



Executive Summary Second Quarter 2019

Arkansas Public Employees
Retirement System

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Asset Class Performance and Market Values

Periods Ending June 30, 2019

	Market Value \$(Dollars)	Ending Weight	Last Quarter	Fiscal Year	Last 3 Years	Last 5 Years
Domestic Equity Russell 3000 Index	\$3,617,492,928 -	39.90% -	4.56% 4.10%	8.12% 8.98%	13.89% 14.02%	9.56% 10.19%
International Equity MSCI EAFE	\$2,204,716,761 -	24.32% -	4.15% 3.68%	1.98% 1.08%	8.98% 9.11%	3.31% 2.25%
Diversified Strategies Diversified Strategy Trgt	\$453,152,984 -	5.00% -	4.66% 3.63%	10.20% 7.41%	7.36% 8.09%	5.35% 5.29%
Domestic Fixed Income Blmbg Aggregate	\$1,454,997,935 -	16.05% -	3.41% 3.08%	8.57% 7.87%	4.08% 2.31%	3.72% 2.95%
Real Assets CPIU + 4%	\$1,335,658,034 -	14.73% -	0.09% 1.73%	1.72% 5.65%	5.36% 6.05%	4.88% 5.45%
Total Fund Benchmark	\$9,066,018,642 -	100.00% -	3.60% 3.41%	5.78% 6.68%	9.41% 9.29%	6.16% 6.11%

- Domestic Equity outperformed its benchmark for the quarter but lagged for the trailing year. Growth managers outperformed value managers on an absolute basis in both the short and long term.
- International Equity outperformed its benchmark and peer group median for the quarter as well as the trailing one- and five-year periods.
- Diversified Strategies outperformed its target benchmark this quarter and has returned above its benchmark over the trailing one- and five-year periods.
- Domestic Fixed Income has outperformed the Bloomberg Aggregate Index on both a short- and long-term basis due to the Core Plus orientation of the managers, which includes out-of-benchmark securities.
- Real Assets underperformed the CPI+4% index for the quarter and year due to the adverse performance of energy stocks.



APERS Performance Highlights

Periods Ending June 30, 2019

- Overall, the Total Fund allocation was in line with its strategic allocation.
 - An underweight to Fixed Income (-2.1%) and Real Assets (-1.4%) was offset by an overweight in Domestic Equity (+2.5%), International Equity (+0.1%), and in-house managed funds (+1.0%).
- Total Fund assets ended at \$9.15 billion, an increase of approximately \$253 million during the quarter consisting of \$64M going out in benefit payments and a gain of \$317M due to market movements.
- During the quarter, the Total Fund returned 3.60% relative to 3.41% for the Policy Benchmark and ranked at the 18th percentile in the Callan Public Fund Sponsor Peer Universe.
 - For the last year, the Total Fund returned 5.78% versus 6.68% for the Policy Benchmark while falling in the third quartile of its peers.
 - Over the trailing three-, five-, and ten-year periods, the Total Fund outperformed its benchmark and ranked at the 32nd, 42nd, and 15th percentile, respectively.
- Second quarter outperformance was driven by active management in Equities, Fixed Income and Diversified Strategies. The Fund's overweight to Domestic Equity and underweight to Fixed Income also added value.
- Investments in the underlying asset classes performed as follows during the quarter:
 - Domestic Equity managers Lazard, INTECH and Stephens were the strongest performers for the quarter versus their respective benchmarks and peers.
 - All International Equity managers outperformed their respective benchmarks for the period.
 - Mackay Shields and PGIM led their benchmarks and peers in Fixed Income, while DoubleLine led the benchmark but trailed peers due to its more conservative approach.
 - Real Assets performance was hindered by its energy exposure during the quarter. The TA Realty X and XI funds continued to produce strong returns, outperforming the NCREIF Total Index over both short- and long-term periods.

Performance results are gross of fees.

Does Strong First Half Spell Problems for Second Half of 2019 and 2020?

Did we just “steal” the expected return for the next 18 months?

Strong equity markets continue in Q2, adding to sharp rebound in Q1

- S&P up 18.5%, ACWI ex USA up 13.6% y-t-d

Dovish Fed comments, solid corporate fundamentals, and even lower unemployment propel equity markets in Q2:

- low quality stocks outperform
- growth over value
- small cap lags large cap once again
- Developed non-U.S. equities continue rebound, EM stalls in Q2

Trade uncertainty slowed markets in May, hope of deal rebounded in June

Fixed income markets participate, too

- High yield is strongest performer in the U.S.
- Credit spreads continued rally in Q2.
- Yield curve shifts lower across maturities, inverts from 3 months – 10 years; upward sloping from 1 year

