

September 29 , 2020



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

Second Quarter 2020

Executive Summary

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Market Environment

Stunning Recovery in Global Equity Markets in 2Q20

V-shaped equity rebound, ahead of the global economy

Global equities rally after March market bottom

- S&P 500 Index was down -33% from peak (02/19/20) to low on 3/23/20
- Sharp rebound since March, suggesting broad-based recovery, but YTD results concentrated in a few stocks
- Fed cut rates to zero, commenced QE, instituted multiple facilities to backstop money markets, credit markets, and economy.
 - Fed expects to get paid back
 - Further fiscal stimulus expected
- Congress passed fiscal stimulus (CARES) to carry the economy through the crisis.
- Economic recovery will be uncertain as COVID-19 infections continue; re-openings may be reversed.

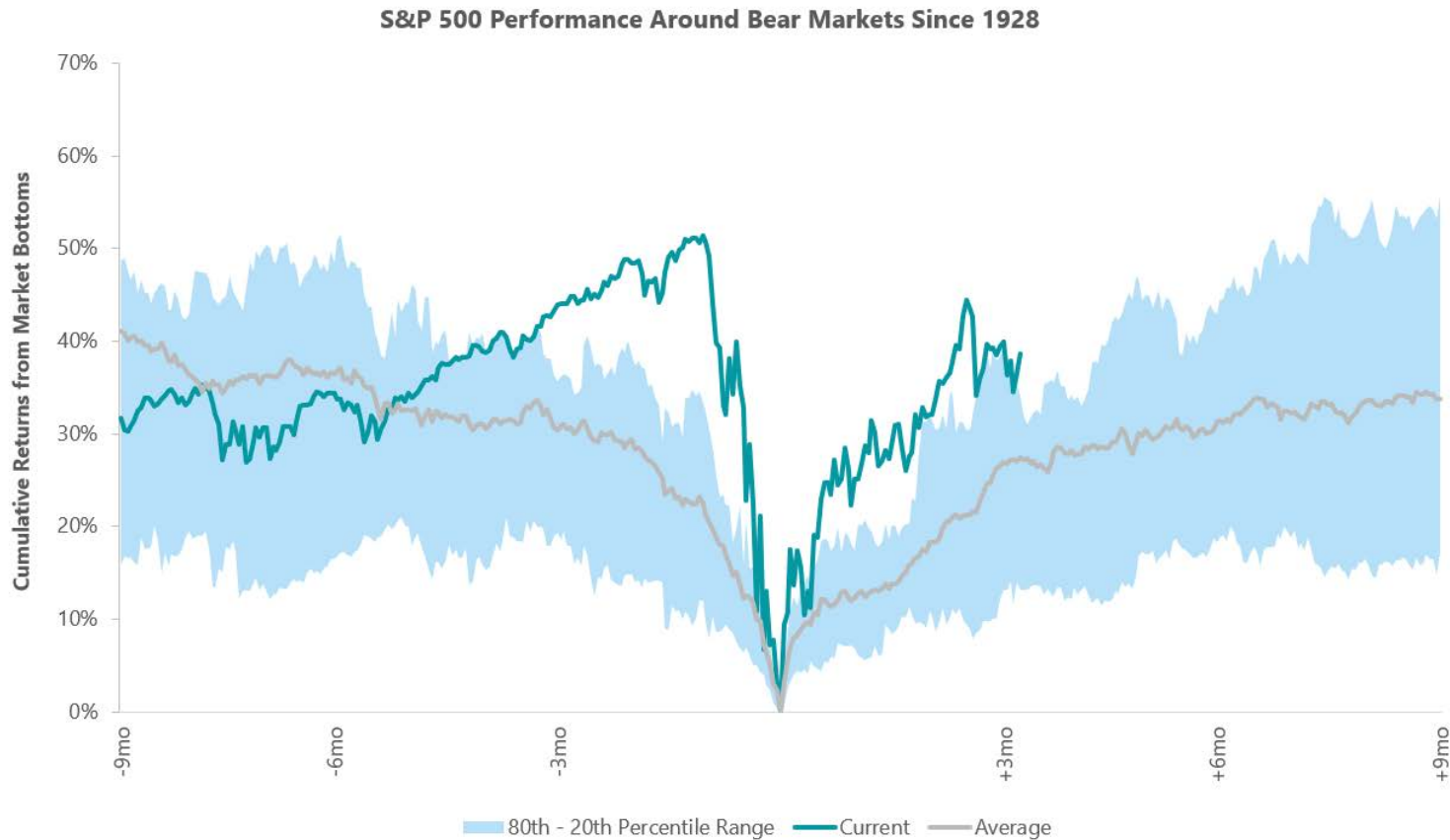
Returns for Periods ended June 30, 2020

	1 Quarter	1 Year	5 Years	10 Years	25 Years
U.S. Equity					
Russell 3000	22.03	6.53	10.03	13.72	9.28
S&P 500	20.54	7.51	10.73	13.99	9.27
Russell 2000	25.42	-6.63	4.29	10.50	8.16
Global ex-U.S. Equity					
MSCI World ex USA	15.34	-5.42	2.01	5.43	4.68
MSCI Emerging Markets	18.08	-3.39	2.86	3.27	--
MSCI ACWI ex USA Small Cap	22.83	-4.34	2.50	6.05	5.51
Fixed Income					
Bloomberg Barclays Aggregate	2.90	8.74	4.30	3.82	5.36
90-day T-Bill	0.02	1.63	1.19	0.64	2.37
Bloomberg Barclays Long Gov/Credit	6.23	18.91	8.98	7.84	7.72
Bloomberg Barclays Global Agg ex-US	3.38	0.71	2.89	1.98	3.73
Real Estate					
NCREIF Property	-0.99	2.69	6.77	9.70	9.15
FTSE Nareit Equity	11.82	-13.04	4.06	9.05	9.48
Alternatives					
CS Hedge Fund	6.20	-0.73	1.55	3.83	7.49
Cambridge Private Equity*	-7.80	2.12	10.39	12.33	14.68
Bloomberg Commodity	5.08	-17.38	-7.69	-5.82	0.75
Gold Spot Price	12.77	27.36	8.97	3.75	6.36
Inflation - CPI-U	-0.12	0.65	1.56	1.69	2.12

*Cambridge PE data through 03/31/20

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

The COVID-19 Selloff vs. History



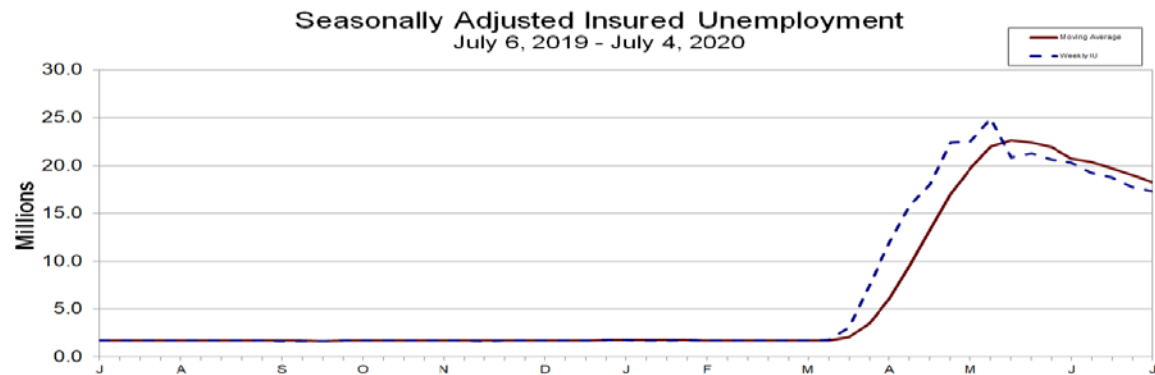
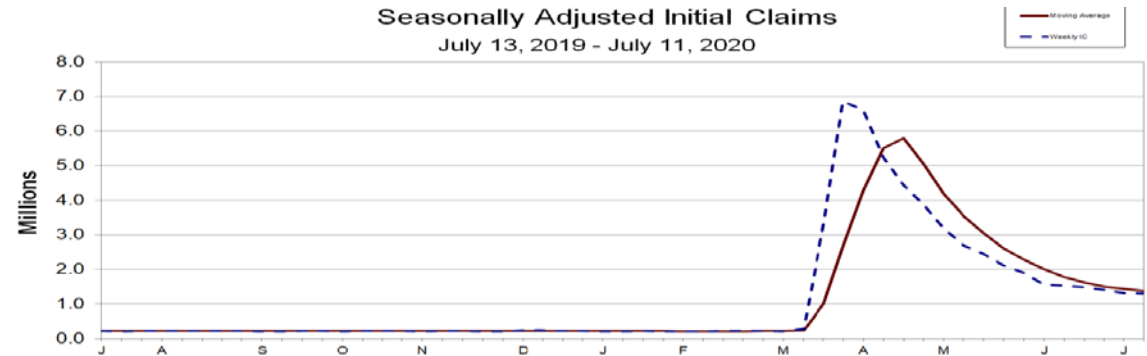
The speed of the stock market's response to the COVID-19 shutdown, both on the way down and the way up, have been outliers compared to previous bear markets.

Data as of 6/30/20. Source: ClearBridge Investment, FactSet.

U.S. Job Market

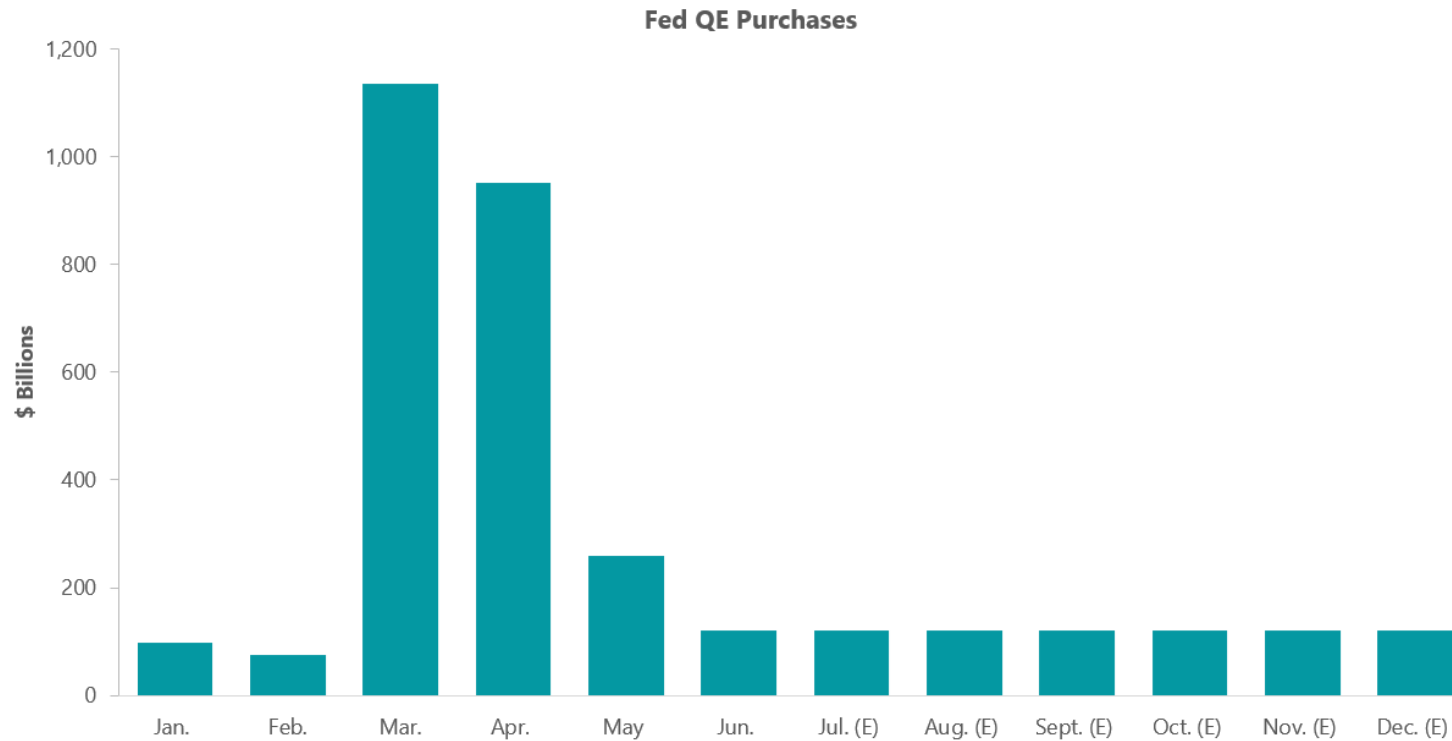
Initial claims and total unemployed

- Spike in initial claims to over 6 million per week in April
- Subsided into June and July
- Over 40 million thrown out of work, from a starting payroll count of 155 million in February
- Job increases (>4 million) surprised on the upside in June.
- Household finances sustained through 2Q20 by expanded unemployment benefits and extra payments



Source: Department of Labor, <https://www.dol.gov/sites/dolgov/files/OPA/newsreleases/ui-claims/20200551.pdf>

Fed Supplied a Tsunami of Liquidity



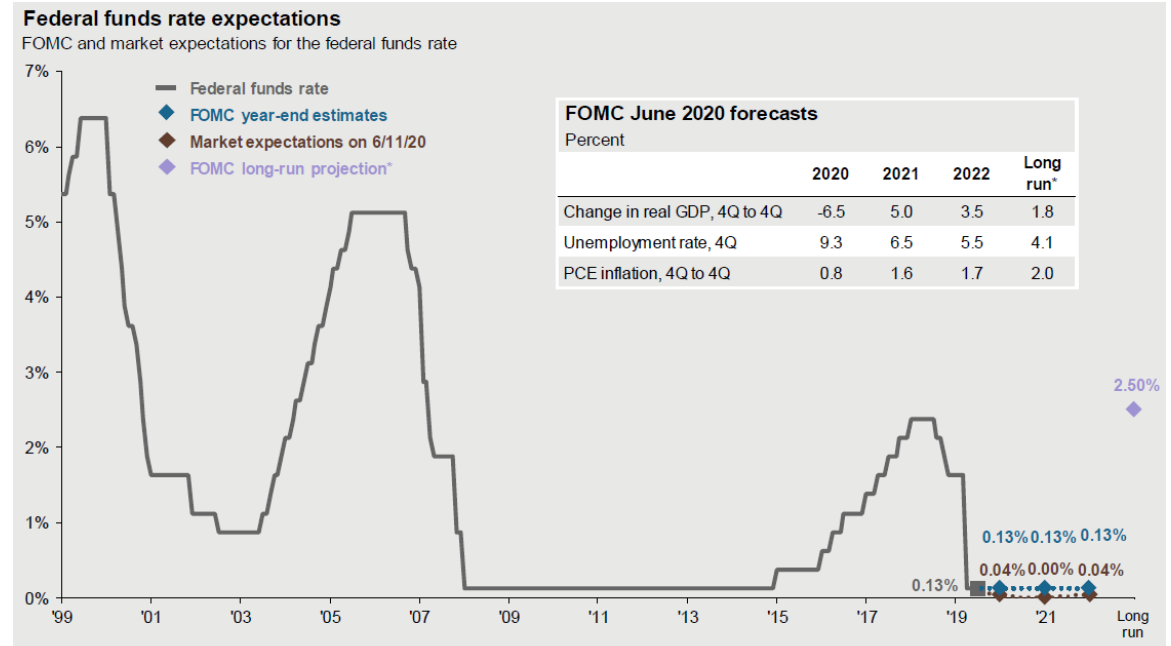
- The Fed’s ~\$3T increase in its balance sheet has buoyed markets.
- Going forward, ~\$225B in monthly Treasury issuance will be a liquidity drag vs. \$120B in expected monthly QE.

Sources: ClearBridge Investments, Federal Reserve Bank of New York
(E) represents estimated Fed QE purchases, data as of 6/30/20.

Government Intervention

Monetary policy

- The Federal Reserve Open Market Committee voted to continue 0% Fed Funds Rate at June meeting.
- Median FOMC member forecast expects zero interest rate policy for years.
- Markets do not expect the Fed to raise the rate in the near future.



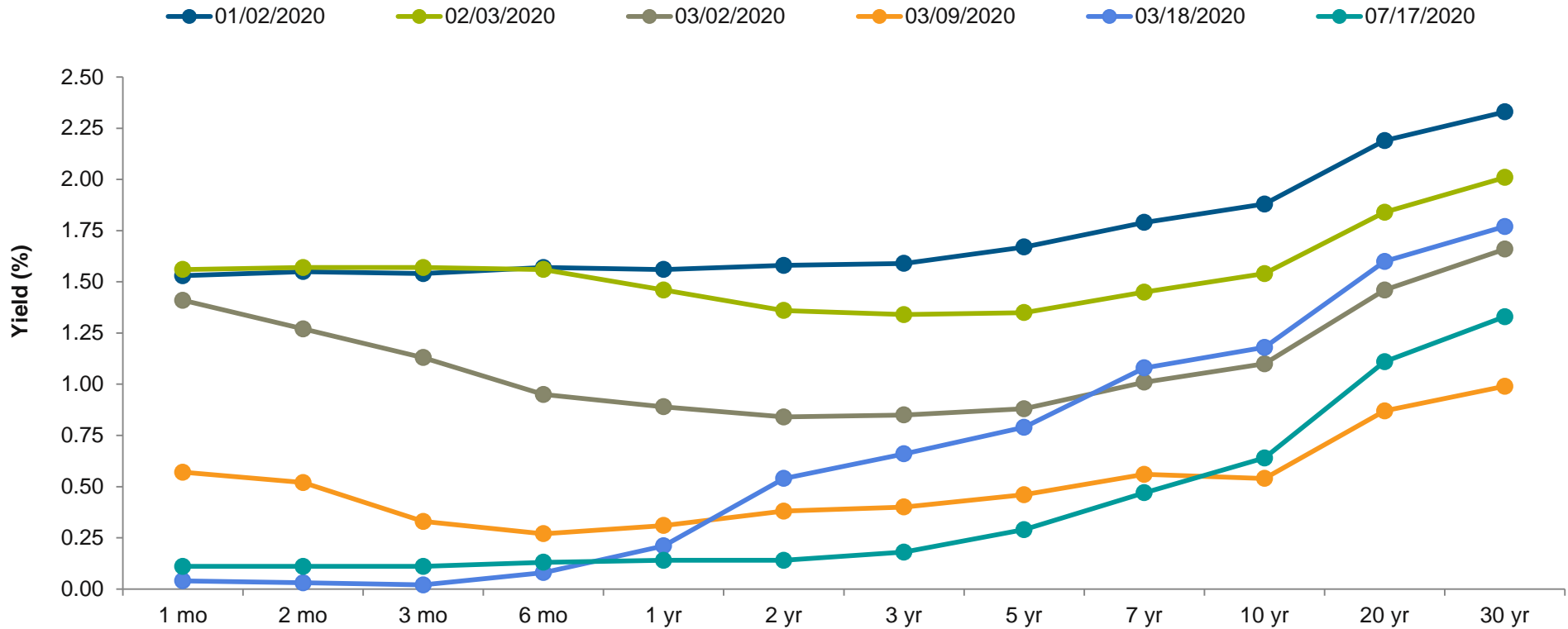
Source: Bloomberg, FactSet, Federal Reserve, J.P. Morgan Asset Management.
Market expectations are the federal funds rates priced into the fed futures market as of the following date of the June 2020 FOMC meeting and are through December 2022. *Long-run projections are the rates of growth, unemployment and inflation to which a policymaker expects the economy to converge over the next five to six years in absence of further shocks and under appropriate monetary policy.
Guide to the Markets – U.S. Data are as of July 6, 2020.

J.P.Morgan
Asset Management

Source: Federal Reserve, J.P. Morgan Guide to the Markets U.S.

Impact on Financial Markets

Treasury yield curve shape shifting: a moving target



The Treasury yield curve contains an implicit broad economic forecast

- Steeper yield curves (long-term rates higher than short-term rates) suggest stronger anticipated growth.

The shape of the Treasury yield curve has varied quickly and substantially since the beginning of 2020.

