

1ST QUARTER • 2019

ENDOWMENTS QUARTERLY

A LOOK AT ASSET ALLOCATION AND TOTAL RETURNS
FOR US ENDOWMENTS AND FOUNDATIONS

The Cambridge Associates US endowment and foundation universe includes colleges and universities, cultural and environmental institutions, healthcare institutions, independent schools, and other endowed nonprofit institutions, as well as foundations. This report provides asset allocation and return analyses for 376 US endowments and foundations that participated in our quarterly survey. The average market value of participating long-term investment portfolios was \$1.4 billion. The median value was \$307.4 million.

EXAMINING RETURNS

The mean return of the US endowment and foundation universe was 2.5% for the trailing one-year period ended March 31, 2019, with returns ranging from 6.3% at the 5th percentile to -0.2% at the 95th percentile.¹ Per the Consumer Price Index, the rate of inflation was 1.9% for the trailing one-year period. After adjusting nominal returns to reflect inflation, the average real return for US endowments and foundations falls to 0.7%.

RISK-ADJUSTED PERFORMANCE. Risk-adjusted performance is important to evaluate, as it measures the total return relative to the total amount of risk taken by the portfolio. The most common approach to measuring risk-adjusted performance is by the Sharpe ratio, which shows how much return above the risk-free rate (T-bills) the investor has earned per unit of risk (defined as the standard deviation of returns). The higher the Sharpe ratio, the more the investor has been compensated for each unit of risk taken.

Risk-adjusted performance comparisons can be complicated when portfolios have significant allocations to private investments. The frequency and timing of private investment valuations can artificially dampen the standard deviation of returns for these assets. Thus, a portfolio with high allocations to private investments can yield a lower volatility statistic that does not fully represent to the amount of risk it has actually taken. For this reason, we have split institutions out into subcategories in Figure 13 based on their allocations to private investments.

¹ Returns are reported net of external manager fees for 374 of 376 institutions in this universe. Past Cambridge Associates surveys have shown that approximately 15% of institutions also deduct investment oversight costs in the net of fee calculation.

Institutions that had an allocation of more than 15% to private investments over the last five years reported an average Sharpe ratio of 0.93, significantly higher than that of the other subgroups with smaller private allocations. While the magnitude of the differences in average Sharpe ratios is partly a function of this group's higher average five-year return, it is also attributable to its lower average standard deviation.

TRAILING ONE-YEAR RESULTS

Asset allocation is a key contributor to the total return that a portfolio earns. Figure 7 explores this relationship and illustrates how general asset allocation structures vary across the four performance quartiles of the overall participant group. In this figure, each institution's asset allocation was averaged across the beginning and ending points for the trailing one-year period. The four quartiles in the heat map table represent the average of the institutions within each quartile.

The index returns in the top half of Figure 7 provide context on the capital market environment for the trailing one-year period. Private investment indexes are pooled horizon internal rates of return (IRRs) net of fees, expenses, and carried interest, and public indexes are time-weighted returns. Included alongside the private benchmark IRRs are public market returns on a modified public market equivalent basis (mPME). The CA mPME replicates private investment performance under public market conditions and allows for an appropriate comparison of private and public market returns.² The mPME analysis evaluates what return would have been earned had the dollars invested in private investments been invested in the public market index instead.

Private investment index data are not currently available for the quarter ended March 31, 2019. Therefore, the period evaluated for the private investment and mPME indexes is for the trailing nine months ended December 31, 2018. Each of the private investment indexes shown in Figure 7 outperformed their public equivalent benchmarks for this nine-month period, with all except real estate outperforming by substantial margins.

Time-weighted returns for the public indexes are evaluated for the full trailing one-year period. While global equities rebounded strongly in first quarter 2019, the aforementioned private investment and mPME indexes do not capture that first quarter activity. Hence, there is a stark difference in the public equity index returns between the two charts.

There is typically a relationship between the market backdrop and the disparity in asset allocations between top and bottom performers. Given the magnitude of outperformance of private equity and venture capital (PE/VC) versus public equities, it is not surprising that the largest divergence in asset allocations occurred in PE/VC. The top quartile of performers had an average allocation of 16.2% to PE/VC, approximately 12 percentage points (ppts) higher than the average allocation of the bottom quartile of performers.

² Under the CA mPME methodology, the public index's shares are purchased and sold according to the private fund cash flow schedule, with distributions calculated in the same proportion as the private fund, and mPME net asset value is a function of mPME cash flows and public index returns.

ONE-YEAR ATTRIBUTION. Although asset allocation is a key driver of absolute performance, it does not fully explain the variation of returns that are reported across different institutions. The execution or implementation of an asset allocation strategy also contributes to the total returns that portfolios earn. We do not have the level of detailed data that is necessary to perform a precise attribution analysis, but our data does allow us to conduct an estimated analysis that can help illuminate the main drivers of performance for the trailing one-year period.

Figure 8 illustrates the results of an estimated attribution analysis based on the one-year return and beginning year asset allocation of 370 endowments and foundations that provided sufficient data. The portion of the mean participant return that can be attributed to asset allocation is calculated using a blend of representative asset class benchmarks weighted according to each institution's asset allocation. The return from other factors is calculated by subtracting the mean asset allocation return from the mean participant return. This "other" portion of returns is principally driven by implementation or execution decisions, which can include active management and manager selection.³ The attribution analysis estimates the average portfolio generated an asset allocation return of 2.7% for the trailing one-year period and an implementation return of -0.2%. This analysis concludes that the average portfolio lost value as a result of implementation decisions over this one-year period.

The table on the bottom part of Figure 8 shows each asset class' contribution to the overall mean asset allocation return. Each category's contribution is a function of its benchmark return, as well as the participant group's average allocation to the category. US equities, which returned 8.8% for the trailing one-year period and had the highest average allocation among the detailed asset classes, had the greatest impact of all the asset class return contributors. In contrast, index returns for global ex US developed equities and emerging markets equities were among the lowest of the asset class benchmarks and had the largest negative contribution to the mean asset allocation return.

Figure 8 also provides a breakdown of the attribution data into the four performance quartiles of the overall group, which highlights the different experiences among institutions. The top performance quartile had the highest mean asset allocation return (3.9%), while the bottom performance quartile had the lowest (1.9%). The model estimates that there was an even wider gap between the top and bottom performance quartiles when it came to the performance impact of implementation decisions. On average, the top quartile of performers added 130 basis points (bps) in performance through implementation decisions, while the bottom quartile lost 150 bps.

³ This model assumes that flows to and from investment managers take place on the last day of the fiscal year. In addition, the analysis uses a standard set of asset class benchmarks that may be more or less representative of the asset allocation policy across different institutions. Therefore, the portion of returns from other factors may also include some residual/unattributable asset allocation effects.

A NOTE ON PERFORMANCE REPORTING METHODOLOGIES. The methodology by which private investment returns are reported can have an impact on peer performance statistics, particularly for trailing one-year periods and shorter. Most participants with private investment allocations in this study reported their trailing one-year private investment returns on a partial basis. Under this method, only three quarters of private returns are incorporated for the trailing one-year period. As March 31 valuations become available, first quarter 2019 returns will be restated to reflect actual private performance. The lagged basis was the next most frequently used methodology for institutions with private investment allocations. For these investors, the trailing one-year return included four quarters of private investment performance (January 1, 2018, to December 31, 2018).

The key difference between these two methodologies is the extra quarter of private investment performance that is incorporated into the lagged basis methodology. For the trailing one-year return, that extra quarter was first quarter 2018, a quarter in which all of the major private indexes posted positive returns. A portfolio using the lagged methodology would report a higher trailing one-year return relative to that calculated using the partial methodology. The impact of using the lagged basis methodology relative to the partial basis methodology will be greater for portfolios with larger allocations to private investments. Of institutions that use the lagged methodology, 85% (58 of 68) reported a trailing one-year return more than the median, and 68% (46 of 68) were in the top performance quartile.

CAMBRIDGE ASSOCIATES PRIVATE INVESTMENT INDEX RETURNS

	One Quarter End-to-End Pooled Return (%)				
	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
US Private Equity	2.8	5.4	3.8	-1.7	NA
Global ex US Private Equity	1.9	2.4	1.9	-1.1	NA
US Venture Capital	3.9	6.1	5.3	1.7	NA
Global ex US Venture Capital	7.8	8.1	3.8	-0.7	NA
Real Estate	2.8	1.2	1.4	1.1	NA
Natural Resources	0.8	3.7	2.1	-6.7	NA

Lagged Basis
 Partial Basis

Source: Cambridge Associates LLC.
Note: NA indicates data were not available.

**PRIVATE INVESTMENT REPORTING METHODOLOGIES
BY TRAILING 1-YR PERFORMANCE QUARTILE**

	Reporting Methodology (<i>n</i>)			
	Lagged	Partial	Current/ Other	PI < 1%
Top Quartile	46	38	10	0
2nd Quartile	12	66	8	8
3rd Quartile	7	63	3	21
Bottom Quartile	3	65	0	26

Source: Endowment and foundation data as reported to Cambridge Associates LLC.
Note: *n* denotes the number of institutions.