Returns for Periods ended June 30, 2019

	1 Quarter	1 Year	5 Years	10 Years	25 Years
U.S. Equity					
Russell 3000	4.10	8.98	10.19	14.67	9.98
S&P 500	4.30	10.42	10.71	14.70	9.97
Russell 2000	2.10	-3.31	7.06	13.45	9.26
Non-U.S. Equity					
MSCI World ex USA	3.79	1.29	2.04	6.75	5.01
MSCI Emerging Markets	0.61	1.22	2.49	5.81	--
MSCI ACWI ex USA Small Cap	1.21	-5.94	2.77	8.48	5.32
Fixed Income					
Bloomberg Barclays Aggregate	3.08	7.87	2.95	3.90	5.50
3-Month T-Bill	0.64	2.31	0.87	0.49	2.52
Bloomberg Barclays Long Gov/Credit	6.59	13.82	5.68	7.62	7.73
Bloomberg Barclays Global Agg ex-US	3.42	4.10	-0.12	2.10	4.49
Real Estate					
NCREIF Property	1.51	6.51	8.83	9.25	9.36
FTSE NAREIT Equity	1.24	11.21	7.92	15.46	10.25
Alternatives					
CS Hedge Fund	2.35	2.46	2.36	5.03	7.84
Cambridge Private Equity*	4.86	12.71	12.30	14.83	15.32
Bloomberg Commodity	-1.19	-6.75	-9.15	-3.74	1.69
Gold Spot Price	8.87	12.69	1.35	4.31	5.32
Inflation - CPI-U	0.76	1.65	1.45	1.73	2.22

*Cambridge PE data are available through December 31, 2018.

Source: Callan

U.S. Equity Performance: Reaching for Record Highs

Markets rebounded, continue to march upward

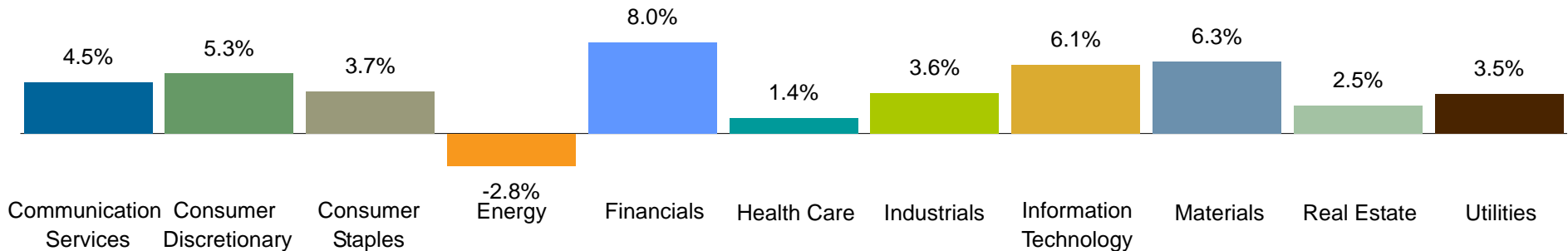
- U.S. equity markets neared record highs as market participants anticipated another round of Fed easing.
- Cyclical outperformed while Financials was the best-performing sector; Energy was the only sector to experience negative returns over the quarter.
- Trade rhetoric weighed on U.S. stocks in May followed by a rebound.
- Given the increase in risk appetite, defensive sectors including Utilities underperformed.

Growth outpaced value

- Growth continued to outpace value.
- Increasingly dovish Fed a headwind for the valuation sensitive stocks.

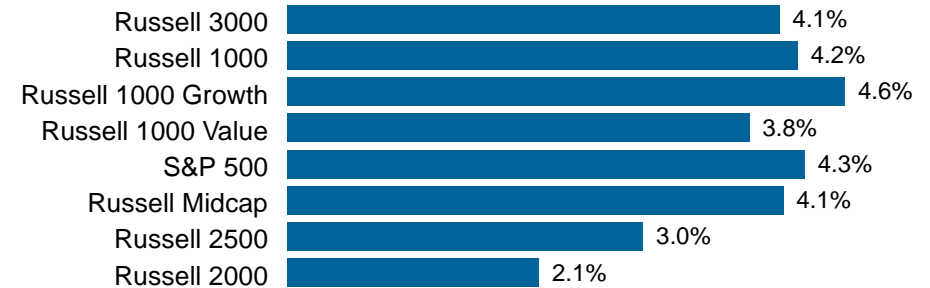
Small cap stocks lagged large caps

Economic Sector Quarterly Performance (S&P 500)

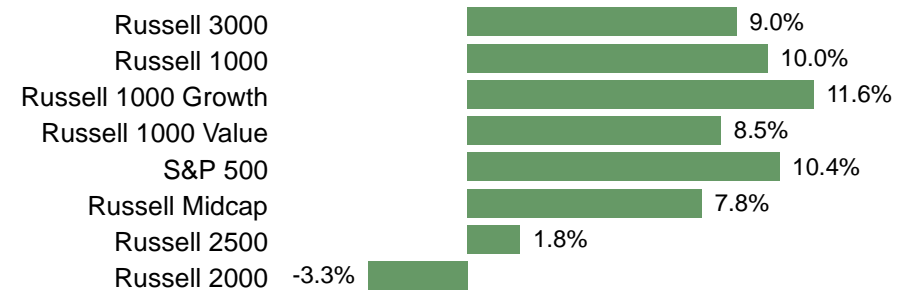


Sources: FTSE Russell, Standard & Poor's

U.S. Equity: Quarterly Returns



U.S. Equity: One-Year Returns



Non-U.S. Equity Performance

Positive global equity returns despite muted sentiment

- U.S./China tariff fatigue and Brexit uncertainty continued
- European markets strong on declining bond yields
- Yen/euro strengthened vs. the dollar on negative interest rate policies; British pound weakened on growing no-deal Brexit concerns
- Cyclical performance drove returns, benefitting from declining U.S. interest rates (non-U.S./U.S. cyclicals highly correlated)
- Factor performance favored growth, specifically quality and profitability reflecting investors' cautious sentiment