- Curve shifted down dramatically early in crisis.
- Current yield curve still low on the short end and upward sloping but not steep

Source: U.S. Department of Treasury

Diversification Remains Key Risk Control

Periodic Table of Investment Returns 2003 – 2Q2020

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2 Qtrs. 2020
U.S. Fixed	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	U.S. Fixed
8.43%	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%	6.14%
High Yield	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	Non-U.S. Fixed
5.28%	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%	0.61%
Real Estate Funds	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	Cash Equivalent
4.64%	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%	0.60%
Cash Equivalent	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	Real Estate Funds
4.42%	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%	-1.01%
Hedge Funds	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	Large Cap
4.42%	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%	-3.08%
Small Cap	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	Hedge Funds
2.49%	-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%	-3.34%
Emerging Markets	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
-2.61%	-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%	-3.80%
Non-U.S. Fixed	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	Emerging Markets
-3.75%	-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%	-9.78%
Large Cap	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	Non-U.S. Equity
-11.89%	-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%	-11.49%
		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	Small Cap
		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%	-12.98%

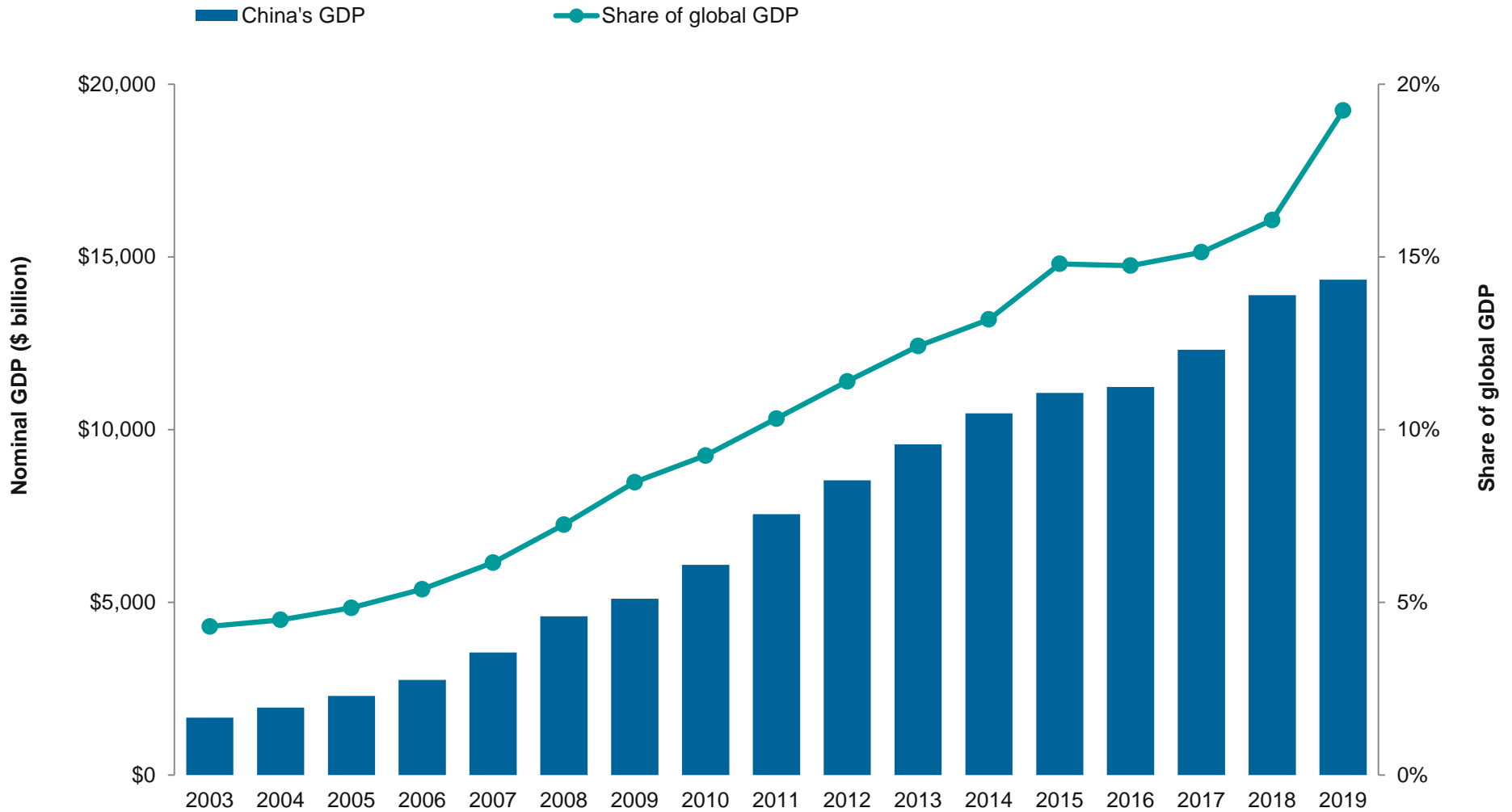
- Bloomberg Barclays Corp High Yield ● Bloomberg Barclays Global Aggregate ex US ● Bloomberg Barclays US Aggregate
- Credit Suisse Hedge Fund ● ICE BofAML US 3-Month Treasury Bill ● MSCI Emerging Markets ● MSCI World ex USA
- NFI-ODCE (value-weighted net) ● Russell 2000 ● S&P 500

Callan

China Market Update

China's Economic Growth

Fast rise in the past two decades



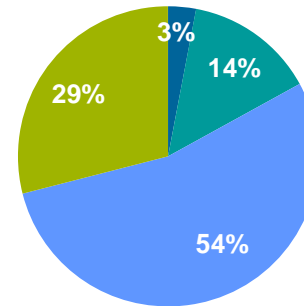
Source: WorldBank, OECD; China's share of global GDP in 2019 is IMF estimate

China's Economic Growth

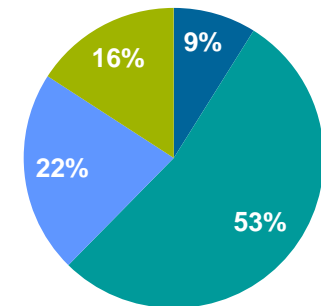
Rising incomes will benefit consumption domestically and globally

- Rising incomes for local workers have benefited domestic consumption in China. In 2018, domestic consumption accounted for 76% of China's economic growth
 - Impact of U.S.-China trade war would be modest
- As of 2019, China made up 19% of the global population and drove 9% of global consumption
 - Mainland China is the major revenue source for many multinational companies

China's Middle Class as Percent of Urban Households 2012



China's Middle Class as Percent of Urban Households 2022



● Affluent ● Upper Middle ● Mass Middle ● Poor

Chinese Local Brands:



Mainland China is the ...

primary revenue source for:



second-largest revenue source for:

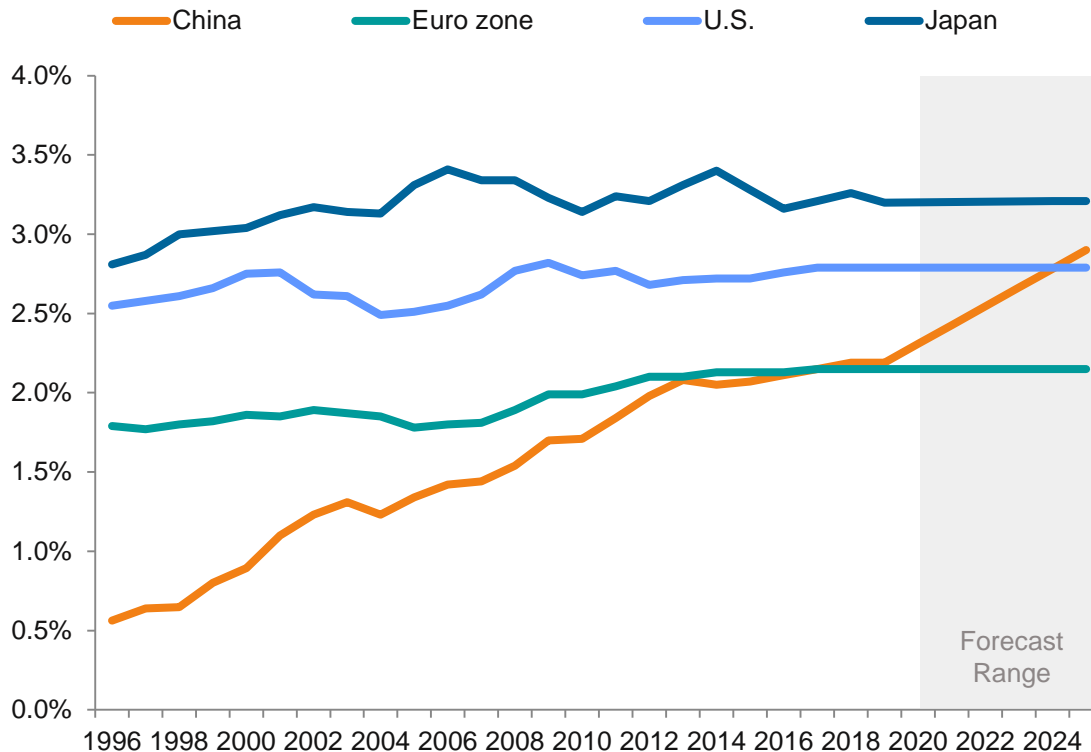


Sources: International Monetary Fund, data as of 3/31/2019; China National Bureau of Statistics, Thomson Reuters

China's Economic Growth

Technology and innovation fueled the next chapter of China's growth story

R&D Spending as a Percent of GDP



- “Made in China 2025”
 - Technologically self-sufficient and high-tech powerhouse
 - Targeting health care, industrial automation, semiconductors, and clean energy
- China expected to have 150 million 5G users by the end of 2020
- Electric vehicles continue to grow
 - China had half of world’s EV stock in 2018
- Productivity solutions with automation
 - For example, China’s robot installations are the highest in the world

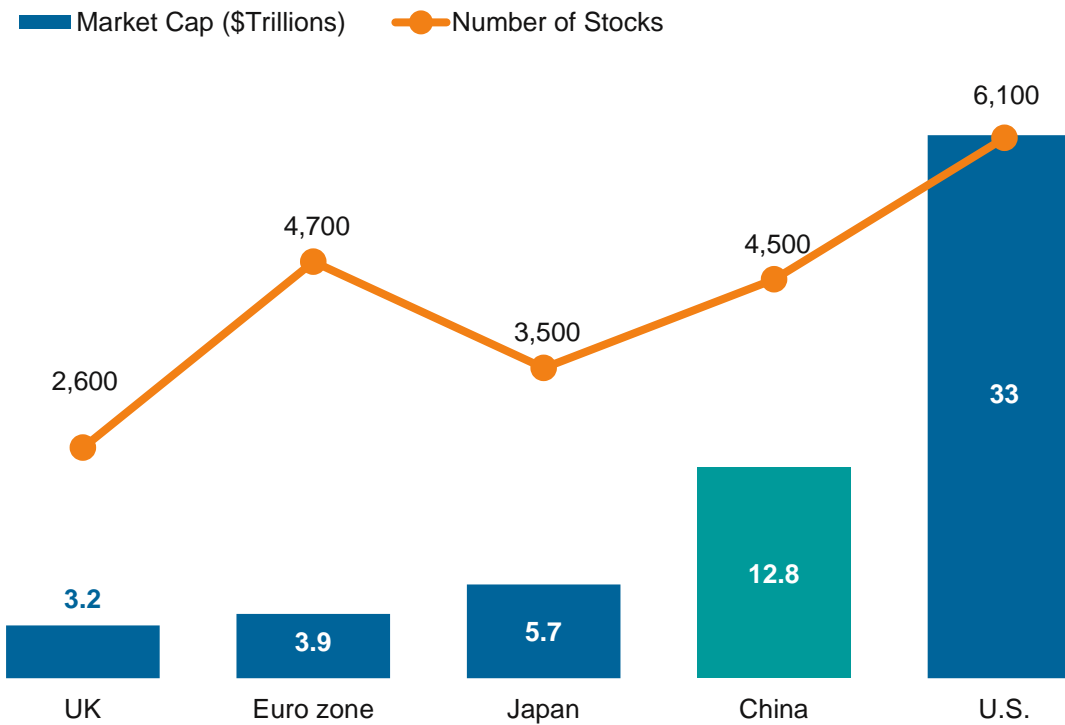


Source: World Bank Group, PineBridge Investments. Calculations as of July 21, 2020

China's Equity Market

Large and liquid equity market

Size of Major Equity Markets



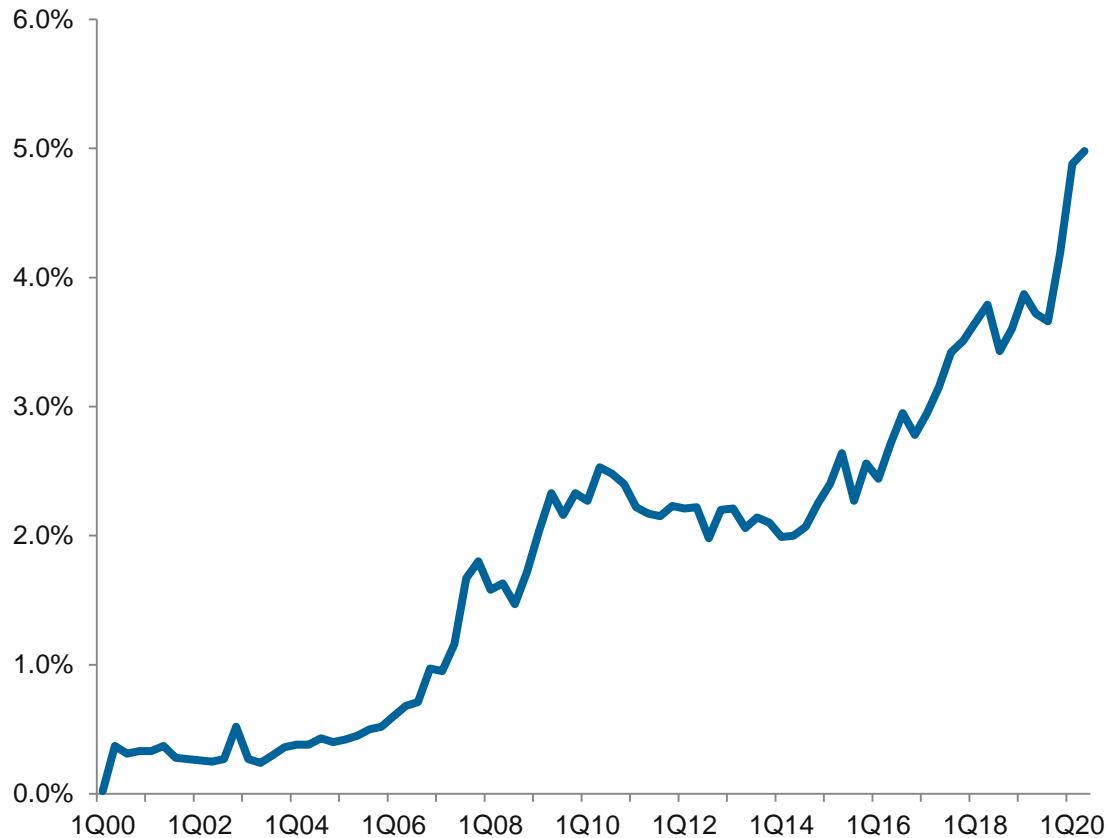
- In a mirror to the size of its economy, China also has the world's second-largest equity market by value
- More than 4,000 publicly traded companies are listed in China

Sources: Callan, MSCI

Why Should You Care About China's Equity Markets?

A growing presence in global equity markets

China's Weight in the MSCI ACWI Index



- The MSCI ACWI Index is designed to represent the full opportunity set of large- and mid-cap stocks in global equity markets
- China was added to the MSCI ACWI in March 2000 with an initial allocation of 0.02%
- China now represents 5% of the MSCI ACWI as of 1Q20, surpassing the U.K. and becoming the third-largest country after the U.S. and Japan
- In the same time period, China's weight in the emerging market index has grown from 0.3% to 41%

Sources: Callan, MSCI

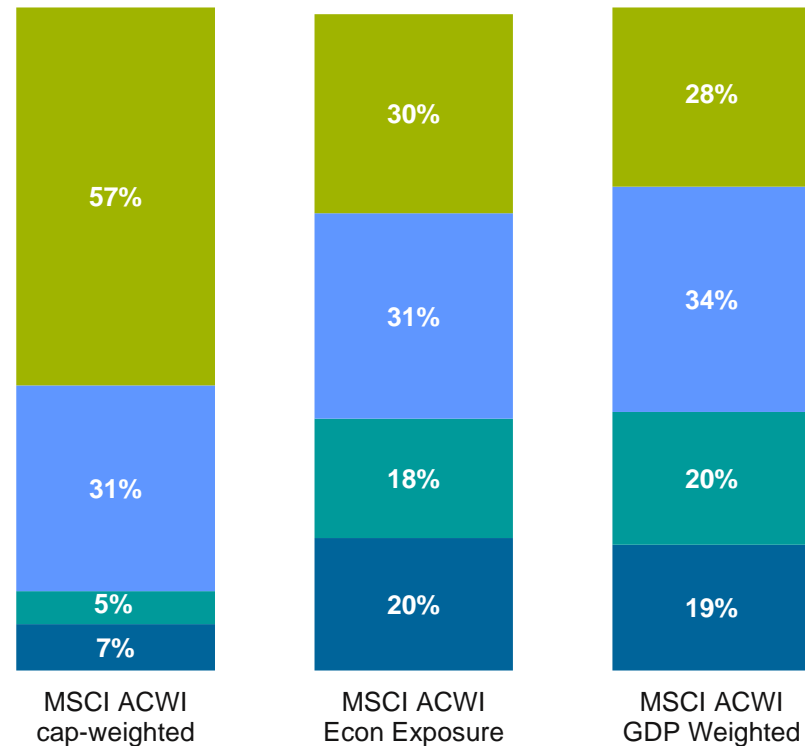
Why Should You Care About China's Equity Markets?

Ways to slice the world

- U.S. and China combined represent over 45% of global GDP and economic exposure
- China's 5% representation in the cap-weighted MSCI ACWI is much lower than its GDP or economic exposure weight

The View of MSCI ACWI

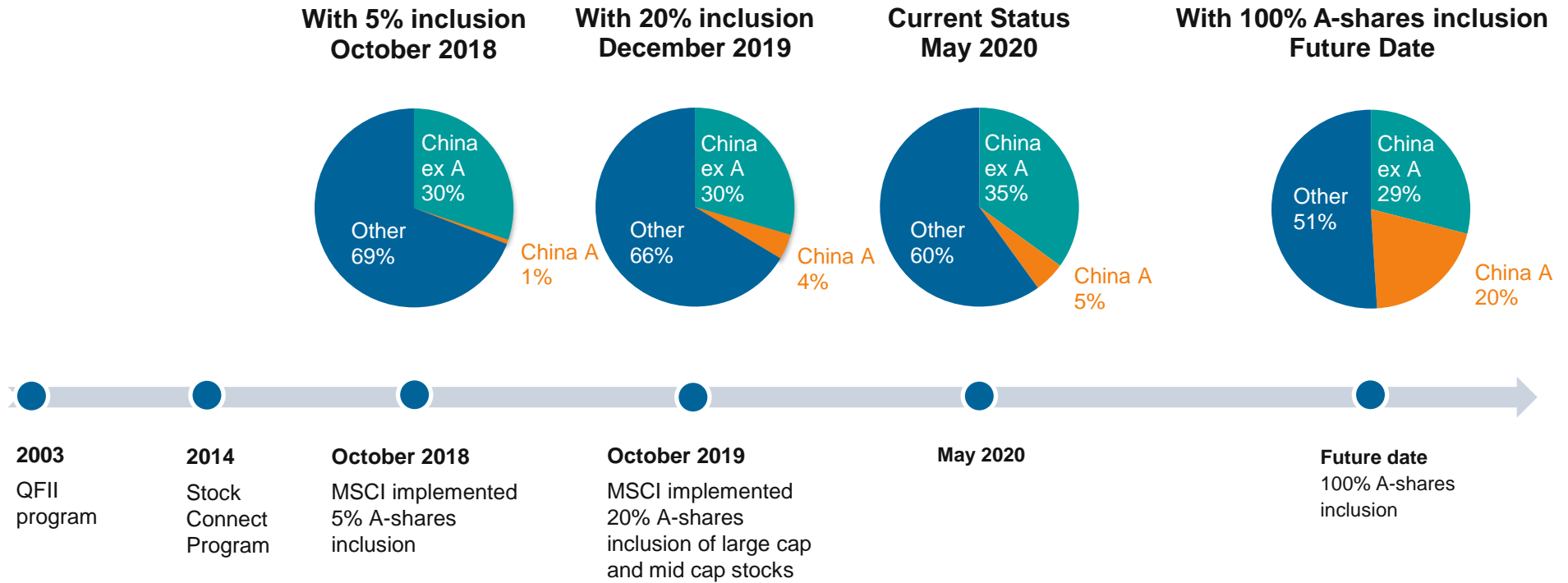
■ EM ex China ■ China ■ Developed ex U.S. ■ U.S.