TRAILING TEN-YEAR RESULTS

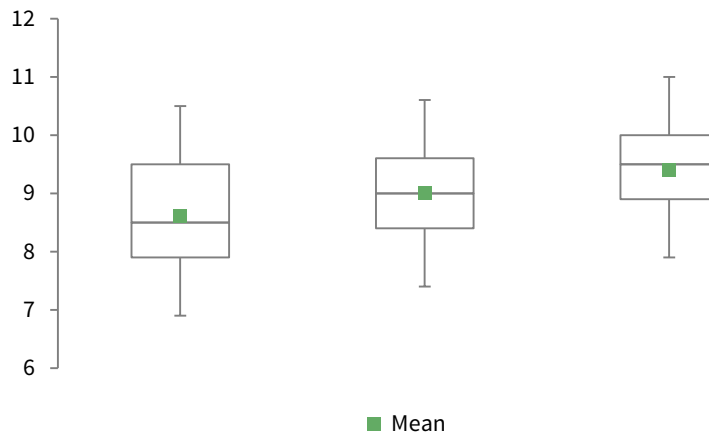
As noted earlier, asset allocation can be a factor in the variation in returns reported across the participant group. To investigate the impact of asset allocation policies on long-term investment performance, Figure 9 breaks the participant group down into four quartiles based on the trailing ten-year investment return. Each institution’s asset allocation was averaged across the 11 March 31 periods that fell from 2009 to 2019. The four quartiles in the heat map table represent the average of the institutions within each quartile.

The beginning of this ten-year period was March 31, 2009, just weeks after the US stock market bottom of the global financial crisis. The indexes for US equity, non-venture private equity, and venture capital have been among the best-performing asset class benchmarks for this past decade. The top quartile of performers over this period reported the highest average allocation to US equity (23.0%) and PE/VC (11.2%). The dispersion in private investment allocations among the four performance quartiles is consistent with the analyses we have conducted for prior trailing ten-year periods. Institutions that place significant emphasis on peer performance statistics should note the distinction in average asset allocation policies between top and bottom performers, particularly among private investments.

The figure below organizes participants into three subgroups based on each institution’s trailing ten-year average allocation to private investments. The median ten-year return for portfolios with an allocation of more than 15% to private investments was 9.5%, approximately 100 bps higher than the median return reported by portfolios with little to no private investment allocation. The distribution of returns for the three subgroups shows a wide range of results, a disclaimer that portfolios with high allocations to private investments can underperform the overall peer group, while those with low private investment allocations can outperform. However, these ten-year analyses show that allocations to private investments generally are a key factor in a portfolio’s relative performance within the overall participant group over the long term. Institutions that benchmark peer performance should consider the subgroup median that aligns with their own private investment allocation as an alternative or complement to the peer medians they already use.

RANGE OF 10-YR RETURNS BY PRIVATE INVESTMENT ALLOCATION

As of March 31, 2019 • Percent (%)



	Private Investment Allocation		
	Less than 5%	5% - 15%	More than 15%
5th Percentile	10.3	10.3	10.8
25th Percentile	9.5	9.6	10.0
Median	8.5	9.0	9.5
75th Percentile	7.9	8.4	8.9
95th Percentile	7.0	7.6	8.1
Mean	8.6	9.0	9.4
<i>n</i>	57	84	95

Source: Endowment and foundation data as reported to Cambridge Associates LLC.

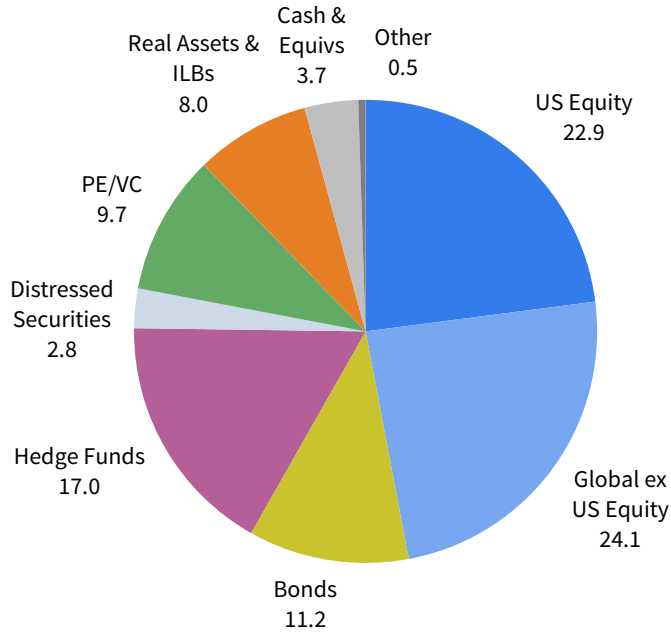
Notes: Each institution's private investment allocation represents the mean for the 11 March 31 periods from 2009 to 2019. Returns are annualized.

TEN-YEAR ATTRIBUTION. The attribution model also points to an outperforming asset allocation structure for the top performance quartile over the last decade. Figure 10 shows that the top performance quartile had a mean asset class return of 9.4% for the trailing ten-year period, approximately 1.7 ppts higher than the bottom performance quartile. The top performance quartile also added another 0.9% on average through implementation decisions, while the bottom performance quartile added just 0.1% on average. ■

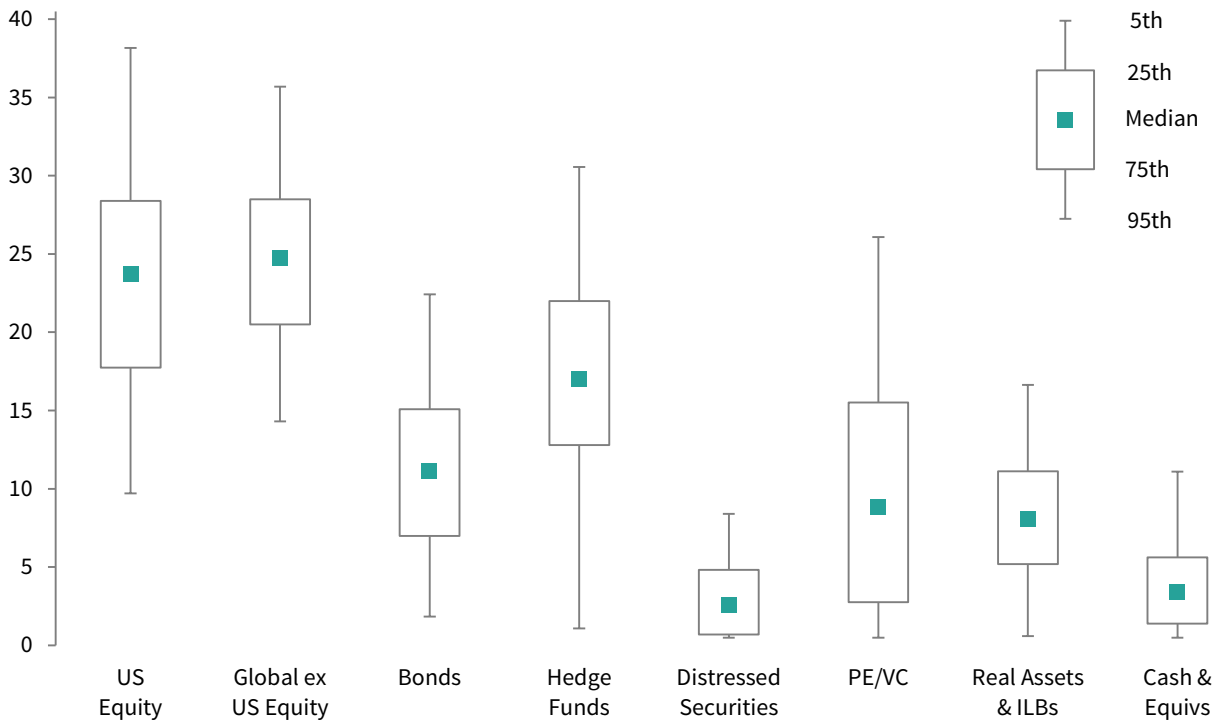
FIGURE 1 ASSET ALLOCATION SNAPSHOT: US ENDOWMENTS AND FOUNDATIONS

As of March 31, 2019 • Percent (%)

