

ANNUAL REVIEW OF ENDOWMENTS

FISCAL YEAR 2023



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This study is based on a survey that Cambridge Associates (CA) administers annually to our endowment clients. The report that follows summarizes returns, asset allocation, and other investment-related data for 322 endowed institutions for the fiscal year ended June 30, 2023. Included in this year's report are commentary and exhibits that are spread across four separate sections.

Fiscal year 2023 was an atypical year performance-wise compared to recent history. On an index basis, public equity markets produced returns that were much higher than what was reported in private investments. As a result, smaller portfolios, which tend to have the highest allocations to public equities, outperformed larger and more diversified portfolios by significant margins. Our **INVESTMENT PORTFOLIO RETURNS** section highlights performance results for this past fiscal year, as well as longer trailing periods.

When it comes to policy portfolio benchmarks, the use of a public equity index to represent private equity and venture capital (PE/VC) is the most common approach among endowments in this study. Consequently, in a year such as 2023, when public markets broadly outperform private markets, it is tougher for endowments to outperform their benchmarks. Despite the underperformance that most endowments reported this past year, they fared quite well versus their benchmarks over longer trailing periods. Our **INVESTMENT POLICY** section touches on this topic and illustrates the most common benchmark components used for other asset classes.

Strong returns from stock markets in developed countries resulted in endowments seeing meaningful increases to their public equity allocations in 2023. However, from a policy perspective, there were more endowments that reported decreases in their long-term targets to public equities than those that reported increases. The **PORTFOLIO ASSET ALLOCATION** section uses data on target asset allocations to lend insights into recent shifts in asset allocations and how endowments might be altering their portfolios heading into the future. This section also highlights how endowments have evolved in investing their portfolios from the early 2000s to today, with a particular focus on the increased allocations to PE/VC over the last couple of decades.

The number of managers that endowments use for their overall portfolio and within specific asset classes can vary widely. Our **INVESTMENT MANAGER STRUCTURES** section explores data on this topic, as well as implementation strategies for traditional assets (i.e., active versus passive management) and alternative assets.

Finally, we have removed two sections that historically appeared at the end of this study. Much of the content from the Institutional Support section now resides in our annual Spending Policy Practices report, which provides in-depth peer analysis on spending policies, effective spending rates, and endowment reliance in institutions' operating budgets. An update with fiscal year 2023 data will be posted later this year. Separately, the content from the Investment Office Staffing and Governance section will be folded into a standalone survey and publication that covers this topic in much more detail. We will be re-launching our biennial Organization and Staffing for Endowment Management survey in summer 2024, which will take a deep dive into these topics, exploring all facets of investment office resourcing and governance structures. If you have questions on our upcoming initiative or would like to secure your invitation to the study, please contact Grant Steele at gsteele@cambridgeassociates.com.

