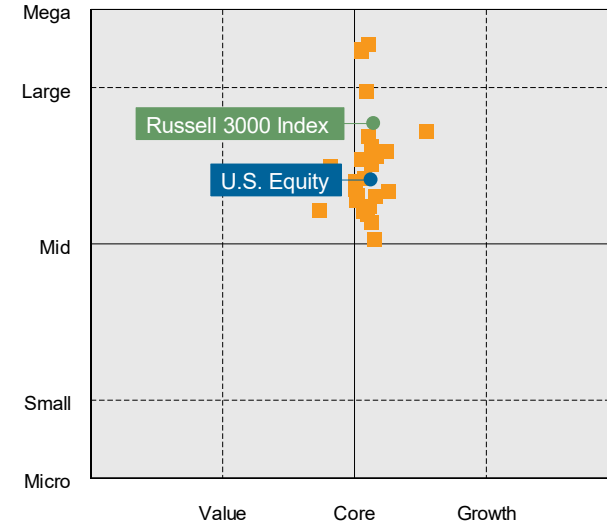
# U.S. Equity as of December 31, 2021

Performance vs Public Fund - Domestic Equity (Gross)

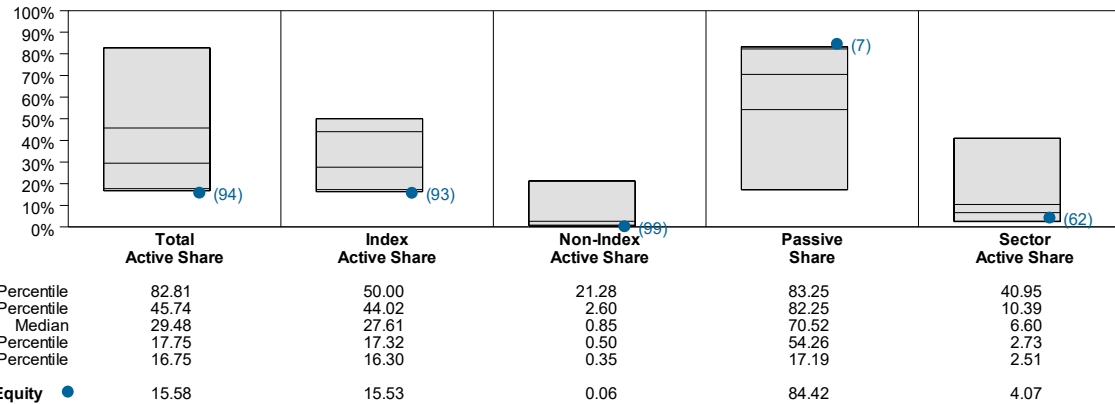


	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	10.04	28.60	24.12	26.16	18.66	15.02	16.58
25th Percentile	9.57	27.32	23.29	25.79	17.95	14.49	16.31
Median	8.95	25.73	22.05	24.88	17.13	13.81	15.71
75th Percentile	8.11	24.13	21.18	23.91	16.19	13.18	15.12
90th Percentile	7.25	22.15	19.85	22.65	15.28	12.62	14.48
<b>U.S. Equity</b> ●	8.11	24.67	23.00	25.44	17.13	13.64	15.71
Russell 3000 Index ▲	9.28	25.66	23.25	25.79	17.97	14.55	16.30

Style Map vs Pub Pln- Dom Equity Holdings as of December 31, 2021



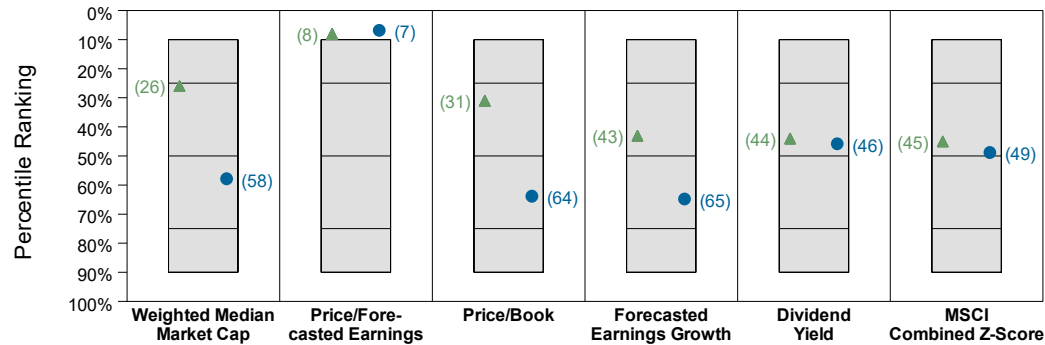
Active Share vs. Pub Pln- Dom Equity



# U.S. Equity

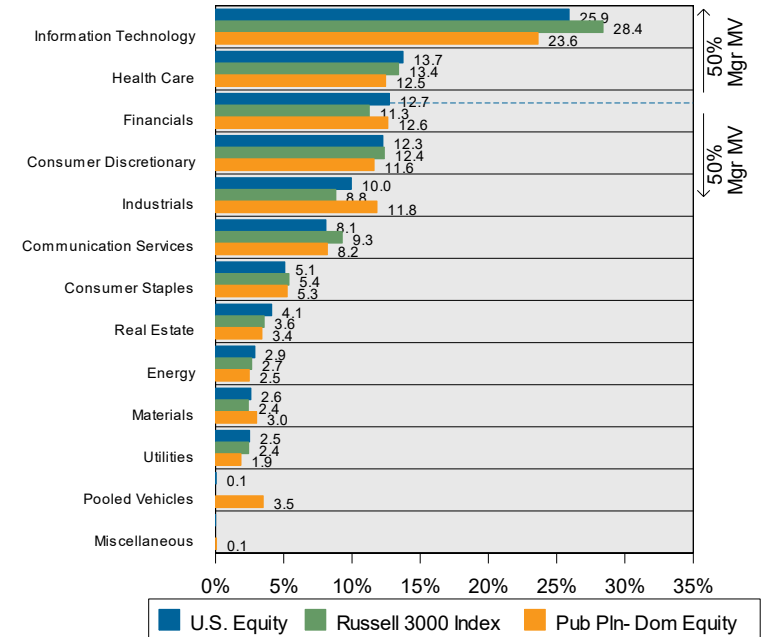
As of December 31, 2021

Portfolio Characteristics Percentile Rankings  
Rankings Against Public Fund - Domestic Equity  
as of December 31, 2021

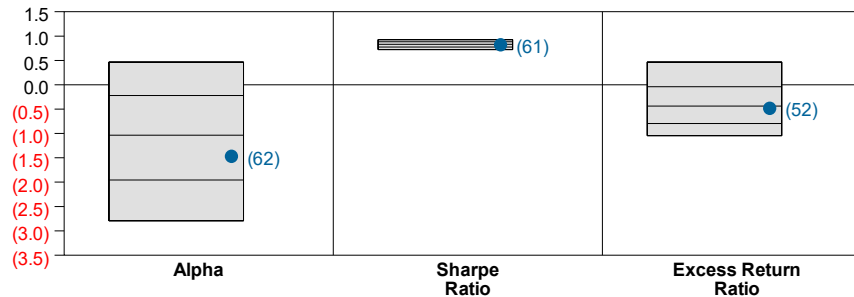


Percentile Ranking	Weighted Median Market Cap	Price/Forecasted Earnings	Price/Book	Forecasted Earnings Growth	Dividend Yield	MSCI Combined Z-Score
10th Percentile	218.73	21.87	4.55	20.89	1.30	0.11
25th Percentile	149.54	21.58	4.44	20.44	1.29	0.02
Median	94.91	20.83	3.84	20.01	1.20	(0.02)
75th Percentile	63.40	19.72	3.54	19.14	1.11	(0.05)
90th Percentile	47.98	18.49	3.04	18.28	1.05	(0.22)
<b>U.S. Equity</b>	82.34	22.19	3.65	19.53	1.21	(0.02)
Russell 3000 Index	138.25	22.06	4.20	20.25	1.24	(0.00)

## Sector Allocation December 31, 2021



Risk Adjusted Return Measures vs Russell 3000 Index  
Rankings Against Public Fund - Domestic Equity (Gross)  
Five Years Ended December 31 2021

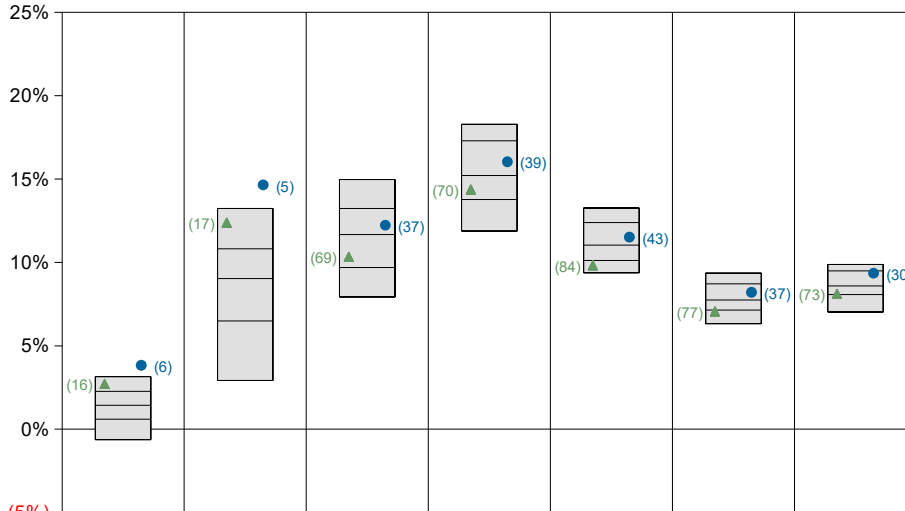


Ranking	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.47	0.93	0.46
25th Percentile	(0.22)	0.88	(0.04)
Median	(1.04)	0.83	(0.44)
75th Percentile	(1.96)	0.77	(0.80)
90th Percentile	(2.79)	0.72	(1.04)
<b>U.S. Equity</b>	(1.48)	0.81	(0.49)



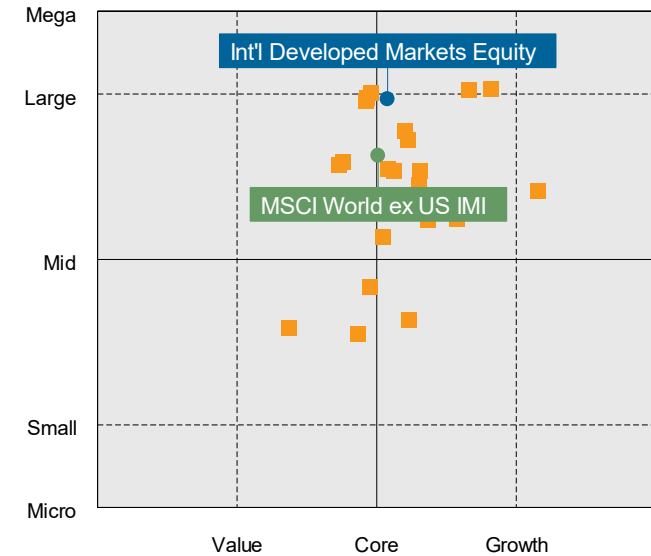
# International Equity as of December 31, 2021

