



## **Executive Summary Third Quarter 2019**

Arkansas Public Employees  
Retirement System

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# Does Strong 2019 Spell Problems for 2020 and Beyond?

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

## U.S. equity market expanded modestly in Q3, while non-U.S. markets suffered losses

- S&P up 1.7%, World ex USA down 0.9%, Emerging Markets lost 4.3%. One-year results look weak, thanks to Q4 2018, but all regions are still up sharply y-t-d.

Fed rate cuts, solid corporate fundamentals, and even lower unemployment propel U.S. equity markets in Q3:

- Value caught up to growth in September.
- Small cap declined and lags large cap again.
- Economic weakness, trade concerns hit developed non-U.S. and EM equities in Q3.

## Fixed income markets are having an “outlier” year

- Investment grade is strongest performer in the U.S.
- Credit spreads continued rally in Q3.
- Yield curve shifts lower across maturities; inverted from 3 month – 10 year in April, then from 2- to 10-year in August.

\*Cambridge PE data are available through June 30, 2019.

Source: Callan

## Returns for Periods ended September 30, 2019

	1 Quarter	1 Year	5 Years	10 Years	25 Years
<b>U.S. Equity</b>					
Russell 3000	1.16	2.92	10.44	13.08	9.81
S&P 500	1.70	4.25	10.84	13.24	9.83
Russell 2000	-2.40	-8.89	8.19	11.19	8.86
<b>Non-U.S. Equity</b>					
MSCI World ex USA	-0.93	-0.95	3.06	4.78	4.94
MSCI Emerging Markets	-4.25	-2.01	2.33	3.37	--
MSCI ACWI ex USA Small Cap	-1.19	-5.63	3.98	6.13	5.30
<b>Fixed Income</b>					
Bloomberg Barclays Aggregate	2.27	10.30	3.38	3.75	5.57
90-day T-Bill	0.56	2.39	0.98	0.54	2.50
Bloomberg Barclays Long Gov/Credit	6.58	21.88	6.81	7.42	8.02
Bloomberg Barclays Global Agg ex-US	-0.58	5.34	0.87	1.27	4.38
<b>Real Estate</b>					
NCREIF Property	1.41	6.24	8.57	9.77	9.36
FTSE Nareit Equity	7.80	18.42	10.26	13.04	10.67
<b>Alternatives</b>					
CS Hedge Fund	0.26	2.13	2.30	4.32	7.69
Cambridge Private Equity*	4.31	12.23	12.22	14.51	15.42
Bloomberg Commodity	-1.84	-6.57	-7.18	-4.32	1.66
Gold Spot Price	4.19	23.13	3.98	3.85	5.38
<b>Inflation - CPI-U</b>	0.24	1.71	1.53	1.75	2.19

# U.S. Equity: Low Volatility Outperformance

## Defensive sectors prevailed

- Ongoing trade tension, earnings and interest rate uncertainty, and the global political landscape continued to drive investor unease.
- Utilities, Real Estate, and Consumer Staples top performers in response to continued flight to quality

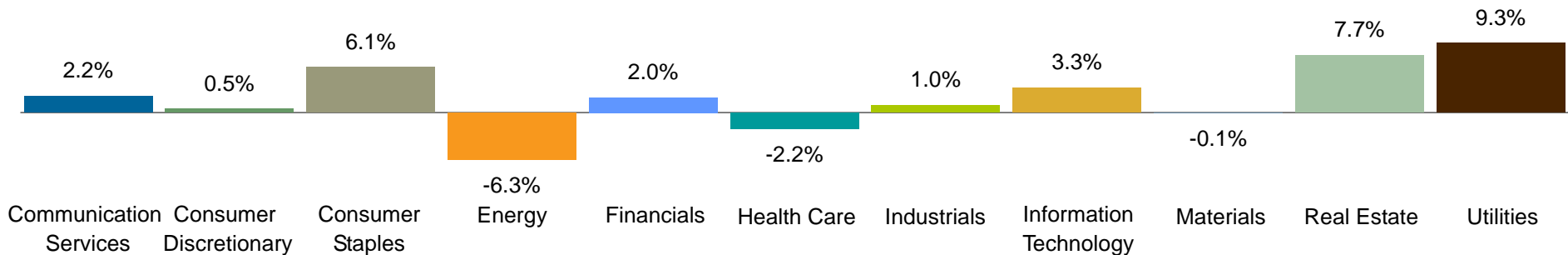
## Large caps posted modest gains

- Leading up to September, low-vol and momentum stocks had outperformed as investors shunned the cheapest quintile, more volatile stocks.
- Trend sharply reversed in early September as the 10-year Treasury yield rose from 1.46% to 1.73%; defensive stocks can be dependent upon yields falling.

## Value and Growth mixed across capitalizations

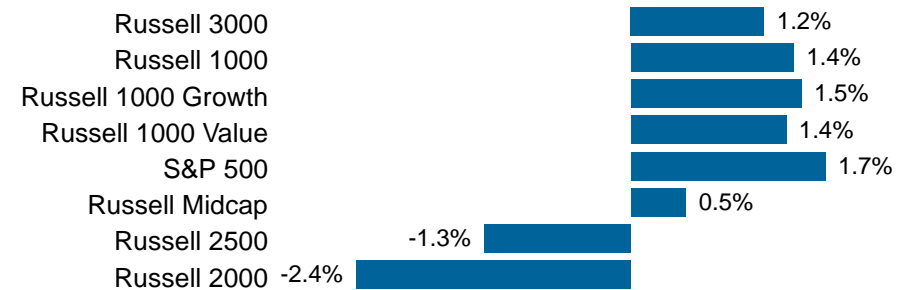
- While value continues to trail growth year-to-date, it gained ground during September’s factor reversal, finishing the quarter essentially in line with growth within large caps.