Sources: Callan, MSCI (as of March 31, 2020)

China's Weight Continued to Grow in Major Indices

With full inclusion of China A-Shares, China is expected to become ~50% of the MSCI EM Index



Sources: Callan, MSCI

Key Takeaways

1. China has the second-largest economy and capital market in the world, yet it is under-represented in global indices.
2. China's A-shares market is large and liquid and offers diversification benefits.
3. Investors need to be aware of the challenges around operational complexity and headline risks.

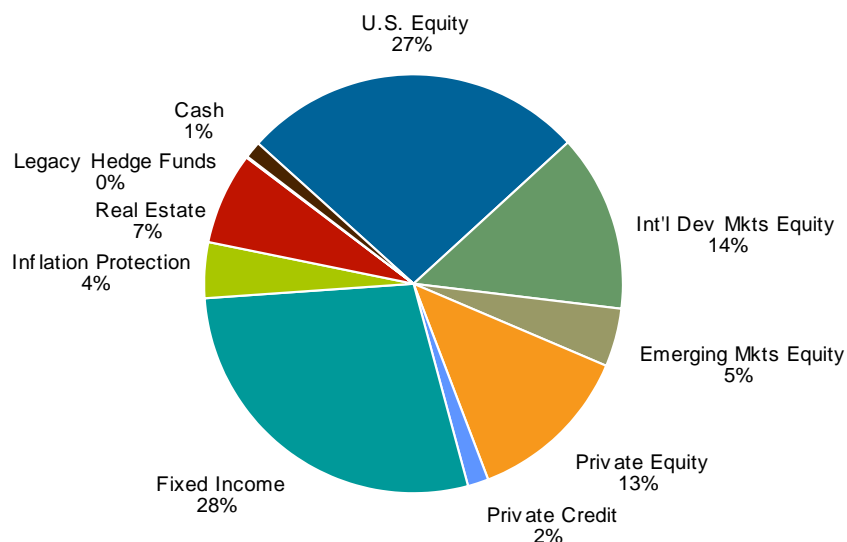
Callan

**PA SERS Defined Benefit Plan
Performance Review**

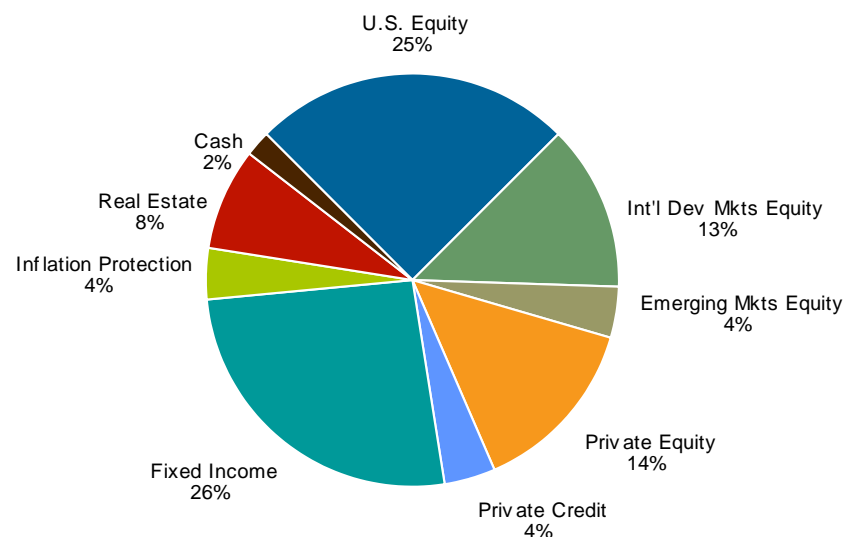
Total Fund

Actual Asset Allocation versus Target as of June 30, 2020

Actual Asset Allocation



Target Asset Allocation



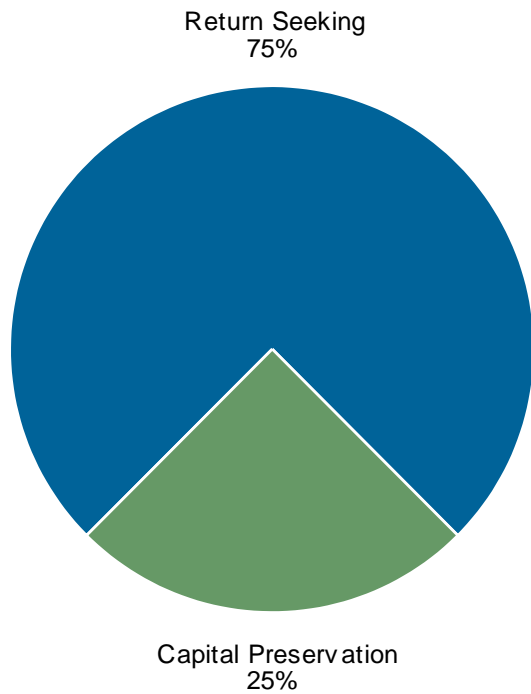
Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
U.S. Equity	7,949,375	26.5%	25.0%	1.5%	457,083
Int'l Dev Mkts Equity	4,101,491	13.7%	13.0%	0.7%	205,499
Emerging Mkts Equity	1,357,293	4.5%	4.0%	0.5%	158,527
Private Equity	3,832,839	12.8%	14.0%	(1.2%)	(362,844)
Private Credit	472,172	1.6%	4.0%	(2.4%)	(726,595)
Fixed Income	8,411,741	28.1%	26.0%	2.1%	619,759
Inflation Protection	1,279,985	4.3%	4.0%	0.3%	81,218
Real Estate	2,136,235	7.1%	8.0%	(0.9%)	(261,298)
Legacy Hedge Funds	26,566	0.1%	0.0%	0.1%	26,566
Cash	401,468	1.3%	2.0%	(0.7%)	(197,915)
Total	29,969,165	100.0%	100.0%		

Current Quarter Target = 26.0% Bmbg Aggregate, 25.0% Russell 3000 Index, 14.0% Private Equity, 13.0% MSCI World ex US IMI, 7.2% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4.0% MSCI EM IMI, 4.0% Bmbg:TIPS, 4.0% S&P:LSTA Lev Loan lagged 3 months+1.0%, 2.0% 3-month Treasury Bill, 0.8% FTSE EP/NA US Index lagged 3 months, 0.0% HFRI Fund of Funds Compos and 0.0% S&P:LSTA Lev Loan.

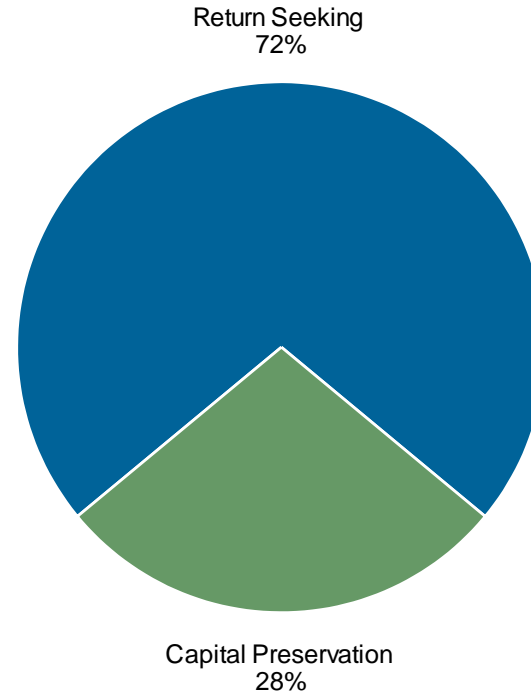
Return Seeking and Capital Preservation Assets

As of June 30, 2020

Actual Asset Allocation



Target Asset Allocation



Return Seeking Assets include: Domestic Equity, International Developed Equity, Emerging Markets Equity, Opportunistic Fixed Income, Private Equity, Private Credit, and Real Estate
Capital Preservation Assets include: Core Fixed Income, Inflation Protection (TIPS), and Cash

Projected Risk, Liquidity and Correlation

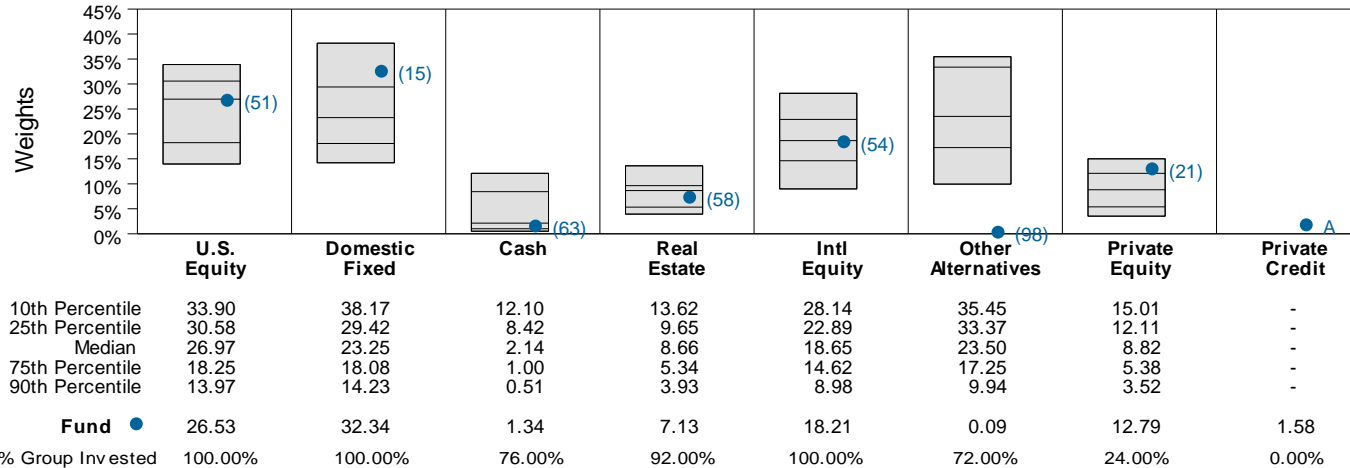
	Capital Preservation Assets			Return Seeking Assets						
	Cash	Inflation Protection (TIPS)	Core Fixed Income	U.S. Equity	Developed International Equity	Emerging Markets Equity	Opportunistic Fixed Income	Private Credit	Real Estate	Private Equity
Policy Target Asset Allocation	2%	4%	22%	25%	13%	4%	4%	4%	8%	14%
Projected Return* (Geometric)	2.25%	2.40%	2.75%	7.15%	7.00%	7.25%	4.55%	5.90%	7.70%	8.50%
Projected Risk* (Standard Deviation)	0.90%	5.05%	3.75%	18.10%	19.70%	25.70%	7.65%	12.10%	19.10%	27.80%
Liquidity	High	High	High	High	High	Medium	Low	Low	Low	Low
Correlation to U.S. Equity*	-0.03	-0.05	-0.11	1.00	0.78	0.78	0.69	0.80	0.78	0.84
Months of Benefit Payments**	1.3	4.0	18.4							
Months of Benefit Payments** (Includes EE & ER Contributions)	4.2	13.3	60.2							
Cumulative Months of Benefit Payments ** (Includes EE & ER Contributions)		77.6								

Source: *Callan 2020 Capital Market Projections, **SERS IO

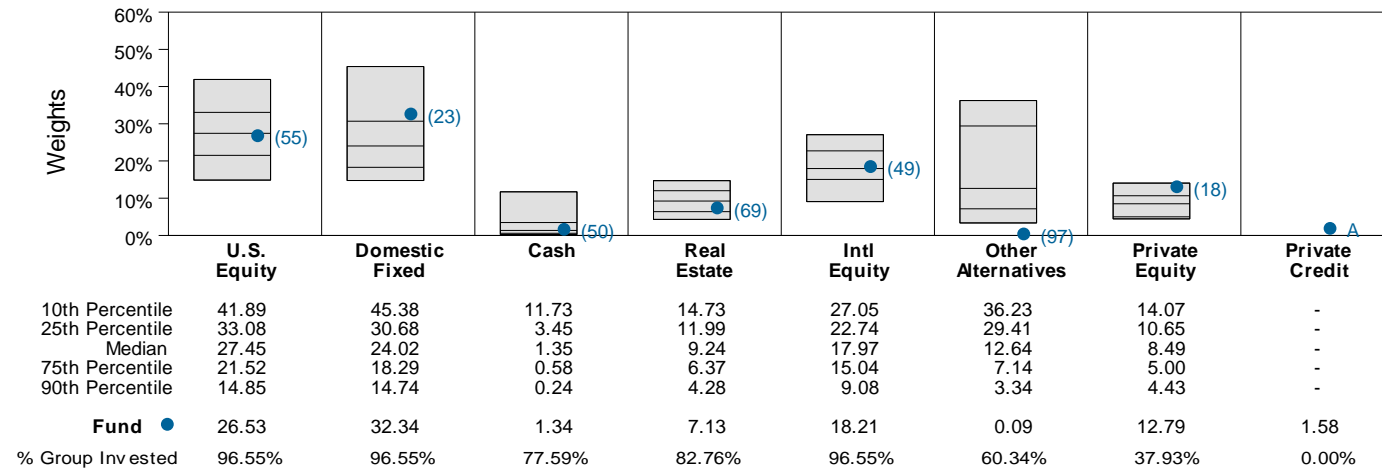
Total Fund

Actual Asset Allocation versus Very Large Public DB Plan (>\$10B) Peers and Large Public DB Plan (>\$1B) Peers as of June 30, 2020

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



Asset Class Weights vs Callan Public Fund Spons - Large (>1B)



Current Quarter Target = 26.0% Blmbg Aggregate, 25.0% Russell 3000 Index, 14.0% Private Equity, 13.0% MSCI World ex US IMI, 7.2% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4.0% MSCI EM IMI, 4.0% Blmbg:TIPS, 4.0% S&P:LSTA Lev Loan lagged 3 months+1.0%, 2.0% 3-month Treasury Bill, 0.8% FTSE EP/NA US Index lagged 3 months, 0.0% HFRI Fund of Funds Compos and 0.0% S&P:LSTA Lev Loan.

Total Fund

One Quarter Attribution Analysis versus Target – Net of Fees as of June 30, 2020

- The Plan started the transition to the new asset allocation approved by the Board at the February 25, 2020 Investment Committee meeting during the first quarter of 2020. Callan will provide longer attribution as more historical data becomes available under the new asset allocation policy.

Relative Attribution Effects for Quarter ended June 30, 2020

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
U.S. Equity	25%	25%	22.77%	22.03%	0.17%	(0.14%)	0.03%
International. Developed	13%	13%	16.42%	16.21%	0.02%	0.00%	0.03%
Emerging Mkts Equity	4%	4%	20.89%	18.93%	0.08%	0.02%	0.10%
Private Equity	14%	14%	(8.09%)	(8.09%)	0.00%	(0.09%)	(0.09%)
Private Credit	2%	4%	(4.09%)	(12.67%)	0.14%	0.51%	0.65%
Fixed Income	28%	26%	3.27%	2.90%	0.10%	(0.11%)	(0.01%)
Inflation Protection	4%	4%	4.38%	4.24%	0.01%	(0.02%)	(0.01%)
Real Estate	7%	8%	(0.27%)	1.79%	(0.16%)	0.03%	(0.13%)
Multi-Strategy	0%	0%	0.00%	9.70%	0.00%	0.00%	0.00%
Legacy Hedge Funds	0%	0%	(1.54%)	7.90%	(0.01%)	0.00%	(0.01%)
Cash	2%	2%	0.17%	0.02%	0.00%	(0.01%)	(0.00%)
Total			8.02%	= 7.46%	+ 0.36%	+ 0.20%	0.55%

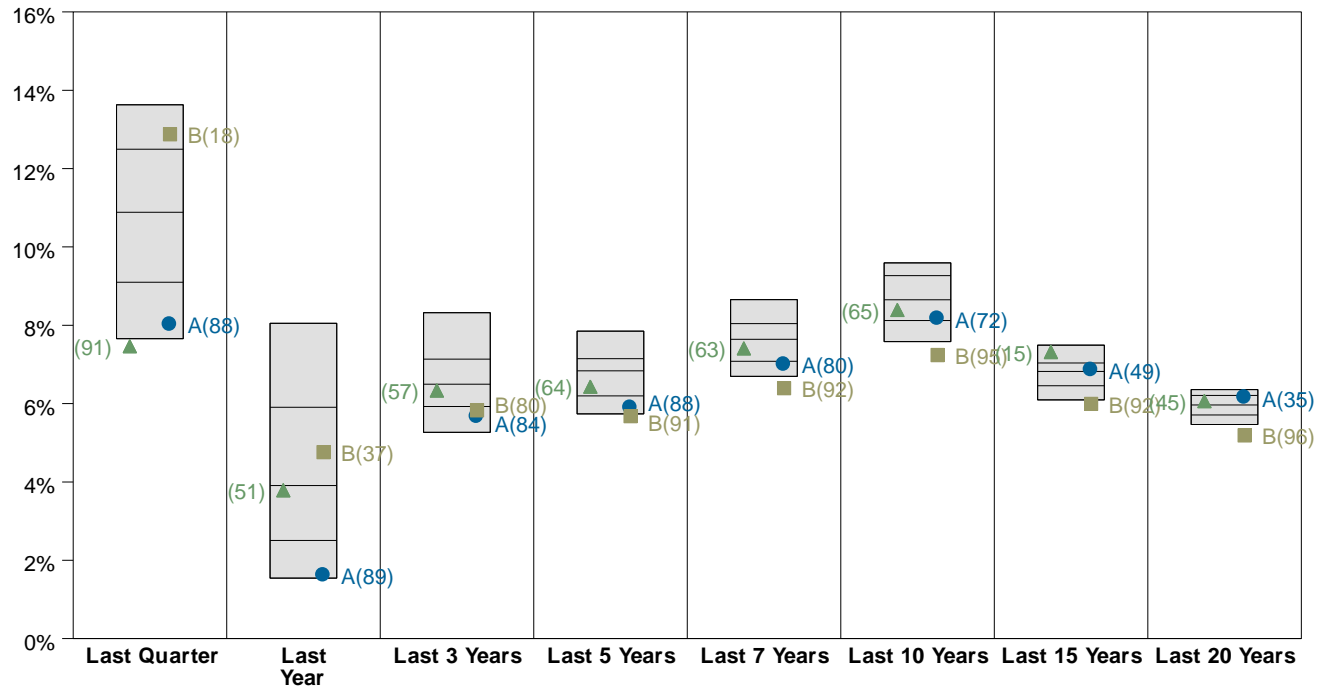
- What helped relative attribution?**
 - An underweight to Private Credit (attribution based on target return)
 - Outperformance relative to target from U.S. Equity, Private Credit, Fixed Income and Emerging Markets Equity managers
- What hurt relative attribution?**
 - Underperformance relative to target from Real Estate managers.
 - An overweight during the quarter to Fixed Income (attribution based on target return).
 - An underweight during the quarter to U.S. Equity (attribution based on target return).

Current Quarter Target = 26.0% Blmbg Aggregate, 25.0% Russell 3000 Index, 14.0% Private Equity, 13.0% MSCI World ex US IMI, 7.2% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4.0% MSCI EM IMI, 4.0% Blmbg:TIPS, 4.0% S&P:LSTA Lev Loan lagged 3 months+1.0%, 2.0% 3-month Treasury Bill, 0.8% FTSE EP/NA US Index lagged 3 months, 0.0% HFRI Fund of Funds Compos and 0.0% S&P:LSTA Lev Loan.