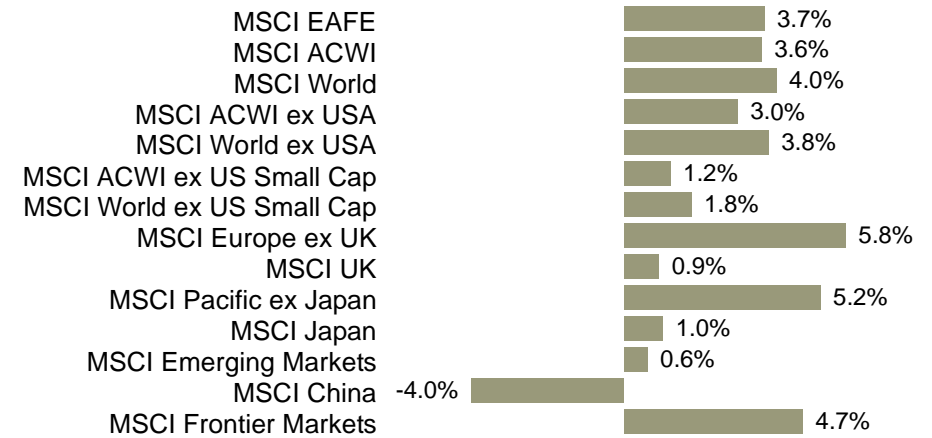
China reversal hurt emerging market results

- China (-4.02%) faltered on renewed tariff concerns

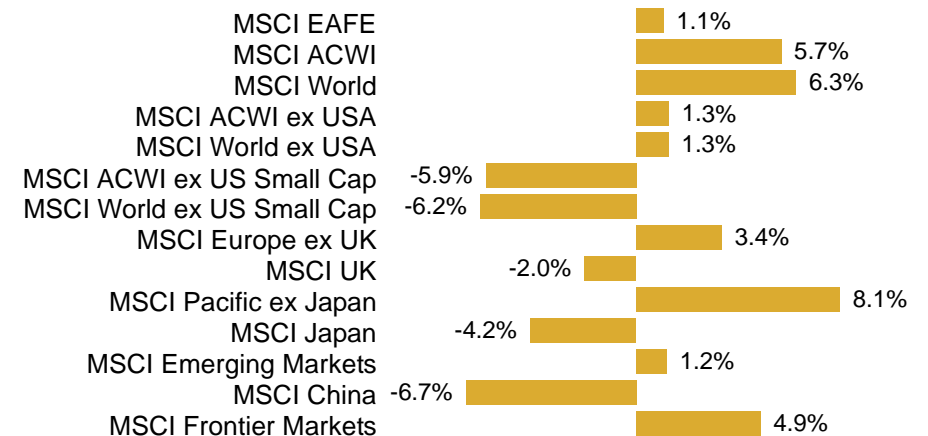
Non-U.S. small cap lagged large cap

- Investors favored lower earnings risk

Global Equity: Quarterly Returns



Global Equity: Annual Returns



Source: MSCI

U.S. Fixed Income Performance

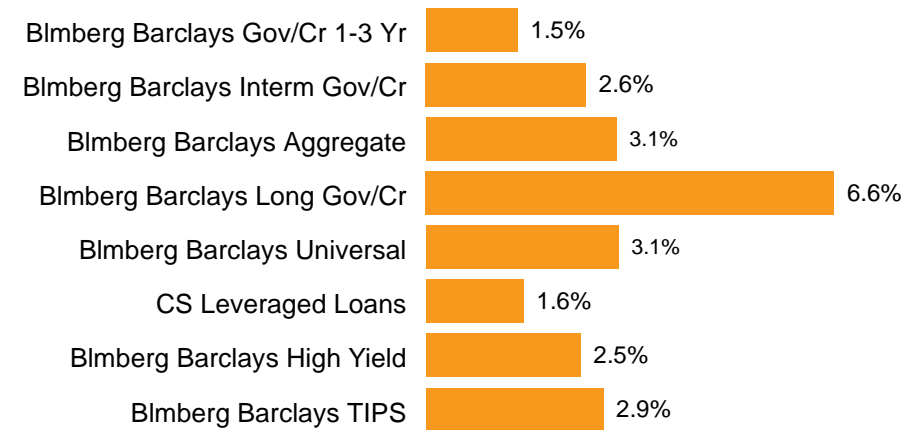
Bonds rally on dovish Fed comments

- Fed policy and comments to “sustain the expansion” caused risk assets and U.S. Treasuries to rally.
- Treasuries rose +3.01% as yield curve shifted lower across maturities given expectations for Fed to ease.
- The overall shape of the yield curve did not materially change during the quarter.
- High yield corporates posted positive results, led by interest rate-sensitive Bloomberg Barclays issues (+3.1%), but lagged IG corporates.