Mean Asset Allocation



Distribution by Asset Class: Asset Allocation



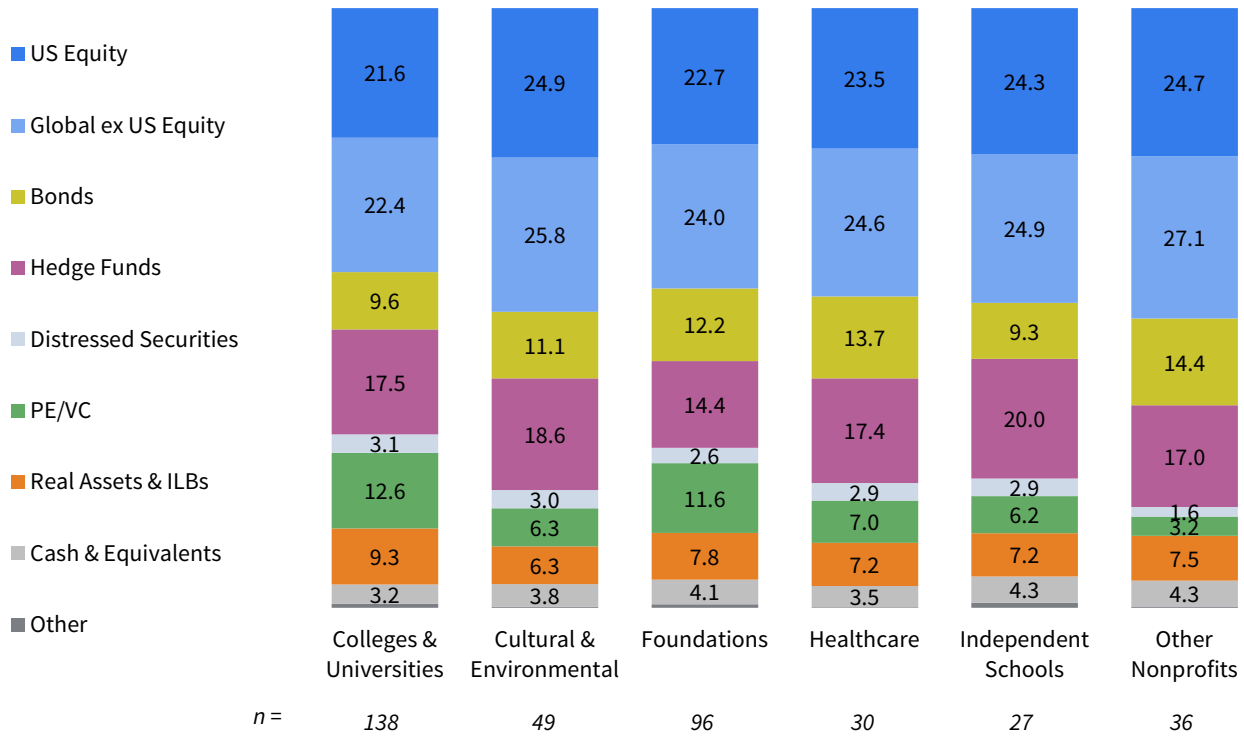
Source: Endowment and foundation data as reported to Cambridge Associates LLC.

Note: Analysis includes data for 376 institutions.

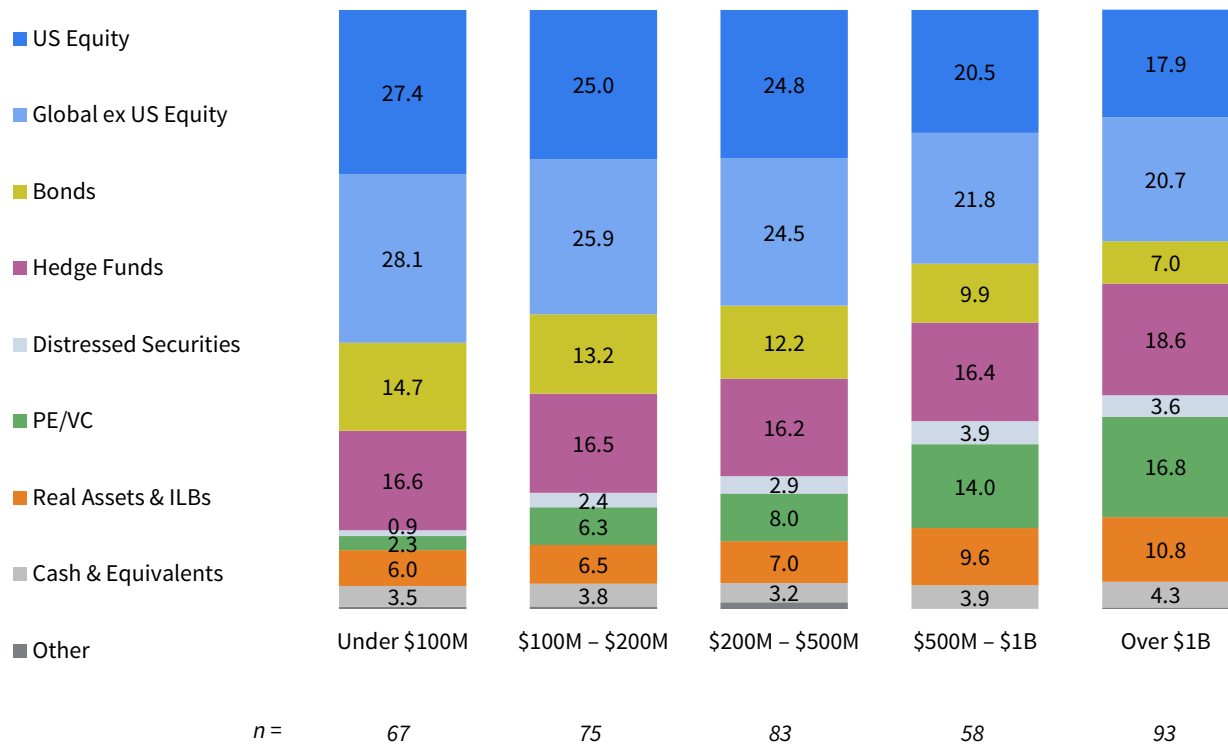
FIGURE 2 SUMMARY ASSET ALLOCATION: US ENDOWMENTS AND FOUNDATIONS

As of March 31, 2019 • Percent (%)

By Peer Group



By Asset Size



Source: Endowment and foundation data as reported to Cambridge Associates LLC.

FIGURE 3 DETAILED ASSET ALLOCATION BY PEER GROUP: US ENDOWMENTS AND FOUNDATIONS

As of March 31, 2019 • Percent (%)

	Colleges & Universities <i>n = 138</i>		Cultural & Environmental <i>49</i>		Foundations <i>96</i>		Healthcare <i>30</i>		Independent Schools <i>27</i>		Other Nonprofits <i>36</i>	
	Mean	Med	Mean	Med	Mean	Med	Mean	Med	Mean	Med	Mean	Med
US Equity	21.6	21.7	24.9	25.7	22.7	22.3	23.5	24.4	24.3	24.1	24.7	26.6
Global ex US Equity	22.4	22.4	25.8	26.0	24.0	24.4	24.6	23.7	24.9	24.1	27.1	26.7
Developed Markets	14.9	13.9	17.0	17.3	16.0	16.7	17.1	16.4	16.8	16.8	18.4	17.7
Emerging Markets	7.5	7.5	8.7	8.9	8.1	7.6	7.5	6.6	8.0	7.2	8.7	8.4
Bonds	9.6	9.3	11.1	10.6	12.2	11.1	13.7	13.0	9.3	9.6	14.4	13.8
US Bonds	8.6	8.4	10.2	10.0	10.9	10.4	12.6	11.9	8.8	9.2	12.9	11.9
Global ex US Bonds (DM)	0.4	0.0	0.1	0.0	0.4	0.0	0.5	0.0	0.1	0.0	0.5	0.0
Global ex US Bonds (EM)	0.2	0.0	0.4	0.0	0.3	0.0	0.5	0.0	0.3	0.0	0.8	0.0
High-Yield Bonds	0.4	0.0	0.3	0.0	0.5	0.0	0.2	0.0	0.1	0.0	0.2	0.0
Hedge Funds	17.5	16.5	18.6	16.8	14.4	15.1	17.4	17.2	20.0	18.2	17.0	18.3
Long/Short Hedge Funds	7.2	6.0	6.8	4.8	5.1	4.5	6.7	5.8	8.9	7.3	5.7	5.3
Absolute Return (ex Distressed)	10.3	10.2	11.9	10.7	9.4	9.6	10.8	10.4	11.1	10.0	11.3	11.7
Distressed Securities	3.1	2.6	3.0	2.0	2.6	2.1	2.9	1.9	2.9	1.9	1.6	0.4
Hedge Fund Structure	1.5	1.1	2.0	0.1	1.3	0.0	2.2	1.4	1.2	0.0	0.9	0.0
Private Equity Structure	1.5	1.1	1.0	0.6	1.3	0.8	0.8	0.3	1.7	0.8	0.7	0.0
PE/VC	12.6	11.5	6.3	3.9	11.6	10.4	7.0	5.2	6.2	5.2	3.2	1.9
Non-Venture Private Equity	6.1	5.6	2.7	2.0	4.2	3.8	3.2	0.8	3.2	1.9	1.2	0.9
Venture Capital	5.4	4.2	2.9	0.9	6.2	3.7	2.9	0.3	2.1	1.1	1.5	0.1
Other Private Investments	1.1	0.4	0.8	0.3	1.3	0.4	0.9	0.1	0.9	0.2	0.6	0.2
Real Assets & ILBs	9.3	9.0	6.3	5.9	7.8	7.5	7.2	6.6	7.2	5.7	7.5	6.3
Private Real Estate	2.3	1.6	1.2	0.2	1.7	1.1	1.8	0.2	1.7	0.0	0.7	0.0
Public Real Estate	0.6	0.0	0.3	0.0	0.4	0.0	0.5	0.0	0.1	0.0	0.8	0.0
Commodities	0.4	0.0	0.4	0.0	0.7	0.0	0.3	0.0	0.5	0.0	0.4	0.0
ILBs	0.4	0.0	0.5	0.0	0.5	0.0	0.5	0.0	0.3	0.0	0.7	0.0
Private O&G/Nat Resources	3.3	3.1	2.1	1.1	2.5	1.8	1.8	0.5	2.6	2.2	1.2	0.1
Timber	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Public Energy/Nat Resources	2.1	1.9	1.7	0.0	2.0	1.0	2.2	1.4	2.1	1.5	3.7	2.8
Cash & Equivalents	3.2	2.7	3.8	3.4	4.1	3.6	3.5	2.4	4.3	2.6	4.3	2.8
Other Assets	0.7	0.0	0.1	0.0	0.6	0.0	0.1	0.0	0.8	0.0	0.2	0.0

Source: Endowment and foundation data as reported to Cambridge Associates LLC.