## Economic Sector Quarterly Performance (S&P 500)

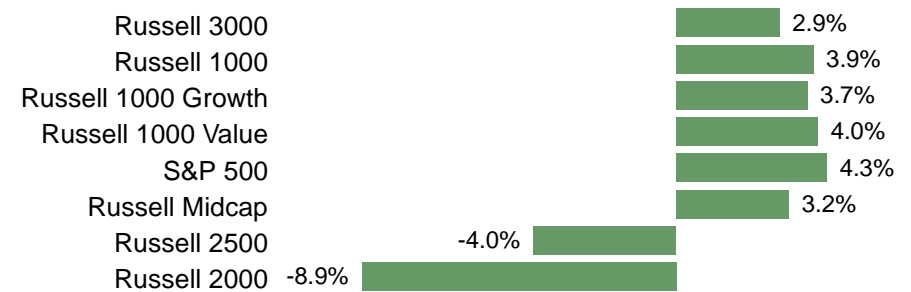


Sources: FTSE Russell, Standard & Poor's

## U.S. Equity: Quarterly Returns



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



# Non-U.S. Equity Performance

## Trade war and no-deal Brexit fears turned non-U.S. markets negative

- U.K. declined on attempted suspension of Parliament and no-deal Brexit proclamations.
- Germany’s recession fears drove country to biggest annual decline in nine years.
- Hong Kong fell 11.9% as protests continued; Japan was bright spot as low rates remained unchanged and resolution to Japan/South Korea trade war looked more promising.

## Defensive sectors prevailed

- Cyclical sectors trailed as investors were positioned defensively; Energy (-6.5%) was biggest laggard on oil price decline.
- Factor performance favored quality and low vol, reflecting cautious investor behavior.

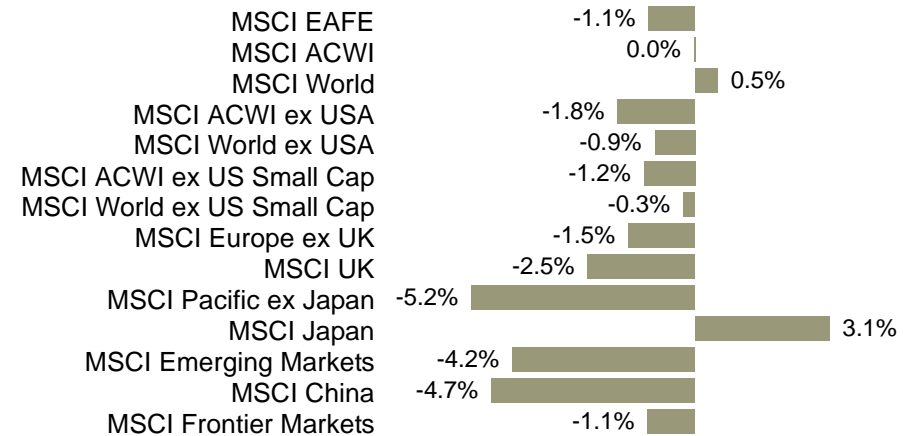
## Currencies declined vs. U.S. dollar

- Major developed market currencies declined vs. the dollar despite lowering of Fed funds rate; U.S. remains dominant provider of safe assets.

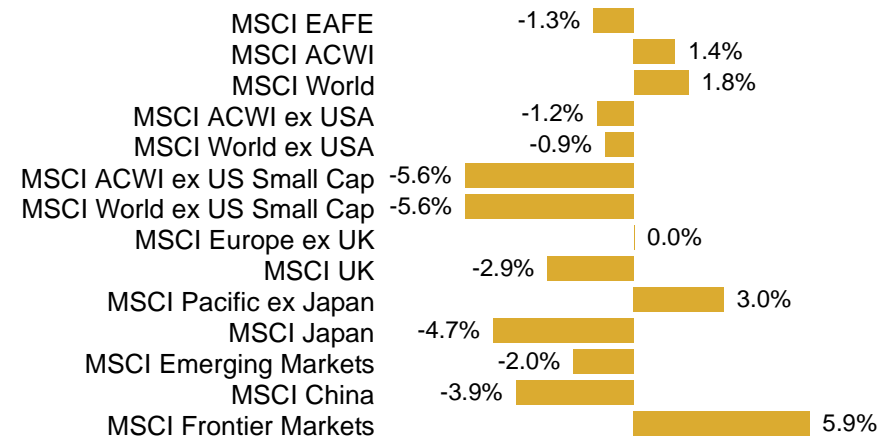
## EM worst-performing region

- Global uncertainty weighed heavily on EM countries.
- EM currencies suffered from strong dollar.
- EM growth (-2.04%) outpaced EM value (-6.48%) given Tech sector spike (+5.63%).

## Global Equity: Quarterly Returns



## Global Equity: Annual Returns



Source: MSCI

# U.S. Fixed Income Performance

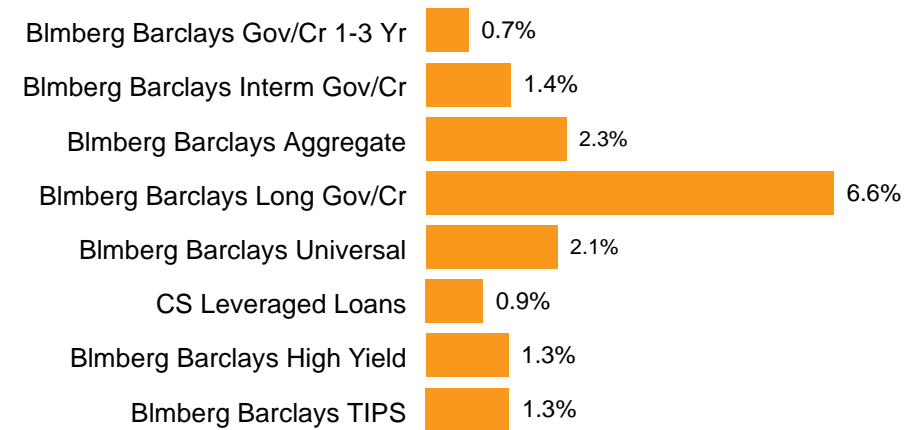
## Rates rallied on trade tensions and geopolitical uncertainty