## Performance vs Public Fund - International Equity (Gross)

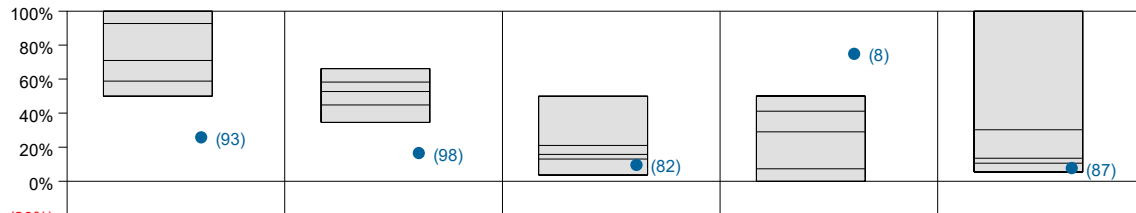


	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	3.15	13.24	14.97	18.29	13.27	9.37	9.88
25th Percentile	2.27	10.82	13.24	17.30	12.39	8.71	9.50
Median	1.43	9.04	11.67	15.21	11.03	7.75	8.59
75th Percentile	0.60	6.49	9.69	13.77	10.12	7.15	8.07
90th Percentile	(0.63)	2.92	7.93	11.88	9.38	6.33	7.03
<b>Int'l Developed Markets Equity</b> ●	3.80	14.62	12.21	16.01	11.49	8.18	9.33
MSCI World ex US IMI ▲	2.71	12.40	10.34	14.38	9.83	7.07	8.12

## Style Map vs Pub Pln- Intl Equity Holdings as of December 31, 2021



## Active Share vs. Pub Pln- Intl Equity

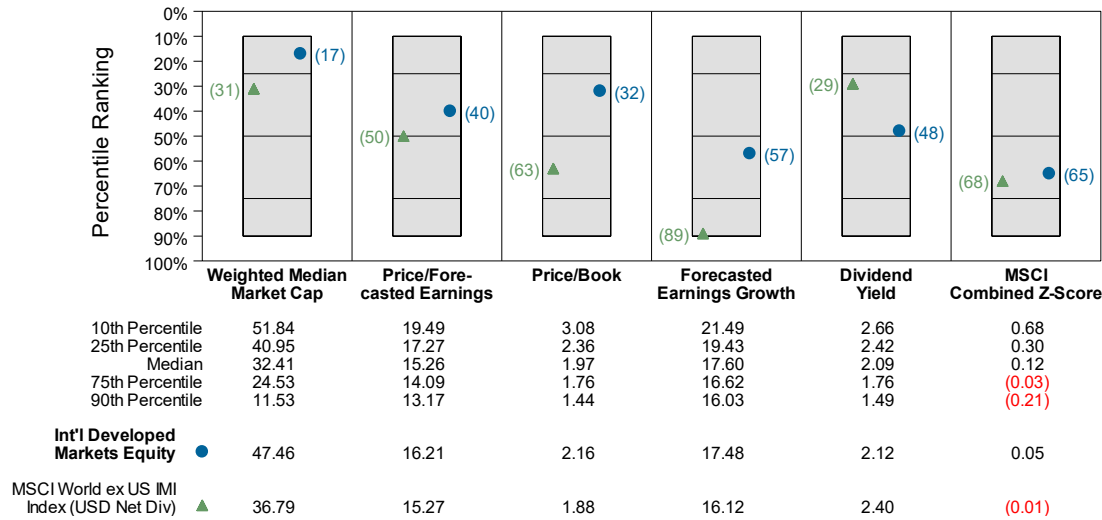


	Total Active Share	Index Active Share	Non-Index Active Share	Passive Share	Sector Active Share
10th Percentile	100.00	66.12	50.00	50.01	100.00
25th Percentile	92.72	58.32	21.05	41.17	30.23
Median	70.98	52.71	15.81	29.02	13.47
75th Percentile	58.83	44.85	13.02	7.28	10.56
90th Percentile	49.99	34.56	3.60	0.00	5.40
<b>Int'l Developed Markets Equity</b> ●	25.43	16.21	9.22	74.57	7.41

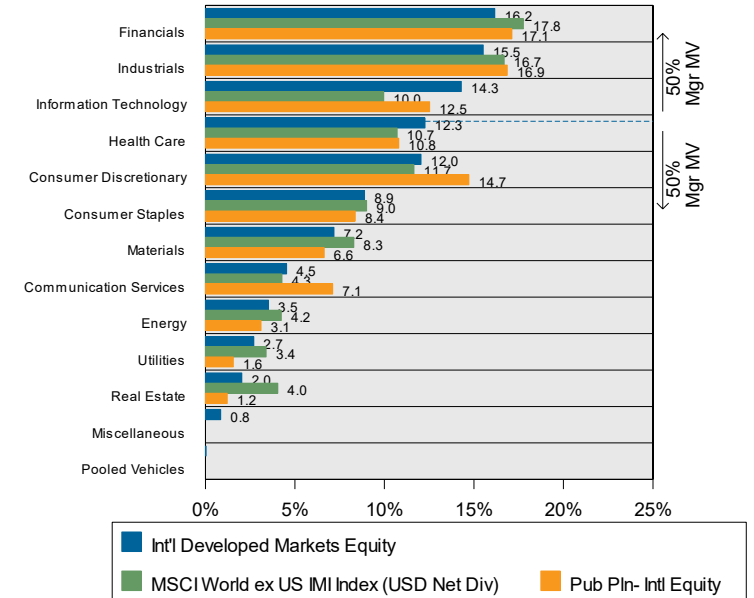
# International Equity

As of December 31, 2021

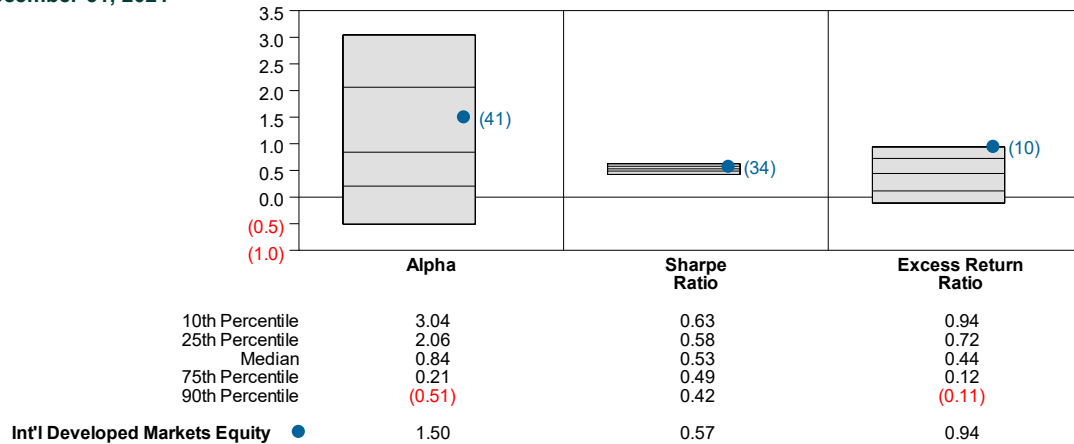
**Portfolio Characteristics Percentile Rankings**  
Rankings Against Public Fund - International Equity  
as of December 31, 2021



**Sector Allocation**  
December 31, 2021

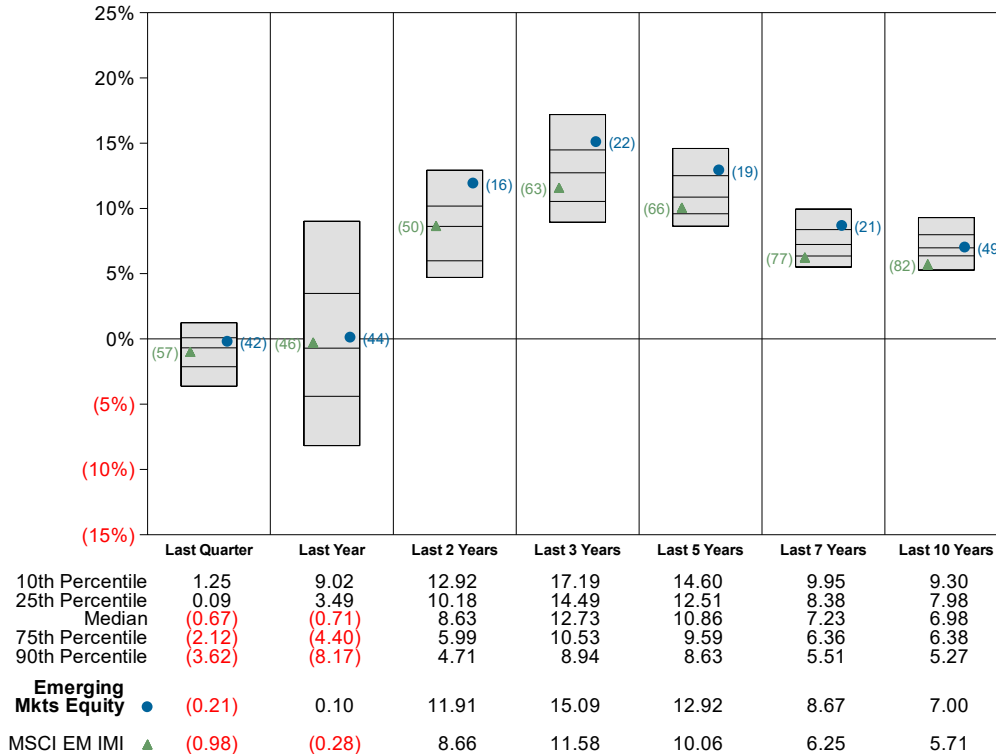


**Risk Adjusted Return Measures vs MSCI World ex US IMI**  
Rankings Against Public Fund - International Equity (Gross)  
Five Years Ended December 31, 2021