FIGURE 4 DETAILED ASSET ALLOCATION BY ASSET SIZE: US ENDOWMENTS AND FOUNDATIONS

As of March 31, 2019 • Percent (%)

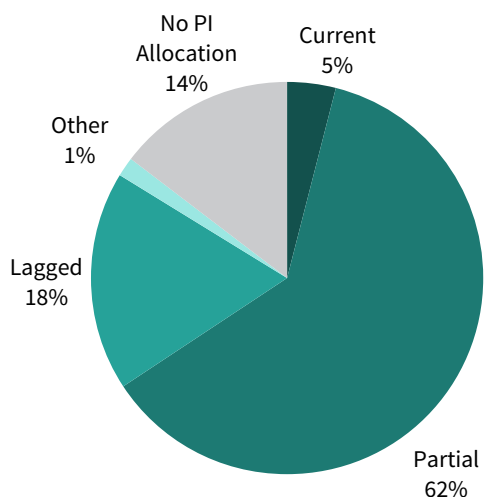
	All Endow & Fdn <i>n</i> = 376		Under \$100M 67		\$100M – \$200M 75		\$200M – \$500M 83		\$500M – \$1B 58		Over \$1B 93	
	Mean	Med	Mean	Med	Mean	Med	Mean	Med	Mean	Med	Mean	Med
US Equity	22.9	23.2	27.4	28.3	25.0	24.3	24.8	24.2	20.5	21.1	17.9	16.4
Global ex US Equity	24.1	24.3	28.1	28.4	25.9	25.8	24.5	24.8	21.8	22.7	20.7	20.2
Developed Markets	16.1	16.1	20.0	20.5	17.6	17.2	16.5	17.1	14.0	13.9	12.9	12.7
Emerging Markets	8.0	7.6	8.2	8.0	8.2	7.6	8.0	8.1	7.8	7.7	7.8	7.3
Bonds	11.2	10.7	14.7	13.3	13.2	12.8	12.2	11.9	9.9	9.2	7.0	6.5
US Bonds	10.1	9.8	13.4	12.3	12.0	11.9	11.4	10.7	9.1	8.6	5.9	5.8
Global ex US Bonds (DM)	0.4	0.0	0.3	0.0	0.3	0.0	0.3	0.0	0.2	0.0	0.6	0.0
Global ex US Bonds (EM)	0.3	0.0	0.5	0.0	0.7	0.0	0.2	0.0	0.2	0.0	0.2	0.0
High-Yield Bonds	0.4	0.0	0.5	0.0	0.3	0.0	0.2	0.0	0.3	0.0	0.4	0.0
Hedge Funds	17.0	16.5	16.6	16.0	16.5	15.5	16.2	16.1	16.4	15.4	18.6	18.2
Long/Short Hedge Funds	6.5	5.5	5.1	4.0	5.6	4.6	6.2	5.4	6.9	5.6	8.4	7.5
Absolute Return (ex Distressed)	10.5	10.2	11.5	10.7	10.9	10.0	10.1	10.3	9.6	9.3	10.2	10.8
Distressed Securities	2.8	2.1	0.9	0.0	2.4	1.5	2.9	2.4	3.9	3.5	3.6	2.8
Hedge Fund Structure	1.5	0.5	0.6	0.0	1.2	0.0	1.6	1.1	2.0	1.6	2.0	1.4
Private Equity Structure	1.3	0.7	0.3	0.0	1.2	0.5	1.3	1.0	1.8	1.5	1.6	1.0
PE/VC	9.7	8.3	2.3	0.4	6.3	5.2	8.0	7.0	14.0	13.1	16.8	16.2
Non-Venture Private Equity	4.3	3.2	0.6	0.0	2.0	1.3	3.6	2.9	6.5	6.2	7.9	8.3
Venture Capital	4.5	2.4	1.1	0.0	2.5	1.4	3.3	2.1	6.5	4.6	8.2	6.8
Other Private Investments	1.0	0.3	0.6	0.0	1.7	1.2	1.1	0.8	1.0	0.4	0.7	0.0
Real Assets & ILBs	8.0	7.6	6.0	4.8	6.5	5.9	7.0	7.4	9.6	9.4	10.8	10.5
Private Real Estate	1.8	0.8	0.3	0.0	0.5	0.0	1.2	0.6	2.7	1.6	3.7	2.7
Public Real Estate	0.5	0.0	0.4	0.0	0.4	0.0	0.5	0.0	0.8	0.0	0.5	0.0
Commodities	0.5	0.0	0.6	0.0	0.5	0.0	0.4	0.0	0.2	0.0	0.6	0.0
ILBs	0.5	0.0	0.7	0.0	0.6	0.0	0.3	0.0	0.4	0.0	0.3	0.0
Private O&G/Nat Resources	2.6	1.9	0.6	0.0	1.9	1.2	1.9	1.7	3.6	3.2	4.5	4.6
Timber	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0
Public Energy/Nat Resources	2.2	1.6	3.2	1.8	2.6	2.3	2.6	2.5	1.8	1.9	1.0	0.0
Cash & Equivalents	3.7	2.9	3.5	2.2	3.8	2.5	3.2	2.4	3.9	3.3	4.3	3.5
Other Assets	0.5	0.0	0.4	0.0	0.5	0.0	1.2	0.0	0.1	0.0	0.3	0.0

Source: Endowment and foundation data as reported to Cambridge Associates LLC.

FIGURE 5 PERFORMANCE REPORTING METHODOLOGIES: US ENDOWMENTS AND FOUNDATIONS

As of March 31, 2019

Performance Reporting Methodology



By Asset Size

	Current Basis	Partial Basis	Lagged Basis	Other	No PI Allocation
Under \$100M	—	55%	—	—	45%
<i>n</i>		37			30
\$100M – \$200M	—	80%	—	—	20%
<i>n</i>		60			15
\$200M – \$500M	—	86%	2%	2%	10%
<i>n</i>		71	2	2	8
\$500M – \$1B	12%	66%	19%	2%	2%
<i>n</i>	7	38	11	1	1
Over \$1B	9%	28%	59%	3%	1%
<i>n</i>	8	26	55	3	1

Current Basis

Total investment pool return for the trailing one-year period includes marketable asset performance and private investment performance for April 1, 2018, to March 31, 2019.

Marketable Assets			
2Q18	3Q18	4Q18	1Q19
Private Investments			

Partial Basis

Total investment pool return for the trailing one-year period includes marketable asset performance for April 1, 2018, to March 31, 2019. Private investment portion of the investment pool reflects actual performance for April 1, 2018, to December 31, 2018, and a flat return (0%) for January 1, 2019, to March 31, 2019.

Marketable Assets			
2Q18	3Q18	4Q18	1Q19
Actual Return			0%
Private Investments			

Lagged Basis

Total investment pool return for the trailing one-year period includes marketable asset performance for April 1, 2018, to March 31, 2019, and private investment performance for January 1, 2018, to December 31, 2018.