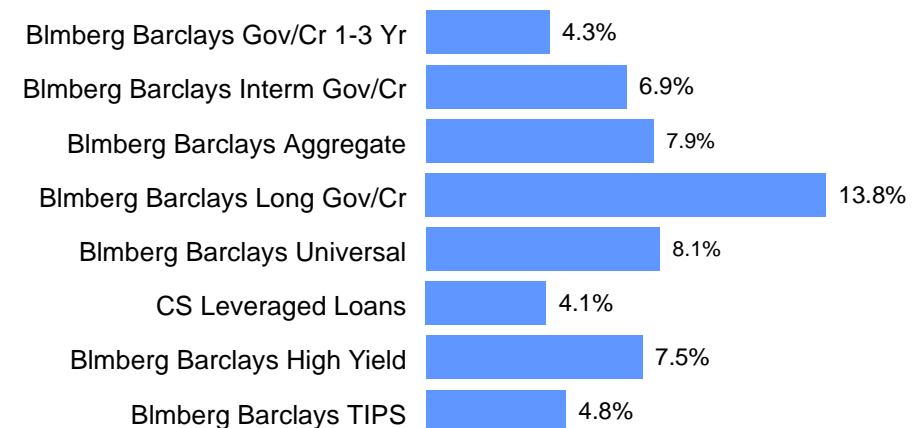
Bank Loans participated but to lesser degree

- Bank loans participated in rally, but lagged IG and HY corporates as interest rates declined.
- Bank loans have less sensitivity to interest rates, but may have a spread duration profile similar to that of high yield bonds.
- Retail outflows remain unabated as the Fed’s dovish tone dampened enthusiasm for floating rate assets.

U.S. Fixed Income: Quarterly Returns

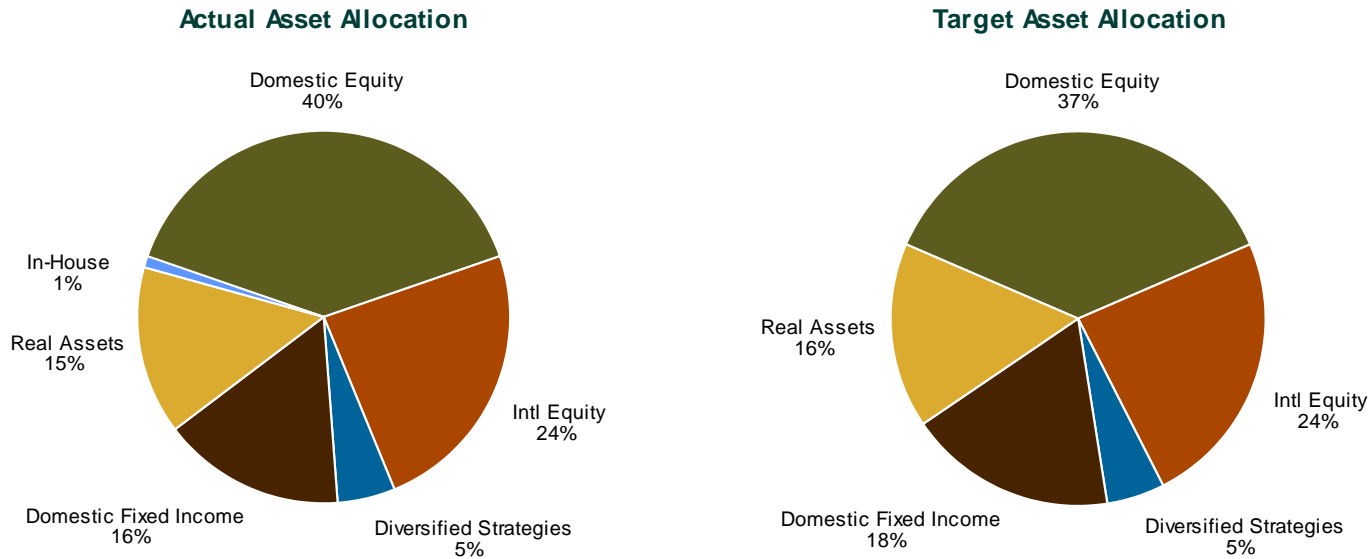


U.S. Fixed Income: Annual Returns



Sources: Bloomberg Barclays, Credit Suisse

Actual vs. Target Asset Allocation



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	3,617,493	39.5%	37.0%	2.5%	230,838
Intl Equity	2,204,717	24.1%	24.0%	0.1%	7,968
Diversified Strategies	453,153	5.0%	5.0%	(0.0%)	(4,503)
Domestic Fixed Income	1,454,998	15.9%	18.0%	(2.1%)	(192,564)
Real Assets	1,335,658	14.6%	16.0%	(1.4%)	(128,841)
In-House	87,103	1.0%	0.0%	1.0%	87,103
Total	9,153,122	100.0%	100.0%		

- The APERS Investment Policy states that rebalancing to the target asset allocation should take place when the actual asset allocation falls outside of a +/- 5% range from the target asset allocation. All asset classes were within the allowable range as of the end of the most recent quarter.