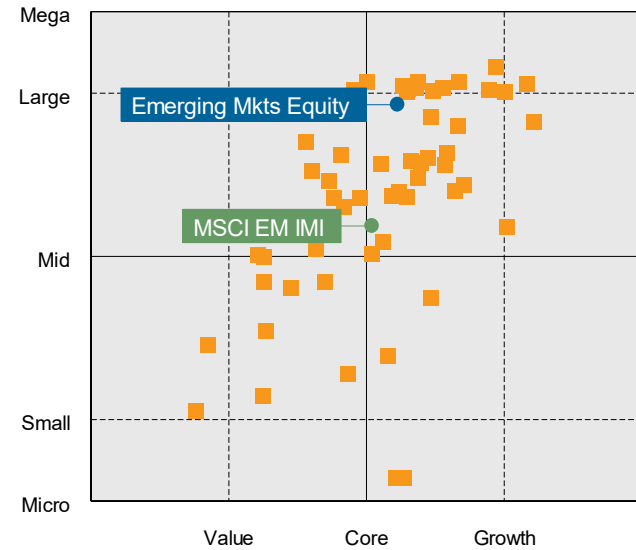


# Emerging Markets Equity as of December 31, 2021

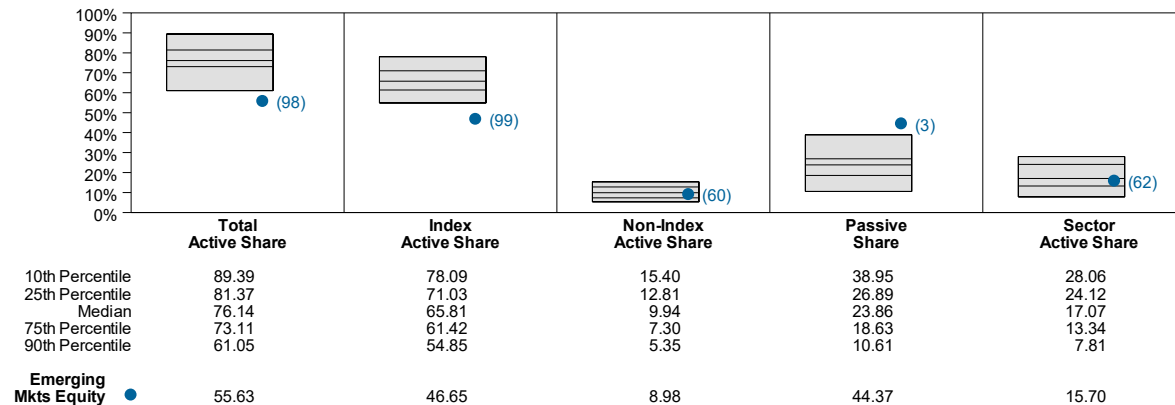
Performance vs Callan Emerging Broad (Gross)



Style Map vs Callan Emerging Broad Holdings as of December 31, 2021



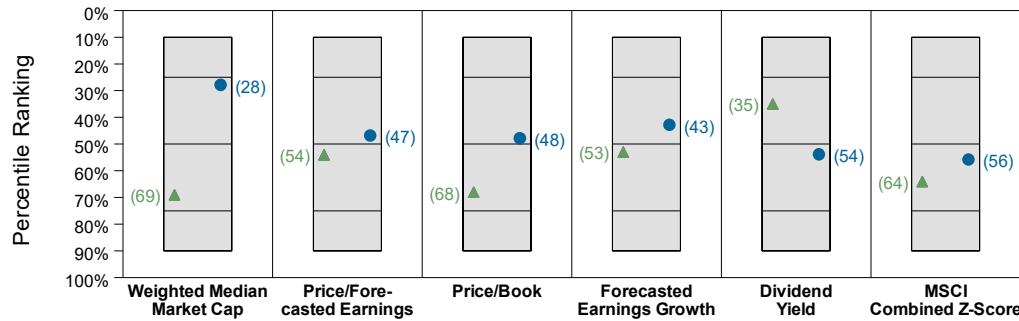
Active Share vs. Callan Emerging Broad



# Emerging Markets Equity

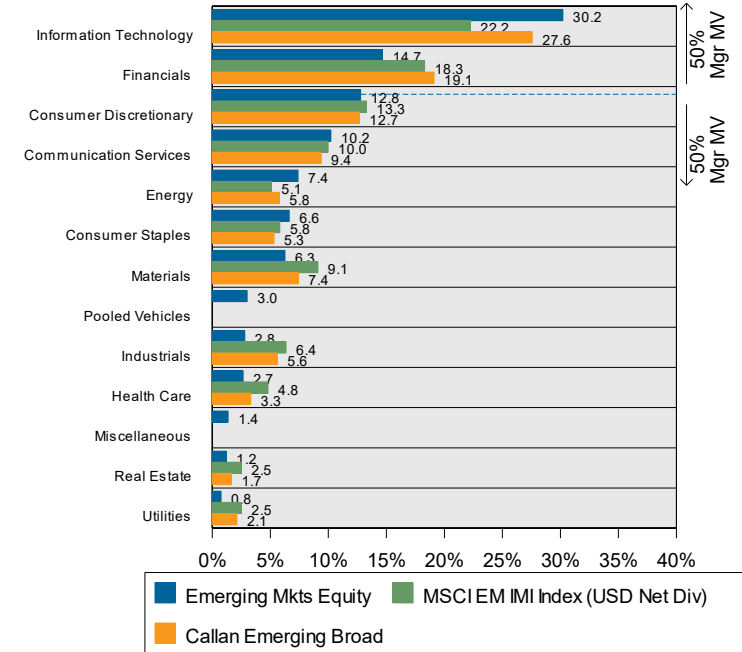
As of December 31, 2021

Portfolio Characteristics Percentile Rankings  
Rankings Against Callan Emerging Broad  
as of December 31, 2021

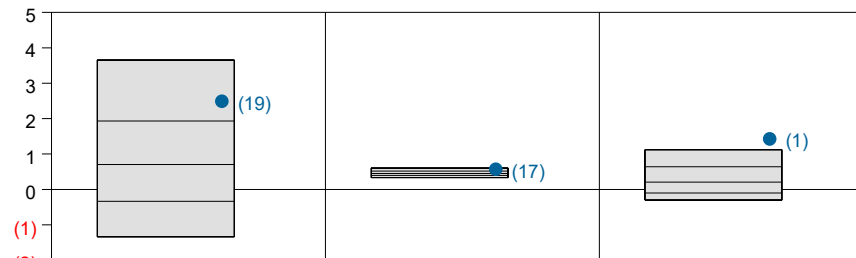


	Weighted Median Market Cap	Price/Forecasted Earnings	Price/Book	Forecasted Earnings Growth	Dividend Yield	MSCI Combined Z-Score
10th Percentile	63.14	24.11	4.07	23.33	3.65	0.83
25th Percentile	50.11	16.77	2.73	20.94	2.93	0.49
Median	32.08	13.43	1.94	18.29	2.08	0.26
75th Percentile	17.53	10.17	1.36	16.34	1.63	(0.21)
90th Percentile	8.12	8.13	1.09	14.68	1.04	(0.66)
<b>Emerging Mkts Equity</b>	46.24	13.78	1.95	18.79	1.98	0.18
MSCI EM IMI Index (USD Net Div)	23.02	12.57	1.59	18.16	2.42	0.02

## Sector Allocation December 31, 2021



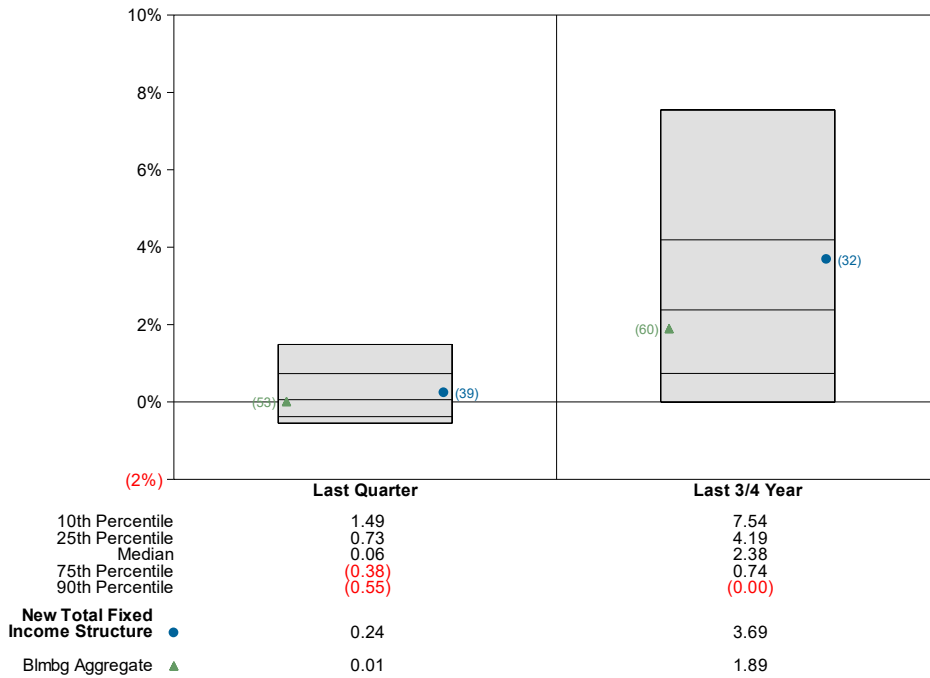
Risk Adjusted Return Measures vs MSCI EM IMI  
Rankings Against Callan Emerging Broad (Gross)  
Five Years Ended December 31, 2021



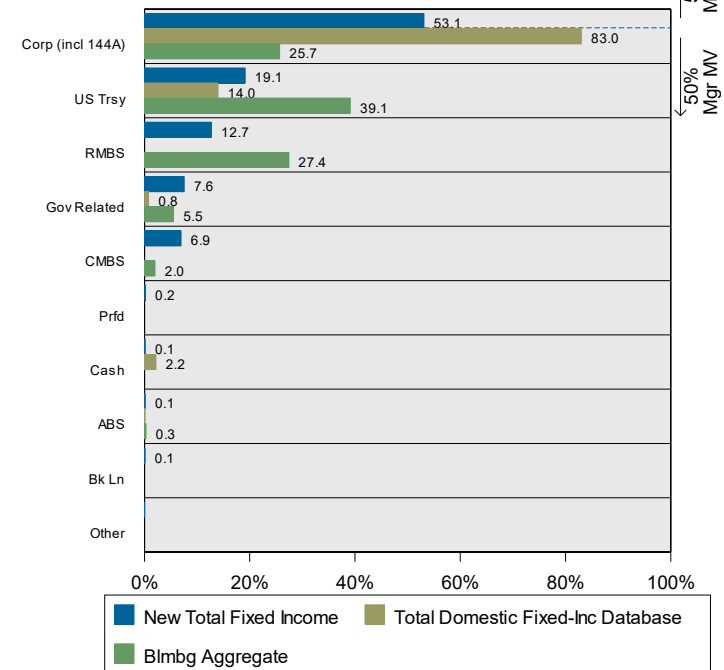
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	3.65	0.60	1.12
25th Percentile	1.93	0.52	0.64
Median	0.71	0.45	0.21
75th Percentile	(0.33)	0.40	(0.10)
90th Percentile	(1.34)	0.33	(0.30)
<b>Emerging Mkts Equity</b>	2.47	0.55	1.41