Total Fund

Gross of Fee Performance versus Very Large Public DB Plan (>\$10B) Peers and Benchmark (As of June 30, 2020)

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



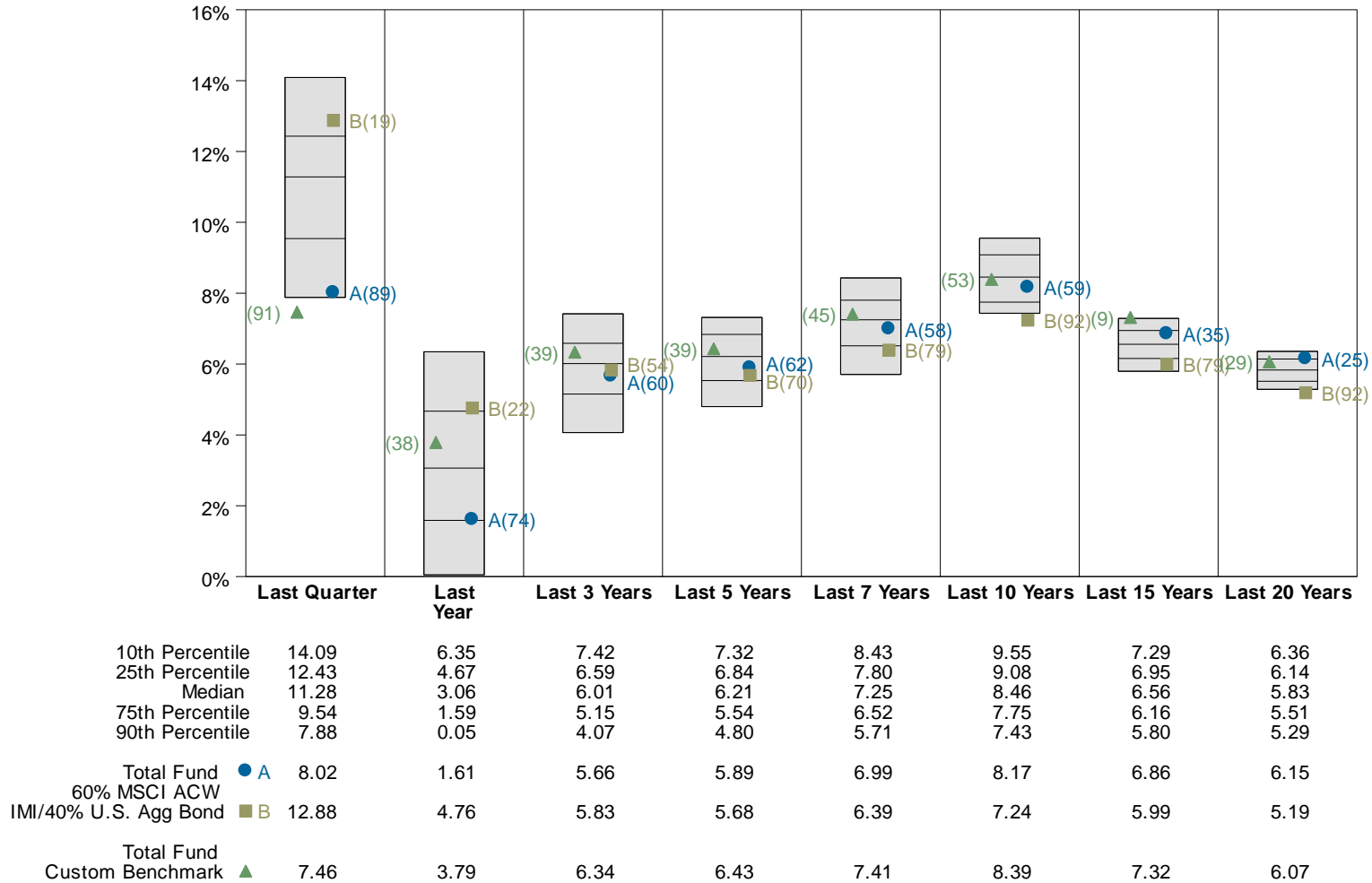
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	Last 15 Years	Last 20 Years
10th Percentile	13.63	8.05	8.32	7.85	8.66	9.59	7.49	6.36
25th Percentile	12.50	5.91	7.13	7.15	8.04	9.27	7.04	6.21
Median	10.88	3.91	6.50	6.84	7.64	8.65	6.82	5.97
75th Percentile	9.10	2.51	5.93	6.20	7.08	8.12	6.46	5.71
90th Percentile	7.66	1.54	5.27	5.74	6.70	7.58	6.09	5.47
Total Fund ● A	8.02	1.61	5.66	5.89	6.99	8.17	6.86	6.15
60% MSCI ACW IMI/40% U.S. Agg Bond ■ B	12.88	4.76	5.83	5.68	6.39	7.24	5.99	5.19
Total Fund Custom Benchmark ▲	7.46	3.79	6.34	6.43	7.41	8.39	7.32	6.07

Current Quarter Target = 26.0% Blmbg Aggregate, 25.0% Russell 3000 Index, 14.0% Private Equity, 13.0% MSCI World ex US IMI, 7.2% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4.0% MSCI EM IMI, 4.0% Blmbg:TIPS, 4.0% S&P:LSTA Lev Loan lagged 3 months+1.0%, 2.0% 3-month Treasury Bill, 0.8% FTSE EP/NA US Index lagged 3 months, 0.0% HFRI Fund of Funds Compos and 0.0% S&P:LSTA Lev Loan.

Total Fund

Gross of Fee Performance versus Large Public DB Plan (>\$1B) Peers and Benchmark (As of June 30, 2020)

Performance vs Callan Public Fund Spons - Large (>1B) (Gross)



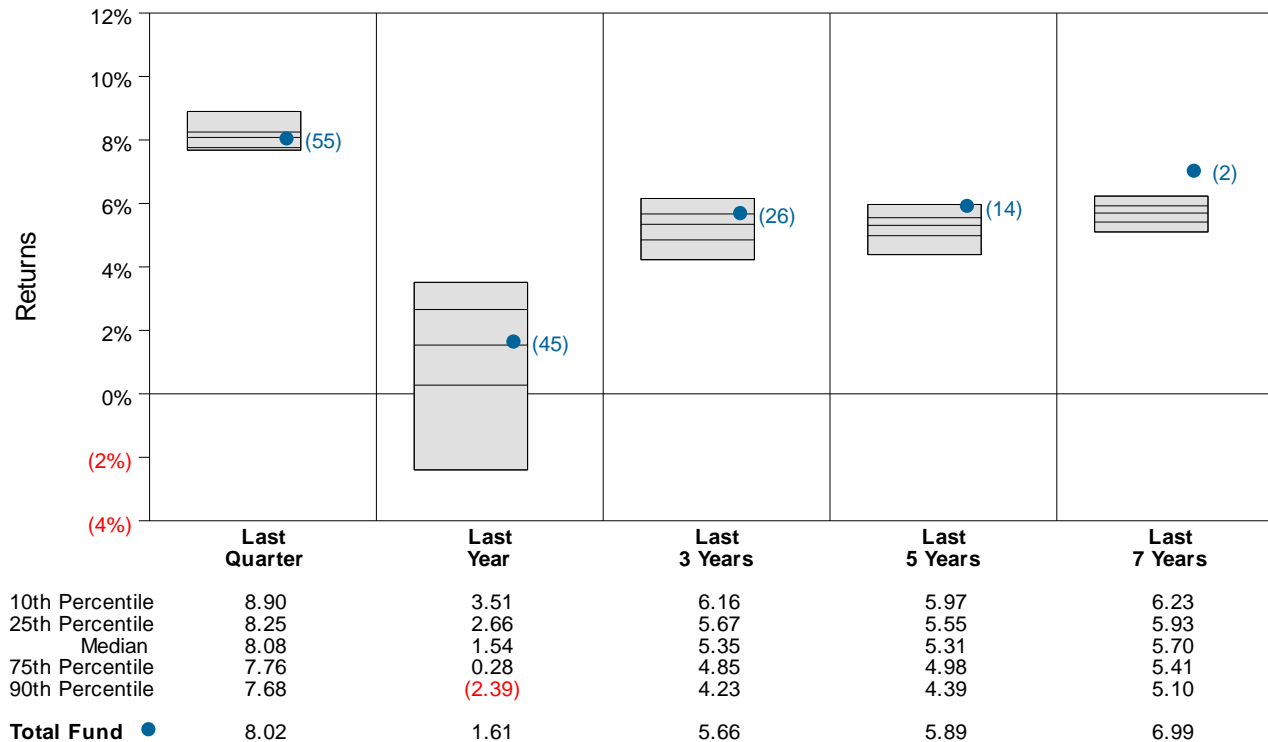
Current Quarter Target = 26.0% Blmbg Aggregate, 25.0% Russell 3000 Index, 14.0% Private Equity, 13.0% MSCI World ex US IMI, 7.2% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4.0% MSCI EM IMI, 4.0% Blmbg:TIPS, 4.0% S&P:LSTA Lev Loan lagged 3 months+1.0%, 2.0% 3-month Treasury Bill, 0.8% FTSE EP/NA US Index lagged 3 months, 0.0% HFRI Fund of Funds Compos and 0.0% S&P:LSTA Lev Loan.

Total Fund

Asset Allocation-Adjusted Gross of Fee Performance versus Very Large Public DB Plan (>\$10B) Peers as of June 30, 2020

- 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.

Asset Allocation Adjusted Ranking



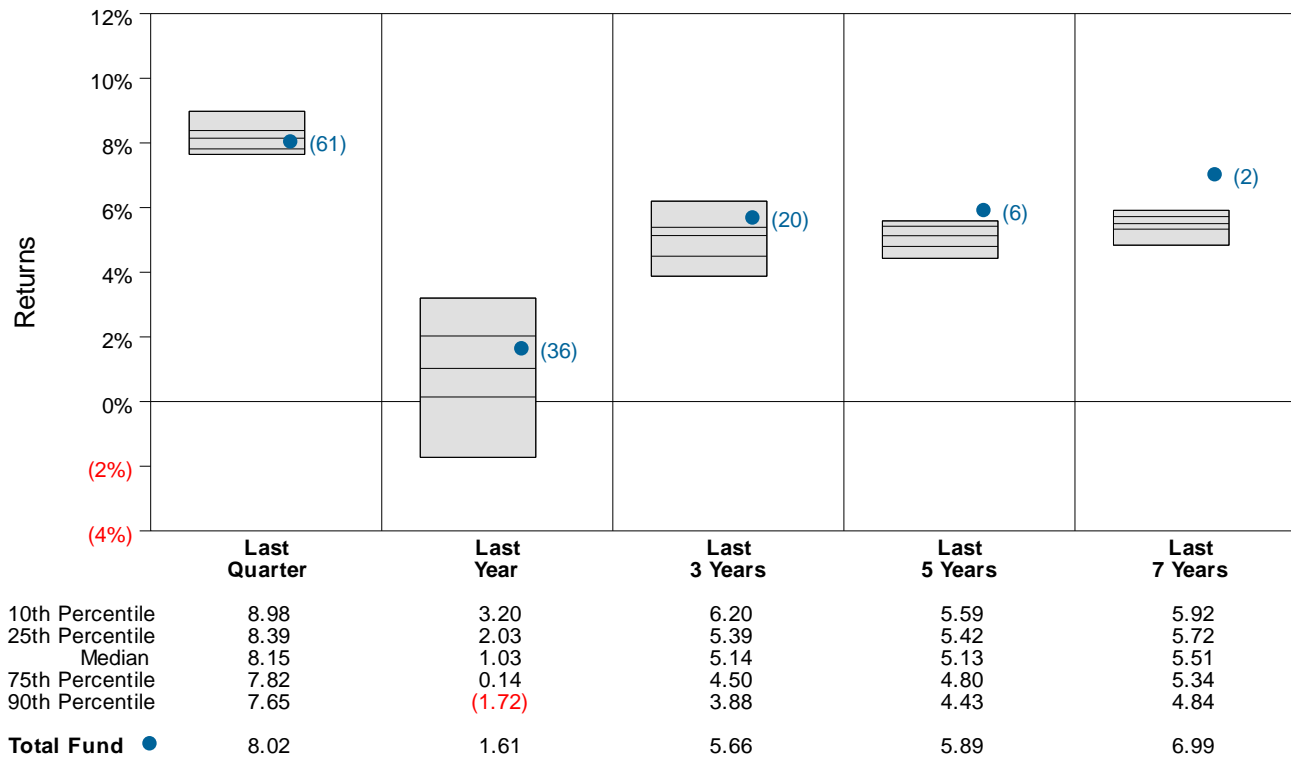
Current Quarter Target = 26.0% Blmbg Aggregate, 25.0% Russell 3000 Index, 14.0% Private Equity, 13.0% MSCI World ex US IMI, 7.2% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4.0% MSCI EM IMI, 4.0% Blmbg:TIPS, 4.0% S&P:LSTA Lev Loan lagged 3 months+1.0%, 2.0% 3-month Treasury Bill, 0.8% FTSE EP/NA US Index lagged 3 months, 0.0% HFRI Fund of Funds Compos and 0.0% S&P:LSTA Lev Loan.

Total Fund

Asset Allocation-Adjusted Gross of Fee Performance versus Large Public DB Plan (>\$1B) Peers as of June 30, 2020

- 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.

Asset Allocation Adjusted Ranking



Current Quarter Target = 26.0% Blmbg Aggregate, 25.0% Russell 3000 Index, 14.0% Private Equity, 13.0% MSCI World ex US IMI, 7.2% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4.0% MSCI EM IMI, 4.0% Blmbg:TIPS, 4.0% S&P:LSTA Lev Loan lagged 3 months+1.0%, 2.0% 3-month Treasury Bill, 0.8% FTSE EP/NA US Index lagged 3 months, 0.0% HFRI Fund of Funds Compos and 0.0% S&P:LSTA Lev Loan.

Total Fund

Risk vs. Return versus Very Large Public DB Plan (>\$10B) Peers (As of June 30, 2020)

Five Year Annualized Risk vs Return



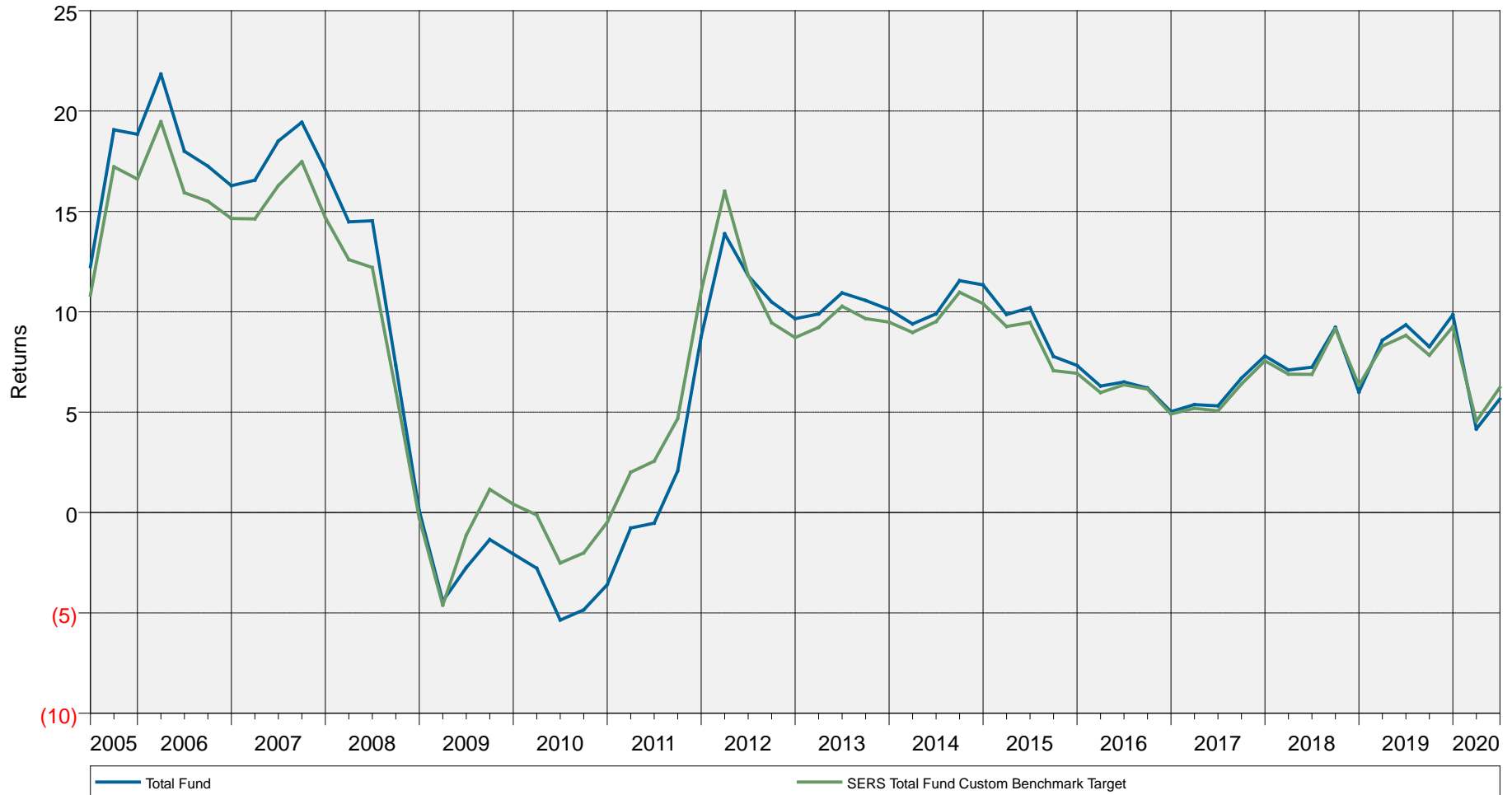
Squares represent membership of the Callan Public Fund Spons- V Lg DB (>10B)

Current Quarter Target = 26.0% Blmbg Aggregate, 25.0% Russell 3000 Index, 14.0% Private Equity, 13.0% MSCI World ex US IMI, 7.2% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4.0% MSCI EM IMI, 4.0% Blmbg:TIPS, 4.0% S&P:LSTA Lev Loan lagged 3 months+1.0%, 2.0% 3-month Treasury Bill, 0.8% FTSE EP/NA US Index lagged 3 months, 0.0% HFRI Fund of Funds Compos and 0.0% S&P:LSTA Lev Loan.

Total Fund

Rolling 3-year Gross of Fee Performance versus Peers and Benchmark (As of June 30, 2020)

Rolling 12 Quarter Gross of Fee Returns
for 15 Years Ended June 30, 2020

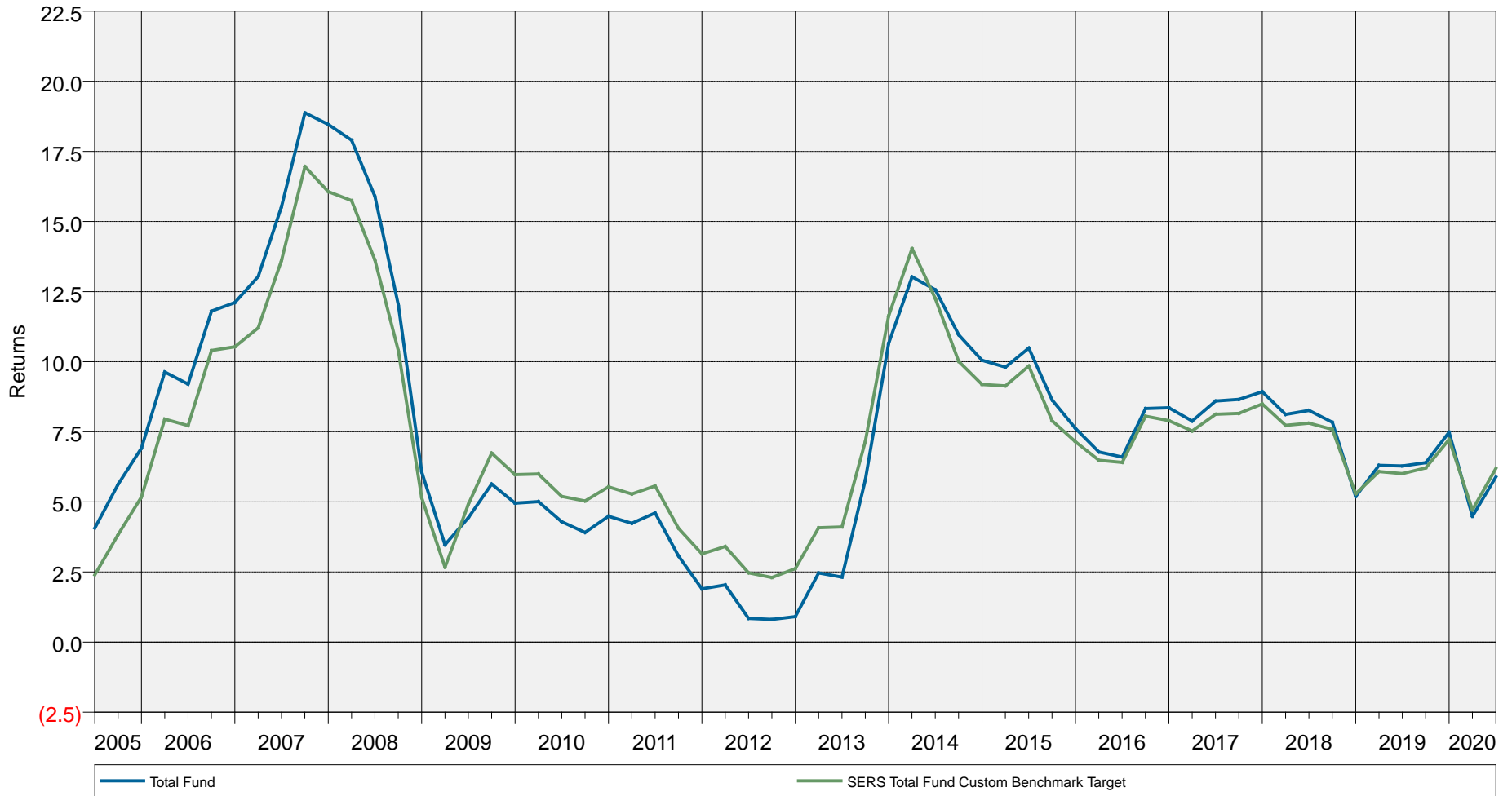


Current Quarter Target = 26.0% Blmbg Aggregate, 25.0% Russell 3000 Index, 14.0% Private Equity, 13.0% MSCI World ex US IMI, 7.2% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4.0% MSCI EM IMI, 4.0% Blmbg:TIPS, 4.0% S&P:LSTA Lev Loan lagged 3 months+1.0%, 2.0% 3-month Treasury Bill, 0.8% FTSE EP/NA US Index lagged 3 months, 0.0% HFRI Fund of Funds Compos and 0.0% S&P:LSTA Lev Loan.