- Treasuries returned 2.4% as rates fell across the yield curve.
- While 2- and 10-year key rates remained positive, spread between the 90-day and 10-year key rates remained inverted.
- Long Treasuries soared (+7.9%) as 30-year yields fell roughly 40 bps.
- Nominal Treasuries outperformed TIPS as inflation expectations continued to fall; 10-year breakeven spreads were 1.53% as of quarter-end, down from 1.69% as of June 30.

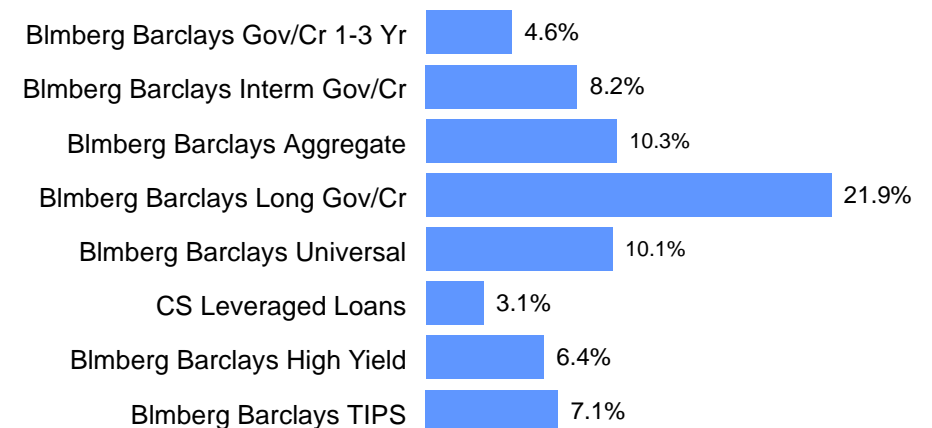
## IG Corporate was quiet, but HY told two stories

- Investment grade corporate credit spreads were range-bound, but their yield advantage was enough to generate positive excess returns versus like-duration Treasuries.
- BB-rated corporates (+2.0%) outperformed CCC-rated corporates (-1.8%).
- BB and B-rated spreads narrowed slightly, but the rally in rates helped drive outperformance as a result of higher-quality bonds' greater sensitivity to interest rate movements.
- CCC-rated bond spreads widened significantly, representing some concern about deteriorating quality at the lower-end of the spectrum.

## U.S. Fixed Income: Quarterly Returns



## U.S. Fixed Income: Annual Returns



Sources: Bloomberg Barclays, Credit Suisse

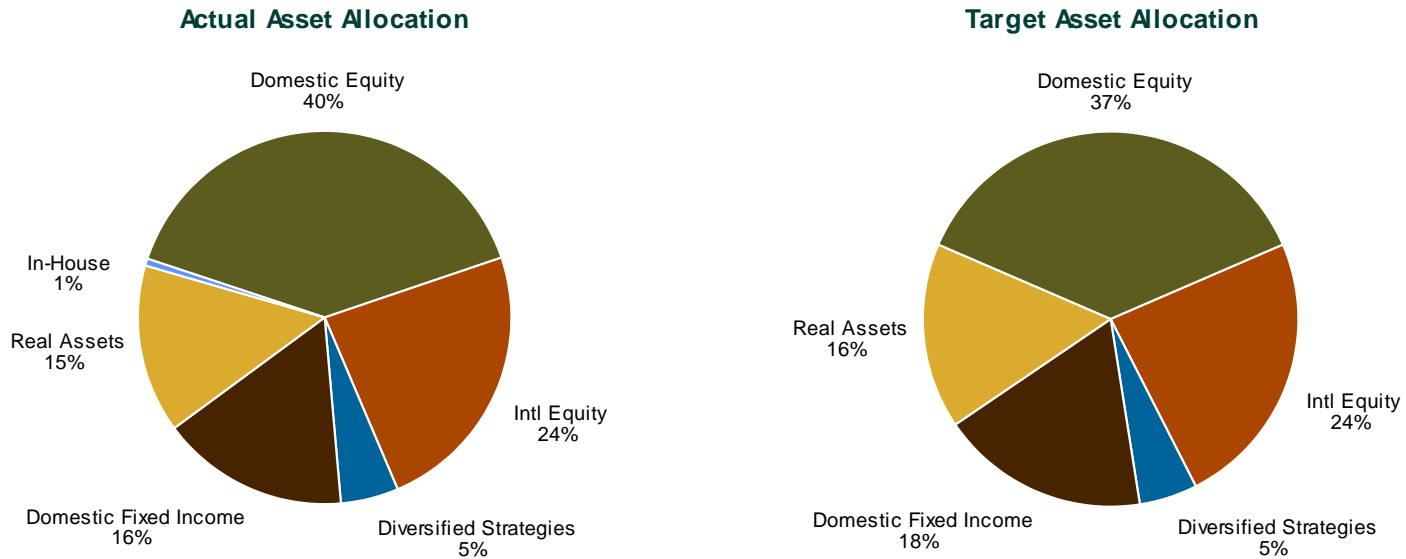
# Asset Class Performance and Market Values