# New Fixed Income Structure As of December 31, 2021

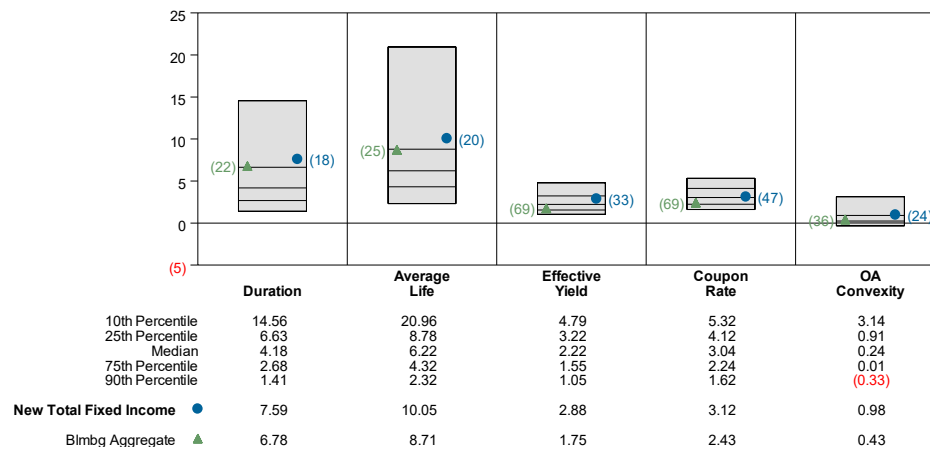
Performance vs Total Domestic Fixed-Inc Database (Gross)



Sector Allocation December 31, 2021



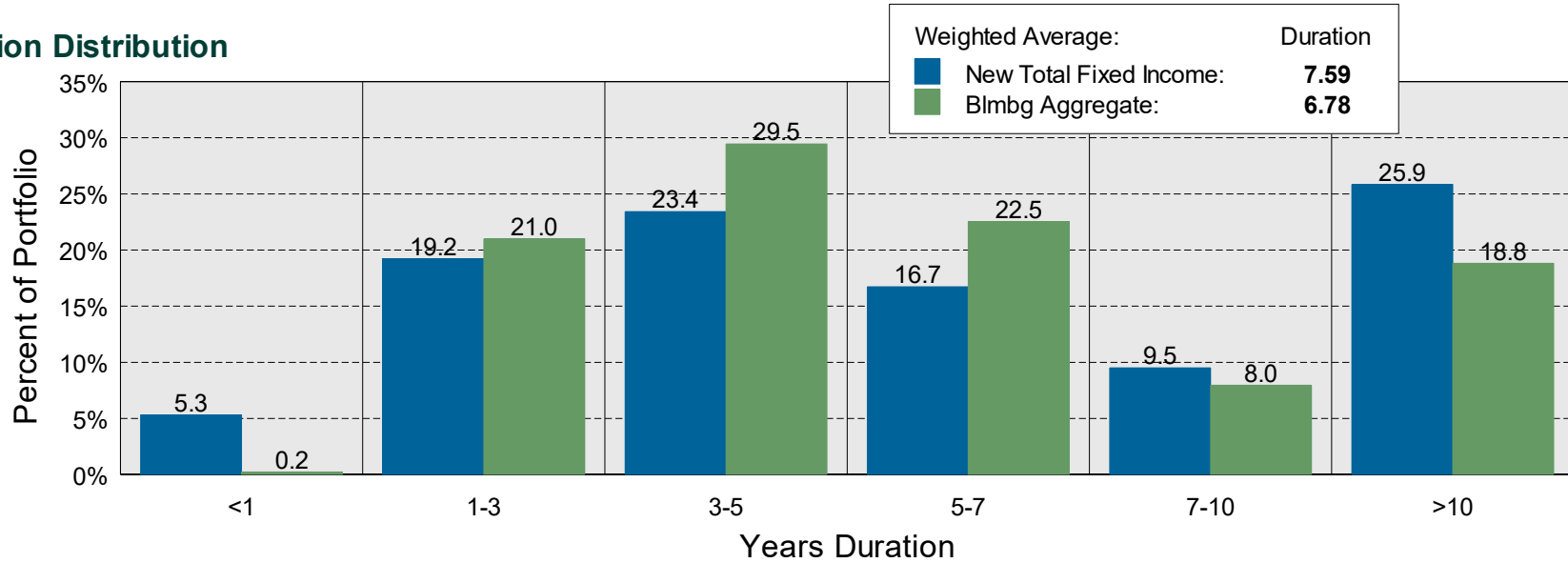
Fixed Income Portfolio Characteristics Rankings Against Total Domestic Fixed-Inc Database as of December 31, 2021



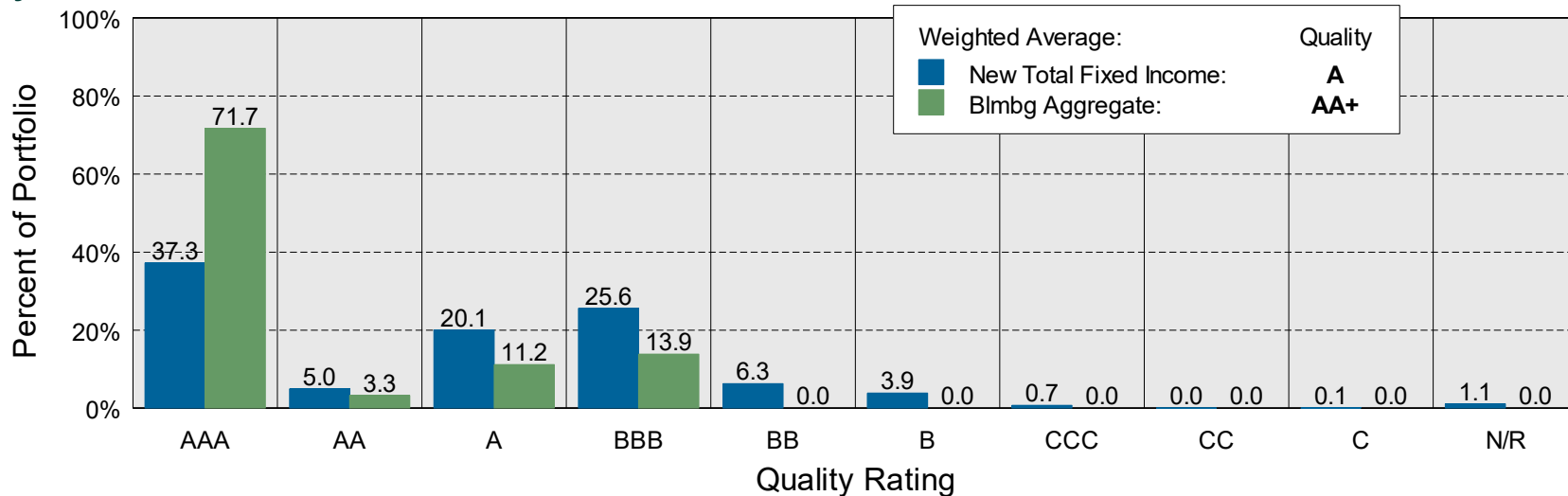
# New Fixed Income Structure

As of December 31, 2021

## Duration Distribution

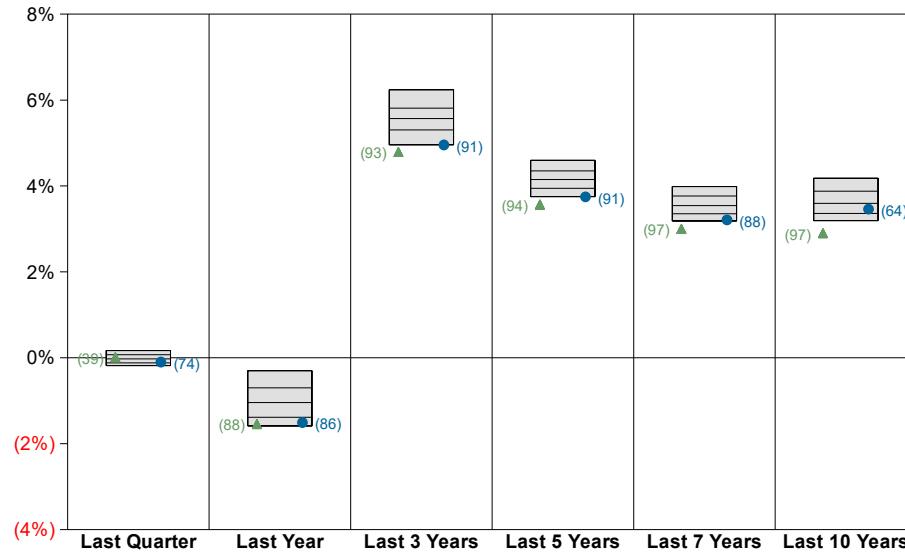


## Quality Distribution

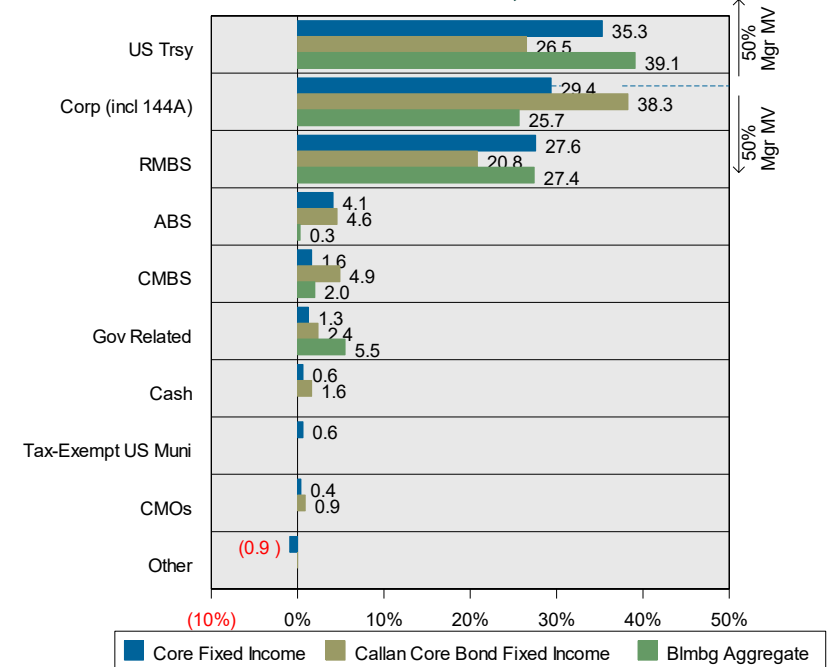


# Core Fixed Income As of December 31, 2021

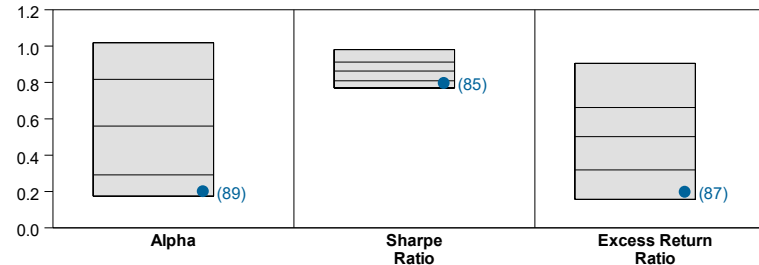
Performance vs Callan Core Bond Fixed Income (Gross)