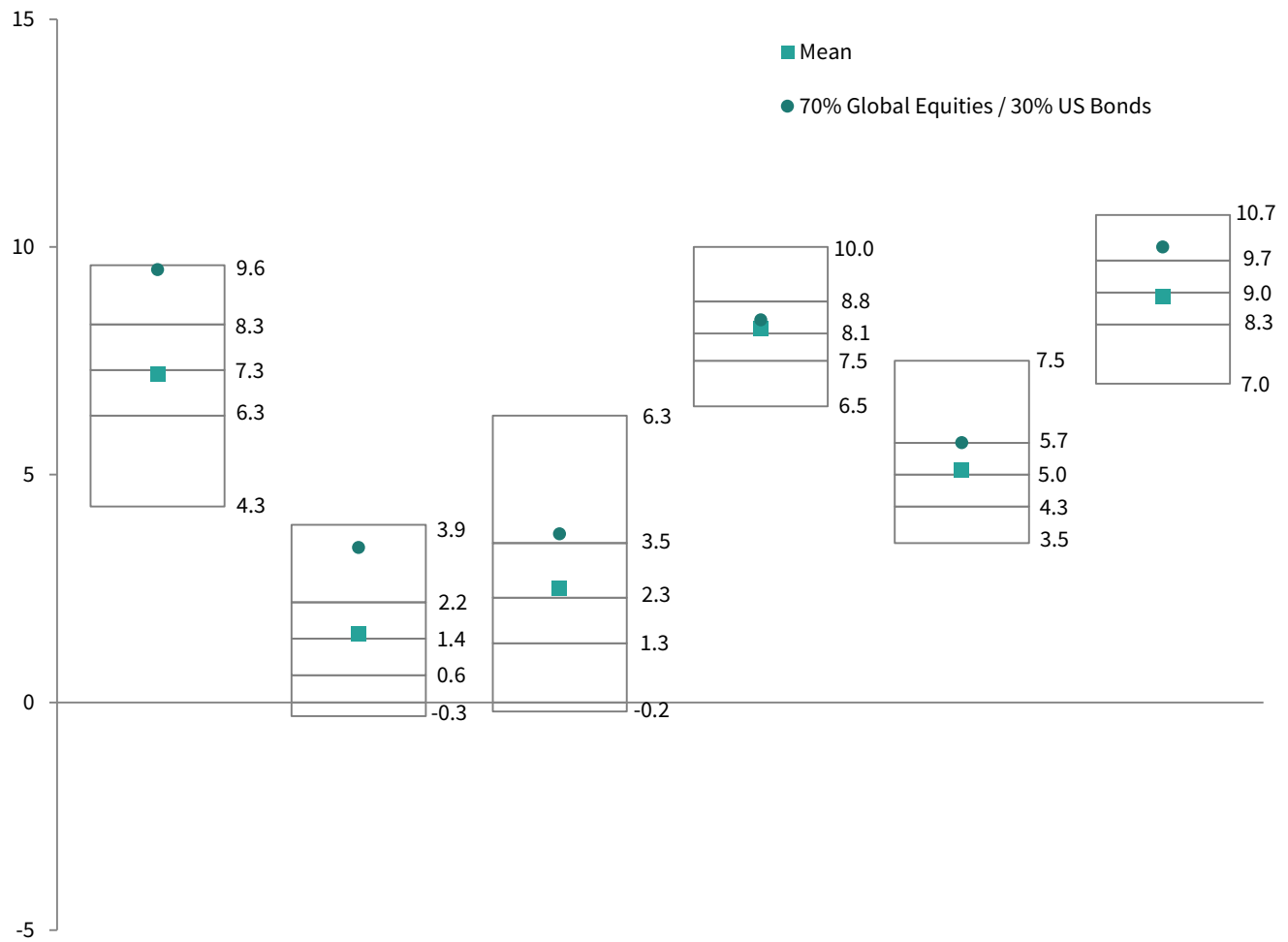
Marketable Assets				
1Q18	2Q18	3Q18	4Q18	1Q19
Private Investments				

Source: Endowment and foundation data as reported to Cambridge Associates LLC.

Notes: Analysis includes data for 376 institutions. Private investments include total allocation to non-venture private equity, venture capital, distressed securities (private equity structure), private oil & gas/natural resources, timber, private real estate, and other private investments. Institutions with no significant private investment allocations (<1% of their total investment portfolios) are reflected in the No PI Allocation category in the pie graph and table by asset size.

FIGURE 6 NOMINAL RETURN PERCENTILES: US ENDOWMENTS AND FOUNDATIONS

Periods Ended March 31, 2019 • Percent (%)



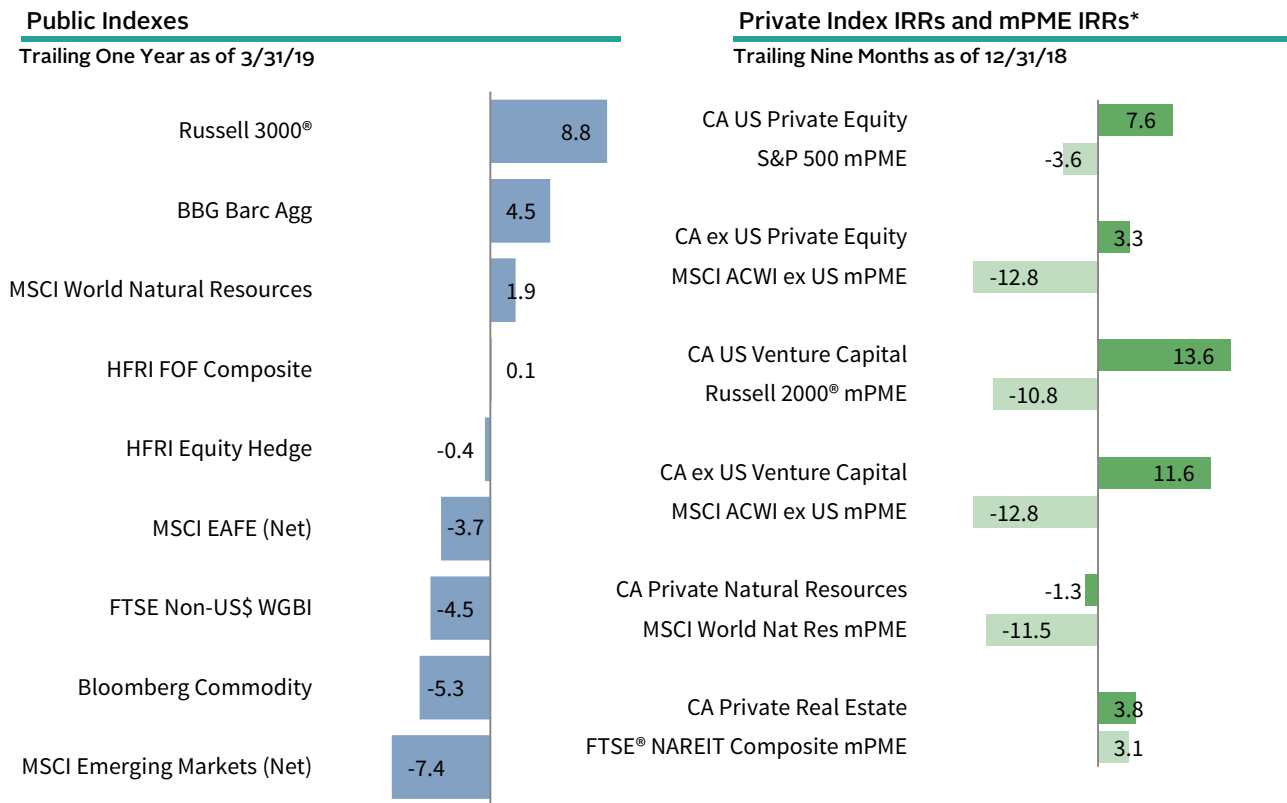
	Latest Quarter	Fiscal YTD	One Year	Three Years	Five Years	Ten Years
■ Mean	7.2	1.5	2.5	8.2	5.1	8.9
<i>n</i>	376	376	376	376	371	348
● 70% Global Equities / 30% US Bonds	9.5	3.4	3.7	8.4	5.7	10.0

Sources: Endowment and foundation data as reported to Cambridge Associates LLC. Index data are provided by Bloomberg Index Services Limited and MSCI Inc. MSCI data provided "as is" without any express or implied warranties.

Notes: Three-, five-, and ten-year returns are annualized. The 70/30 simple portfolio benchmark is calculated assuming rebalancing occurs on the final day of each quarter. Total returns for the MSCI ACWI Index are net of dividend taxes for global ex US securities.

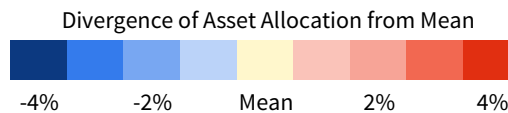
**FIGURE 7 1-YR INDEX RETURNS AND ASSET ALLOCATION OF TOP AND BOTTOM PERFORMERS:
US ENDOWMENTS AND FOUNDATIONS**

As of March 31, 2019 • Percent (%)



Mean Asset Allocation by Performance Quartile: March 31, 2018 to March 31, 2019

Quartile	US Equity	DM ex US Eqty	EM Equity	Bonds	Hedge Funds	Dist Sec	PE/VC	Priv RA	Pub RA & ILBs	Cash	Other
Top Quartile	20.2	12.7	7.4	8.4	17.2	3.3	16.2	7.6	2.8	3.8	0.4
2nd Quartile	21.8	16.2	8.2	10.2	18.3	3.1	10.0	4.5	3.2	3.9	0.5
3rd Quartile	24.5	18.3	8.4	12.3	17.5	2.3	5.2	3.1	4.2	4.0	0.3
Bottom Quartile	24.2	19.9	9.5	12.4	16.6	1.9	4.3	2.0	4.8	3.8	0.7
E&F Universe Mean	22.7	16.8	8.4	10.8	17.4	2.7	8.9	4.3	3.8	3.9	0.5



* Private indexes are pooled horizon IRRs, net of fees, expenses, and carried interest. The CA Modified Public Market Equivalent (mPME) replicates private investment performance under public market conditions. The public index's shares are purchased and sold according to the private fund cash flow schedule, with distributions calculated in the same proportion as the private fund, and mPME NAV is a function of mPME cash flows and public index returns. Private benchmark IRRs and mPME IRRs are for the period 4/1/18 to 12/31/18.