Total Fund

Rolling 5-year Gross of Fee Performance versus Peers and Benchmark (As of June 30, 2020)

Rolling 20 Quarter Gross of Fee Returns
for 15 Years Ended June 30, 2020



Current Quarter Target = 26.0% Blmbg Aggregate, 25.0% Russell 3000 Index, 14.0% Private Equity, 13.0% MSCI World ex US IMI, 7.2% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 4.0% MSCI EM IMI, 4.0% Blmbg:TIPS, 4.0% S&P:LSTA Lev Loan lagged 3 months+1.0%, 2.0% 3-month Treasury Bill, 0.8% FTSE EP/NA US Index lagged 3 months, 0.0% HFRI Fund of Funds Compos and 0.0% S&P:LSTA Lev Loan.

Asset Class Returns

As of June 30, 2020

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance							
Total Fund	\$29,971	100.00%	8.04%	(4.58%)	1.15%	5.11%	5.31%
Total Fund Custom Benchmark(1)	-	-	7.46%	(1.78%)	3.79%	6.34%	6.43%
Public Market Equiv Benchmark(2)	-	-	5.56%	(2.36%)	3.79%	6.47%	6.51%
60/40 Index(3)	-	-	12.88%	(1.47%)	4.76%	5.83%	5.68%
U.S. Equity	\$7,949	26.52%	22.75%	(4.58%)	4.54%	8.51%	8.40%
Russell 3000 Index	-	-	22.03%	(3.48%)	6.53%	10.04%	10.03%
International Developed Markets Equity	\$4,101	13.68%	16.38%	(11.16%)	(4.50%)	0.95%	2.69%
MSCI World Ex US IMI	-	-	16.21%	(11.68%)	(5.11%)	0.80%	2.22%
Emerging Mkts Equity	\$1,357	4.53%	20.74%	(7.04%)	1.53%	3.36%	4.64%
MSCI EM IMI	-	-	18.93%	(10.09%)	(3.97%)	1.35%	2.35%
Private Equity	\$3,833	12.79%	(7.80%)	(5.59%)	(2.54%)	7.50%	7.51%
Burgiss Private Equity Index (Qtr lag)	-	-	(6.76%)	(2.69%)	1.40%	9.72%	9.74%
Global Equity +3% (Qtr lag)(4)	-	-	(19.65%)	(12.12%)	(6.03%)	7.27%	9.02%
Private Credit	\$472	1.58%	(4.72%)	(2.36%)	1.52%	-	-
S&P Levered Loan Index +1% (Qtr lag)	-	-	(12.55%)	(10.82%)	(7.99%)	0.29%	2.18%
Fixed Income	\$8,412	28.07%	3.21%	1.67%	4.09%	3.87%	3.44%
U.S. Agg Bond Index	-	-	2.90%	6.14%	8.74%	5.32%	4.30%
Inflation Protection (TIPS)	\$1,280	4.27%	4.35%	5.84%	8.01%	4.95%	3.72%
U.S. TIPS Index	-	-	4.24%	6.01%	8.28%	5.05%	3.75%
Real Estate	\$2,136	7.13%	(0.06%)	(2.32%)	1.64%	2.32%	3.11%
Real Estate Cstm Bench (Qtr lag)(5)	-	-	1.79%	(0.14%)	2.59%	4.98%	6.50%
CPI + 3% (Qtr lag)	-	-	1.18%	2.01%	4.54%	4.92%	4.80%
Cash	\$401	1.34%	0.17%	0.55%	1.62%	1.87%	1.46%
3-month Treasury Bill	-	-	0.02%	0.60%	1.63%	1.77%	1.19%

(1) Total Fund Custom Benchmark returns provided by RVK prior to 12/31/2018. As of 01/01/2020, benchmark consists of: 26% Bloomberg US Agg Bond Index, 14% SERS Private Equity Composite, 25% Russell 3000 Index, 13% MSCI World ex US IMI Index, 8% Real Estate Custom Benchmark, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 4% MSCI Emerging Markets IMI Index, 4% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index,

(2) Public Market Equivalent Benchmark returns provided by RVK prior to 12/31/2018. As of 01/01/2020, benchmark consists of: 26% Bloomberg U.S. Agg Bond Index, 25% Russell 3000, 13% MSCI World ex US Index, 10.5% Russell 3000+ 3% (Qtr lag), 8% CPI+3% (Qtr Lag), 4% S&P/LSTA Levered Loan Index +1% (Qtr lag), 4% Bloomberg US TIPS Index, 4% MSCI Emerging Markets Index, 3.5% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index

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

(4) As of 01/01/2020 benchmark consists of 25% MSCI World ex US and 75% Russell 3000 + 3% with a 1 quarter 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 (1 Qtr lag) and 10% FTSE NAREIT Index (unlagged) Prior to 03/31/2019, benchmark history was provided by RVK.

Asset Class Returns

As of June 30, 2020

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance					
Total Fund	7.48%	6.08%	5.39%	7.68%	9.30% (1/81)
Total Fund Custom Benchmark(1)	8.39%	7.32%	6.07%	8.13%	-
Public Market Equiv Benchmark(2)	8.67%	7.50%	6.20%	8.24%	-
60/40 Index(3)	7.24%	5.99%	5.19%	6.46%	-
U.S. Equity	13.08%	7.63%	5.79%	8.81%	10.46% (1/81)
Russell 3000 Index	13.72%	8.78%	6.15%	9.28%	10.90% (1/81)
International Developed Markets Equity	6.52%	4.17%	-	-	5.55% (1/02)
MSCI World ex US IMI	5.67%	4.32%	3.24%	4.82%	5.68% (1/02)
Emerging Mkts Equity	3.42%	4.24%	-	-	6.90% (1/02)
MSCI EM IMI	3.11%	6.30%	6.47%	4.23%	8.90% (1/02)
Private Equity	9.74%	10.29%	6.71%	12.74%	10.55% (1/86)
Burgiss Private Equity Index (Qtr lag)	11.75%	11.73%	8.59%	14.68%	16.48% (1/86)
Global Equity +3% (Qtr lag)(4)	13.45%	10.96%	8.39%	12.30%	13.86% (1/86)
Private Credit	-	-	-	-	6.05% (12/17)
S&P Levered Loan Index +1% (Qtr lag)	4.10%	4.73%	5.13%	-	(0.36%) (12/17)
Fixed Income	4.46%	4.92%	5.68%	5.99%	8.33% (1/81)
U.S. Agg Bond Index	3.82%	4.39%	5.14%	5.36%	7.69% (1/81)
Inflation Protection (TIPS)	2.80%	3.58%	-	-	3.50% (2/03)
U.S. TIPS Index	3.52%	4.00%	5.47%	-	4.52% (2/03)
Real Estate	6.98%	5.00%	6.38%	7.62%	8.20% (3/84)
Real Estate Custom Bench (Qtr lag)(5)	9.96%	6.52%	7.42%	-	-
CPI +3% (Qtr lag)	4.72%	4.95%	5.08%	5.16%	5.61% (3/84)
Cash	0.91%	1.66%	2.17%	2.73%	3.59% (1/87)
3-month Treasury Bill	0.64%	1.34%	1.66%	2.37%	3.23% (1/87)

(1) Total Fund Custom Benchmark returns provided by RVK prior to 12/31/2018. As of 01/01/2020, benchmark consists of: 26% Bloomberg US Agg Bond Index, 14% SERS Private Equity Composite, 25% Russell 3000 Index, 13% MSCI World ex US IMI Index, 8% Real Estate Custom Benchmark, 4% S&P/LSTA Leveraged Loan Index + 1% (Qtr lag), 4% MSCI Emerging Markets IMI Index, 4% Bloomberg US TIPS Index, 2% ICE BofAML 3 Mo US T-Bill Index,

(2) Public Market Equivalent Benchmark returns provided by RVK prior to 12/31/2018. As of 01/01/2020, benchmark consists of: 26% Russell 3000, 25% Bloomberg U.S. Agg Bond Index, 13% MSCI World ex US Index, 10.5% Russell 3000+ 3% (Qtr lag), 8% CPI+3% (Qtr Lag), 4% S&P/LSTA Levered Loan Index +1% (Qtr lag), 4% Bloomberg US TIPS Index, 4% MSCI Emerging Markets Index, 3.5% MSCI World ex US +3% (Qtr lag), 2% ICE BofAML 3 Mo US T-Bill Index

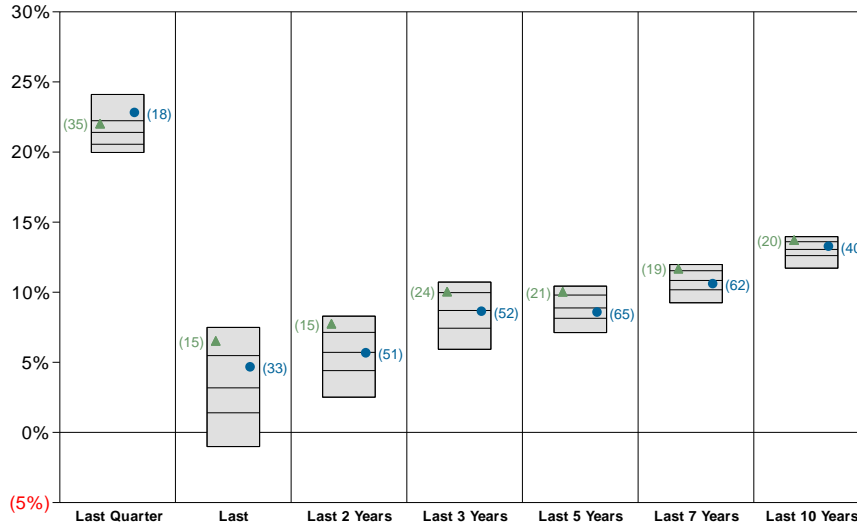
(3) Benchmark consists of 60% MSCI ACW IM Index, 40% Bloomberg U.S. Agg Bond Index

(4) As of 01/01/2020 benchmark consists of 25% MSCI World ex US and 75% Russell 3000 + 3% with a 1 quarter lag. Benchmark performance represents the historical benchmark linked to the current benchmark.

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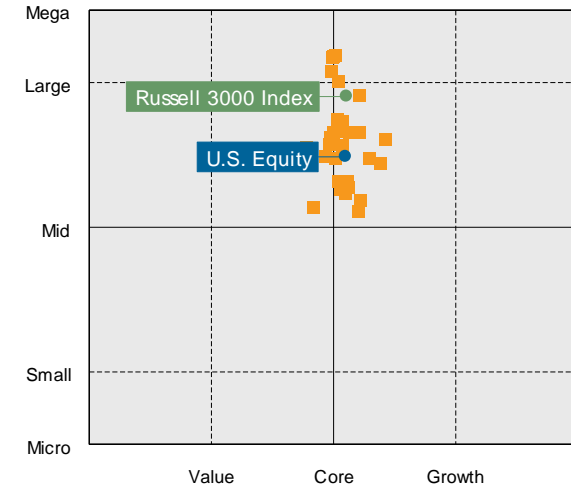
U.S. Equity as of June 30, 2020

Performance vs Public Fund - Domestic Equity (Gross)

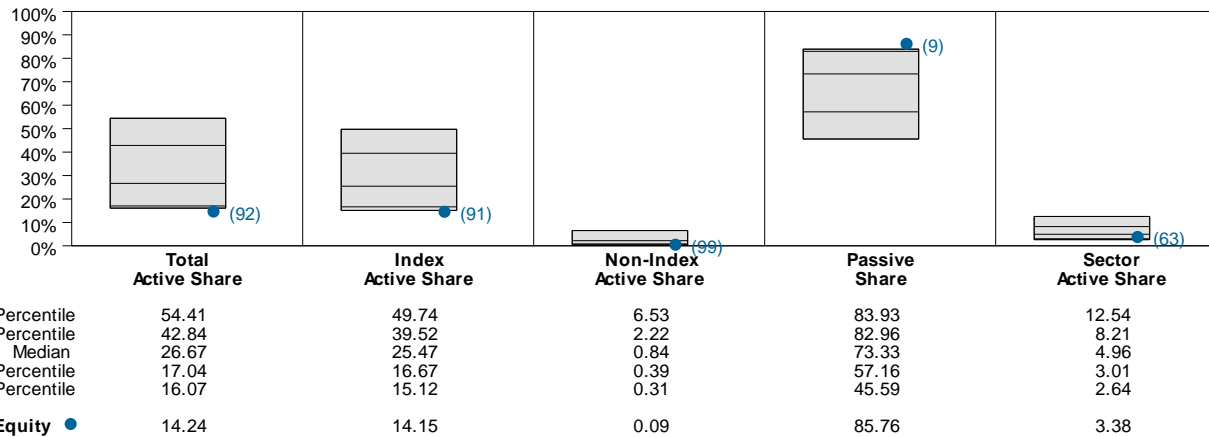


10th Percentile	24.10	7.49	8.29	10.72	10.44	11.97	13.96
25th Percentile	22.23	5.48	7.13	9.97	9.80	11.53	13.60
Median	21.40	3.18	5.71	8.70	8.88	10.84	13.06
75th Percentile	20.56	1.40	4.41	7.43	8.14	10.17	12.61
90th Percentile	19.97	(1.01)	2.52	5.93	7.12	9.25	11.71
U.S. Equity	22.77	4.62	5.62	8.59	8.53	10.55	13.23
Russell 3000 Index	22.03	6.53	7.75	10.04	10.03	11.68	13.72

Style Map vs Pub Pln- Dom Equity Holdings as of June 30, 2020



Active Share vs. Pub Pln- Dom Equity

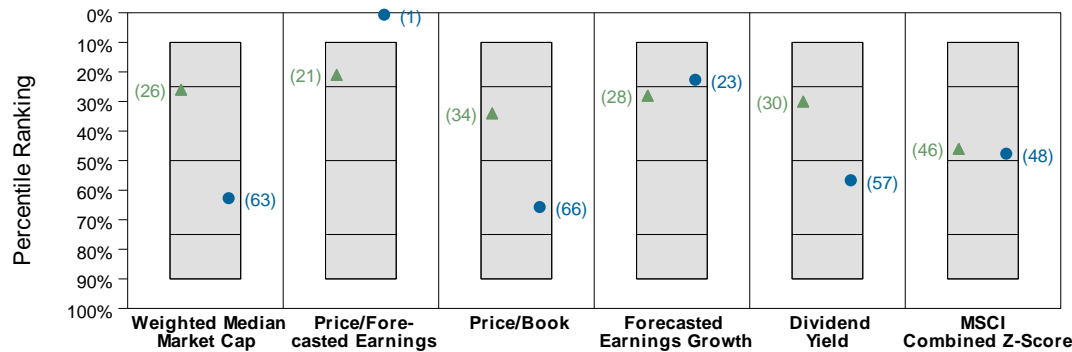


10th Percentile	54.41	49.74	6.53	83.93	12.54
25th Percentile	42.84	39.52	2.22	82.96	8.21
Median	26.67	25.47	0.84	73.33	4.96
75th Percentile	17.04	16.67	0.39	57.16	3.01
90th Percentile	16.07	15.12	0.31	45.59	2.64
U.S. Equity	14.24	14.15	0.09	85.76	3.38

U.S. Equity

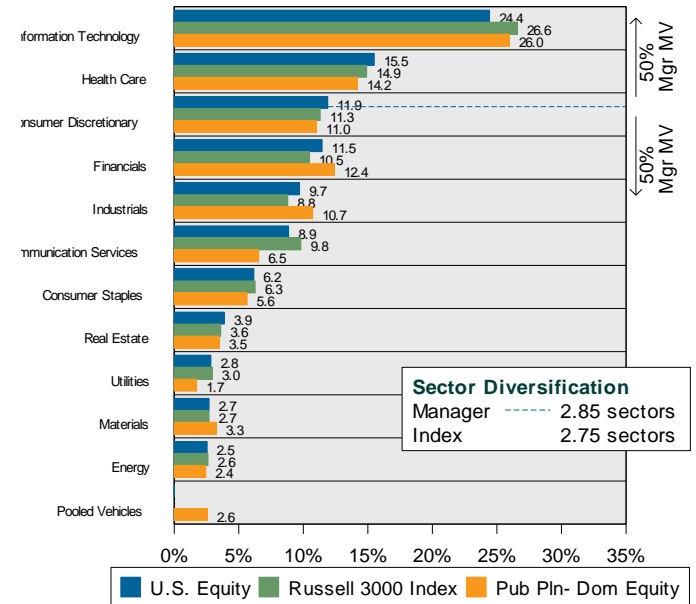
As of June 30, 2020

Portfolio Characteristics Percentile Rankings
Rankings Against Public Fund - Domestic Equity
as of June 30, 2020

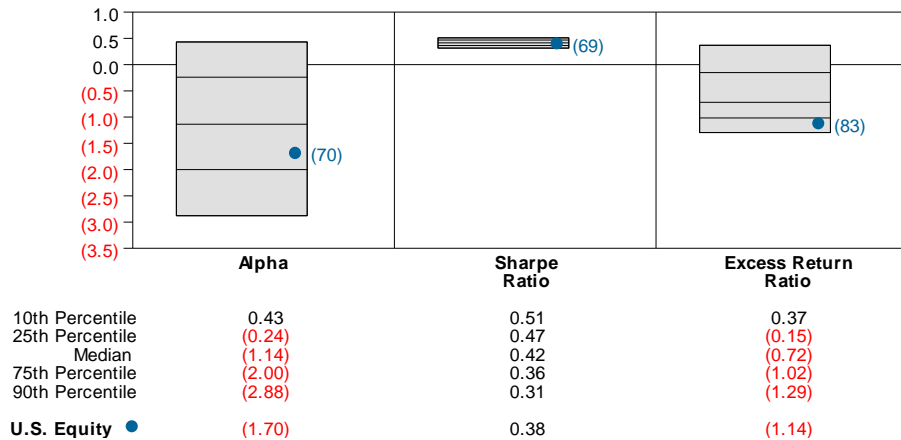


10th Percentile	139.60	23.71	3.25	14.36	1.84	0.18
25th Percentile	104.57	23.18	3.23	12.76	1.77	0.09
Median	72.27	22.16	2.88	11.12	1.67	0.01
75th Percentile	52.26	21.58	2.61	10.48	1.54	(0.03)
90th Percentile	31.97	20.61	2.35	10.32	1.37	(0.12)
U.S. Equity	60.31	24.81	2.75	12.79	1.64	0.01
Russell 3000 Index	102.09	23.35	3.04	12.61	1.73	0.02

Sector Allocation
June 30, 2020

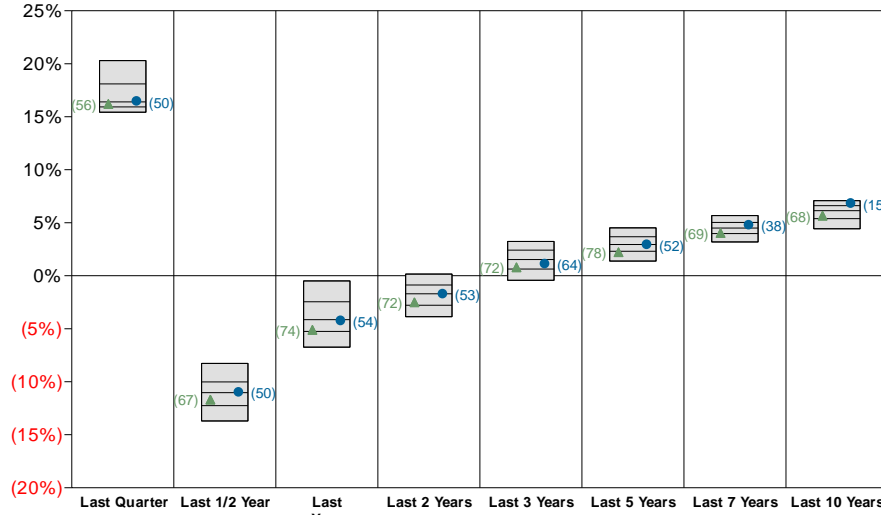


Risk Adjusted Return Measures vs Russell 3000 Index
Rankings Against Public Fund - Domestic Equity (Gross)
Five Years Ended June 30 2020