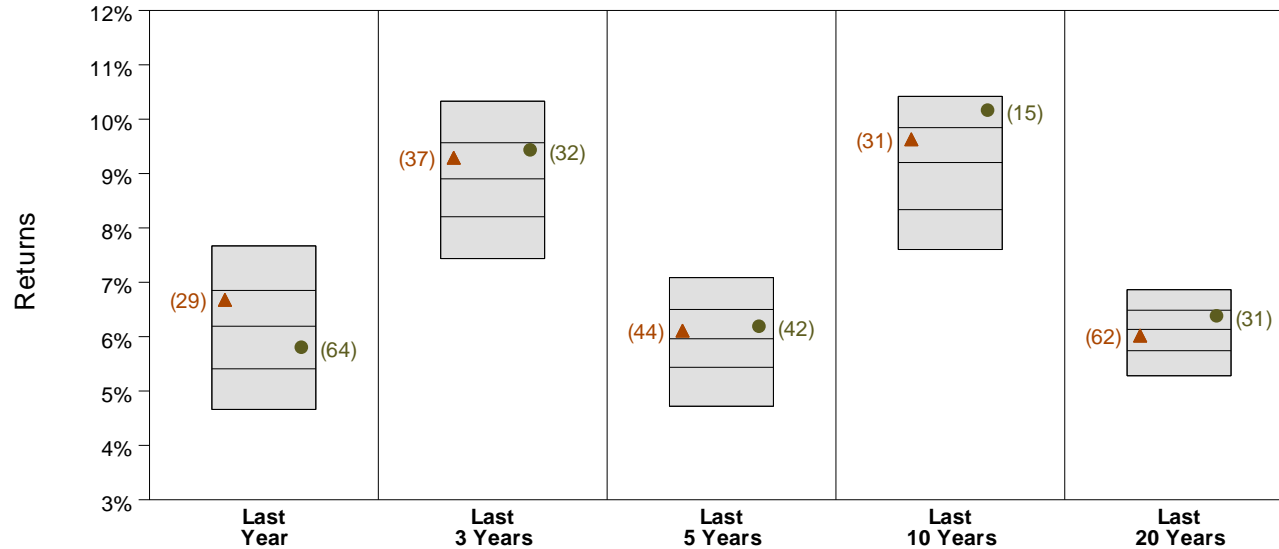
Investment Manager Asset Allocation

	June 30, 2019				March 31, 2019		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight	
Total Domestic Equity	\$3,617,492,928	39.52%	\$(80,483,221)	\$160,026,089	\$3,537,950,060	39.75%	
Lazard Asset Mgmt.	382,427,748	4.18%	(272,257)	19,098,014	363,601,991	4.09%	
CastleArk	570,170,692	6.23%	(434,638)	24,216,751	546,388,579	6.14%	
Mellon S&P 500 Index Fd	448,167,755	4.90%	(77,617,919)	20,708,378	505,077,297	5.68%	
Golden Capital Management	205,269,013	2.24%	(111,666)	6,687,700	198,692,979	2.23%	
Horrell Capital - Passive	130,106,814	1.42%	(54,198)	2,170,437	127,990,575	1.44%	
Wellington Management	437,884,023	4.78%	(314,130)	18,802,716	419,395,437	4.71%	
INTECH	517,124,040	5.65%	(465,878)	27,951,696	489,638,222	5.50%	
LSV Asset Management	251,494,446	2.75%	(353,236)	4,331,033	247,516,649	2.78%	
Stephens Investment Mgmt.	368,433,388	4.03%	(565,777)	23,869,027	345,130,137	3.88%	
SSI Investment Mgmt.	306,415,010	3.35%	(293,521)	12,190,338	294,518,193	3.31%	
International Equity	\$2,204,716,761	24.09%	\$(1,712,439)	\$87,996,338	\$2,118,432,862	23.80%	
Artisan Partners	459,294,397	5.02%	(598,896)	20,776,620	439,116,673	4.93%	
Fidelity	0	0.00%	(217,015)	(5)	217,020	0.00%	
Mellon ACWI ex US Fund	794,473,323	8.68%	(81,679)	24,287,890	770,267,112	8.65%	
Baillie Gifford Overseas	465,890,062	5.09%	(447,996)	26,592,012	439,746,045	4.94%	
Lazard Asset Mgmt.	483,986,185	5.29%	(366,853)	16,319,001	468,034,038	5.26%	
Manning & Napier Advisors	1,072,794	0.01%	0	20,821	1,051,973	0.01%	
Diversified Strategies	\$453,152,984	4.95%	\$(649,251)	\$20,177,685	\$433,624,551	4.87%	
AQR Capital	144,106,639	1.57%	0	9,549,698	134,556,941	1.51%	
Blackstone Alt. Asset Mgmt	186,771,753	2.04%	(468,091)	5,379,573	181,860,271	2.04%	
Newton Capital	122,274,593	1.34%	(181,160)	5,248,413	117,207,339	1.32%	
Domestic Fixed Income	\$1,454,997,935	15.90%	\$(664,511)	\$47,948,289	\$1,407,714,157	15.82%	
DoubleLine Capital	461,936,239	5.05%	(194,769)	14,103,697	448,027,312	5.03%	
MacKay Shields	487,126,183	5.32%	(234,647)	15,415,883	471,944,948	5.30%	
PGIM	505,935,513	5.53%	(235,094)	18,428,709	487,741,898	5.48%	
Real Assets	\$1,335,658,034	14.59%	\$(20,003,477)	\$1,132,329	\$1,354,529,181	15.22%	
CastleArk Glob Energy Fd	44,939,735	0.49%	(115,862)	(1,334,686)	46,390,284	0.52%	
CastleArk Glob Energy Fd LP	128,955,419	1.41%	(354,957)	(6,537,011)	135,847,387	1.53%	
INVESCO Real Estate	468,192,067	5.12%	(398,025)	4,822,721	463,767,371	5.21%	
Heitman Real Estate Trust LP	320,985,082	3.51%	(3,252,286)	(1,079,942)	325,317,310	3.66%	
Heitman Value Partners IV	14,529,422	0.16%	6,174,477	256,007	8,098,938	0.09%	
LaSalle Inc & Growth VI LP	11,429,954	0.12%	(24,291)	77,121	11,377,124	0.13%	
LaSalle Inc & Growth VII LP	32,919,815	0.36%	(5,616,040)	251,100	38,284,755	0.43%	
MCM EB DV Non-SL REIT Fd	156,782,271	1.71%	(11,331,065)	1,648,832	166,464,505	1.87%	
Pinnacle	90,836,191	0.99%	(705,888)	51,355	91,490,724	1.03%	
TA Realty X	14,029,938	0.15%	(2,600,862)	1,161,256	15,469,544	0.17%	
TA Realty XI	52,058,140	0.57%	(1,778,679)	1,815,578	52,021,241	0.58%	
In-House	\$87,103,142	0.95%	\$39,391,396	\$147,140	\$47,564,606	0.53%	
Composite Fund	\$9,153,121,783	100.0%	\$(64,121,502)	\$317,427,869	\$8,899,815,417	100.0%	