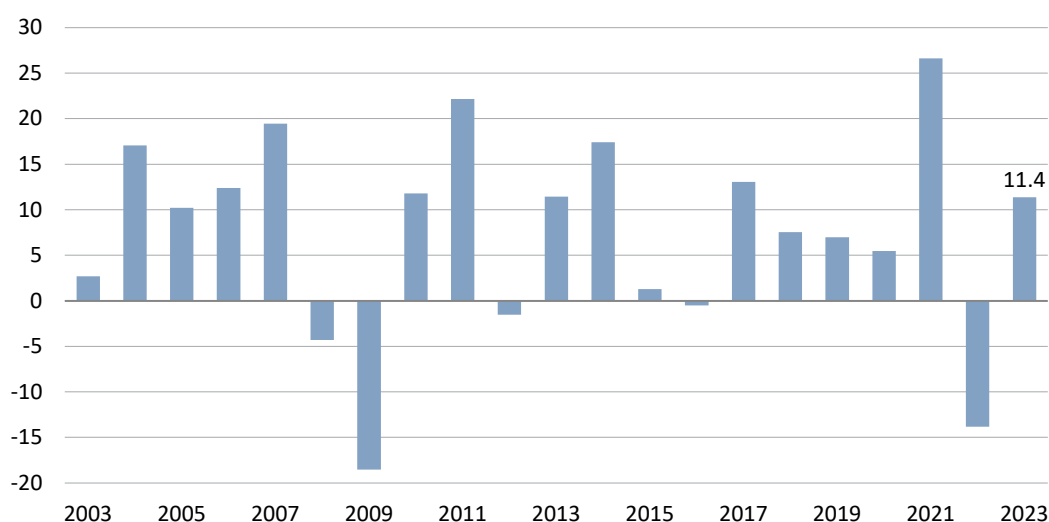
Section 1: Investment Portfolio Returns

FISCAL YEAR 2023 RETURNS

Public equity markets have bounced up and down like the end of a seesaw over the last few years. Fiscal year 2023 saw returns swing back up as the global equity market, represented by the MSCI All Country World Index (ACWI), posted a return just shy of 17%. Meanwhile, bonds also experienced a bounce back in 2023, at least relative to the previous year. The Bloomberg Aggregate Bond Index, which tracks the investment-grade bond market in the United States, posted a small negative return (-1%) for fiscal year 2023. However, it was a significant improvement over 2022, when the bond index earned the lowest fiscal year return across its entire history. A simple benchmark consisting of 70% global equities and 30% bonds rode the upswing of fiscal year 2023 to an 11% return (Figure 1).

FIGURE 1 TRAILING 1-YR RETURNS FOR 70% EQUITY/30% BOND BENCHMARK

Fiscal Years 2003–23 • Periods Ended June 30



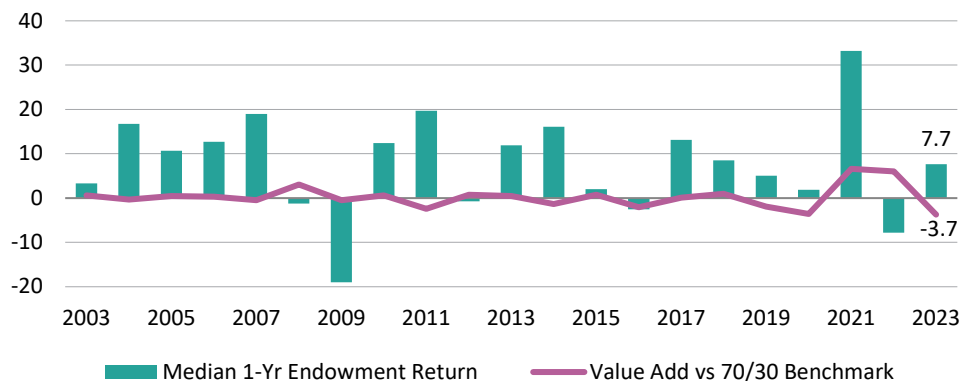
Sources: Index data are provided by Bloomberg Index Services Limited and MSCI Inc. MSCI data provided "as is" without any express or implied warranties.

Note: The equity component of the benchmark is represented by the MSCI ACWI with US Gross and the bond component is represented by the Bloomberg Aggregate Bond Index.

Returns for endowments have followed the same directional path as the general market trends over time. The median return for endowments that participate in CA's peer database also bounced back into positive territory in fiscal year 2023, landing at 7.7%. However, since endowments are diversified across various investment strategies including alternative assets, there is typically some degree of tracking error when comparing the median peer return against the simple benchmark. In 2023, private investments underperformed public markets by substantial margins, which led to the largest negative differential between the median return and the benchmark from the last two decades (Figure 2). The inverse was true in 2021 and 2022, when private investments performed much better relative to public markets. Those two years saw the largest positive spreads for the median return versus the benchmark from this historical period.

FIGURE 2 TRAILING 1-YR MEDIAN RETURNS

Fiscal Years 2003–23 • Periods Ended June 30



Source: Endowment data as reported to Cambridge Associates LLC.