Periods Ending September 30, 2019

	Market Value \$(Dollars)	Ending Weight	Last Quarter	Last Year	Last 3 Years	Last 5 Years
<b>Domestic Equity</b>	<b>\$3,624,389,756</b>	<b>39.94%</b>	<b>0.40%</b>	<b>1.51%</b>	<b>12.26%</b>	<b>9.85%</b>
Russell 3000 Index	-	-	1.16%	2.92%	12.83%	10.44%
<b>International Equity</b>	<b>\$2,172,393,088</b>	<b>23.94%</b>	<b>(1.39%)</b>	<b>(0.30%)</b>	<b>6.34%</b>	<b>4.41%</b>
MSCI EAFE	-	-	(1.07%)	(1.34%)	6.48%	3.27%
<b>Diversified Strategies</b>	<b>\$457,127,178</b>	<b>5.04%</b>	<b>1.02%</b>	<b>9.50%</b>	<b>7.19%</b>	<b>5.70%</b>
Diversified Strategy Trgt**	-	-	1.23%	5.57%	7.43%	5.81%
<b>Domestic Fixed Income</b>	<b>\$1,487,887,658</b>	<b>16.40%</b>	<b>2.31%</b>	<b>10.63%</b>	<b>4.25%</b>	<b>4.21%</b>
Blmbg Aggregate	-	-	2.27%	10.30%	2.92%	3.38%
<b>Real Assets</b>	<b>\$1,332,646,991</b>	<b>14.69%</b>	<b>1.41%</b>	<b>1.07%</b>	<b>5.29%</b>	<b>5.38%</b>
CPIU + 4%	-	-	1.22%	5.71%	6.07%	5.53%
<b>Total Fund***</b>	<b>\$9,074,444,671</b>	<b>100.00%</b>	<b>0.45%</b>	<b>2.71%</b>	<b>8.17%</b>	<b>6.75%</b>
Benchmark*	-	-	0.84%	4.14%	8.32%	6.57%

- **Domestic Equity** has underperformed its benchmark and peer median on both a short- and long-term basis. Active managers have struggled to add value over the index in this asset class during this period.
- **International Equity** trailed its benchmark in the third quarter, but finished in the top quartile of peers. The current International Equity managers have all outperformed the index in the periods shown.
- **Diversified Strategies** underperformed its benchmark in quarter. The strategy leads its benchmark over the trailing year by 393 basis points, and has performed slightly below the asset class benchmark over longer 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** outperformed the CPI+4% target for the quarter, but trails its benchmark over longer periods due to the adverse performance of energy stocks.

# Actual vs. Target Asset Allocation



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	3,624,390	39.7%	37.0%	2.7%	245,861
Intl Equity	2,172,393	23.8%	24.0%	(0.2%)	(19,085)
Diversified Strategies	457,127	5.0%	5.0%	0.0%	569
Domestic Fixed Income	1,487,888	16.3%	18.0%	(1.7%)	(155,721)
Real Assets	1,332,647	14.6%	16.0%	(1.4%)	(128,338)
In-House	56,713	0.6%	0.0%	0.6%	56,713
Total	9,131,157	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.