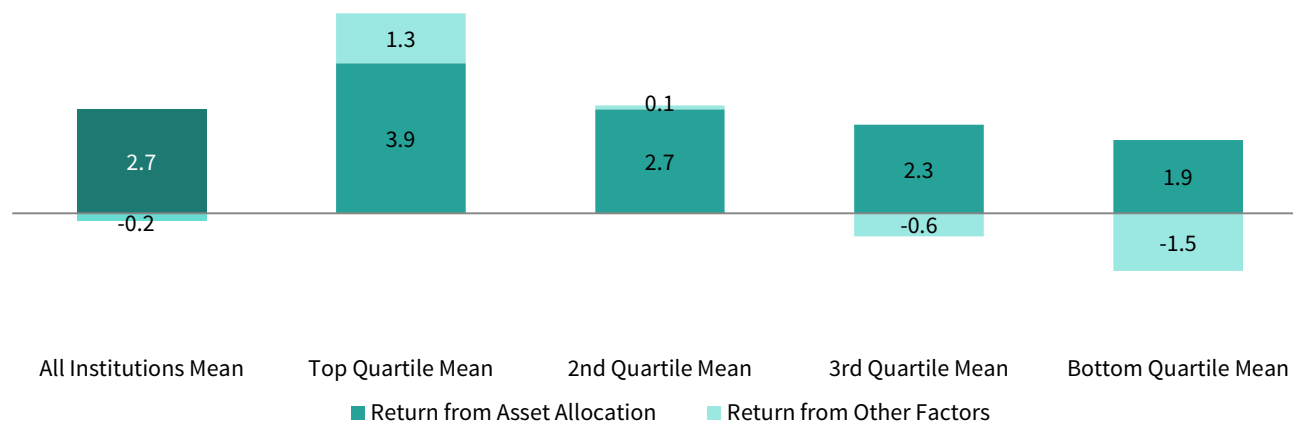
Sources: Endowment and foundation data as reported to Cambridge Associates LLC. Index data are provided by Bloomberg Index Services Limited, Cambridge Associates LLC, Frank Russell Company, FTSE International Limited, Hedge Fund Research, Inc., MSCI Inc., the National Association of Real Estate Investment Trusts, Standard & Poor's, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Note: Analysis includes data for 370 institutions.

**FIGURE 8 1-YR RETURN ATTRIBUTION ANALYSIS BY PERFORMANCE QUARTILE:
US ENDOWMENTS AND FOUNDATIONS**

As of March 31, 2019 • Percent (%)

1-Yr Mean Return Attribution Analysis by Quartile



Breakdown of Return from Asset Allocation for All Institutions

Asset Class	Mean Asset Allocation	Asset Class Benchmark Return	Contribution to Asset Class Return
US Equity	22.3	8.8	2.0
Venture Capital	3.7	13.6	0.6
US Bonds	9.2	4.5	0.4
Non-Venture Private Equity	3.7	7.6	0.4
Absolute Return (ex Distressed)	10.9	1.7	0.2
Distressed: Private Equity Structure	1.1	7.6	0.1
Other Private Investments	0.8	7.3	0.1
Private Real Estate	1.7	3.8	0.1
Public Real Estate	0.4	19.9	0.1
Cash & Equivalents	4.0	2.1	0.1
Global ex US Bonds-Developed Mkts	0.4	-4.5	0.0
Global ex US Bonds-Emerging Mkts	0.4	4.2	0.0
High-Yield Bonds	0.4	5.9	0.0
Long/Short Hedge Funds	6.8	-0.4	0.0
Distressed: Hedge Fund Structure	1.5	0.1	0.0
Commodities	0.6	-5.3	0.0
Inflation-Linked Bonds	0.5	2.7	0.0
Private Oil & Gas/Natural Resources	2.4	-1.3	0.0
Timber	0.1	2.3	0.0
Public Energy/Natural Resources	2.4	1.9	0.0
Other	0.4	2.1	0.0
Global ex US Equity: Developed Mkts	17.4	-3.7	-0.6
Global ex US Equity: Emerging Mkts	8.7	-7.4	-0.6

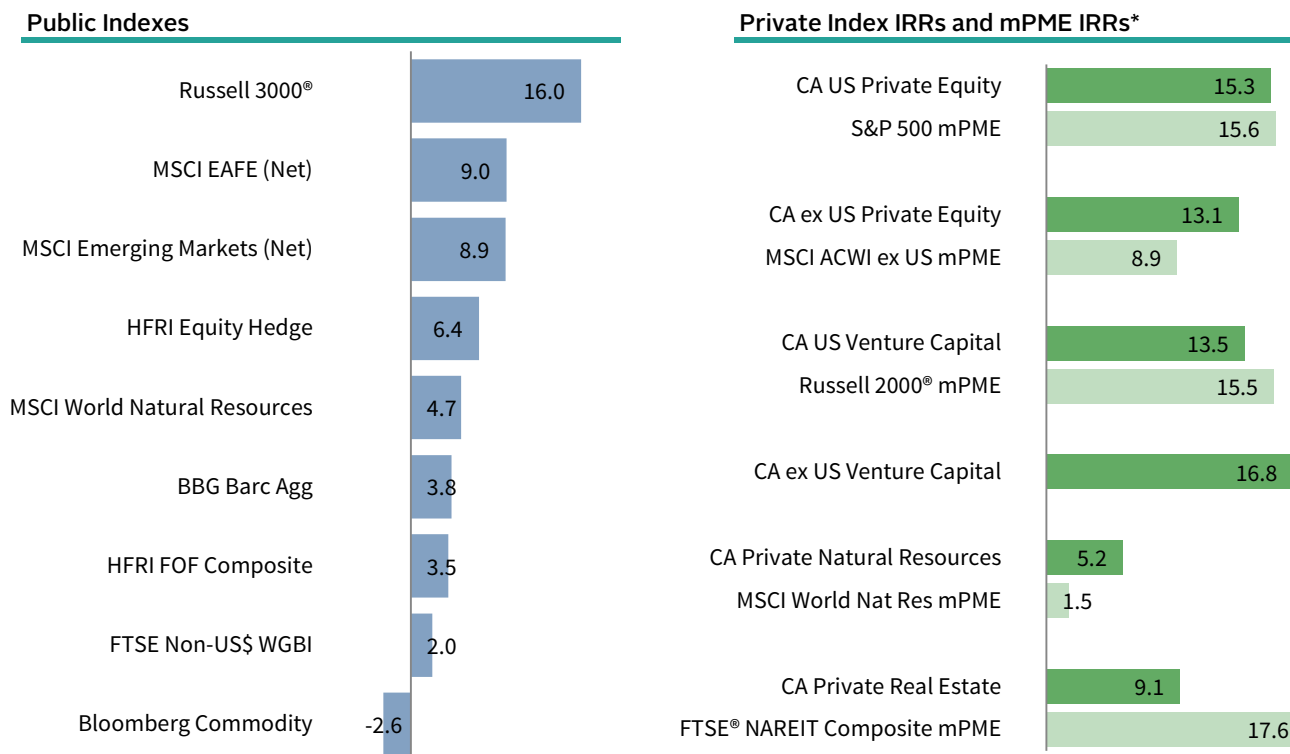
* Private investment benchmark returns are for the period of 4/1/18 to 12/31/18.

Sources: Endowment and foundation data as reported to Cambridge Associates LLC. Index data provided by Bloomberg Index Services Limited, BofA Merrill Lynch, Cambridge Associates LLC, Frank Russell Company, FTSE Fixed Income LLC, FTSE International Limited, Hedge Fund Research, Inc., J.P. Morgan Securities, Inc., MSCI Inc., the National Association of Real Estate Investment Trusts, and the National Council of Real Estate Investment Fiduciaries. MSCI data provided "as is" without any express or implied warranties.

Notes: Includes data for 370 institutions that provided beginning year asset allocation. Mean asset allocation is as of March 31, 2018. The sum of the contribution to asset class return for all categories in the table equals the amount of the total return that was explained by asset allocation. To be consistent with the methodology in which private investment returns are incorporated into the total portfolio composite calculation, private investment benchmark returns are linked quarterly end-to-end returns. This model assumes that flows to and from investment managers take place on the last day of the fiscal year. In addition, the analysis uses a standard set of asset class benchmarks that may be more or less representative of the asset allocation policy across different institutions. Therefore, the portion of returns from other factors shown in the bar chart may also include some residual/unattributable asset allocation effects.