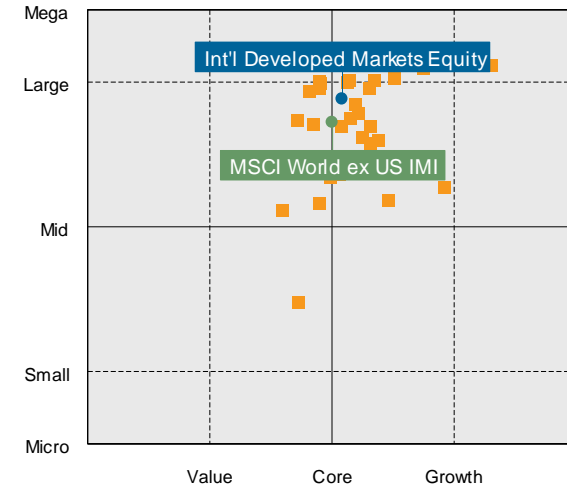
International Equity as of June 30, 2020

Performance vs Public Fund - International Equity (Gross)

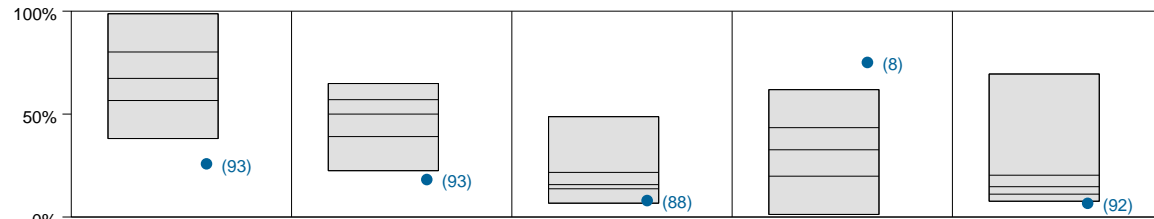


10th Percentile	20.29	(8.28)	(0.49)	0.16	3.23	4.51	5.67	7.08
25th Percentile	18.09	(10.02)	(2.45)	(0.88)	2.41	3.67	5.03	6.61
Median	16.40	(11.03)	(4.14)	(1.71)	1.53	2.94	4.50	6.14
75th Percentile	15.92	(12.26)	(5.25)	(2.79)	0.62	2.30	3.98	5.39
90th Percentile	15.42	(13.70)	(6.74)	(3.86)	(0.44)	1.38	3.18	4.42
Int'l Developed Markets Equity	● 16.42	(11.03)	(4.29)	(1.76)	1.07	2.90	4.74	6.78
MSCI World ex US IMI	▲ 16.21	(11.68)	(5.11)	(2.51)	0.80	2.22	4.03	5.67

Style Map vs Pub Pln- Intl Equity Holdings as of June 30, 2020



Active Share vs. Pub Pln- Intl Equity



10th Percentile	98.75	64.84	48.75	61.84	69.47
25th Percentile	80.17	57.01	21.71	43.41	20.33
Median	67.32	50.00	15.74	32.68	14.77
75th Percentile	56.59	39.07	13.76	19.83	11.10
90th Percentile	38.16	22.49	6.71	1.25	7.71
Int'l Developed Markets Equity	● 25.36	17.78	7.58	74.64	6.25

International Equity

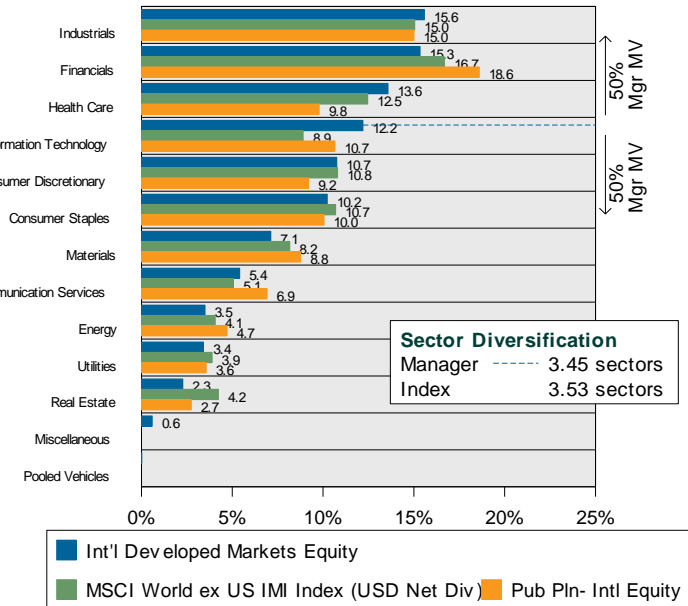
As of June 30, 2020

Portfolio Characteristics Percentile Rankings
Rankings Against Public Fund - International Equity
as of June 30, 2020

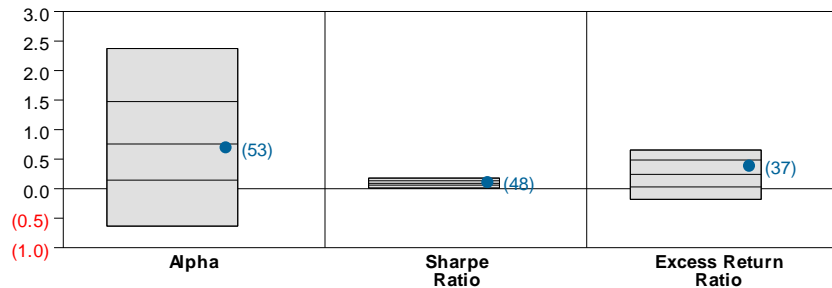


	Weighted Median Market Cap	Price/Forecasted Earnings	Price/Book	Forecasted Earnings Growth	Dividend Yield	MSCI Combined Z-Score
10th Percentile	35.42	23.90	2.43	16.54	2.90	0.66
25th Percentile	31.84	19.31	1.87	12.12	2.75	0.33
Median	26.15	17.26	1.62	10.21	2.39	0.17
75th Percentile	19.87	16.10	1.43	9.32	1.94	(0.02)
90th Percentile	15.25	14.97	1.26	7.96	1.51	(0.14)
Int'l Developed Markets Equity	29.73	17.70	1.66	7.93	2.59	0.09
MSCI World ex US IMI Index (USD Net Div)	26.50	17.40	1.47	8.10	2.86	0.03

Sector Allocation June 30, 2020



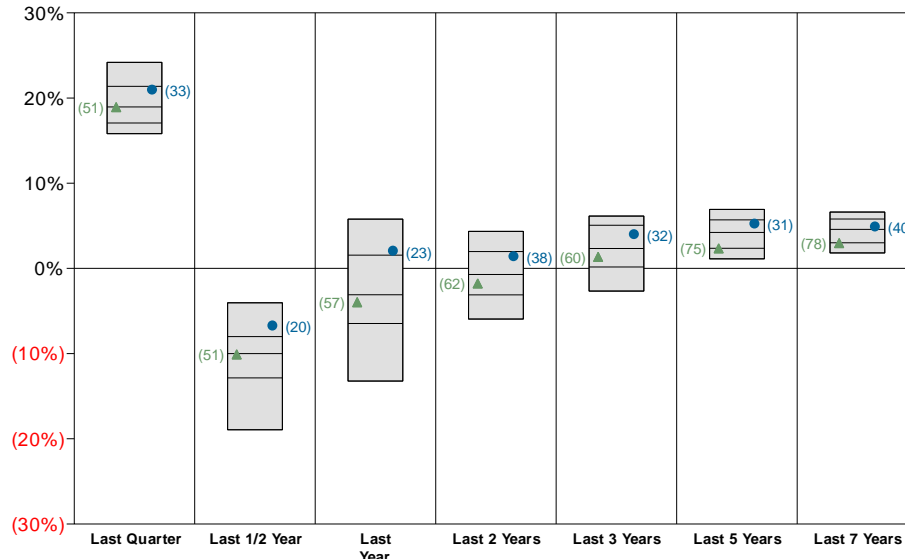
Risk Adjusted Return Measures vs MSCI World ex US IMI
Rankings Against Public Fund - International Equity (Gross)
Five Years Ended June 30, 2020



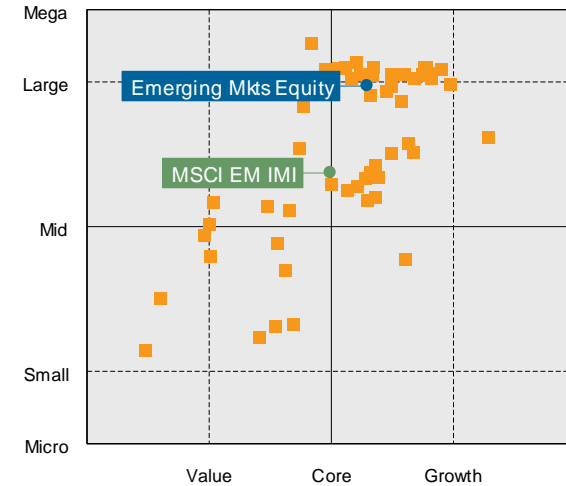
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	2.37	0.18	0.65
25th Percentile	1.48	0.13	0.49
Median	0.76	0.09	0.24
75th Percentile	0.15	0.06	0.03
90th Percentile	(0.63)	0.01	(0.18)
Int'l Developed Markets Equity	0.68	0.09	0.37

Emerging Markets Equity as of June 30, 2020

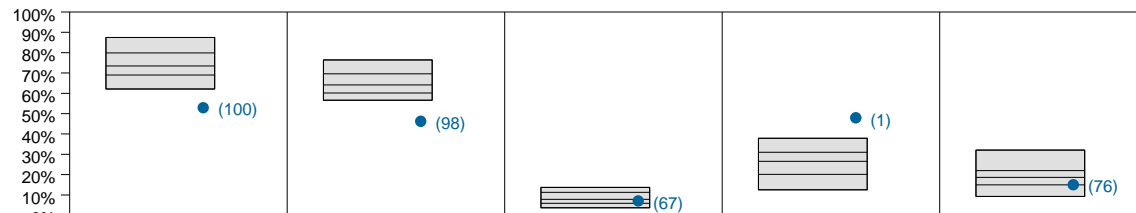
Performance vs Callan Emerging Broad (Gross)



Style Map vs Callan Emerging Broad Holdings as of June 30, 2020



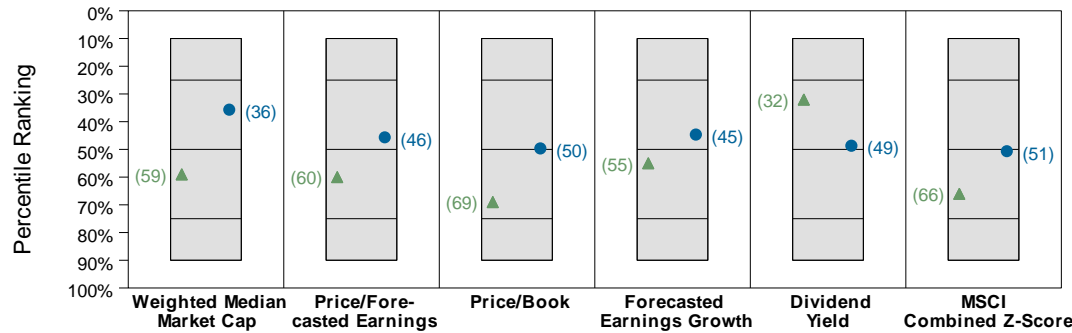
Active Share vs. Callan Emerging Broad



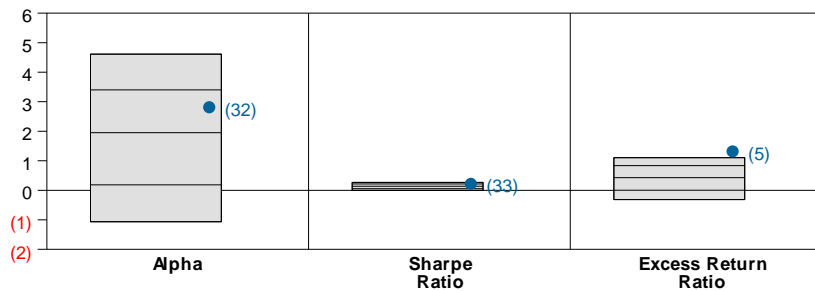
Emerging Markets Equity

As of June 30, 2020

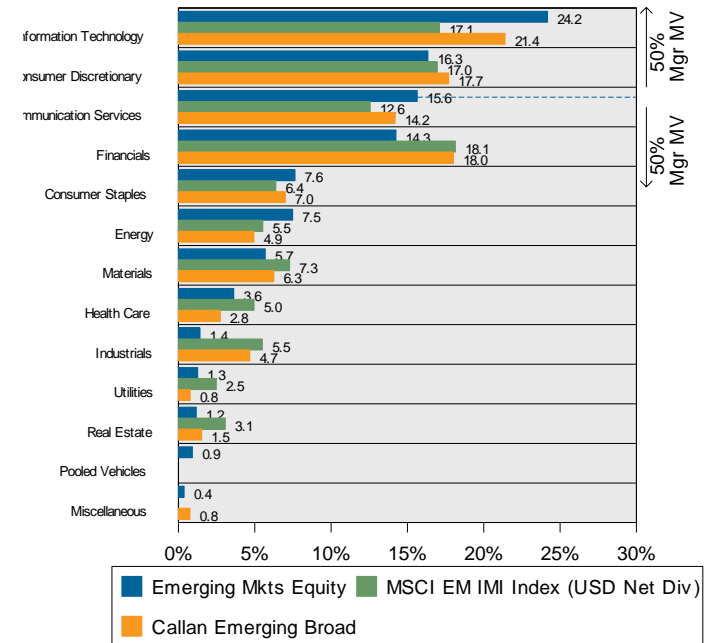
Portfolio Characteristics Percentile Rankings
Rankings Against Callan Emerging Broad
as of June 30, 2020



Risk Adjusted Return Measures vs MSCI EM IMI
Rankings Against Callan Emerging Broad (Gross)
Five Years Ended June 30, 2020

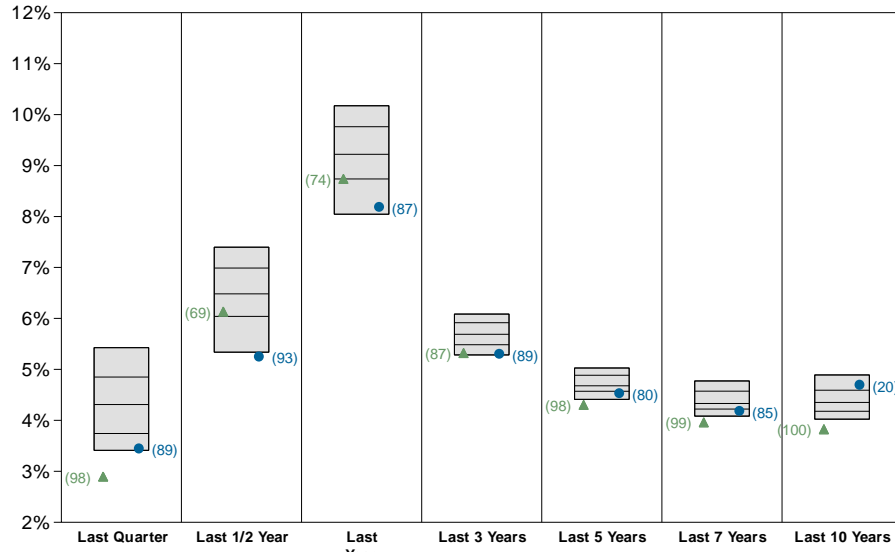


Sector Allocation
June 30, 2020

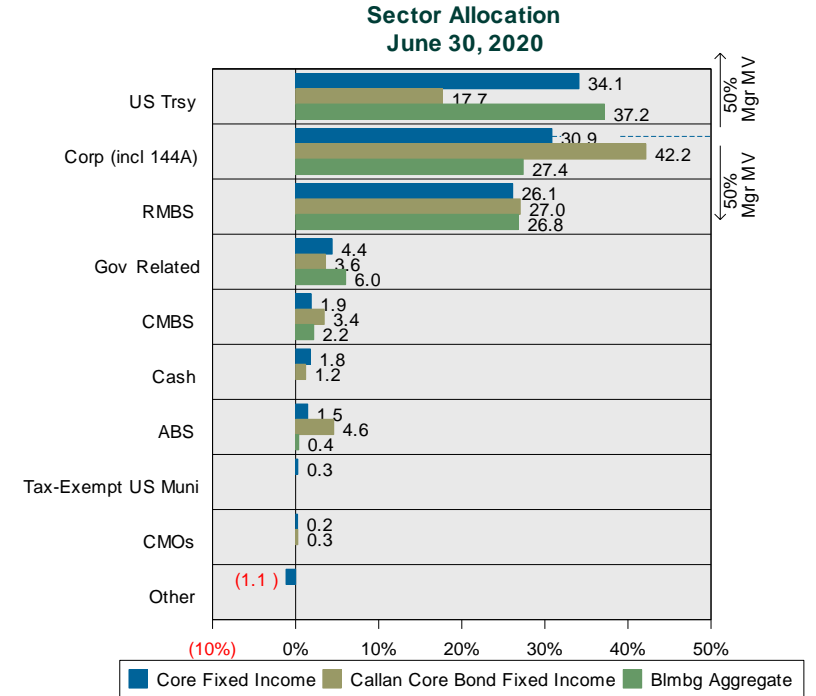


Core Fixed Income As of June 30, 2020

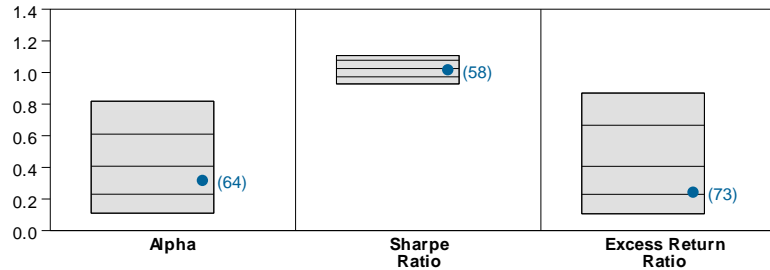
Performance vs Callan Core Bond Fixed Income (Gross)



10th Percentile	5.43	7.40	10.17	6.09	5.03	4.77	4.89
25th Percentile	4.85	6.99	9.76	5.92	4.88	4.57	4.59
Median	4.31	6.48	9.22	5.69	4.68	4.33	4.35
75th Percentile	3.74	6.04	8.74	5.48	4.57	4.22	4.18
90th Percentile	3.41	5.34	8.04	5.28	4.41	4.08	4.02
Core Fixed Income ●	3.43	5.23	8.17	5.29	4.52	4.17	4.68
Blmbg Aggregate ▲	2.90	6.14	8.74	5.32	4.30	3.96	3.82



Risk Adjusted Return Measures vs Blmbg Aggregate Rankings Against Public Fund - Domestic Fixed (Gross) Five Years Ended June 30, 2020