Sector Allocation December 31, 2021



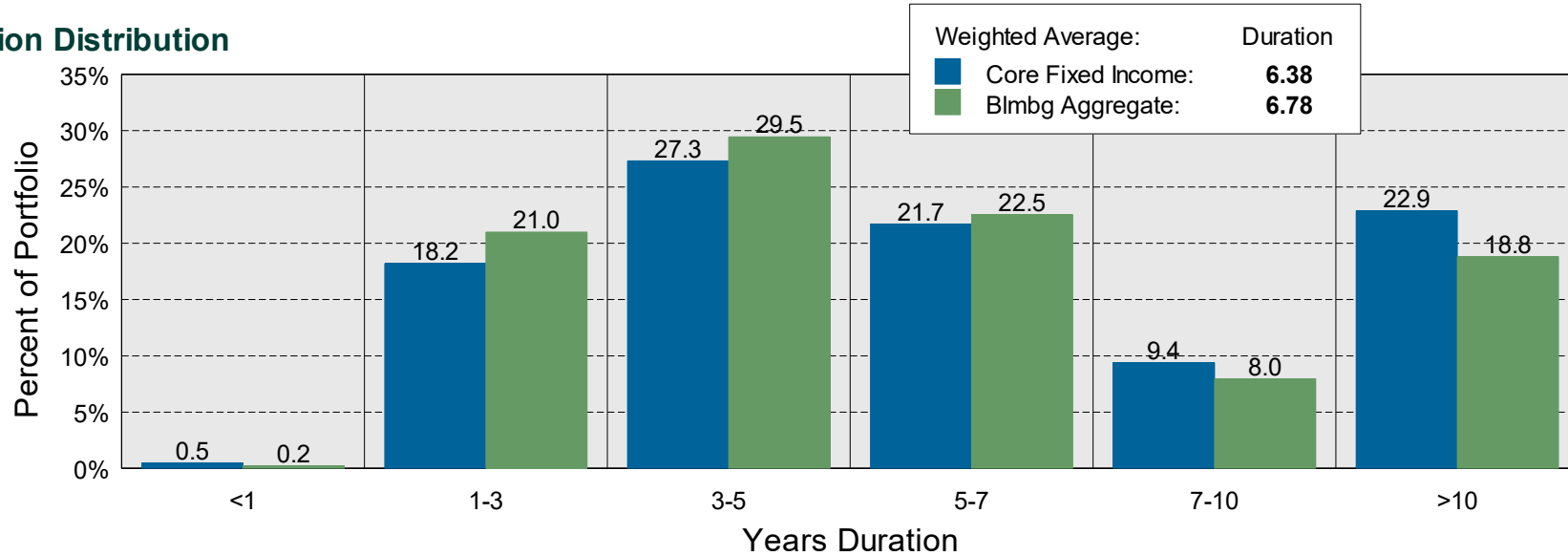
Risk Adjusted Return Measures vs Blmbg Aggregate Rankings Against Public Fund - Domestic Fixed (Gross) Five Years Ended December 31, 2021



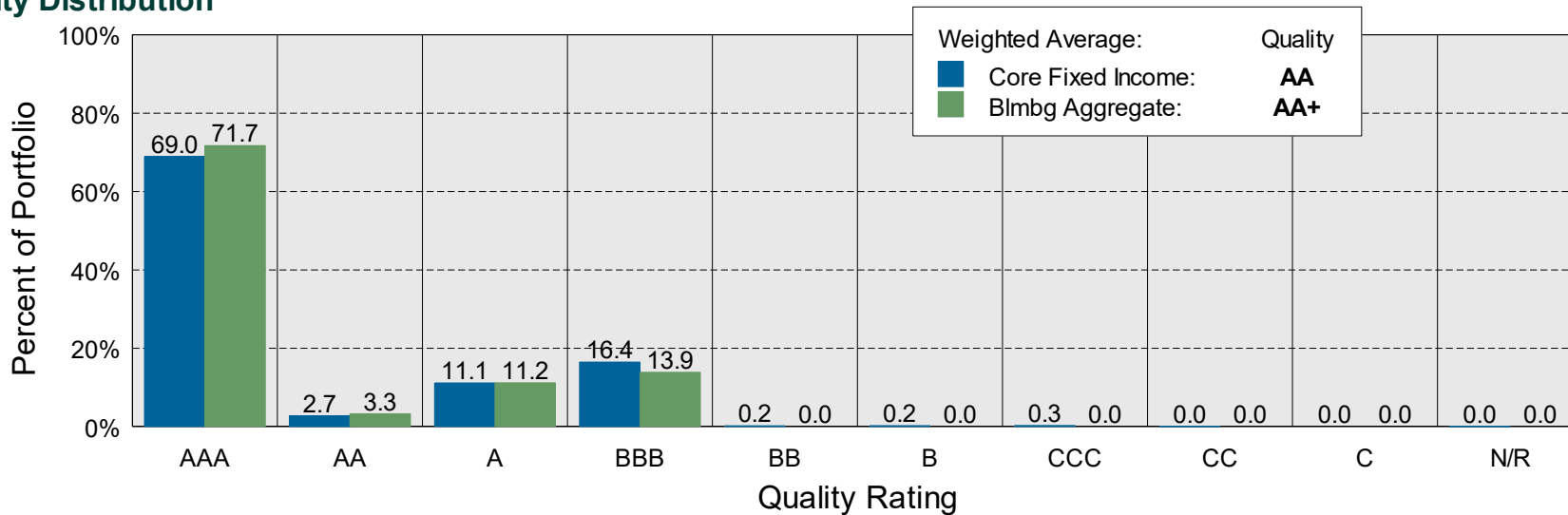
# Core Fixed Income

As of December 31, 2021

## Duration Distribution



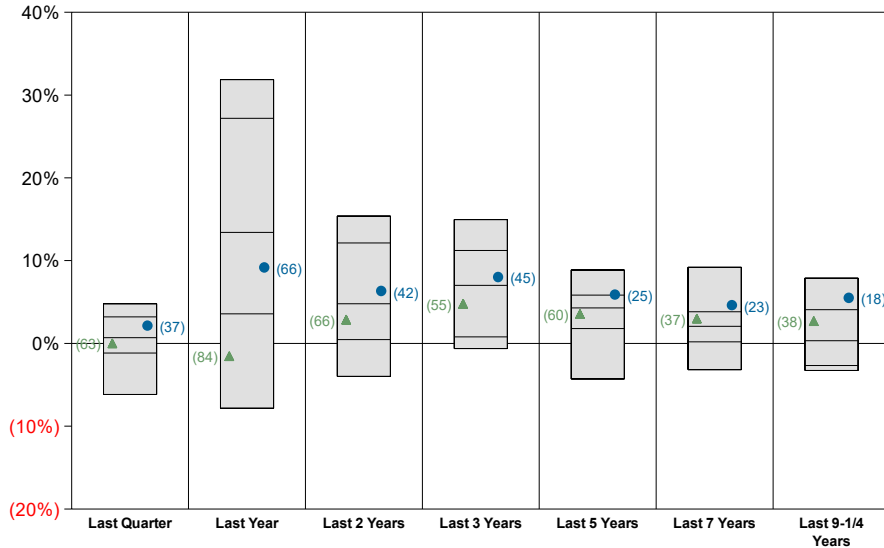
## Quality Distribution





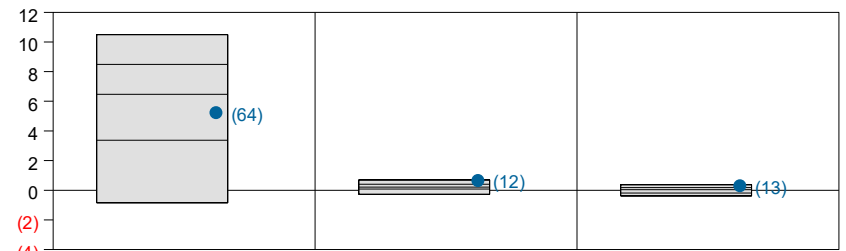
# Opportunistic Fixed Income As of December 31, 2021

Performance vs Callan Alternative Investments DB (Gross)



	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 7 Years	Last 9-14 Years
10th Percentile	4.79	31.88	15.37	14.96	8.87	9.19	7.89
25th Percentile	3.21	27.19	12.14	11.21	5.82	3.83	4.07
Median	0.69	13.42	4.80	7.02	4.28	2.06	0.32
75th Percentile	(1.16)	3.56	0.47	0.80	1.80	0.19	(2.67)
90th Percentile	(6.16)	(7.82)	(4.00)	(0.63)	(4.29)	(3.18)	(3.27)
<b>Opportunistic Fixed Income</b> ●	2.09	9.13	6.28	7.97	5.84	4.58	5.45
<b>Blmbg Aggregate</b> ▲	0.01	(1.54)	2.88	4.79	3.57	3.00	2.70

Risk Adjusted Return Measures vs Blmbg Aggregate Rankings Against Callan Alternative Investments DB (Gross) Five Years Ended December 31, 2021



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	10.50	0.69	0.37
25th Percentile	8.48	0.40	0.18
Median	6.47	0.21	0.04
75th Percentile	3.37	0.08	(0.18)
90th Percentile	(0.84)	(0.28)	(0.39)
<b>Opportunistic Fixed Income</b> ●	5.19	0.62	0.27