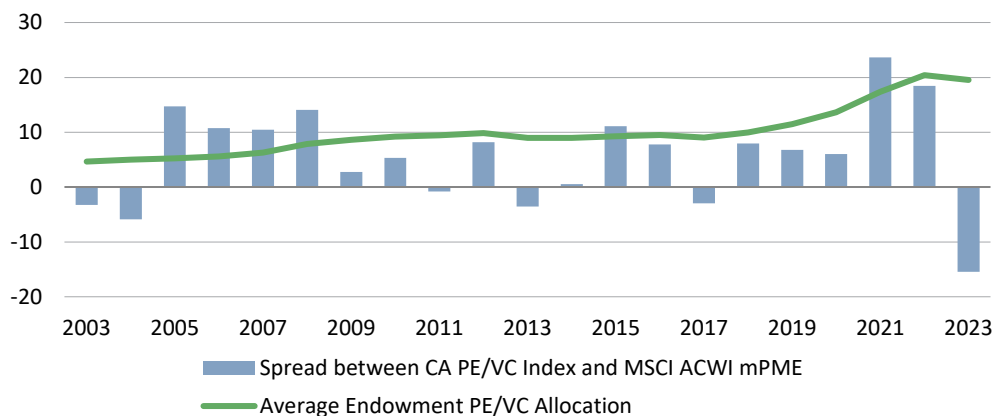
Note: The number of institutions included in the median calculation varies by period, ranging from 234 in 2003 to 322 in 2023.

The recent spike in the spread between the median return and the benchmark has been driven primarily by factors related to private investing. First, the differential in returns between public markets and private investments has widened substantially since 2020. Figure 3 isolates PE/VC specifically, with each bar showing how much the CA PE/VC index out/underperformed the modified public market equivalent (mPME) version of the MSCI ACWI Index across individual fiscal years.¹ The spreads from the last three years have been larger than any other point over the last two decades. At the same time, endowment allocations to PE/VC strategies have risen dramatically over time and were at their highest levels during the last three years. Allocations to private strategies have peaked precisely at the time when the differentials between public and private returns have been at their widest in recent history. The confluence of these factors has led to greater variation between peer endowment returns and the simple benchmark.

¹ The mPME analysis computes public market performance, which traditionally is reported as a time-weighted return, on an internal rate of return (IRR) basis and allows for a direct comparison of returns between the public and private markets. The results of the mPME calculation are the return that would have been earned had the capital invested in the private strategy been invested in the public market index instead.

FIGURE 3 CA PE/VC INDEX VS MSCI ACWI

Periods Ended June 30 • Spread Based on Trailing One-Year Returns

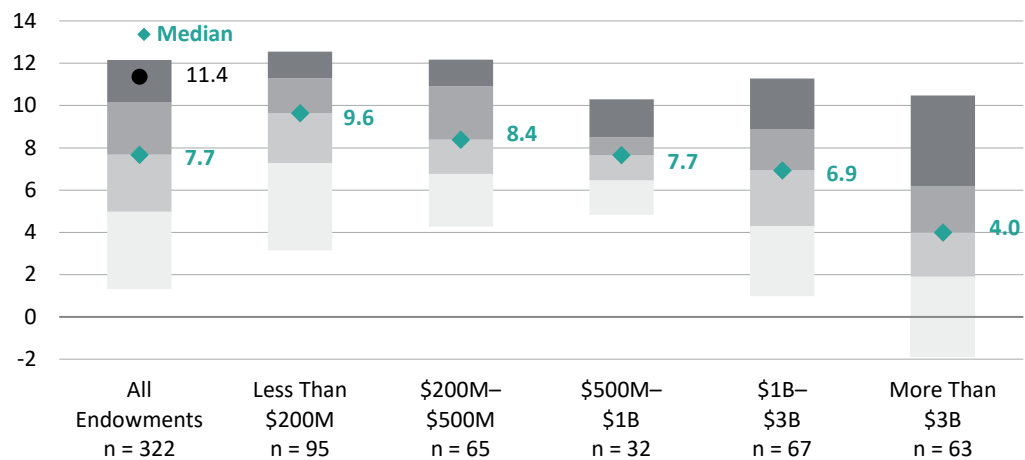


Sources: Endowment data as reported to Cambridge Associates LLC. Index data are provided by Cambridge Associates LLC and MSCI Inc. MSCI data provided "as is" without any express or implied warranties.