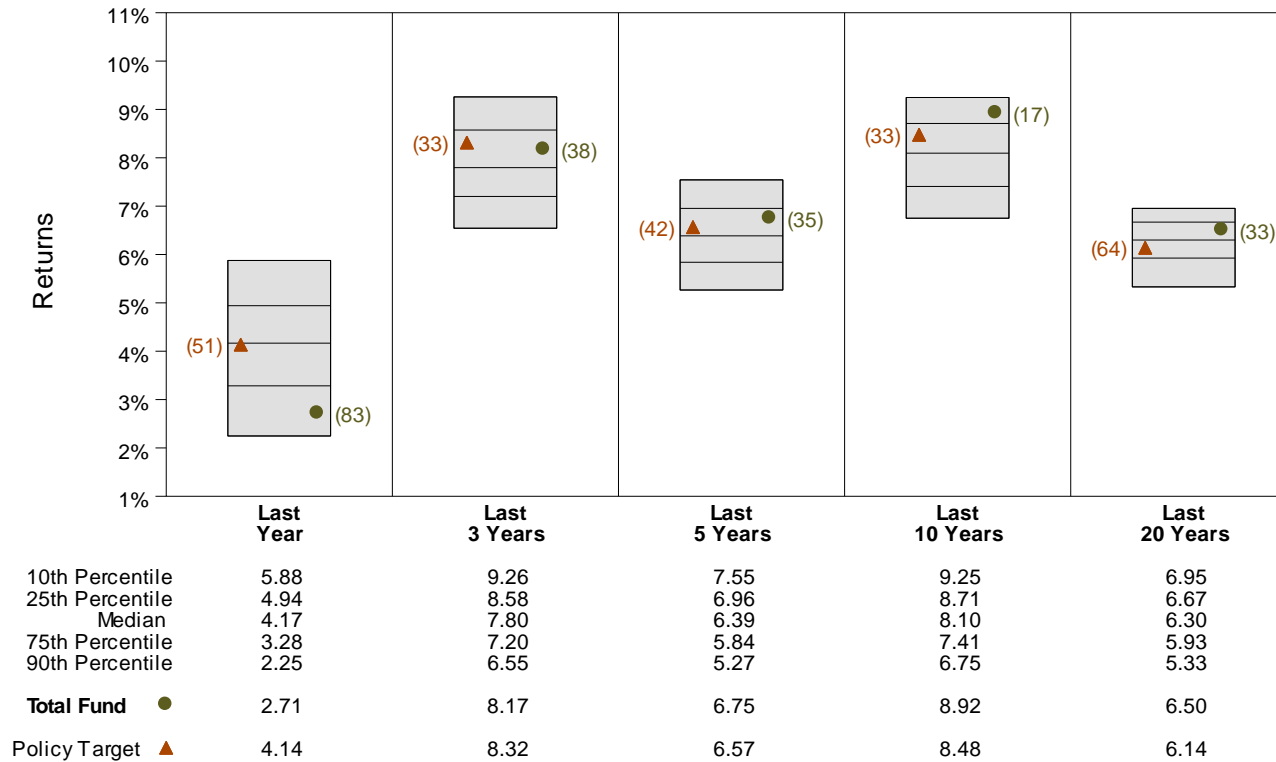
# Investment Manager Asset Allocation

	September 30, 2019			June 30, 2019		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>Total Domestic Equity</b>	<b>\$3,624,389,756</b>	<b>39.69%</b>	<b>\$(7,508,095)</b>	<b>\$14,404,924</b>	<b>\$3,617,492,928</b>	<b>39.52%</b>
Lazard Asset Mgmt.	395,838,553	4.34%	(286,514)	13,697,319	382,427,748	4.18%
CastleArk	558,420,387	6.12%	(452,422)	(11,297,884)	570,170,692	6.23%
Mellon S&P 500 Index Fd	451,381,325	4.94%	(4,517,699)	7,731,268	448,167,755	4.90%
Golden Capital Management	208,676,566	2.29%	(115,363)	3,522,916	205,269,013	2.24%
Horrell Capital - Passive	135,246,670	1.48%	(54,996)	5,194,852	130,106,814	1.42%
Wellington Management	446,552,059	4.89%	(328,040)	8,996,076	437,884,023	4.78%
INTECH	526,690,804	5.77%	(484,371)	10,051,136	517,124,040	5.65%
LSV Asset Management	248,307,852	2.72%	(362,651)	(2,823,943)	251,494,446	2.75%
Stephens Investment Mgmt.	348,277,615	3.81%	(600,716)	(19,555,056)	368,433,388	4.03%
SSI Investment Mgmt.	304,997,925	3.34%	(305,324)	(1,111,761)	306,415,010	3.35%
<b>International Equity</b>	<b>\$2,172,393,088</b>	<b>23.79%</b>	<b>\$(1,783,775)</b>	<b>\$(30,539,898)</b>	<b>\$2,204,716,761</b>	<b>24.09%</b>
Artisan Partners	457,509,568	5.01%	(624,118)	(1,160,711)	459,294,397	5.02%
Mellon ACWI ex US Fund	780,285,916	8.55%	(110,397)	(14,077,010)	794,473,323	8.68%
Baillie Gifford Overseas	459,207,701	5.03%	(468,252)	(6,214,108)	465,890,062	5.09%
Lazard Asset Mgmt.	474,543,411	5.20%	(381,276)	(9,061,498)	483,986,185	5.29%
Manning & Napier Advisors	846,491	0.01%	(199,732)	(26,570)	1,072,794	0.01%
<b>Diversified Strategies</b>	<b>\$457,127,178</b>	<b>5.01%</b>	<b>\$(658,925)</b>	<b>\$4,633,118</b>	<b>\$453,152,984</b>	<b>4.95%</b>
AQR Capital	145,672,174	1.60%	0	1,565,535	144,106,639	1.57%
Blackstone Alt. Asset Mgmt	187,893,642	2.06%	(470,797)	1,592,686	186,771,753	2.04%
Newton Capital	123,561,362	1.35%	(188,128)	1,474,897	122,274,593	1.34%
<b>Domestic Fixed Income</b>	<b>\$1,487,887,658</b>	<b>16.29%</b>	<b>\$(691,632)</b>	<b>\$33,581,355</b>	<b>\$1,454,997,935</b>	<b>15.90%</b>
DoubleLine Capital	468,399,518	5.13%	(203,345)	6,666,623	461,936,239	5.05%
MacKay Shields	499,747,166	5.47%	(242,185)	12,863,168	487,126,183	5.32%
PGIM	519,740,974	5.69%	(246,102)	14,051,564	505,935,513	5.53%
<b>Real Assets</b>	<b>\$1,332,646,991</b>	<b>14.59%</b>	<b>\$(21,571,437)</b>	<b>\$18,560,394</b>	<b>\$1,335,658,034</b>	<b>14.59%</b>
CastleArk Glob Energy Fd	41,842,072	0.46%	(112,190)	(2,985,473)	44,939,735	0.49%
CastleArk Glob Energy Fd LP	118,626,356	1.30%	(335,554)	(9,993,509)	128,955,419	1.41%
INVESCO Real Estate	477,144,665	5.23%	(400,617)	9,353,215	468,192,067	5.12%
Heitman Real Estate Trust LP	323,375,159	3.54%	(3,466,495)	5,856,572	320,985,082	3.51%
Heitman Value Partners IV	21,684,937	0.24%	6,471,177	684,338	14,529,422	0.16%
LaSalle Inc & Growth VI LP	11,350,338	0.12%	(24,341)	(55,275)	11,429,954	0.12%
LaSalle Inc & Growth VII LP	33,811,195	0.37%	(191,702)	1,083,083	32,919,815	0.36%
MCM EB DV Non-SL REIT Fd	159,807,885	1.75%	(7,546,293)	10,571,906	156,782,271	1.71%
Pinnacle	89,076,043	0.98%	(1,454,381)	(305,767)	90,836,191	0.99%
TA Realty X	5,348,262	0.06%	(10,585,988)	1,904,312	14,029,938	0.15%
TA Realty XI	50,580,079	0.55%	(3,925,052)	2,446,991	52,058,140	0.57%
<b>In-House</b>	<b>\$56,712,817</b>	<b>0.62%</b>	<b>\$(30,559,873)</b>	<b>\$169,549</b>	<b>\$87,103,142</b>	<b>0.95%</b>
<b>Composite Fund</b>	<b>\$9,131,157,488</b>	<b>100.0%</b>	<b>\$(62,773,738)</b>	<b>\$40,809,443</b>	<b>\$9,153,121,783</b>	<b>100.0%</b>