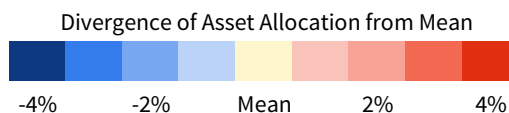
**FIGURE 9 10-YR INDEX RETURNS AND ASSET ALLOCATION OF TOP AND BOTTOM PERFORMERS:
US ENDOWMENTS AND FOUNDATIONS**

As of March 31, 2019 • Percent (%)



Mean Asset Allocation by Performance Quartile: March 31, 2009 to March 31, 2019

Quartile	US Equity	DM ex US Eqty	EM Equity	Bonds	Hedge Funds	Dist Sec	PE/VC	Priv RA	Pub RA & ILBs	Cash	Other
Top Quartile	23.0	14.5	6.8	10.0	16.4	3.6	11.2	6.6	4.2	3.5	0.3
2nd Quartile	20.7	14.8	7.2	12.0	18.3	3.4	8.6	5.6	5.5	3.6	0.3
3rd Quartile	19.2	14.1	6.7	11.4	21.5	3.9	8.9	4.5	5.4	3.9	0.6
Bottom Quartile	18.9	14.9	7.0	14.4	21.4	2.9	4.8	3.5	6.1	5.5	0.6
E&F Universe Mean	20.5	14.6	6.9	11.9	19.4	3.4	8.4	5.1	5.3	4.1	0.4



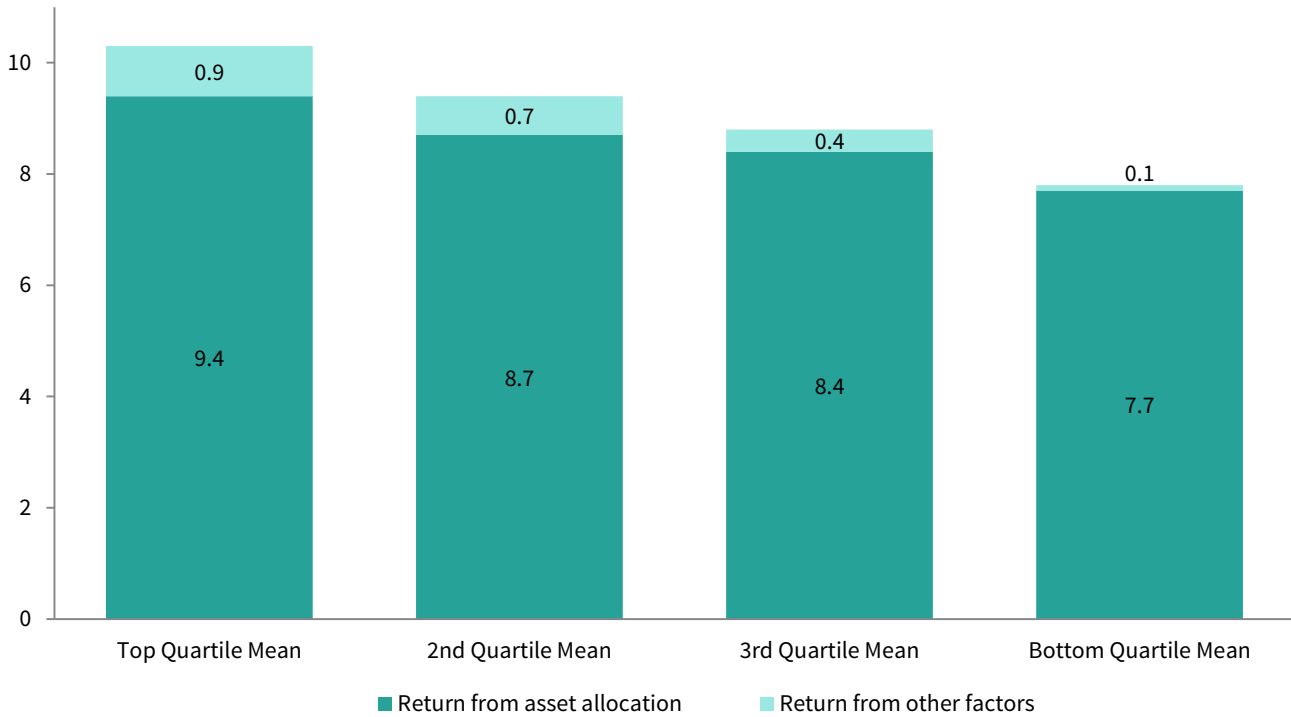
* Private indexes are pooled horizon IRRs, net of fees, expenses, and carried interest. The CA Modified Public Market Equivalent (mPME) replicates private investment performance under public market conditions. The public index's shares are purchased and sold according to the private fund cash flow schedule, with distributions calculated in the same proportion as the private fund, and mPME NAV is a function of mPME cash flows and public index returns. Private benchmark IRRs and mPME IRRs are for the period 4/1/2009 to 12/31/2018.

Sources: Endowment and foundation data as reported to Cambridge Associates LLC. Index data are provided by Bloomberg Index Services Limited, Cambridge Associates LLC, Frank Russell Company, FTSE International Limited, Hedge Fund Research, Inc., MSCI Inc., the National Association of Real Estate Investment Trusts, Standard & Poor's, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Note: Analysis includes data for 236 institutions.

**FIGURE 10 10-YR ATTRIBUTION ANALYSIS BY PERFORMANCE QUARTILE:
US ENDOWMENTS AND FOUNDATIONS**

As of March 31, 2019 • Percent (%)



Sources: Endowment and foundation data as reported to Cambridge Associates LLC. Index data provided by Bloomberg Index Services Limited, BofA Merrill Lynch, Cambridge Associates LLC, Frank Russell Company, FTSE Fixed Income LLC, FTSE International Limited, Hedge Fund Research, Inc., J.P. Morgan Securities, Inc., MSCI Inc., the National Association of Real Estate Investment Trusts, and the National Council of Real Estate Investment Fiduciaries. MSCI data provided "as is" without any express or implied warranties.

Notes: Includes data for 236 institutions that provided beginning year asset allocation for all ten years. This model assumes that flows to and from investment managers take place on the last day of the fiscal year. In addition, the analysis uses a standard set of asset class benchmarks that may be more or less representative of the asset allocation policy across different institutions. Therefore, the portion of returns from other factors may also include some residual/unattributable asset allocation effects.

FIGURE 11 NOMINAL TOTAL RETURN SUMMARY BY PEER GROUP: US ENDOWMENTS AND FOUNDATIONS

Periods Ended March 31, 2019 • Percent (%)

	Latest Qtr	Fiscal YTD	Average Annual Compound Return			
			1 Yr	3 Yrs	5 Yrs	10 Yrs
Colleges & Universities						
5th Percentile	9.4	4.0	6.6	10.2	7.7	10.8
25th Percentile	8.1	2.4	4.2	9.2	6.1	9.8
75th Percentile	6.0	0.8	1.8	7.8	4.7	8.6
95th Percentile	4.6	0.1	0.2	6.9	3.8	7.2
Mean	7.0	1.7	3.1	8.5	5.5	9.1
Median	7.1	1.6	2.8	8.4	5.2	9.2
<i>n</i>	138	138	138	138	137	131
Cultural & Environmental						
5th Percentile	9.9	3.4	4.4	10.1	6.9	10.7
25th Percentile	9.0	1.8	3.0	8.7	5.7	9.9
75th Percentile	6.7	0.9	1.4	7.6	4.4	8.4
95th Percentile	4.3	0.0	0.3	6.7	3.8	7.3
Mean	7.7	1.4	2.2	8.2	5.2	9.1
Median	7.9	1.4	1.8	8.0	5.0	9.2
<i>n</i>	49	49	49	49	49	45
Foundations						
5th Percentile	9.7	4.6	6.8	10.1	8.0	10.9
25th Percentile	8.1	2.6	3.7	8.8	5.9	9.9
75th Percentile	6.2	0.8	1.3	7.6	4.6	8.5
95th Percentile	3.7	-0.2	0.2	6.7	3.4	6.9
Mean	7.0	1.8	2.8	8.2	5.3	9.1
Median	7.2	1.5	2.5	8.2	5.0	9.1
<i>n</i>	96	96	96	96	94	87
Healthcare						
5th Percentile	9.1	2.8	4.9	9.4	6.6	10.1
25th Percentile	8.3	1.9	2.9	8.4	5.4	9.2
75th Percentile	6.5	0.6	1.0	7.0	3.9	7.9
95th Percentile	4.3	-0.1	-0.1	6.5	3.5	7.1
Mean	7.1	1.3	2.0	7.8	4.7	8.6
Median	7.6	1.3	1.8	7.7	4.3	8.7
<i>n</i>	30	30	30	30	29	29
Independent Schools						
5th Percentile	9.0	3.5	5.3	9.1	5.7	10.1
25th Percentile	8.0	1.7	3.0	8.0	4.9	9.0
75th Percentile	6.5	0.0	0.6	7.1	4.0	7.9
95th Percentile	5.0	-0.3	-0.6	5.9	3.4	6.4
Mean	7.3	1.4	2.1	7.5	4.5	8.4
Median	7.5	0.7	1.5	7.5	4.6	8.2
<i>n</i>	27	27	27	27	27	25
Other Nonprofits						
5th Percentile	10.0	2.3	2.8	8.4	5.3	10.1
25th Percentile	8.7	1.4	2.0	8.0	4.7	9.0
75th Percentile	6.8	-0.1	0.3	6.9	3.8	7.5
95th Percentile	5.8	-1.1	-1.0	5.9	3.2	6.2
Mean	7.9	0.6	1.0	7.4	4.2	8.2
Median	8.1	0.8	1.1	7.5	4.2	8.3
<i>n</i>	36	36	36	36	35	31

Source: Endowment and foundation data as reported to Cambridge Associates LLC.