# Investment Manager Returns

As of December 31, 2021

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
<b>Net Performance- Domestic Equity</b>						
<b>U.S. Equity</b>	<b>\$12,431</b>	<b>100.00%</b>	<b>8.10%</b>	<b>24.62%</b>	<b>25.37%</b>	<b>17.05%</b>
Russell 3000 Index (1)	-	-	9.28%	25.66%	25.79%	17.97%
MCM Russell 1000 Index	9,713	78.14%	9.81%	26.66%	26.22%	18.46%
Russell 1000 Index	-	-	9.78%	26.45%	26.21%	18.43%
MCM Russell 2000 Core Index	1,298	10.44%	1.82%	17.16%	20.52%	12.29%
Russell 2000 Index	-	-	2.14%	14.82%	20.02%	12.02%
MCM Russell 2000 Val Index	778	6.26%	4.36%	28.33%	18.01%	9.06%
Russell 2000 Value Index	-	-	4.36%	28.27%	17.99%	9.07%
Emerald Asset Management	641	5.16%	0.41%	3.31%	22.43%	15.51%
Russell 2000 Growth Index	-	-	0.01%	2.83%	21.17%	14.53%

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
<b>Net Performance- Domestic Equity</b>					
<b>U.S. Equity</b>	<b>15.58%</b>	<b>9.18%</b>	<b>9.20%</b>	<b>9.35%</b>	<b>11.30%</b> (1/81)
Russell 3000 Index (1)	16.30%	10.59%	9.72%	9.76%	11.61% (1/81)
MCM Russell 1000 Index	16.53%	-	-	-	16.53% (1/12)
Russell 1000 Index	16.54%	10.74%	9.75%	9.90%	16.54% (1/12)
MCM Russell 2000 Core Index	-	-	-	-	12.69% (12/16)
Russell 2000 Index	13.23%	8.69%	9.36%	8.99%	12.42% (12/16)
MCM Russell 2000 Val Index	-	-	-	-	9.77% (12/16)
Russell 2000 Value Index	12.03%	7.19%	9.18%	9.58%	9.79% (12/16)
Emerald Asset Management	-	-	-	-	15.54% (12/16)
Russell 2000 Growth Index	14.14%	9.97%	9.20%	7.90%	14.58% (12/16)

\*Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.  
(1) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

# Investment Manager Returns

As of December 31, 2021

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
<b>Net Performance- International Equity</b>						
<b>Int'l Developed Mkts Equity</b>	<b>\$5,147</b>	<b>100.00%</b>	<b>3.77%</b>	<b>14.48%</b>	<b>15.85%</b>	<b>11.33%</b>
MSCI World ex US IMI	-	-	2.71%	12.40%	14.38%	9.83%
Walter Scott & Partners(1) MSCI World	821 -	15.95% -	8.53% 7.77%	20.11% 21.82%	24.01% 21.70%	19.21% 15.03%
BlackRock MSCI World Ex US Index MSCI World ex US	3,913 -	76.03% -	3.20% 3.14%	13.11% 12.62%	14.54% 14.07%	- 9.63%
Xponance Non-U.S. Small Cap MSCI ACWI ex US Small Cap	262 -	5.09% -	(0.51%) 0.62%	11.78% 12.93%	14.51% 16.46%	- 11.21%
Harris Assoc Int'l SCV MSCI World ex US Sm Cap MSCI World ex US Sm Value	147 - -	2.86% - -	0.54% 0.39% 0.72%	19.02% 11.14% 13.27%	19.26% 16.27% 12.59%	10.58% 11.03% 8.30%

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
<b>Net Performance- International Equity</b>					
<b>Int'l Developed Mkts Equity</b>	<b>9.09%</b>	<b>3.89%</b>	<b>6.95%</b>	<b>-</b>	<b>6.95%</b> (1/02)
MSCI World ex US IMI	8.12%	3.95%	6.94%	5.63%	6.94% (1/02)
Walter Scott & Partners(1) MSCI World	14.76% 12.70%	10.64% 7.43%	- 8.06%	- 7.52%	10.92% (10/06) 7.88% (10/06)
BlackRock MSCI World Ex US Index MSCI World ex US	- 7.84%	- 3.70%	- 6.48%	- 5.39%	8.16% (6/17) 7.70% (6/17)
Xponance Non-U.S. Small Cap MSCI ACWI ex US Small Cap	- 9.46%	- 5.59%	- 10.03%	- 6.93%	8.58% (10/18) 9.71% (10/18)
Harris Assoc Int'l SCV MSCI World ex US Sm Cap MSCI World ex US Sm Value	10.07% 9.99% 8.85%	6.20% 5.40% 4.63%	- 9.70% 9.87%	- - 7.59%	11.22% (7/03) 9.82% (7/03) 9.44% (7/03)

\*Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

(1) Walter Scott since inception returns were contained in the Global Mandates composite prior to 12/31/2019.

# Investment Manager Returns

As of December 31, 2021

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
<b>Net Performance- Emerging Mkts Equity</b>						
<b>Emerging Mkts Equity</b>	<b>\$1,489</b>	<b>100.00%</b>	<b>(0.34%)</b>	<b>(0.45%)</b>	<b>14.55%</b>	<b>12.33%</b>
MSCIEM IMI	-	-	(0.98%)	(0.28%)	11.58%	10.06%
Macquarie Emg Mkts Equity	416	27.95%	1.64%	(0.15%)	13.42%	12.35%
MSCIEM	-	-	(1.31%)	(2.54%)	10.94%	9.88%
Martin Currie Emg Mkts Equity	457	30.67%	(1.19%)	(3.61%)	16.09%	14.08%
MSCIEM	-	-	(1.31%)	(2.54%)	10.94%	9.88%
BlackRock Emg Mkts Index	210	14.13%	(1.29%)	(2.75%)	10.62%	-
MSCIEM	-	-	(1.31%)	(2.54%)	10.94%	9.88%
Leading Edge Emg Mkts Fund	268	18.03%	(2.08%)	(4.01%)	11.43%	-
MSCIEM	-	-	(1.31%)	(2.54%)	10.94%	9.88%
GlobeFlex Emerging Small Cap	137	9.22%	1.49%	23.82%	18.45%	13.49%
MSCIEM Small Cap	-	-	1.33%	18.75%	16.46%	11.47%

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
<b>Net Performance- Emerging Mkts Equity</b>					
<b>Emerging Mkts Equity</b>	<b>6.53%</b>	<b>3.23%</b>	<b>7.90%</b>	<b>-</b>	<b>7.90%</b> <sup>(1/02)</sup>
MSCIEM IMI	5.71%	4.67%	9.69%	5.37%	9.69% <sup>(1/02)</sup>
Macquarie Emg Mkts Equity	-	-	-	-	6.20% <sup>(5/13)</sup>
MSCIEM	5.49%	4.45%	9.59%	-	4.43% <sup>(5/13)</sup>
Martin Currie Emg Mkts Equity	-	-	-	-	7.32% <sup>(1/14)</sup>
MSCIEM	5.49%	4.45%	9.59%	-	5.04% <sup>(1/14)</sup>
BlackRock Emg Mkts Index	-	-	-	-	6.67% <sup>(7/17)</sup>
MSCIEM	5.49%	4.45%	9.59%	-	6.94% <sup>(7/17)</sup>
Leading Edge Emg Mkts Fund	-	-	-	-	10.33% <sup>(11/18)</sup>
MSCIEM	5.49%	4.45%	9.59%	-	10.81% <sup>(11/18)</sup>
GlobeFlex Emerging Small Cap	-	-	-	-	7.89% <sup>(8/13)</sup>
MSCIEM Small Cap	7.42%	6.02%	11.11%	5.82%	6.70% <sup>(8/13)</sup>

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# Investment Manager Returns

As of December 31, 2021

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
<b>Net Performance - Fixed Income</b>						
<b>Fixed Income (1)</b>	<b>\$8,605</b>	<b>40.53%</b>	<b>0.28%</b>	<b>(0.75%)</b>	<b>4.76%</b>	<b>3.57%</b>
Blmbg U.S. Agg Bond Index	-	-	0.01%	(1.54%)	4.79%	3.57%
<b>Core Fixed Income</b>	<b>\$2,345</b>	<b>11.04%</b>	<b>(0.14%)</b>	<b>(1.58%)</b>	<b>4.86%</b>	<b>3.64%</b>
Blmbg U.S. Agg Bond Index	-	-	0.01%	(1.54%)	4.79%	3.57%
PIMCO Core Bond Fund	589	2.77%	(0.25%)	(0.86%)	5.43%	4.07%
Blmbg Agg ex Treasury	-	-	(0.09%)	(1.08%)	5.13%	3.81%
Mellon Bond Index	1,756	8.27%	(0.03%)	(1.76%)	4.67%	3.49%
Blmbg U.S. Agg Bond Index (2)	-	-	0.01%	(1.54%)	4.79%	3.57%
<b>Nominal U.S. Treasuries</b>	<b>\$102</b>	<b>0.48%</b>	<b>0.23%</b>	<b>(5.71%)</b>	<b>4.46%</b>	<b>3.27%</b>
Blmbg US Treas Bell 10Y	-	-	0.67%	(3.60%)	5.11%	3.47%
PIMCO US Treasuries	102	0.48%	0.23%	(3.85%)	5.09%	3.74%
Blmbg US Treas Bell 10Y	-	-	0.67%	(3.60%)	5.11%	3.47%
<b>New Total Fixed Income Structure (1)</b>	<b>\$5,091</b>	<b>23.98%</b>	<b>0.23%</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Intermediate Treasury</b>	<b>\$285</b>	<b>1.34%</b>	<b>(0.61%)</b>	<b>-</b>	<b>-</b>	<b>-</b>
Mellon Intermediate Treasury Index	285	1.34%	(0.61%)	-	-	-
Blmbg Intmtd Treasury	-	-	(0.57%)	(1.72%)	3.04%	2.33%
<b>Long Duration</b>	<b>\$1,364</b>	<b>6.42%</b>	<b>1.94%</b>	<b>-</b>	<b>-</b>	<b>-</b>
Mellon Long Duration Index	689	3.24%	2.70%	(5.15%)	-	-
Blmbg Long Treasury	-	-	3.08%	(4.65%)	8.82%	6.54%
Mellon Long Term Credit Bond Index	675	3.18%	1.17%	-	-	-
Blmbg Long Credit	-	-	1.52%	(1.18%)	11.37%	7.64%
<b>Securitized</b>	<b>\$703</b>	<b>3.31%</b>	<b>(0.41%)</b>	<b>-</b>	<b>-</b>	<b>-</b>
Mellon Securitized Index	703	3.31%	(0.41%)	-	-	-
Blmbg Securitized	-	-	(0.39%)	(1.04%)	3.15%	2.58%
<b>Intermediate Credit</b>	<b>\$2,023</b>	<b>9.53%</b>	<b>(0.65%)</b>	<b>-</b>	<b>-</b>	<b>-</b>
Mellon Intermediate Credit	2,023	9.53%	(0.65%)	-	-	-
Blmbg Intmtd Credit	-	-	(0.55%)	(1.03%)	5.10%	3.77%
<b>High Yield</b>	<b>\$716</b>	<b>3.37%</b>	<b>0.50%</b>	<b>-</b>	<b>-</b>	<b>-</b>
Fidelity HY CMBS (3)	339	1.60%	0.39%	8.10%	3.37%	3.85%
Blmbg US CMBS Ex AAA Index (4)	-	-	(0.65%)	2.86%	5.74%	5.05%
BlackRock US High Yield Index	124	0.58%	0.65%	-	-	-
ICE BofA US HY Constrained Index	-	-	0.65%	5.36%	8.54%	5.99%
Mellon High Yield Beta Fund	253	1.19%	0.57%	-	-	-
Blmbg HY Corp	-	-	0.71%	5.28%	8.83%	6.30%

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The market values and performance of such accounts are included within their relevant composites.