Total Fund Performance

Callan Public Fund Sponsor Database



	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 20 Years
10th Percentile	7.67	10.33	7.09	10.42	6.86
25th Percentile	6.85	9.57	6.50	9.85	6.49
Median	6.19	8.91	5.96	9.20	6.13
75th Percentile	5.41	8.21	5.44	8.34	5.74
90th Percentile	4.66	7.44	4.72	7.60	5.28
Total Fund ●	5.78	9.41	6.16	10.14	6.36
Policy Target ▲	6.68	9.29	6.11	9.63	6.02

Investment Manager Returns and Peer Group Rankings

	Last Quarter		Fiscal Year		Last 3 Years		Last 5 Years	
Total Domestic Equity	4.56%	11	8.12%	43	13.89%	44	9.56%	59
Russell 3000 Index	4.10%	28	8.98%	29	14.02%	37	10.19%	29
Pub Pln- Dom Equity	3.84%		7.73%		13.81%		9.73%	
Lazard Asset Mgmt.	5.25%	30	15.48%	8	15.82%	38	10.02%	41
Russell 3000 Index	4.10%	59	8.98%	46	14.02%	42	10.19%	38
Callan All Cap Broad	4.38%		7.98%		13.07%		8.90%	
CastleArk	4.43%	47	5.07%	69	16.99%	33	11.80%	26
Russell 3000 Growth Index	4.50%	46	10.60%	39	17.81%	24	13.02%	18
Callan All Cap Broad	4.38%		7.98%		13.07%		8.90%	
Mellon S&P 500 Index Fd	4.31%	49	10.45%	39	14.20%	39	10.73%	30
S&P 500 Index	4.30%	49	10.42%	39	14.19%	40	10.71%	30
Callan Large Cap Core	4.28%		9.25%		13.81%		10.32%	
Golden Capital Management	3.37%	80	7.13%	67	12.61%	80	10.35%	46
S&P 500 Index	4.30%	49	10.42%	39	14.19%	40	10.71%	30
Callan Large Cap Core	4.28%		9.25%		13.81%		10.32%	
Horrell Capital - Passive	1.70%	94	7.59%	54	10.81%	81	8.67%	55
Bloomberg Arkansas Index	(0.13%)	97	(5.47%)	100	8.24%	99	3.37%	96
S&P 500 Index	4.30%	53	10.42%	39	14.19%	42	10.71%	34
Callan All Cap Broad	4.38%		7.98%		13.07%		8.90%	
Wellington Management	4.48%	22	7.27%	39	9.89%	82	7.16%	73
Russell 1000 Value Index	3.84%	48	8.46%	28	10.19%	76	7.46%	64
Callan Large Cap Value	3.77%		6.43%		11.16%		7.87%	
INTECH	5.71%	28	14.34%	36	17.16%	65	12.62%	65
Russell 1000 Growth Index	4.64%	65	11.56%	56	18.07%	56	13.39%	46
Callan Large Cap Growth	4.96%		12.47%		18.34%		13.19%	
LSV Asset Management	1.75%	63	(8.84%)	80	-	-	-	-
Russell 2000 Value Index	1.38%	71	(6.24%)	53	9.81%	51	5.39%	71
Callan Small Cap Value	2.45%		(5.85%)		9.93%		6.40%	
Stephens Investment Mgmt.	6.92%	33	9.23%	38	19.31%	45	10.77%	56
Russell 2000 Growth Index	2.75%	84	(0.49%)	86	14.69%	83	8.63%	84
Callan Small Cap Growth	5.19%		6.75%		18.99%		11.41%	
SSI Investment Mgmt	4.14%	16	8.14%	28	11.00%	31	6.99%	25
ML All Conv	3.85%	26	7.93%	30	12.22%	17	6.91%	28
Callan Convert Bonds DB	3.28%		5.94%		8.87%		5.49%	
International Equity	4.15%	5	1.98%	18	8.98%	76	3.31%	42
MSCI EAFE	3.68%	14	1.08%	36	9.11%	74	2.25%	80
Pub Pln- Intl Equity	3.00%		0.57%		9.74%		3.03%	
Artisan Partners	4.73%	26	3.47%	20	9.91%	39	4.39%	27
MSCI EAFE	3.68%	47	1.08%	41	9.11%	55	2.25%	72
Callan NonUS Eq	3.64%		0.46%		9.48%		3.40%	
Mellon ACWI ex US Fund	3.15%	59	1.61%	36	-	-	-	-
MSCI ACWI ex US	2.98%	64	1.29%	38	9.39%	52	2.16%	74
Callan NonUS Eq	3.64%		0.46%		9.48%		3.40%	
Baillie Gifford Overseas	6.05%	11	0.76%	46	10.34%	35	5.00%	15
MSCI ACWIxUS Gross	3.22%	58	1.80%	35	9.91%	39	2.65%	65
Callan NonUS Eq	3.64%		0.46%		9.48%		3.40%	
Lazard Asset Mgmt.	3.49%	55	3.44%	20	9.64%	49	4.16%	31
MSCI ACWIxUS Gross	3.22%	58	1.80%	35	9.91%	39	2.65%	65
Callan NonUS Eq	3.64%		0.46%		9.48%		3.40%	