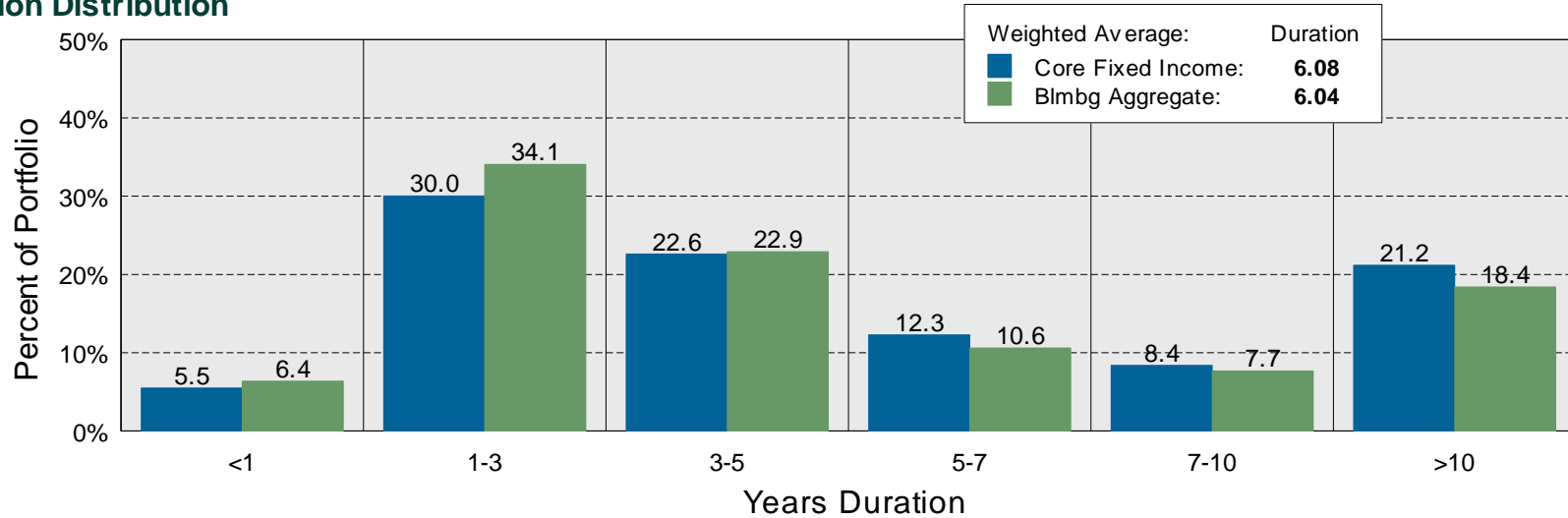


10th Percentile	0.82	1.11	0.87
25th Percentile	0.61	1.08	0.67
Median	0.41	1.02	0.41
75th Percentile	0.23	0.97	0.23
90th Percentile	0.11	0.93	0.11
Core Fixed Income ●	0.31	1.01	0.24

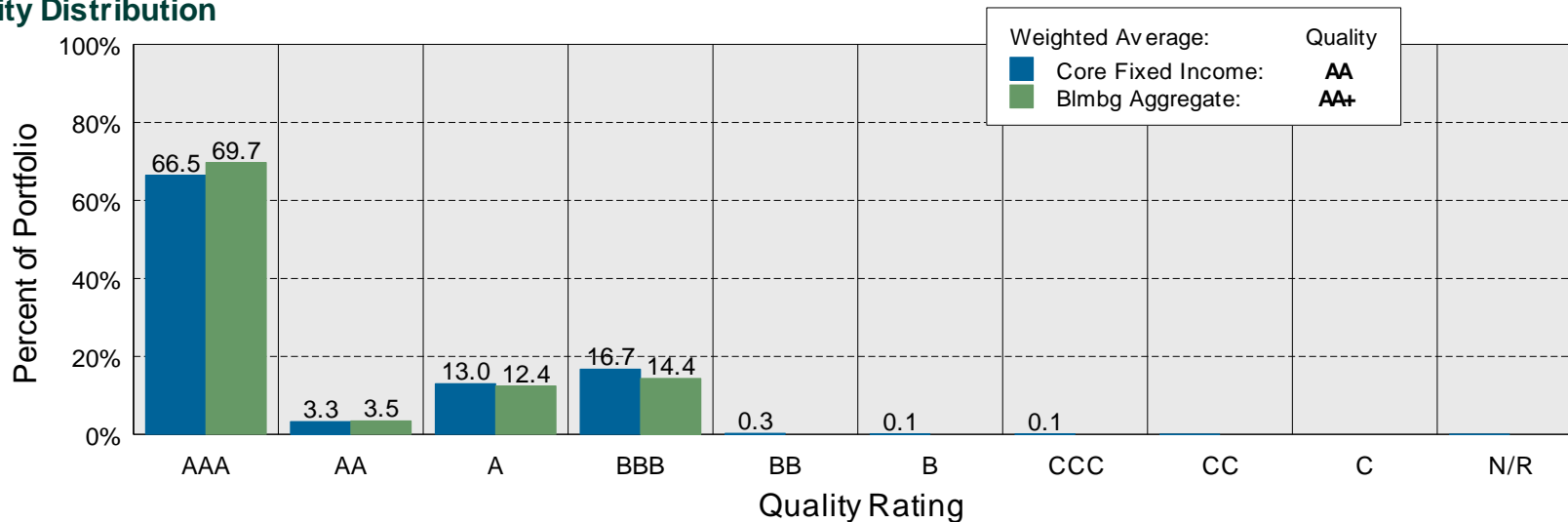
Core Fixed Income

As of June 30, 2020

Duration Distribution

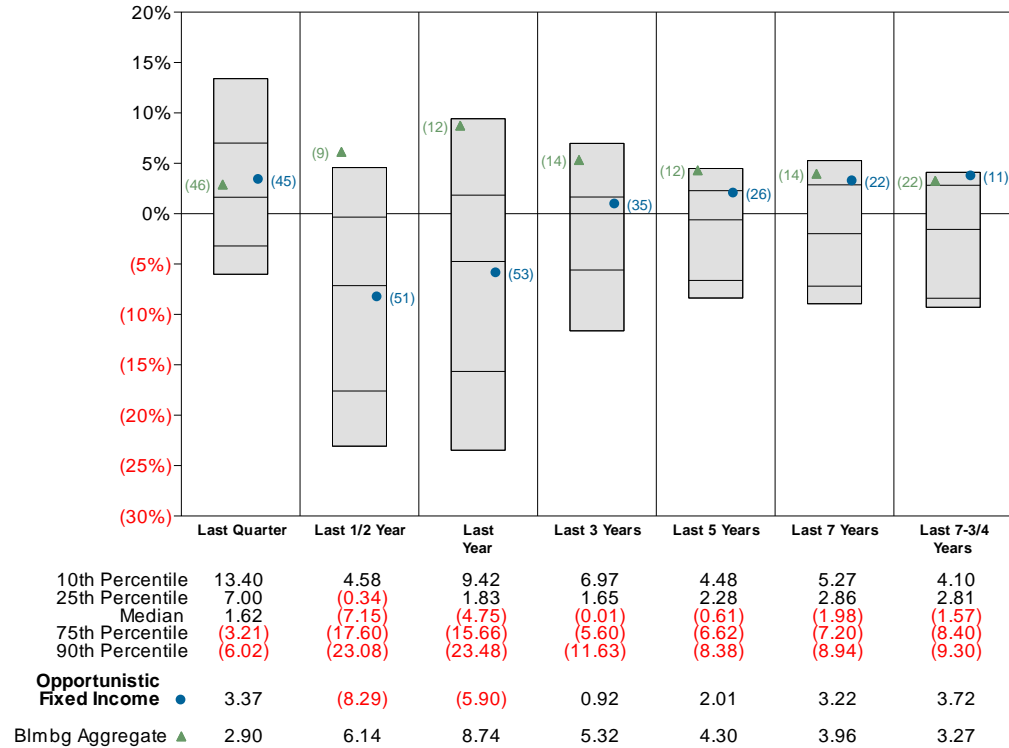


Quality Distribution

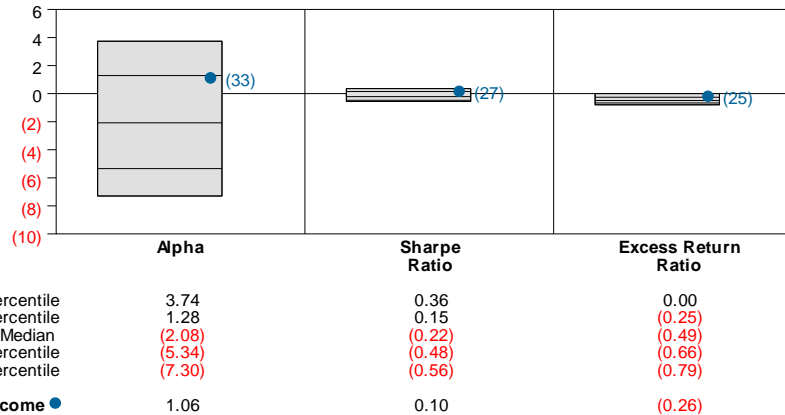


Opportunistic Fixed Income As of June 30, 2020

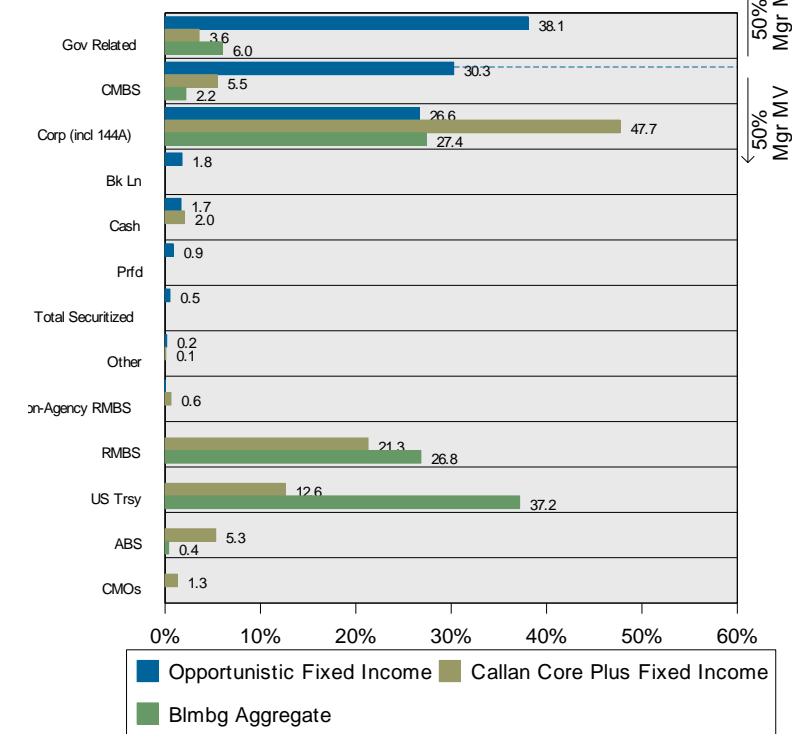
Performance vs Callan Alternative Investments DB (Gross)



Risk Adjusted Return Measures vs Blmbg Aggregate Rankings Against Callan Alternative Investments DB (Gross) Five Years Ended June 30, 2020



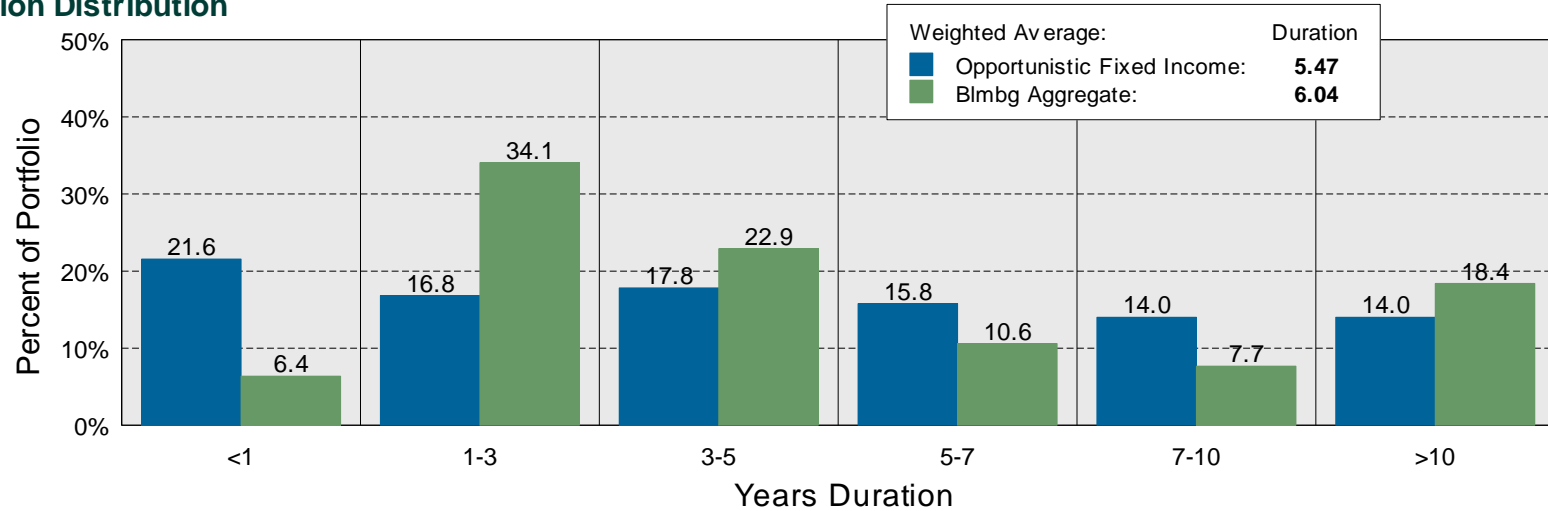
Sector Allocation June 30, 2020



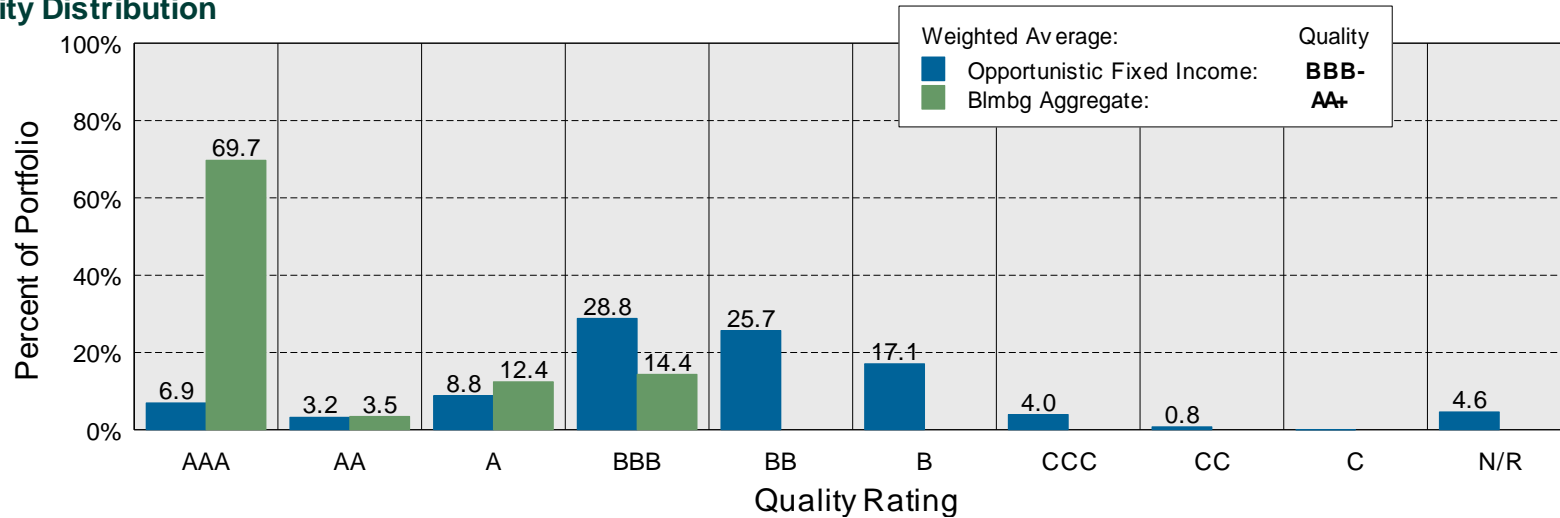
Opportunistic Fixed Income

As of June 30, 2020

Duration Distribution



Quality Distribution



Callan

Appendix I – Investment Manager Returns

Investment Manager Returns

As of June 30, 2020

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance- Domestic Equity							
U.S. Equity	\$7,949	100.00%	22.75%	(4.58%)	4.54%	8.51%	8.40%
Russell 3000 Index (1)	-	-	22.03%	(3.48%)	6.53%	10.04%	10.03%
MCM Russell 1000 Index	6,376	80.21%	21.74%	(2.88%)	7.39%	10.65%	10.49%
Russell 1000 Index	-	-	21.82%	(2.81%)	7.48%	10.64%	10.47%
MCM Russell 2000 Core Index	366	4.61%	25.13%	(13.18%)	(6.81%)	1.90%	-
Russell 2000 Index	-	-	25.42%	(12.98%)	(6.63%)	2.01%	4.29%
MCM Russell 2000 Val Index	476	5.99%	18.87%	(23.45%)	(17.41%)	(4.37%)	-
Russell 2000 Value Index	-	-	18.91%	(23.50%)	(17.48%)	(4.35%)	1.26%
Emerald Asset Management	731	9.19%	31.90%	(0.53%)	3.09%	9.50%	-
Russell 2000 Growth Index	-	-	30.58%	(3.06%)	3.48%	7.86%	6.86%
			Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance- Domestic Equity							
U.S. Equity			13.08%	7.63%	5.79%	8.81%	10.46% ^(1/81)
Russell 3000 Index (1)			13.72%	8.78%	6.15%	9.21%	10.80% ^(1/81)
MCM Russell 1000 Index			-	-	-	-	13.48% ^(1/12)
Russell 1000 Index			13.97%	8.91%	6.10%	9.41%	13.51% ^(1/12)
MCM Russell 2000 Core Index			-	-	-	-	3.78% ^(12/16)
Russell 2000 Index			10.50%	7.01%	6.69%	8.16%	3.87% ^(12/16)
MCM Russell 2000 Val Index			-	-	-	-	(2.44%) ^(12/16)
Russell 2000 Value Index			7.82%	4.97%	7.65%	8.45%	(2.41%) ^(12/16)
Emerald Asset Management			-	-	-	-	11.37% ^(12/16)
Russell 2000 Growth Index			12.92%	8.85%	5.34%	7.36%	9.82% ^(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 June 30, 2020

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance- International Equity							
International Dev Mkts Equity	\$4,101	75.14%	16.38%	(11.16%)	(4.50%)	0.95%	2.69%
MSCI World ex US IMI	-	-	16.21%	(11.68%)	(5.11%)	0.80%	2.22%
Walter Scott & Partners(1) MSCI World	553 -	10.13% -	16.26% 19.36%	(2.82%) (5.77%)	5.97% 2.84%	11.90% 6.70%	11.17% 6.90%
BlackRock MSCI World Ex US Index MSCI World ex US	3,054 -	55.95% -	15.54% 15.34%	(11.28%) (11.49%)	(5.11%) (5.42%)	1.22% 0.84%	- 2.01%
Xponance Non-U.S. Small Cap MSCI ACWI ex US Small Cap	180 -	3.29% -	16.90% 22.83%	(16.14%) (12.80%)	(7.80%) (4.34%)	- (0.17%)	- 2.50%
Harris Assoc Int'l SCV MSCI World ex US Sm Cap MSCI World ex US Sm Value	308 - -	5.64% - -	24.34% 21.66% 16.41%	(21.66%) (12.87%) (20.49%)	(12.88%) (3.20%) (11.36%)	(5.42%) 0.53% (3.56%)	(0.35%) 3.56% 0.81%
Emerging Mkts Equity	\$1,357	24.86%	20.74%	(7.04%)	1.53%	3.36%	4.64%
MSCI EM IMI	-	-	18.93%	(10.09%)	(3.97%)	1.35%	2.35%
Macquarie Emg Mkts Equity MSCI EM	433 -	7.93% -	23.74% 18.08%	(7.40%) (9.78%)	4.01% (3.39%)	3.77% 1.90%	5.25% 2.86%
Martin Currie Emg Mkts Equity MSCI EM	449 -	8.22% -	18.08% 18.08%	(8.27%) (9.78%)	2.89% (3.39%)	5.14% 1.90%	6.77% 2.86%
BlackRock Emg Mkts Index MSCI EM	178 -	3.26% -	18.02% 18.08%	(9.90%) (9.78%)	(3.62%) (3.39%)	1.67% 1.90%	- 2.86%
Leading Edge Emg Mkts Fund MSCI EM	212 -	3.88% -	21.51% 18.08%	(10.46%) (9.78%)	(3.68%) (3.39%)	- 1.90%	- 2.86%
GlobeFlex Emerging Small Cap MSCI EM Small Cap	86 -	1.58% -	24.16% 27.14%	(11.03%) (12.74%)	(9.12%) (8.82%)	(2.15%) (2.95%)	0.07% (1.37%)