Note: For more information, see page 45 in the Appendix.

The 70/30 benchmark return would have landed in the middle of the top quartile of the endowment universe in fiscal year 2023 (Figure 4). While the median return for each of the asset size subgroups underperformed the simple benchmark, it was an atypical year compared to most of our prior annual studies in that smaller endowments outperformed larger endowments by significant margins. When the universe is broken down into various asset size subgroups, endowments less than \$200 million reported the highest median return at 9.6%. The outperformance of smaller endowments relative to the overall peer universe was mainly attributable to the fact that this group of endowments had the highest allocation to public equities. In contrast, endowments greater than \$3 billion—which have the lowest allocations to public equities—reported a median return of just 4.0%.

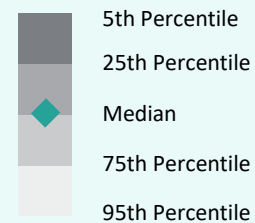
FIGURE 4 FISCAL YEAR 2023 TOTAL RETURN PERCENTILES BY ASSET SIZE
Trailing 1-Yr as of June 30, 2023 • Percent (%) • By Percentile Ranking



Source: Endowment data as reported to Cambridge Associates LLC.
Note: For more information, see page 45 in the Appendix.

PERCENTILE RANKINGS

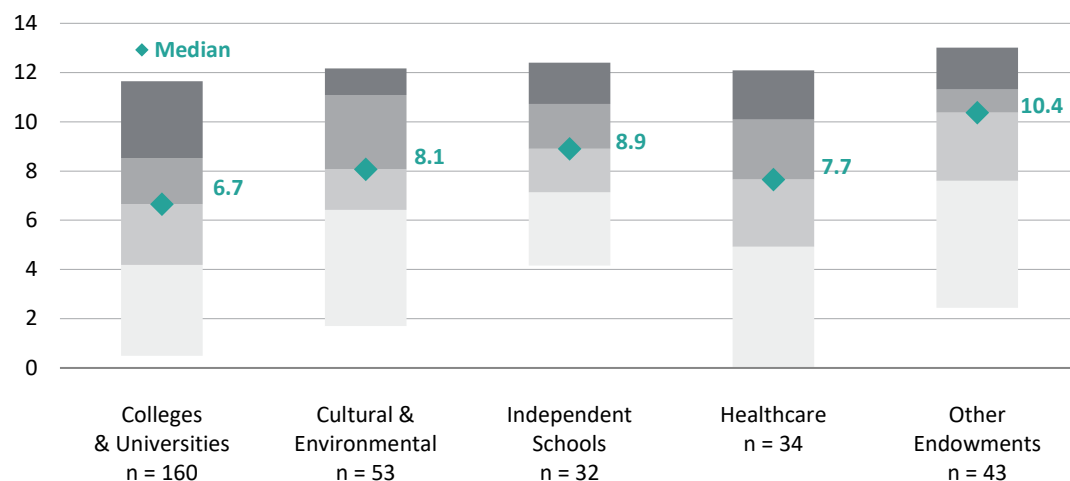
The percentile rankings in our analysis are in ascending order so that the highest figure in the data set is 0 and the lowest figure is 100. The graphs throughout this report that show a range of data are organized to highlight various percentile breaks as displayed here.



When looking at returns by type of endowment, colleges and universities reported the lowest median return at 6.7%. This fits in with the analysis presented thus far as a majority of this subgroup is composed of endowments with more than \$1 billion in assets. From an asset allocation perspective, these university endowments have the lowest average allocation to public equities of the various institution types in this study. A group we call Other Endowments reported the highest median return for the fiscal year at 10.4%. This cohort consists of miscellaneous types of nonprofit institutions that don't fit within the rest of the standard subgroups that are displayed in Figure 5. These institutions tend to have smaller portfolios, and compared to the other subgroups in this study, had the highest average allocation to public equities.