- Total Domestic Equity outperformed the Russell 3000 Index for the second quarter, but has underperformed for the trailing year. Lazard and INTECH continued their recent success, while Stephens provided the strongest relative performance in the Total Domestic Equity composite for the quarter. Golden Capital has struggled due to its value characteristics in a growth favored market.

- International Equity outperformed the MSCI EAFE Index in the second quarter and finished at the 5th percentile of its peers. Performance in the second quarter was, once again, driven by Baillie Gifford who bested its benchmark by 283 basis points. Artisan Partners and Lazard have consistently outperformed their respective benchmarks and peers over short- and long-term periods.

Investment Manager Returns and Peer Group Rankings

	Last Quarter		Fiscal Year		Last 3 Years		Last 5 Years	
Diversified Strategies	4.66%		10.20%		7.36%		5.35%	
Diversified Strategy Trgt(1)	3.63%		7.41%		8.09%		5.29%	
AQR Capital	7.10%	2	12.94%	4	9.55%	14	4.97%	33
Diversified Strategy Trgt(1)	3.63%	20	7.41%	24	8.09%	26	5.29%	29
Intl/Global Balanced DB	2.31%		4.55%		6.76%		4.15%	
Blackstone Alt. Asset Mgmt.	2.96%	35	7.76%	20	8.08%	27	6.31%	13
T-Bills + 4%	1.61%	81	6.31%	29	5.38%	70	4.87%	37
Intl/Global Balanced DB	2.31%		4.55%		6.76%		4.15%	
Newton Capital	4.48%	13	10.85%	5	4.01%	86	4.35%	48
LIBOR + 4%	1.59%	82	6.43%	27	5.57%	70	5.04%	33
Intl/Global Balanced DB	2.31%		4.55%		6.76%		4.15%	
Domestic Fixed Income	3.41%	8	8.57%	7	4.08%	18	3.72%	18
Blmbg Aggregate Index	3.08%	21	7.87%	26	2.31%	77	2.95%	68
Pub Pln- Dom Fixed	2.78%		7.34%		3.07%		3.20%	
DoubleLine Capital	3.15%	65	7.74%	85	-	-	-	-
MacKay Shields	3.27%	49	8.24%	63	4.22%	10	3.51%	44
PGIM	3.78%	5	9.68%	4	4.49%	5	4.54%	4
Blmbg Aggregate Index	3.08%	81	7.87%	80	2.31%	99	2.95%	97
Callan Core Plus FI	3.26%		8.33%		3.54%		3.47%	
Real Assets	0.09%		1.72%		5.36%		4.88%	
CPIU + 4%	1.73%		5.65%		6.05%		5.45%	
CastleArk Glob Energy Fd	(2.88%)	82	(16.65%)	76	(0.36%)	74	(5.56%)	51
CastleArk Glob Energy Fd LP	(4.81%)	86	(23.33%)	90	-	-	-	-
AC World Energy Idx	(1.12%)	74	(7.73%)	45	4.67%	40	(4.46%)	48
Callan Gbl Nat Res MF	0.91%		(10.01%)		3.89%		(5.21%)	
INVESCO Real Estate	1.04%	86	7.05%	47	7.94%	25	10.18%	25
Heitman Real Estate Trust LP	(0.34%)	95	4.43%	94	6.94%	57	9.13%	52
NFI-ODCE Equal Weight Net	1.12%	84	5.99%	78	6.97%	56	9.12%	52
Callan OE Core Cmngld RE	1.69%		6.98%		7.15%		9.31%	
MCM EB DV Non-SL REIT Fd	0.83%	80	9.73%	78	-	-	-	-
S&P DJ US Select REIT	0.82%	82	9.75%	78	3.73%	85	7.61%	75
Callan Real Estate REIT	2.06%		12.11%		5.17%		8.60%	
Heitman Value Partners IV	1.82%		-		-		-	
LaSalle Inc & Growth VI LP	0.68%		4.79%		9.09%		13.32%	
LaSalle Inc & Growth VII LP	0.74%		11.38%		-		-	
TA Realty X	8.64%		23.07%		13.85%		14.59%	
TA Realty XI	3.61%		14.45%		8.30%		-	
NCREIF Total Index	1.51%		6.51%		6.89%		8.83%	
Pinnacle	0.06%		(4.31%)		(2.45%)		(0.13%)	
NCREIF Timberland Index	1.04%		3.18%		3.37%		4.67%	
Total Fund	3.60%	18	5.78%	64	9.41%	32	6.16%	42
Benchmark*	3.41%	33	6.68%	29	9.29%	37	6.11%	44
Callan Public Fund Spr DB	3.27%		6.19%		8.91%		5.96%	