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

*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 June 30, 2020

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance- International Equity					
International Dev Mkts Equity	6.52%	4.17%	-	-	5.55% (1/02)
MSCI World ex US IMI	5.67%	4.32%	3.24%	4.82%	5.68% (1/02)
Walter Scott & Partners(1)	11.85%	-	-	-	8.94% (10/06)
MSCI World	9.95%	6.55%	4.32%	6.76%	5.62% (10/06)
BlackRock MSCI World Ex US Index	-	-	-	-	1.29% (6/17)
MSCI World ex US	5.43%	4.10%	2.98%	4.68%	0.85% (6/17)
Xponance Non-U.S. Small Cap	-	-	-	-	(6.07%) (10/18)
MSCI ACWI ex US Small Cap	6.05%	5.73%	6.12%	5.51%	(5.04%) (10/18)
Harris Assoc Int'l SCV	5.62%	6.18%	-	-	9.09% (7/03)
MSCI World ex US Sm Cap	7.26%	5.38%	-	-	8.39% (7/03)
MSCI World ex US Sm Value	5.59%	4.76%	7.00%	6.18%	7.88% (7/03)
Emerging Mkts Equity	3.42%	4.24%	-	-	6.90% (1/02)
MSCI EM IMI	3.11%	6.30%	6.47%	4.23%	8.90% (1/02)
Macquarie Emg Mkts Equity	-	-	-	-	3.69% (5/13)
MSCI EM	3.27%	6.33%	-	-	1.84% (5/13)
Martin Currie Emg Mkts Equity	-	-	-	-	4.24% (1/14)
MSCI EM	3.27%	6.33%	-	-	2.30% (1/14)
BlackRock Emg Mkts Index	-	-	-	-	1.67% (7/17)
MSCI EM	3.27%	6.33%	-	-	1.90% (7/17)
Leading Edge Emg Mkts Fund	-	-	-	-	4.51% (11/18)
MSCI EM	3.27%	6.33%	-	-	4.90% (11/18)
GlobeFlex Emerging Small Cap	-	-	-	-	2.27% (8/13)
MSCI EM Small Cap	1.78%	6.14%	6.84%	3.57%	0.89% (8/13)

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

*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 June 30, 2020

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance - Fixed Income							
Fixed Income	\$8,412	57.61%	3.21%	1.67%	4.09%	3.87%	3.44%
Blmbg Aggregate	-	-	2.90%	6.14%	8.74%	5.32%	4.30%
Core Fixed Income	\$5,817	39.84%	3.42%	5.18%	8.07%	5.19%	4.40%
Blmbg Aggregate	-	-	2.90%	6.14%	8.74%	5.32%	4.30%
PIMCO Core Bond Fund	704	4.82%	5.57%	4.91%	7.84%	5.14%	4.37%
Blmbg Agg ex Treasury	-	-	4.48%	4.29%	7.44%	5.08%	4.38%
Mellon Bond-Index	4,899	33.55%	2.84%	6.08%	8.60%	5.26%	4.24%
Blmbg Aggregate (1)	-	-	2.90%	6.14%	8.74%	5.32%	4.30%
BMO (TCH) Corp FI	214	1.47%	9.75%	4.45%	9.31%	5.98%	5.52%
Blmbg Credit	-	-	8.22%	4.82%	9.07%	6.14%	5.54%
Nominal U.S. Treasuries	\$373	2.55%	0.92%	12.80%	14.71%	7.36%	5.22%
Blmbg US Treas Bell 10Y	-	-	0.68%	12.70%	14.24%	7.07%	4.89%
PIMCO US Treasuries	373	2.55%	0.92%	12.80%	14.71%	7.36%	5.48%
Blmbg US Treas Bell 10Y	-	-	0.68%	12.70%	14.24%	7.07%	4.89%

*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 June 30, 2020

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance - Fixed Income					
Fixed Income	4.46%	4.92%	5.68%	5.99%	8.33% (1/81)
Blmbg Aggregate	3.82%	4.39%	5.14%	5.36%	7.69% (1/81)
Core Fixed Income	4.52%	4.74%	-	-	5.01% (1/02)
Blmbg Aggregate	3.82%	4.39%	5.14%	5.36%	4.70% (1/02)
PIMCO Core Bond Fund	-	-	-	-	3.35% (1/13)
Blmbg Agg ex Treasury	4.03%	4.58%	-	-	3.51% (1/13)
Mellon Bond-Index	3.71%	4.28%	5.08%	5.39%	7.20% (4/84)
Blmbg Aggregate (1)	3.82%	4.39%	5.20%	5.49%	-
BMO (TCH) Corp FI	5.38%	5.36%	-	-	6.02% (12/00)
Blmbg Credit	5.24%	5.26%	6.08%	6.06%	5.98% (12/00)
Nominal U.S. Treasuries	-	-	-	-	3.85% (9/11)
Blmbg US Treas Bell 10Y	4.50%	4.76%	5.42%	5.42%	3.86% (9/11)
PIMCO US Treasuries	-	-	-	-	4.05% (9/11)
Blmbg US Treas Bell 10Y	4.50%	4.76%	5.42%	5.42%	3.86% (9/11)

*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 June 30, 2020

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance - Fixed Income							
Opportunistic Fixed Income	\$2,222	100.00%	3.19%	(8.63%)	(6.50%)	0.34%	1.37%
BAAM Keystone(1) HFRI FOF Comp Index	886 -	39.89% -	6.70% 7.90%	(8.63%) (1.57%)	(4.33%) 0.49%	1.63% 2.26%	1.95% 1.50%
Brandywine Global Opp FI FTSE Wrld Gov't Bond Index	198 -	8.92% -	8.66% 2.04%	(3.01%) 4.08%	(0.63%) 4.60%	1.14% 3.98%	2.59% 3.70%
Eaton Vance GMARA(2) 3 Mo LIBOR Index +6%	214 -	9.63% -	9.17% 1.57%	0.35% 3.46%	7.73% 7.57%	- 7.97%	- 7.48%
Fidelity HY CMBS Bloomberg US CMBS Ex AAA Index	292 -	13.13% -	2.07% 2.09%	(14.40%) (5.51%)	(12.56%) (3.69%)	(0.81%) 2.83%	0.97% 3.24%
SEI Str. Credit: HY Bank Loans(3)(4) FTSE:HY Corp (1 month lag)	274 -	12.34% -	(20.39%) (4.01%)	(18.67%) (3.66%)	(21.60%) 0.32%	(2.86%) 2.61%	1.17% 3.80%
Stone Harbor Gbl HY FTSE High Yield Market Index	157 -	7.07% -	9.57% 9.56%	(3.57%) (4.78%)	(0.73%) (1.14%)	2.93% 2.90%	3.81% 4.31%
Stone Harbor EMD JPM Emg Mkts Bond Global Index	200 -	9.01% -	17.20% 11.21%	(3.48%) (1.87%)	(1.71%) 1.52%	1.98% 3.31%	4.71% 5.12%

(1) Blackstone Keystone since inception returns were included in the Legacy Hedge Fund composite through 9/30/2017 and in the Multi-Strategy composite through 12/31/2019.

(2) Eaton Vance since inception returns were included in the Multi-Strategy composite through 12/31/2019.

(3) 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.

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

Investment Manager Returns

As of June 30, 2020

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance - Fixed Income					
Opportunistic Fixed Income	-	-	-	-	3.06% (10/12)
BAAM Keystone(1)	-	-	-	-	5.90% (7/12)
HFRI FOF Comp Index	2.79%	2.64%	3.09%	4.90%	3.26% (7/12)
Brandywine Global Opp FI	-	-	-	-	3.47% (2/11)
FTSE Wrld Gov't Bond Index	2.37%	3.28%	4.42%	4.17%	1.86% (2/11)
Eaton Vance GMARA(2)	-	-	-	-	3.30% (6/18)
3 Mo LIBOR Index +6%	6.90%	7.72%	7.94%	8.69%	8.10% (6/18)
Fidelity HY CMBS	7.26%	5.23%	7.13%	-	7.65% (4/97)
Bloomberg US CMBS Ex AAA Index	5.89%	0.33%	-	-	-
SEI Str. Credit: HY Bank Loans(3)(4)	7.47%	-	-	-	9.37% (5/08)
FTSE:HY Corp (1 month lag)	6.35%	6.49%	6.82%	6.76%	6.92% (5/08)
Stone Harbor Gbl HY	5.70%	6.04%	7.16%	-	7.16% (7/00)
FTSE High Yield Market Index	6.32%	6.43%	6.75%	6.77%	6.75% (7/00)
Stone Harbor EMD	5.33%	6.60%	-	-	6.98% (4/05)
JPM Emg Mkts Bond Global Index	5.82%	6.59%	8.06%	9.54%	6.92% (4/05)

(1) Blackstone Keystone since inception returns were included in the Legacy Hedge Fund composite through 9/30/2017 and in the Multi-Strategy composite through 12/31/2019.

(2) Eaton Vance since inception returns were included in the Multi-Strategy composite through 12/31/2019.

(3) 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.

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

Investment Manager Returns

As of June 30, 2020

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance - Inflation Protection							
Inflation Protection (TIPS)	\$1,280	100.00%	4.35%	5.84%	8.01%	4.95%	3.72%
Blmbg US TIPS	-	-	4.24%	6.01%	8.28%	5.05%	3.75%
NISA Inv Adv TIPS	552	43.15%	4.18%	5.96%	8.18%	5.01%	3.73%
Blmbg US TIPS (1)	-	-	4.24%	6.01%	8.28%	5.05%	3.75%
Brown Brothers TIPS	601	46.99%	4.06%	6.11%	8.38%	4.99%	3.78%
Blmbg US TIPS	-	-	4.24%	6.01%	8.28%	5.05%	3.75%
New Century Global TIPS	126	9.86%	6.56%	4.98%	6.75%	4.69%	3.55%
Blmbg Wld Gov I-L Undhdg	-	-	6.50%	3.94%	5.80%	4.27%	3.26%
		Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception	
Net Performance - Inflation Protection							
Inflation Protection (TIPS)		2.80%	3.58%	-	-	3.50% (2/03)	
Blmbg US TIPS		3.52%	4.00%	5.47%	-	4.52% (2/03)	
NISA Inv Adv TIPS		2.61%	-	-	-	3.48% (4/07)	
Blmbg US TIPS (1)		2.61%	3.28%	4.92%	-	3.49% (4/07)	
Brown Brothers TIPS		-	-	-	-	2.30% (2/12)	
Blmbg US TIPS		3.52%	4.00%	5.47%	-	2.14% (2/12)	
New Century Global TIPS		-	-	-	-	2.63% (2/12)	
Blmbg Wld Gov I-L Undhdg		3.81%	3.92%	5.54%	-	2.18% (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 June 30, 2020

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance - Private Equity							
Private Equity	\$3,833	89.03%	(7.80%)	(5.59%)	(2.54%)	7.50%	7.51%
Burgiss Private Equity Index (Qtr lag)	-	-	(6.76%)	(2.69%)	1.40%	9.72%	9.74%
Global Equity +3% (Qtr lag)(1)	-	-	(19.65%)	(12.12%)	(6.03%)	7.27%	9.02%
Buyouts	1,988	46.17%	(7.87%)	(4.94%)	(0.35%)	8.29%	9.14%
Burgiss Buyout Index (Qtr lag)	-	-	(8.87%)	(4.85%)	(1.39%)	8.55%	9.87%
Special Situations	407	9.46%	(7.56%)	(2.55%)	6.30%	9.72%	7.75%
Burgiss Special Situations Idx (Qtr lag)	-	-	(7.14%)	(5.06%)	(3.59%)	3.63%	4.67%
Growth Equity	851	19.78%	(1.94%)	(0.30%)	1.09%	16.16%	10.51%
Burgiss Venture Capital Index (Qtr lag)	-	-	(2.33%)	3.21%	10.02%	16.18%	12.14%
Keystone Legacy(2)	586	13.62%	(15.24%)	(15.49%)	(17.44%)	-	-
Private Credit	\$472	10.97%	(4.72%)	(2.36%)	1.52%	-	-
S&P Levered Loan Index +1% (Qtr lag)	-	-	(12.55%)	(10.82%)	(7.99%)	0.29%	2.18%

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance - Private Equity					
Private Equity	9.74%	10.29%	6.71%	12.74%	10.55% ^(1/86)
Burgiss Private Equity Index (Qtr lag)	11.75%	11.73%	8.59%	14.68%	16.48% ^(1/86)
Global Equity + 3% (Qtr lag)(1)	13.45%	10.96%	8.39%	12.30%	13.86% ^(1/86)
Buyouts	11.79%	12.56%	9.29%	15.83%	12.75% ^(4/86)
Burgiss Buyout Index (Qtr lag)	11.57%	12.22%	10.41%	13.23%	19.05% ^(9/86)
Special Situations	9.50%	11.01%	11.49%	12.00%	12.03% ^(1/95)
Burgiss Special Situations Idx (Qtr lag)	7.63%	7.54%	8.83%	10.04%	10.08% ^(6/95)
Growth Equity	10.01%	7.21%	(0.07%)	7.25%	6.98% ^(1/86)
Burgiss Venture Capital Index (Qtr lag)	14.86%	11.39%	3.61%	15.50%	13.53% ^(1/86)
Keystone Legacy(2)	-	-	-	-	(10.59%) ^(7/18)
Private Credit	-	-	-	-	6.05% ^(12/17)
S&P Levered Loan Index +1% (Qtr lag)	4.10%	4.73%	5.13%	-	(0.36%) ^(12/17)

(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 7/31/2018, Keystone Legacy SPV consists of 163 non-core funds, prior performance in previous sub-asset classes

Investment Manager Returns

As of June 30, 2020

	Market Value \$(mm)	Ending Weight	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years
Net Performance - Real Estate							
Real Estate	\$2,136	100.00%	(0.06%)	(2.32%)	1.64%	2.32%	3.11%
Real Estate Custom Benchmark (Qtr lag)	-	-	1.79%	(0.14%)	2.59%	4.98%	6.50%
CPI +3% (Qtr lag)	-	-	1.18%	2.01%	4.54%	4.92%	4.80%
Core/Core Plus Real Estate Funds	767	35.92%	(2.08%)	(1.02%)	0.58%	4.77%	6.81%
NCREIF ODCE Index (Qtr lag)	-	-	0.71%	2.02%	4.38%	6.14%	7.82%
Value Add/Oppportunistic SMA	650	30.42%	1.81%	2.36%	8.61%	1.12%	2.26%
NCREIF ODCE Index (Qtr lag)	-	-	0.71%	2.02%	4.38%	6.14%	7.82%
Value Add/Oppportunistic Funds	474	22.18%	(4.91%)	(2.42%)	0.48%	5.64%	5.64%
NCREIF ODCE Index (Qtr lag)	-	-	0.71%	2.02%	4.38%	6.14%	7.82%
Legacy Real Assets	6	0.27%	(0.77%)	(1.63%)	11.06%	(0.68%)	(0.50%)
CPI +3% (Qtr lag)	-	-	1.18%	2.01%	4.54%	4.92%	4.80%
REITS	240	11.22%	12.09%	(15.52%)	(9.57%)	1.84%	0.67%
FTSE NAREIT US Index	-	-	11.68%	(20.70%)	(15.50%)	(0.77%)	0.72%

	Last 10 Years	Last 15 Years	Last 20 Years	Last 25 Years	Since Inception
Net Performance - Real Estate					
Real Estate	6.98%	5.00%	6.38%	7.62%	8.20% (3/84)
Real Estate Custom Benchmark (Qtr lag)	9.96%	6.52%	7.42%	-	-
CPI +3% (Qtr lag)	4.72%	4.95%	5.08%	5.16%	5.61% (3/84)
Core/Core Plus Real Estate Funds	10.29%	6.91%	7.42%	8.57%	6.96% (9/86)
NCREIF ODCE Index (Qtr lag)	10.55%	6.41%	6.92%	7.73%	5.98% (9/86)
Value Add/Oppportunistic SMA	5.54%	3.84%	4.73%	6.31%	5.17% (6/88)
NCREIF ODCE Index (Qtr lag)	10.55%	6.41%	6.92%	7.73%	6.02% (6/88)
Value Add/Oppportunistic Funds	10.42%	5.49%	7.31%	8.65%	7.66% (3/84)
NCREIF ODCE Index (Qtr lag)	10.55%	6.41%	6.92%	7.73%	6.24% (3/84)
Legacy Real Assets	(0.34%)	1.57%	2.10%	3.75%	4.30% (3/93)
CPI +3% (Qtr lag)	4.72%	4.95%	5.08%	5.16%	5.21% (3/93)
REITS	6.63%	6.67%	9.51%	-	9.01% (4/96)
FTSE NAREIT US Index	7.97%	6.39%	9.60%	9.84%	9.39% (4/96)

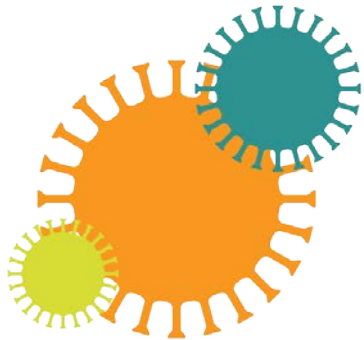
*Market values may not sum as a result of accounts funded within the quarter or accounts in the process of liquidation. The market values and performance of such accounts are included within their relevant composites.

Callan

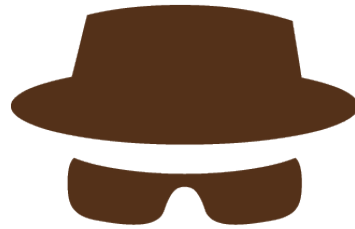
Appendix II – Callan Update

Published Research Highlights from 2Q20

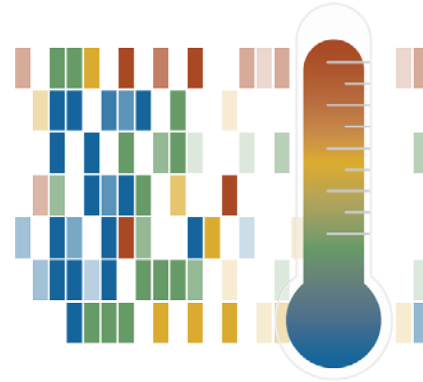
Coping with
COVID-19: Investment
Manager Survey



Breaking Bad: Better Call
Hedge Funds?



Real Estate Indicators: Too
Hot to Touch or Cool
Enough to Handle?



Pandemic Reshapes the
Outlook for Farmland
Investments



Recent Blog Posts

Callan Survey:
DC Plan
Response to
CARES Act
Varied

Jana Steele

'Social Washing'
and How
COVID-19 Has
Emphasized the
'S' in ESG

Aaron Quach

Plus our [blog](#)
contains a wide
array of other
posts related to
the pandemic

Additional Reading

Private Equity Trends quarterly newsletter

Active vs. Passive quarterly charts

Capital Market 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”

Introduction to Investments—Virtual

This program familiarizes institutional investor trustees and staff and asset management advisers with basic investment theory, terminology, and practices. It is held over three days with virtual modules of 2.5-3 hours. This course is designed for individuals with less than two years of experience with asset-management oversight and/or support responsibilities. Tuition is \$950 per person and includes instruction and digital materials.

Next Session: October 13-15, 2020

Additional information can be found at:
www.callan.com/cc-introduction-virtual/

“Research, education, and dialogue are more important than ever in these extraordinary times, which is why I’m pleased to announce that we are adding more webinars, and we plan to expand our events to include roundtables and other interactive digital offerings.”

Barb Gerraty
Director, Callan Institute



Upcoming Webinars

Demystifying China

July 29, 2020

In this webinar, Callan’s China specialists will discuss:

- The key factors driving China’s economic growth
- China’s capital markets and where they fit in a global equity structure
- Characteristics of the China manager universe and product offerings
- Strategies for investing in future opportunities

Opportunities in Private Credit

August 20, 2020

Register at www.callan.com/callan-institute-events

On-Demand Webinars

Visit our website for On-Demand webinar options at
www.callan.com/on-demand-webinars/

Our most recent webinar covered strategies in alternatives.

Callan Updates

Firm updates by the numbers, as of June 30, 2020

Total Associates: 199

Ownership

- 100% employees
- Broadly distributed across more than 95 shareholders

Leadership Changes

- No executive additions or departures
- No leadership changes this quarter

Total General and Fund Sponsor Consultants: more than 45

Total Specialty and Research Consultants: more than 60

Total CFA/CAIA/FRMs: more than 55

Total Fund Sponsor Clients: more than 400

AUA: more than \$2.5 trillion

“We’ve been taking precautions to combat the spread of the virus and to safeguard the health of our employees, our clients, and the community at large. Our hearts go out to those directly affected by the virus, and to those whose lives are being disrupted by the downstream social and economic effects.”

- CEO & Chief Research Officer Greg Allen on Callan's COVID-19 Response