FIGURE 5 FISCAL YEAR 2023 TOTAL RETURN PERCENTILES BY INSTITUTION TYPE

Trailing 1-Yr as of June 30, 2023 • Percent (%) • By Percentile Ranking



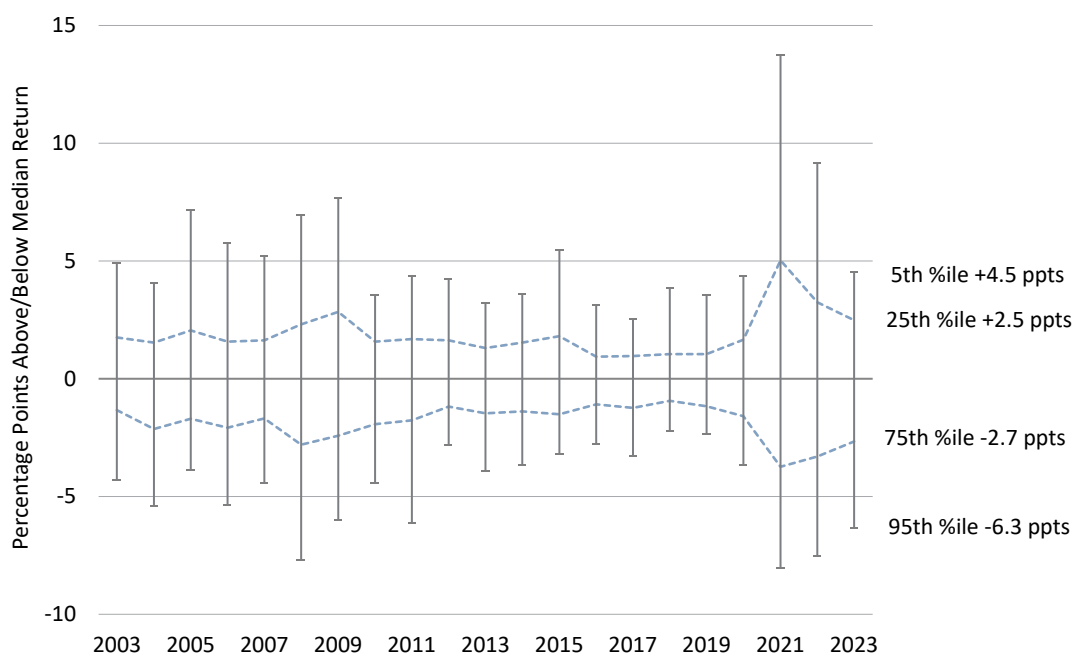
Sources: Endowment data as reported to Cambridge Associates LLC. Index data are provided by Bloomberg Index Services Limited and MSCI Inc. MSCI data provided "as is" without any express or implied warranties.

Note: For more information, see page 46 in the Appendix.

Figure 6 looks at the dispersion in returns across our endowments universe over the last two decades. In 2023, the 5th percentile return was 4.5 percentage points (ppts) above the median, while the 95th percentile return was 6.3 ppts below the median. This range in returns was lower than what was reported the previous year and down significantly from the results of 2021. However, the level of dispersion was still greater than what was reported throughout the 2010s, a decade where the variations in peer returns were historically low.

FIGURE 6 DISPERSION IN TRAILING 1-YR RETURNS RELATIVE TO THE MEDIAN RETURN

Fiscal Years 2003–23 • Periods Ended June 30



Source: Endowment data as reported to Cambridge Associates LLC.

Note: The number of institutions included in the universe varies by period, ranging from 234 in 2003 to 322 in 2023.