- The Diversified Strategies composite has outperformed its benchmark for the trailing quarter and year. All three managers have bested their respective benchmarks in the short term and Blackstone has also enjoyed relative success over longer periods.
- Domestic Fixed Income outperformed the Bloomberg Aggregate for the second quarter and finished in the top decile of peers. The Fixed Income composite has also beat its benchmark for the trailing one-, three- and five-year periods.
- The Real Assets composite trailed its benchmark during the second quarter due to its exposure to the underperforming energy sector. Heitman also underperformed due to the depreciation of its retail properties.
- The Total Fund outperformed its benchmark in the second quarter. Longer-term, the Fund has consistently outperformed its benchmark and finished above the peer group median.

- ***Policy Target** consists of 37% Russell 3000 Index, 24% MSCI EAFE Index, 18% Blmbg Aggregate Index, 16% CPI All Urban Cons +4%, 3% MSCI World Index and 2% Blmbg Aggregate Index
- (1) 60% MSCI World/40% Blmbg Aggregate

Investment Manager Organizational Developments

Invesco Real Estate: Paul Michaels, Head of North America, is planning to retire in April 2020 after 36 years at Invesco Real Estate. Bert Crouch will assume the role of Head of North America and will begin working alongside Paul to transition his responsibilities. Bill Grubbs will move into the role of CIO of North America as the first step in that process. Paul will continue to serve as chair of the global executive team. Bill Grubbs currently serves as the PM for Invesco USA Core Fund. Callan will closely monitor the transition and update APERS as further updates arise.

Total Fund Relative Attribution

Relative Attribution Effects for Quarter ended June 30, 2019

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	40%	37%	4.56%	4.10%	0.19%	0.02%	0.21%
Domestic Fixed Income	16%	18%	3.41%	3.08%	0.05%	0.01%	0.06%
International Equity	24%	24%	4.15%	3.68%	0.11%	0.00%	0.11%
Diversified Strategies	5%	5%	4.66%	3.63%	0.05%	(0.00%)	0.05%
Real Assets	15%	16%	0.09%	1.73%	(0.25%)	0.01%	(0.24%)
Total			3.60%	= 3.41%	+ 0.15%	+ 0.04%	0.19%

- Outperformance in the second quarter was driven primarily by active management in Domestic and International Equity, Fixed Income, and Diversified Strategies. Real Assets was the only asset class to detract in the second quarter.

One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	40%	37%	8.12%	8.98%	(0.32%)	(0.07%)	(0.39%)
Domestic Fixed Income	16%	18%	8.57%	7.87%	0.10%	(0.19%)	(0.09%)
International Equity	24%	24%	1.98%	1.08%	0.22%	(0.03%)	0.19%
Diversified Strategies	5%	5%	10.20%	7.41%	0.13%	(0.00%)	0.13%
Real Assets	15%	16%	1.72%	5.65%	(0.67%)	(0.07%)	(0.74%)
Total			5.78%	= 6.68%	+ (0.54%)	+ (0.36%)	(0.90%)

- Over the last year, International Equity and Diversified Strategies were the only asset classes to add value. Both active management and asset allocation contributed to the Fund's underperformance.

Five Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Domestic Equity	40%	37%	9.56%	10.19%	(0.24%)	0.07%	(0.17%)
Domestic Fixed Income	16%	18%	3.72%	2.95%	0.12%	0.01%	0.13%
International Equity	24%	24%	3.28%	2.25%	0.26%	(0.07%)	0.20%
Diversified Strategies	5%	5%	5.35%	5.29%	0.00%	0.00%	0.01%
Real Assets	15%	16%	4.88%	5.45%	(0.07%)	(0.04%)	(0.11%)
Total			6.16%	= 6.11%	+ 0.08%	+ (0.04%)	0.05%

- Over the last five years, Fixed Income, International Equity, and Diversified Strategies have all outperformed their target benchmarks. Active management in Domestic Equity was the primary detractor during the period.

Policy Target consists of 37% Russell 3000 Index, 24% MSCI EAFE Index, 18% Blmbg Aggregate Index, 16% CPI All Urban Cons +4%, 3% MSCI World Index and 2% Blmbg Aggregate Index