# Total Fund Performance

## Callan Public Fund Sponsor Database



# Investment Manager Returns and Peer Group Rankings

	Last Quarter		Last Year		Last 3 Years		Last 5 Years	
<b>Total Domestic Equity</b>	<b>0.40%</b>	<b>77</b>	<b>1.51%</b>	<b>59</b>	<b>12.26%</b>	<b>57</b>	<b>9.85%</b>	<b>67</b>
Russell 3000 Index	1.16%	14	2.92%	30	12.83%	32	10.44%	30
Pub Pln- Dom Equity	0.77%		1.94%		12.41%		10.14%	
Lazard Asset Mgmt.	3.58%	5	10.97%	2	14.71%	31	10.76%	35
Russell 3000 Index	1.16%	29	2.92%	43	12.83%	41	10.44%	36
Callan All Cap Broad	0.61%		2.22%		11.58%		9.36%	
CastleArk	(1.98%)	88	(4.84%)	87	13.75%	35	11.73%	26
Russell 3000 Growth Index	1.10%	30	2.70%	44	16.36%	21	13.07%	15
Callan All Cap Broad	0.61%		2.22%		11.58%		9.36%	
Mellon S&P 500 Index Fd	1.70%	28	4.28%	28	13.41%	30	10.85%	27
S&P 500 Index	1.70%	28	4.25%	28	13.39%	31	10.84%	27
Callan Large Cap Core	1.21%		2.34%		12.80%		10.28%	
Golden Capital Management	1.72%	28	2.09%	59	11.80%	77	10.21%	53
S&P 500 Index	1.70%	28	4.25%	28	13.39%	31	10.84%	27
Callan Large Cap Core	1.21%		2.34%		12.80%		10.28%	
Horrell Capital - Passive	3.99%	4	4.49%	26	11.58%	50	9.22%	51
Bloomberg Arkansas Index	4.84%	2	(4.88%)	87	8.59%	83	4.83%	95
S&P 500 Index	1.70%	24	4.25%	28	13.39%	36	10.84%	34
Callan All Cap Broad	0.61%		2.22%		11.58%		9.36%	
Wellington Management	2.06%	33	4.27%	26	9.05%	80	7.96%	48
Russell 1000 Value Index	1.36%	55	4.00%	28	9.43%	71	7.79%	55
Callan Large Cap Value	1.49%		1.02%		10.02%		7.93%	
INTECH	1.94%	16	7.71%	24	16.96%	46	12.70%	61
Russell 1000 Growth Index	1.49%	25	3.71%	58	16.89%	47	13.39%	43
Callan Large Cap Growth	0.30%		4.09%		16.59%		13.05%	
LSV Asset Management	(1.12%)	69	(10.04%)	74	-	-	-	-
Russell 2000 Value Index	(0.57%)	55	(8.24%)	56	6.54%	58	7.17%	60
Callan Small Cap Value	(0.29%)		(7.79%)		6.70%		7.68%	
Stephens Investment Mgmt.	(5.32%)	63	(6.94%)	54	13.82%	45	10.60%	64
Russell 2000 Growth Index	(4.17%)	42	(9.63%)	76	9.79%	84	9.08%	81
Callan Small Cap Growth	(4.51%)		(6.39%)		13.42%		11.33%	
SSI Investment Mgmt	(0.36%)	72	3.35%	61	9.18%	29	7.17%	24
ML All Conv	0.15%	46	4.01%	44	10.11%	19	7.30%	23
Callan Convert Bonds DB	0.12%		3.82%		7.22%		5.90%	
<b>International Equity</b>	<b>(1.39%)</b>	<b>15</b>	<b>(0.30%)</b>	<b>22</b>	<b>6.34%</b>	<b>65</b>	<b>4.41%</b>	<b>28</b>
MSCI EAFE	(1.07%)	5	(1.34%)	52	6.48%	59	3.27%	72
Pub Pln- Intl Equity	(1.74%)		(1.27%)		6.65%		3.71%	
Artisan Partners	(0.25%)	16	1.58%	20	7.26%	37	5.66%	19
MSCI EAFE	(1.07%)	35	(1.34%)	43	6.48%	52	3.27%	68
Callan NonUS Eq	(1.44%)		(2.10%)		6.59%		4.15%	
Mellon ACWI ex US Fund	(1.77%)	63	(0.93%)	39	-	-	-	-
MSCI ACWI ex US	(1.80%)	65	(1.23%)	42	6.33%	54	2.90%	75
Callan NonUS Eq	(1.44%)		(2.10%)		6.59%		4.15%	
Baillie Gifford Overseas	(1.34%)	45	0.37%	27	6.86%	42	6.08%	15
MSCI ACWIxUS Gross	(1.70%)	62	(0.72%)	37	6.85%	43	3.39%	65
Callan NonUS Eq	(1.44%)		(2.10%)		6.59%		4.15%	
Lazard Asset Mgmt.	(1.87%)	67	0.74%	25	7.31%	36	4.93%	33
MSCI ACWIxUS Gross	(1.70%)	62	(0.72%)	37	6.85%	43	3.39%	65
Callan NonUS Eq	(1.44%)		(2.10%)		6.59%		4.15%	

- Total Domestic Equity underperformed the Russell 3000 Index for the third quarter and has trailed its benchmark and peer median over longer periods.
- Small cap managers, LSV and Stephens, struggled in the third quarter, and CastleArk's overweight to Energy was a detractor over the quarter and the last year.
- Lazard, INTECH, Wellington and Golden all outperformed their benchmarks and peers, as did the Horrell Capital mandate which is passively managed.
- International Equity underperformed the MSCI EAFE Index in the third quarter due to its allocation to Emerging Markets, but finished at the 15<sup>th</sup> percentile of its peers.
- Performance in the third quarter was driven by Artisan Partners, while Baillie Gifford also outperformed peers and its index.
- Over the trailing five years, the International Equity composite leads its benchmark by 114 basis points, with Artisan, Baillie Gifford, and Lazard all leading their respective benchmarks and peer medians.