IMPACT OF PERFORMANCE REPORTING METHODOLOGIES ON PEER COMPARISONS

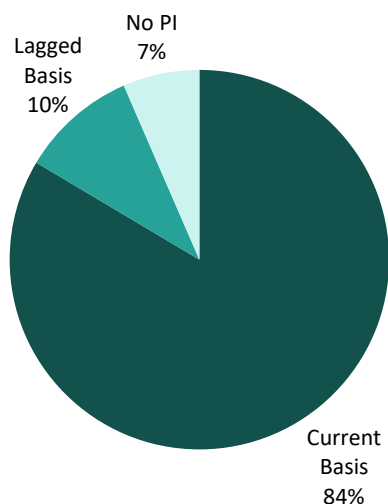
Because of the illiquid nature of private investments, valuations of these assets are not readily available following the end of a quarter. It can take several months for managers to report valuations, which delays the timing for when an endowment can calculate a fiscal year return with June 30 private marks. Some institutions must close out their investment reporting shortly after fiscal year end, while others have the flexibility to wait until later in the calendar year to calculate their final fiscal year return. Consequently, the methodology for capturing private investments in the total portfolio return is not apples to apples across all endowments.

Endowments using the lagged methodology mark private investments as of March 31 when the fiscal year return is reported. Private valuations are perpetually lagged by one quarter under this method, resulting in a fiscal year return that captures private investment performance from April 1, 2022, to March 31, 2023. Just 10% of participants in this study used the lagged basis for their fiscal year return calculation. In contrast, the majority of participants (84%) in this study incorporated private investment marks into the fiscal year total return on a current basis (Figure 7). For these endowments, private investment performance is time-matched with the actual trailing one-year period and reflects investment activity from July 1, 2022, to June 30, 2023.

FIGURE 7 PERFORMANCE REPORTING METHODOLOGIES: PRIVATE INVESTMENTS

As of June 30, 2023

All Endowments



Endowments by Asset Size

| | Current Basis | Lagged Basis | No PI Allocation |
|------------------|---------------|--------------|------------------|
| Less Than \$200M | 83% | — | 17% |
| <i>n</i> | 79 | | 16 |
| \$200M–\$500M | 92% | — | 8% |
| <i>n</i> | 60 | | 5 |
| \$500M–\$1B | 94% | 6% | — |
| <i>n</i> | 30 | 2 | |
| \$1B–\$3B | 82% | 18% | — |
| <i>n</i> | 55 | 12 | |
| More Than \$3B | 71% | 29% | — |
| <i>n</i> | 45 | 18 | |

Source: Endowment data as reported to Cambridge Associates LLC.

Note: 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.

PERFORMANCE METHODOLOGY DESCRIPTIONS

Current Basis

Total investment pool return for the trailing one-year period includes marketable asset performance and private investment performance for July 1, 2022, to June 30, 2023.

| Marketable Assets | | | |
|---------------------|------|------|------|
| 3Q22 | 4Q22 | 1Q23 | 2Q23 |
| Private Investments | | | |

Lagged Basis

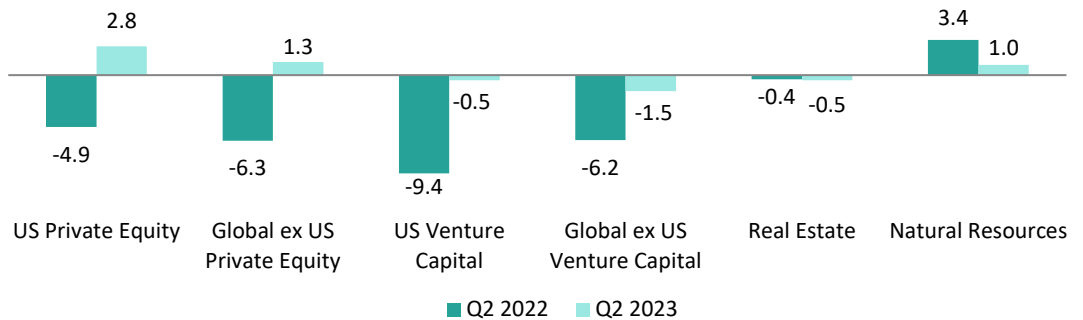
Total investment pool return for the trailing one-year period includes marketable asset performance for July 1, 2022, to June 30, 2023, and private investment performance for April 1, 2022, to March 31, 2023.