(1) Fixed Income also includes the new fixed income sub-composite which was funded in 03/01/2021.

(2) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

(3) On 03/01/2021, the Fidelity HY CMBS account switched from the Opportunistic Fixed composite to the High Yield composite under the new fixed income structure.

(4) Fidelity's blended benchmark consists of FTSE High Yield Market Index prior to 12/31/2009 and Blmbg US CMBS Ex AAA Index, thereafter.

# Investment Manager Returns

As of December 31, 2021

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
<b>Net Performance - Fixed Income</b>					
<b>Fixed Income (1)</b>	<b>3.50%</b>	<b>4.50%</b>	<b>5.35%</b>	<b>5.54%</b>	<b>8.10%</b> (1/81)
Blmbg U.S. Agg Bond Index	2.90%	4.09%	4.33%	4.94%	7.39% (1/81)
<b>Core Fixed Income</b>	<b>3.33%</b>	<b>4.44%</b>	<b>4.63%</b>	-	<b>4.63%</b> (1/02)
Blmbg U.S. Agg Bond Index	2.90%	4.09%	4.33%	4.94%	4.33% (1/02)
PIMCO Core Bond Fund	-	-	-	-	2.98% (1/13)
Blmbg Agg ex Treasury	3.31%	4.35%	-	-	3.07% (1/13)
Mellon Bond-Index	2.78%	3.96%	4.27%	4.95%	6.89% (4/84)
Blmbg U.S. Agg Bond Index (2)	2.90%	4.09%	4.40%	5.06%	-
<b>Nominal U.S. Treasuries</b>	<b>2.42%</b>	-	-	-	<b>2.55%</b> (9/11)
Blmbg US Treas Bell 10Y	2.42%	4.41%	4.49%	4.88%	2.74% (9/11)
PIMCO US Treasuries	2.73%	-	-	-	2.89% (9/11)
Blmbg US Treas Bell 10Y	2.42%	4.41%	4.49%	4.88%	2.74% (9/11)
<b>New Total Fixed Income Structure (1)</b>	-	-	-	-	<b>1.95%</b> (3/21)
<b>Intermediate Treasury</b>	-	-	-	-	<b>(0.69%)</b> (3/21)
Mellon Intermediate Treasury Index	-	-	-	-	(0.69%) (3/21)
Blmbg Intmdt Treasury	1.68%	3.11%	3.25%	3.98%	(0.65%) (3/21)
<b>Long Duration</b>	-	-	-	-	<b>5.43%</b> (3/21)
Mellon Long Duration Index	-	-	-	-	(5.15%) (1/21)
Blmbg Long Treasury	4.51%	6.63%	6.71%	7.04%	(4.65%) (1/21)
Mellon Long Term Credit Index	-	-	-	-	4.94% (3/21)
Blmbg Long Credit	6.42%	7.12%	7.28%	7.30%	4.92% (3/21)
<b>Securitized</b>	-	-	-	-	<b>(1.07%)</b> (3/21)
Mellon Securitized Index	-	-	-	-	(1.07%) (3/21)
Blmbg Securitized	2.36%	3.68%	3.98%	4.68%	(0.41%) (3/21)
<b>Intermediate Credit</b>	-	-	-	-	<b>(0.36%)</b> (3/21)
Mellon Intermediate Credit	-	-	-	-	(0.36%) (3/21)
Blmbg Intmdt Credit	3.53%	4.42%	4.66%	5.15%	0.12% (3/21)
<b>High Yield</b>	-	-	-	-	<b>5.31%</b> (3/21)
Fidelity HY CMBS (3)	6.89%	5.55%	7.13%	-	7.94% (4/97)
Blmbg US CMBS Ex AAA Index (4)	5.01%	0.79%	2.73%	-	4.04% (4/97)
BlackRock US High Yield Bond Index	-	-	-	-	4.32% (3/21)
ICE BofA US HY Constrained Index	-	-	-	-	4.59% (3/21)
Mellon High Yield Beta Fund	-	-	-	-	2.80% (5/21)
Blmbg HY Corp	6.83%	7.07%	7.84%	6.88%	3.27% (5/21)

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The market values and performance of such accounts are included within their relevant composites.

(1) Fixed Income also includes the new fixed income sub-composite which was funded in 03/01/2021.

(2) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.

(3) On 03/01/2021, the Fidelity HY CMBS account switched from the Opportunistic Fixed composite to the High Yield composite under the new fixed income structure.

(4) Fidelity's blended benchmark consists of FTSE High Yield Market Index prior to 12/31/2009 and Blmbg US CMBS Ex AAA Index, thereafter.

# Investment Manager Returns

As of December 31, 2021

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
<b>Net Performance - Fixed Income</b>						
<b>Fixed Income (1)</b>	<b>\$8,605</b>	<b>100.00%</b>	<b>0.28%</b>	<b>(0.75%)</b>	<b>4.76%</b>	<b>3.57%</b>
Bimbg U.S. Agg Bond Index	-	-	0.01%	(1.54%)	4.79%	3.57%
<b>Opportunistic Fixed Income</b>	<b>\$1,067</b>	<b>12.40%</b>	<b>1.50%</b>	<b>8.01%</b>	<b>7.19%</b>	<b>5.14%</b>
SEI Str. Credit: HY Bank Loans (2)(3)	54	0.63%	3.35%	27.59%	10.16%	10.14%
FTSE HY Corp (1 month lag)	-	-	(1.16%)	5.37%	6.97%	6.00%
BAAM Keystone (4)	1,012	11.76%	1.39%	11.00%	8.16%	6.36%
HFRI FOF Comp Index	-	-	0.29%	6.03%	8.41%	5.68%

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
<b>Net Performance - Fixed Income</b>					
<b>Fixed Income (1)</b>	<b>3.50%</b>	<b>4.50%</b>	<b>5.35%</b>	<b>5.54%</b>	<b>8.10%</b> <sup>(1/81)</sup>
Bimbg Aggregate	2.90%	4.09%	4.33%	4.94%	7.39% <sup>(1/81)</sup>
<b>Opportunistic Fixed Income</b>	-	-	-	-	<b>4.75%</b> <sup>(10/12)</sup>
SEI Str. Credit: HY Bank Loans (2)(3)	9.75%	-	-	-	12.30% <sup>(5/08)</sup>
FTSE HY Corp (1 month lag)	6.56%	6.65%	7.43%	6.69%	7.32% <sup>(5/08)</sup>
BAAM Keystone (4)	-	-	-	-	7.40% <sup>(7/12)</sup>
HFRI FOF Comp Index	4.54%	2.75%	3.89%	4.77%	4.68% <sup>(7/12)</sup>

\*Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation.

The market values and performance of such accounts are included within their relevant composites.

(1) Fixed Income also includes the new fixed income sub-composite which was funded in 03/01/2021.

(2) SEI HY Bank Loans since inception returns were included in the Fixed Income composite through 9/30/2017 and in the Multi-Strategy composite through 12/31/2019.

(3) SEI HY Bank Loans has a 1 month lag in valuation.

(4) Blackstone Keystone since inception returns were included in the Legacy Hedge Fund composite through 9/30/2017, included in the Multi-Strategy composite from 10/01/2017 through 12/31/2019, included in the Opportunistic Fixed composite from 01/01/2020 through 12/31/2020, included in the Private Credit from 01/01/2021 through 09/30/2021 and Opportunistic Fixed composite, thereafter.

# Investment Manager Returns

As of December 31, 2021

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
<b>Net Performance - Inflation Protection</b>						
<b>Inflation Protection (TIPS)</b>	<b>\$1,156</b>	<b>100.00%</b>	<b>2.25%</b>	<b>5.16%</b>	<b>8.16%</b>	<b>5.25%</b>
Blmbg U.S. TIPS Index	-	-	2.36%	5.96%	8.44%	5.34%
NISA Inv Adv TIPS	497	42.99%	2.31%	5.95%	8.38%	5.31%
Blmbg U.S. TIPS Index (1)	-	-	2.36%	5.96%	8.44%	5.34%
Brown Brothers TIPS	521	45.03%	2.16%	5.79%	8.26%	5.19%
Blmbg U.S. TIPS Index	-	-	2.36%	5.96%	8.44%	5.34%
New Century Global TIPS	138	11.97%	2.32%	1.24%	7.86%	5.60%
Blmbg Wrld Inflation Linked Unhdg	-	-	2.76%	3.12%	7.89%	5.50%

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
<b>Net Performance - Inflation Protection</b>					
<b>Inflation Protection (TIPS)</b>	<b>2.90%</b>	<b>3.98%</b>	-	-	<b>3.76%</b> (2/03)
Blmbg U.S. TIPS Index	3.09%	4.69%	5.31%	-	4.73% (2/03)
NISA Inv Adv TIPS	2.77%	-	-	-	3.85% (4/07)
Blmbg U.S. TIPS Index (1)	2.78%	3.96%	4.76%	-	3.86% (4/07)
Brown Brothers TIPS	-	-	-	-	2.97% (2/12)
Blmbg U.S. TIPS Index	3.09%	4.69%	5.31%	-	2.88% (2/12)
New Century Global TIPS	-	-	-	-	3.25% (2/12)
Blmbg Wrld Inflation Linked Unhdg	3.22%	4.20%	5.88%	5.68%	2.99% (2/12)

\*Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.  
(1) Benchmark history is a blend of current and past benchmark indices. History prior to 12/31/2018 is provided by RVK.