# Investment Manager Returns and Peer Group Rankings

	Last Quarter		Last Year		Last 3 Years		Last 5 Years	
<b>Diversified Strategies</b>	<b>1.02%</b>		<b>9.50%</b>		<b>7.19%</b>		<b>5.70%</b>	
Diversified Strategy Trgt (1)	1.23%		5.57%		7.43%		5.81%	
AQR Capital	1.09%	38	13.42%	7	9.15%	12	6.06%	26
Diversified Strategy Trgt (1)	1.23%	35	5.57%	34	7.43%	30	5.81%	29
Intl/Global Balanced DB	0.85%		3.69%		6.02%		4.93%	
Blackstone Alt. Asset Mgmt.	0.85%	50	6.44%	28	7.58%	22	6.13%	26
T-Bills + 4%	1.53%	23	6.39%	29	5.54%	58	4.98%	50
Intl/Global Balanced DB	0.85%		3.69%		6.02%		4.93%	
Newton Capital	1.21%	36	9.82%	12	4.51%	75	4.65%	55
LIBOR + 4%	1.51%	24	6.42%	28	5.71%	55	5.14%	45
Intl/Global Balanced DB	0.85%		3.69%		6.02%		4.93%	
<b>Domestic Fixed Income</b>	<b>2.31%</b>	<b>21</b>	<b>10.63%</b>	<b>16</b>	<b>4.25%</b>	<b>16</b>	<b>4.21%</b>	<b>20</b>
Blmbg Aggregate Index	2.27%	22	10.30%	20	2.92%	72	3.38%	69
Pub Pln- Dom Fixed	2.00%		9.27%		3.38%		3.68%	
DoubleLine Capital	1.44%	96	8.84%	92	-	-	-	-
MacKay Shields	2.64%	8	10.53%	39	4.42%	9	4.04%	40
PGIM	2.78%	2	12.38%	3	4.87%	1	5.12%	4
Blmbg Aggregate Index	2.27%	58	10.30%	58	2.92%	96	3.38%	97
Callan Core Plus FI	2.34%		10.41%		3.82%		3.95%	
<b>Real Assets</b>	<b>1.41%</b>		<b>1.07%</b>		<b>5.29%</b>		<b>5.38%</b>	
CPIU + 4%	1.22%		5.71%		6.07%		5.53%	
CastleArk Glob Energy Fd	(6.65%)	61	(24.45%)	84	(4.12%)	67	(5.16%)	52
CastleArk Glob Energy Fd LP	(7.75%)	76	(30.94%)	90	-	-	-	-
AC World Energy Idx	(5.49%)	47	(14.85%)	48	2.00%	40	(3.68%)	49
Callan Gbl Nat Res MF	(6.02%)		(15.10%)		1.17%		(4.30%)	
INVESCO Real Estate	2.00%	23	6.45%	48	8.05%	17	9.87%	17
Heitman Real Estate Trust LP	1.84%	32	4.03%	90	6.78%	57	8.88%	50
NFI-ODCE Equal Weight Net	1.18%	91	5.26%	82	6.69%	58	8.68%	55
Callan OE Core Cmngld RE	1.61%		6.13%		7.03%		8.88%	
MCM EB DV Non-SL REIT Fd	6.82%	75	16.39%	82	-	-	-	-
S&P DJ US Select REIT	6.83%	74	16.41%	81	6.48%	88	9.70%	74
Callan Real Estate REIT	7.73%		19.23%		8.39%		10.72%	
Heitman Value Partners IV	3.95%		23.86%		-		-	
LaSalle Inc & Growth VI LP	(0.48%)		(0.19%)		7.93%		12.10%	
LaSalle Inc & Growth VII LP	3.31%		11.69%		13.39%		-	
TA Realty X	18.19%		40.46%		20.95%		17.53%	
TA Realty XI	4.78%		16.74%		10.77%		-	
NCREIF Total Index	1.41%		6.24%		6.76%		8.57%	
Pinnacle	(0.34%)		(4.37%)		(1.90%)		(0.76%)	
NCREIF Timberland Index	0.18%		2.10%		3.12%		4.36%	
<b>Total Fund</b>	<b>0.45%</b>	<b>80</b>	<b>2.71%</b>	<b>83</b>	<b>8.17%</b>	<b>38</b>	<b>6.75%</b>	<b>35</b>
Benchmark*	0.84%	42	4.14%	51	8.32%	33	6.57%	42
Callan Public Fund Spr DB	0.75%		4.17%		7.80%		6.39%	

- The Diversified Strategies composite trailed its benchmark in the third quarter, but still has outperformed over the trailing year. Over the trailing year, AQR and Newton both outperformed their respective benchmarks significantly.
- Domestic Fixed Income modestly outperformed the Bloomberg Aggregate for the third quarter and finished in the top quartile of peers. The Fixed Income composite has also led its benchmark and finished in the top quartile of peers for the trailing one-, three- and five-year periods.
- The Real Assets composite led its real return benchmark during the third quarter. Performance in the third quarter was led by Real Estate, most notably REITs. Energy exposure was the primary detractor for the quarter.
- The Total Fund underperformed its benchmark in the third quarter. Over longer periods, the Fund leads its benchmark and peer median for the trailing three- and five-year periods.