FIGURE 12 NOMINAL TOTAL RETURN SUMMARY BY ASSET SIZE: US ENDOWMENTS AND FOUNDATIONS

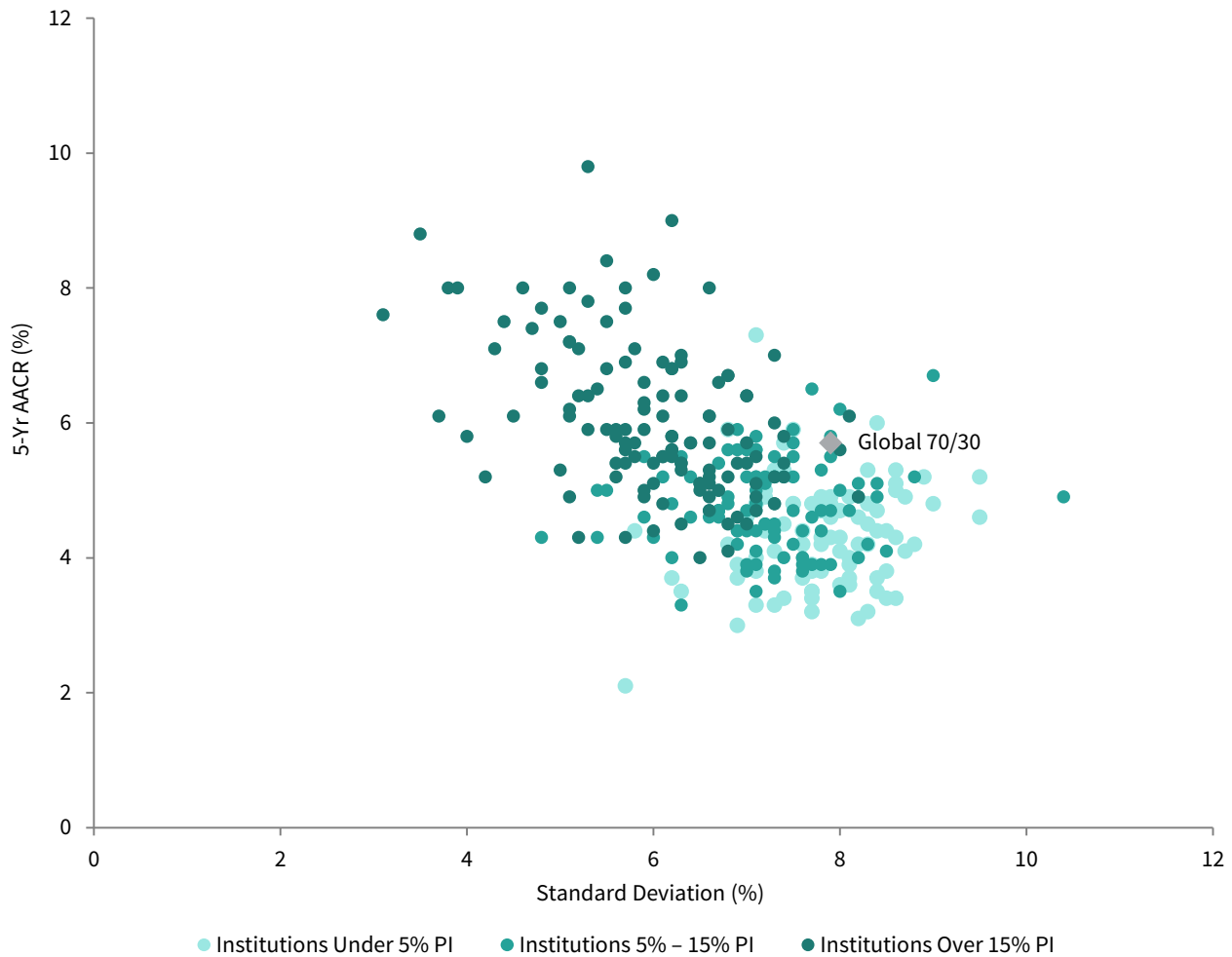
Periods Ended March 31, 2019 • Percent (%)

	Latest Qtr	Fiscal YTD	Average Annual Compound Return			
			1 Yr	3 Yrs	5 Yrs	10 Yrs
Under \$100M						
5th Percentile	9.9	3.0	3.6	8.8	5.2	9.9
25th Percentile	9.0	1.6	2.1	8.0	4.8	9.1
75th Percentile	7.5	0.3	0.4	6.9	3.9	7.6
95th Percentile	6.2	-0.5	-0.7	5.9	3.3	6.3
Mean	8.2	1.0	1.4	7.3	4.3	8.3
Median	8.4	1.0	1.3	7.5	4.4	8.3
<i>n</i>	67	67	67	67	64	55
\$100M – \$200M						
5th Percentile	9.4	2.9	3.6	9.1	5.6	9.9
25th Percentile	8.5	1.6	2.3	8.3	5.0	9.2
75th Percentile	6.9	0.5	1.0	7.5	4.0	8.1
95th Percentile	5.3	-0.2	-0.1	6.6	3.4	6.8
Mean	7.7	1.1	1.7	7.9	4.5	8.5
Median	7.8	1.0	1.7	7.9	4.4	8.5
<i>n</i>	75	75	75	75	74	69
\$200M – \$500M						
5th Percentile	9.7	3.1	4.3	9.5	6.0	10.3
25th Percentile	8.6	1.9	3.3	8.6	5.3	9.6
75th Percentile	6.9	0.7	1.4	7.6	4.5	8.4
95th Percentile	5.6	-0.3	0.2	6.8	3.5	7.0
Mean	7.7	1.3	2.2	8.1	4.9	8.8
Median	7.6	1.2	2.3	8.1	4.9	8.9
<i>n</i>	83	83	83	83	83	81
\$500M – \$1B						
5th Percentile	8.7	4.3	6.2	9.8	6.7	10.5
25th Percentile	7.6	2.2	3.5	8.7	5.9	9.6
75th Percentile	5.7	0.5	1.6	7.6	4.6	8.6
95th Percentile	4.2	-0.2	0.6	6.8	3.8	7.5
Mean	6.5	1.6	2.9	8.2	5.3	9.1
Median	6.6	1.4	2.7	8.3	5.2	9.1
<i>n</i>	58	58	58	58	58	52
Over \$1B						
5th Percentile	8.5	4.6	7.9	10.3	8.1	11.1
25th Percentile	7.2	2.9	5.4	9.7	7.1	10.4
75th Percentile	5.1	1.3	2.5	8.1	5.5	9.1
95th Percentile	2.9	0.0	0.9	7.1	4.3	7.8
Mean	6.0	2.3	4.1	8.9	6.3	9.7
Median	6.4	2.0	3.9	9.1	6.2	9.8
<i>n</i>	93	93	93	93	92	91

Source: Endowment and foundation data as reported to Cambridge Associates LLC.

FIGURE 13 STANDARD DEVIATION AND SHARPE RATIO: US ENDOWMENTS AND FOUNDATIONS

Five Years Ended March 31, 2019



	All Institutions	Mean by PI Allocation			70/30 Global Benchmark
	Mean	Under 5%	5% - 15%	Over 15%	
5-Yr AACR	5.2	4.3	4.8	6.0	5.7
Standard Deviation	6.9	7.8	7.2	6.0	7.9
Sharpe Ratio	0.70	0.49	0.59	0.93	0.65
<i>n</i>	315	88	98	129	

Sources: Endowment and foundation data as reported to Cambridge Associates LLC. Index data are provided by Bloomberg Index Services Limited and MSCI Inc. MSCI data provided "as is" without any express or implied warranties.

Notes: Analysis includes only institutions that provided underlying quarterly returns and asset allocation for the last five years. Each institution's private investment allocation represents the mean for the six March 31 periods from 2014 to 2019. The Global 70/30 benchmark is composed of 70% MSCI ACWI /30% Bloomberg Barclays Aggregate Bond Index. Total returns for the MSCI ACWI Index are net of dividend taxes for global ex US securities.

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