# Investment Manager Returns

As of December 31, 2021

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
<b>Net Performance - Private Equity</b>						
<b>Private Equity</b>	<b>\$6,264</b>	<b>100.00%</b>	<b>6.71%</b>	<b>52.83%</b>	<b>25.61%</b>	<b>20.13%</b>
Burgiss Private Equity Index (Qtr lag)	-	-	3.73%	38.48%	18.87%	17.77%
Global Equity + 3% (Qtr lag)(1)	-	-	0.56%	33.88%	18.16%	19.38%
Buyouts	3,557	56.79%	5.38%	41.70%	22.98%	19.38%
Burgiss Buyout Index (Qtr lag)	-	-	3.47%	34.79%	16.23%	16.66%
Special Situations	613	9.78%	7.85%	48.46%	23.93%	19.19%
Burgiss Special SituationsIdx (Qtr lag)	-	-	1.76%	14.30%	6.18%	7.61%
Growth Equity	1,469	23.44%	9.17%	81.31%	45.07%	31.52%
Burgiss Venture Capital Index (Qtr lag)	-	-	4.75%	62.57%	32.71%	26.12%
Keystone Legacy (2)	626	9.99%	7.41%	57.71%	13.15%	-

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
<b>Net Performance - Private Equity</b>					
<b>Private Equity</b>	<b>14.97%</b>	<b>12.91%</b>	<b>11.95%</b>	<b>13.76%</b>	<b>12.10%</b> (1/86)
Burgiss Private Equity Index (Qtr lag)	15.06%	12.83%	12.66%	14.53%	17.29% (1/86)
Global Equity + 3% (Qtr lag)(1)	19.48%	13.69%	13.12%	13.11%	15.03% (1/86)
Buyouts	16.45%	14.05%	14.25%	15.60%	14.04% (4/86)
Burgiss Buyout Index (Qtr lag)	14.46%	12.60%	13.99%	14.00%	19.64% (4/86)
Special Situations	13.05%	13.21%	13.76%	13.58%	13.45% (1/95)
Burgiss Special SituationsIdx (Qtr lag)	8.83%	7.57%	9.36%	10.08%	10.24% (1/95)
Growth Equity	18.17%	13.25%	7.13%	10.08%	9.43% (1/86)
Burgiss Venture Capital Index (Qtr lag)	20.04%	15.60%	9.80%	15.59%	15.08% (1/86)
Keystone Legacy (2)	-	-	-	-	10.04% (7/18)

\*Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.  
 (1) As of 01/01/2020 benchmark consists of 25% MSCI World ex US and 75% Russell 3000 + 3% with a 1 quarter lag.  
 (2) As of 12/31/2020, Keystone Legacy SPV consists of 119 non-core funds.

# Investment Manager Returns

As of December 31, 2021

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
<b>Net Performance - Private Credit</b>						
<b>Private Credit</b>	\$1,037	100.00%	4.15%	19.12%	12.63%	-
S&P Levered Loan Index +1% (Qtr lag)	-	-	1.35%	9.41%	5.22%	5.63%
Direct Lending	331	31.95%	2.85%	20.06%	-	-
Distressed Debt	284	27.37%	4.98%	42.59%	-	-
Diversified Credit	422	40.68%	4.67%	16.63%	-	-

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
<b>Net Performance - Private Credit</b>					
<b>Private Credit</b>	-	-	-	-	11.31% (12/17)
S&P Levered Loan Index +1% (Qtr lag)	5.94%	5.64%	5.87%	-	5.47% (12/17)
Direct Lending	-	-	-	-	9.69% (1/20)
Distressed Debt	-	-	-	-	26.20% (1/20)
Diversified Credit	-	-	-	-	16.13% (1/20)

\*Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

# Investment Manager Returns

As of December 31, 2021

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last 3 Years	Last 5 Years
<b>Net Performance - Real Estate</b>						
<b>Real Estate</b>	<b>\$2,870</b>	<b>100.00%</b>	<b>6.35%</b>	<b>18.04%</b>	<b>10.18%</b>	<b>5.92%</b>
Real Estate Custom Bench (Qtr lag) (1)	-	-	7.70%	17.48%	7.25%	6.92%
CPI +3% (Qtr lag)	-	-	1.68%	8.39%	5.81%	5.59%
Core/Core Plus Real Estate Funds	1,183	41.20%	4.79%	12.91%	6.23%	6.68%
NCREIF ODCE Index (Qtr lag)	-	-	6.75%	14.83%	6.84%	7.07%
Value Add/Oppportunistic SMA	640	22.29%	6.21%	12.67%	12.18%	4.71%
NCREIF ODCE Index (Qtr lag)	-	-	6.75%	14.83%	6.84%	7.07%
Value Add/Oppportunistic Funds	667	23.23%	4.47%	23.05%	8.56%	8.54%
NCREIF ODCE Index (Qtr lag)	-	-	6.75%	14.83%	6.84%	7.07%
Legacy Real Assets	0	0.01%	(13.30%)	(10.63%)	(3.62%)	(4.96%)
CPI +3% (Qtr lag)	-	-	1.68%	8.39%	5.81%	5.59%
REITS	381	13.27%	15.35%	42.47%	20.06%	9.73%
FTSE NAREIT US Index	-	-	16.28%	42.83%	17.10%	9.01%

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
<b>Net Performance - Real Estate</b>					
<b>Real Estate</b>	<b>7.68%</b>	<b>4.11%</b>	<b>6.83%</b>	<b>7.88%</b>	<b>8.46%</b> (3/84)
Real Estate Custom Bench (Qtr lag) (1)	9.36%	5.78%	7.47%	8.30%	-
CPI +3% (Qtr lag)	4.92%	5.03%	5.18%	5.24%	5.67% (3/84)
Core/Core Plus Real Estate Funds	9.23%	6.42%	7.52%	8.49%	7.12% (9/86)
NCREIF ODCE Index (Qtr lag)	9.22%	5.59%	6.85%	7.76%	6.10% (9/86)
Value Add/Oppportunistic SMA	5.97%	2.61%	5.04%	6.36%	5.48% (6/88)
NCREIF ODCE Index (Qtr lag)	9.22%	5.59%	6.85%	7.76%	6.14% (6/88)
Value Add/Oppportunistic Funds	10.15%	4.46%	7.62%	9.09%	7.96% (3/84)
NCREIF ODCE Index (Qtr lag)	9.22%	5.59%	6.85%	7.76%	6.34% (3/84)
Legacy Real Assets	(1.66%)	0.19%	1.73%	2.57%	3.37% (3/93)
CPI +3% (Qtr lag)	4.92%	5.03%	5.18%	5.24%	5.31% (3/93)
REITS	11.41%	7.16%	10.65%	10.30%	10.51% (4/96)
FTSE NAREIT US Index	12.36%	6.94%	10.64%	10.53%	10.90% (4/96)

\*Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.  
 (1) As of 03/31/2019 benchmark consists of 90% NCREIF ODCE Index (1 Qtr lag) and 10% FTSE NAREIT Index (unlagged)  
 Prior to 03/31/2019, benchmark history was provided by RVK.

Callan

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**Appendix II – Callan Update**

# Published Research Highlights from 4Q21

## A Guide to Reinsurance for Institutional Investors



## 2021 ESG Survey



## 2021 Cost of Doing Business Survey



## 2021 Investment Management Fee Study



## Recent Blog Posts

**Understanding Return Forecasts for Public DB Plans**

Brady O'Connell and John Pirone

**Rising Rates! Why the Heck Do We Own Bonds?**

Alex Browning and Adam Lozinski

**How Investors Should Respond to China's Regulatory Crackdown**

Fanglue Zhou

## Additional Reading

*Private Equity Trends* quarterly newsletter

Active vs. Passive quarterly charts

*Capital Markets Review* quarterly newsletter

Monthly Updates to the Periodic Table

*Market Pulse Flipbook* quarterly markets update

# Callan Institute Events

Upcoming conferences, workshops, and webinars

## Callan College

### Intro to Investments - Learn the Fundamentals

This course is for institutional investors, including trustees and staff members of public plans, corporate plans, and nonprofits. This session familiarizes trustees and staff with basic investment theory, terminology, and practices.

**Join our next VIRTUAL session via Zoom** (3 sessions, 2-3 hours each):  
March 1-3, 2022

**Join our next LIVE session in San Francisco** (1½-day session):  
July 26-27, 2022

### Introductory Workshop for DC Plan Fiduciaries

This one-day workshop centers on the fundamentals of administering a defined contribution (DC) plan. Designed primarily for ERISA fiduciaries and supporting staff members, attendees will gain a better understanding of the key responsibilities of an ERISA fiduciary and best practices for executing those responsibilities.

**Join our LIVE session in San Francisco:**  
March 23, 2022

## Mark Your Calendar

### 2022 National Conference

April 25-27, 2022 – San Francisco  
Palace Hotel  
2 New Montgomery St., San Francisco, CA 94105

### 2022 June Regional Workshops

June 7, 2022 – Atlanta  
June 9, 2022 – Portland

*Watch your email for further details and an invitation.*

## Webinars & Research Café Sessions

### Webinar: DC Survey Results

February 23, 2022 – 9:30am (PT)

### Research Café: ESG Interview Series

April 6, 2022 – 9:30am (PT)

### Market Intelligence

April 14, 2022 – 9:30am (PT)

# Callan Updates

Firm updates by the numbers, as of December 31, 2021

**Total Associates: ~200**

## Ownership

- 100% employees
- 22 new shareholders in 2021—a firm record
- 67% of employees are equity owners
- 55% of shareholders identify as women or minority

## Leadership Changes

- Annoesjka West has been promoted to lead the New Jersey investment consulting team
- Jen Gallo has been promoted to chief compliance officer in addition to her role as general counsel
- Tom Shingler has been named ESG team practice leader

**Total General and Investment Consultants: more than 55**

**Total Specialty and Research Consultants: more than 60**

**Total CFA/CAIA/FRMs: ~55**

**Total Institutional Investor Clients: more than 400**

**AUA: more than \$3 trillion**

**“I’m excited about this new opportunity to lead the New Jersey team and continue the success of our office. The last 20 years at Callan have been a tremendous experience for me, and I have no doubt that will continue in my new role.”**

- Annoesjka West, senior vice president, on being named manager of Callan’s New Jersey investment consulting team



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## Disclaimers

This report is for informational purposes only and should not be construed as legal or tax advice on any matter. Any decision you make on the basis of this content is your sole responsibility. You should consult with legal and tax advisers before applying any of this information to your particular situation.

This report may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact.

Reference to or inclusion in this report of any product, service or entity should not be construed as a recommendation, approval, affiliation or endorsement of such product, service or entity by Callan.

Past performance is no guarantee of future results.

The statements made herein may include forward-looking statements regarding future results. The forward-looking statements herein: (i) are best estimations consistent with the information available as of the date hereof and (ii) involve known and unknown risks and uncertainties such that actual results may differ materially from these statements. There is no obligation to update or alter any forward-looking statement, whether as a result of new information, future events or otherwise. Undue reliance should not be placed on forward-looking statements.