- \*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

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## Investment Manager Organizational Developments

**Golden Capital** – Wells Fargo Asset Management subsidiary, Golden Capital Equity announced that Greg Golden, will step away from his role as senior PM beginning October 21, 2019 for medical reasons. Golden will stay on as an advisor until March 31, 2020. Additionally, PM Jeff Moser had decided to retire prior to Golden’s announcement and will relinquish PM responsibilities on April 30, 2020 but will stay on as an advisor until June 30, 2020. Golden and Moser founded Golden Capital Management together in 1999 and represent two out of three founding principals on the team. The third founding partner, Jon Cangalosi, will take over leadership of the group along with Peter Weidner who recently served as the head of factor solutions for the WFAM Multi-Asset Solutions team..

**AQR** - AQR announced that Jacques Friedman (Co-Head of Global Stock Selection), Marco Hanig (Co-Head of Advisor Solutions Group), and Brian Hurst (PM on Risk Parity and Managed Futures) are departing the firm effective the end of 2019. Friedman retiring and his succession plan was well telegraphed with the promotion of Andrea Frazzini. AQR's systematic approach and team-based process mitigates the impact of individual departures.

**Baillie Gifford** announced that Richard Sneller, Head of Emerging Markets, will be retiring in April 2020. He will be replaced by Will Sutcliffe who has worked closely with Richard on the Emerging Markets team for 18 years.

**Mackay Shields** announced that Dan Roberts, Head of Global Fixed Income, will be retiring from Mackay Shields at the end of the year while transitioning to a Senior Advisor role through 2020. Roberts has had considerable influence over the strategy and is responsible for the top-down, economic views. More recently he has groomed other senior personnel to increase their responsibilities and their ownership of the process and investment decisions. Mackay made an effort to elevate senior personnel to its Investment Policy Committee with recent hires of Steve Cianci and Neil Moriarty, from Aberdeen, and Steve Friedman from the New York Federal Reserve. The senior investment professionals on the global fixed income team will handle the investment function as a cohesive unit; no individual will be named Head of Global Fixed Income as Roberts was.

- In his advisory role, Roberts intends to remain active and involved. He will remain on the Investment Policy Committee (non-voting capacity) and continue to work closely with Friedman, who will eventually chair the committee, through 2020. Roberts will also be heavily involved in firm strategy meetings and key client relationships.

# Total Fund Relative Attribution

## Relative Attribution Effects for Quarter ended September 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%	0.40%	1.16%	(0.31%)	0.01%	(0.30%)		
Domestic Fixed Income	16%	18%	2.31%	2.27%	0.01%	(0.03%)	(0.02%)		
International Equity	24%	24%	(1.39%)	(1.07%)	(0.08%)	(0.01%)	(0.08%)		
Diversified Strategies	5%	5%	1.02%	1.23%	(0.01%)	0.00%	(0.01%)		
Real Assets	15%	16%	1.41%	1.22%	0.03%	(0.01%)	0.02%		
<b>Total</b>			<b>0.45%</b>	<b>0.84%</b>	<b>+</b>	<b>(0.36%)</b>	<b>+</b>	<b>(0.03%)</b>	<b>(0.39%)</b>

- Underperformance was driven by active management in Domestic and International Equity. Real Assets was the only asset class to add value due to positive active management decisions in real estate.

## 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%	1.51%	2.92%	(0.55%)	(0.17%)	(0.73%)		
Domestic Fixed Income	16%	18%	10.63%	10.30%	0.04%	(0.30%)	(0.26%)		
International Equity	24%	24%	(0.30%)	(1.34%)	0.26%	(0.02%)	0.24%		
Diversified Strategies	5%	5%	9.50%	5.57%	0.18%	(0.00%)	0.18%		
Real Assets	15%	16%	1.07%	5.71%	(0.76%)	(0.08%)	(0.85%)		
<b>Total</b>			<b>2.71%</b>	<b>4.14%</b>	<b>+</b>	<b>(0.84%)</b>	<b>+</b>	<b>(0.59%)</b>	<b>(1.42%)</b>

- Over the last year, International Equity and Diversified Strategies added 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%	9.85%	10.44%	(0.22%)	0.06%	(0.16%)		
Domestic Fixed Income	16%	18%	4.21%	3.38%	0.13%	0.01%	0.14%		
International Equity	24%	24%	4.41%	3.27%	0.29%	(0.05%)	0.24%		
Diversified Strategies	5%	5%	5.70%	5.81%	(0.00%)	0.00%	(0.00%)		
Real Assets	15%	16%	5.38%	5.53%	(0.02%)	(0.03%)	(0.04%)		
<b>Total</b>			<b>6.75%</b>	<b>6.57%</b>	<b>+</b>	<b>0.18%</b>	<b>+</b>	<b>(0.01%)</b>	<b>0.18%</b>

- Over the last five years, Fixed Income and International Equity outperformed their target benchmarks. At Total Fund level, active management was the primary driver of the Fund's success, while asset allocation decisions modestly detracted.

*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

# Historical Market Values of the Total Fund

As of September 30, 2019

Quarter Ending	Market Value
09/30/2019	\$9,074,444,671
06/30/2019	\$9,066,018,608
03/31/2019	\$8,852,246,828
12/31/2018	\$8,125,742,177
09/30/2018	\$9,101,766,264
06/30/2018	\$8,875,244,686
03/31/2018	\$8,766,679,679
12/31/2017	\$8,823,062,519
09/30/2017	\$8,520,205,622
06/30/2017	\$8,266,360,686
03/31/2017	\$8,060,126,748
12/31/2016	\$7,771,838,639