| Marketable Assets | | | | |
|---------------------|------|------|------|------|
| 2Q22 | 3Q22 | 4Q22 | 1Q23 | 2Q23 |
| Private Investments | | | | |

There was a performance impact of using one methodology over the other for fiscal year 2023. With the lagged basis methodology, private investment performance for second quarter 2022 was included in the one-year total return calculation, but performance for second quarter 2023 was excluded. Figure 8 shows the returns of several CA private investment indexes for these two separate quarterly periods. The returns from the second quarter 2022 were lower across most strategies, putting the lagged methodology at a comparative disadvantage relative to the current methodology.

FIGURE 8 CAMBRIDGE ASSOCIATES' PRIVATE INVESTMENT INDEX IRRs

Percent (%)



Source: Cambridge Associates LLC.

Note: Private investment return statistics are reported as horizon internal rates of return.

There were significant differentials between second quarter 2022 and second quarter 2023 returns for PE/VC strategies. This is noteworthy, given that, on average, exposure to PE/VC accounts for approximately 75% of the total private investment allocation among endowments. Given this context, one would expect that endowments using the lagged methodology would report a fiscal year 2023 return that was lower than what would have otherwise been calculated under the current basis. This is exactly what we found when we split the participant universe into subgroups based on private investment reporting methodology. The median return for lagged reporters was 5.2%, which was 250 basis points (bps) lower than the median for current reporters (7.7%) (Figure 9).

FIGURE 9 RANGE OF FISCAL YEAR 2023 RETURNS BY PRIVATE INVESTMENT REPORTING METHODOLOGY

As of June 30, 2023 • Percent (%) • By Percentile Ranking



Source: Endowment data as reported to Cambridge Associates LLC.

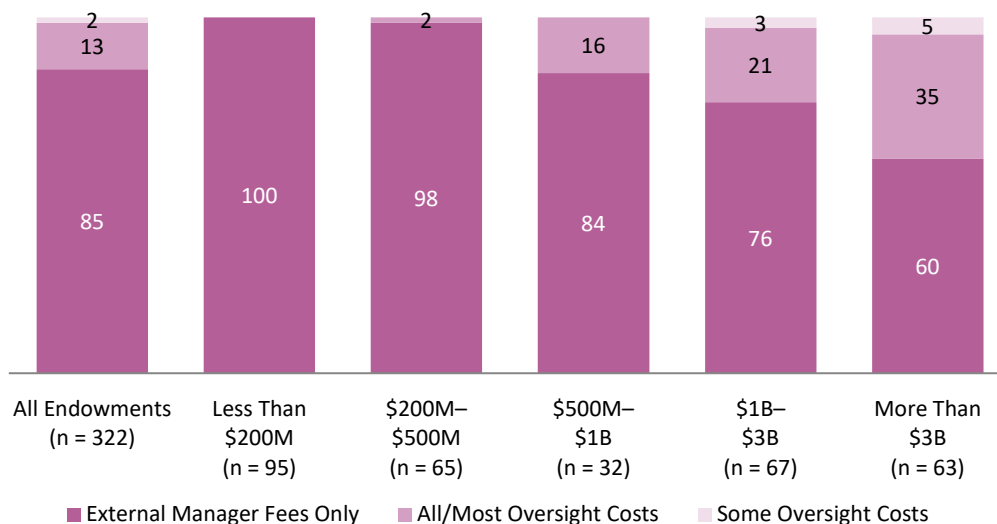
Note: Excluded from this analysis are 21 institutions that had little to no private investment allocation (i.e., < 1%).

Another reporting issue that can impact peer return comparisons is the method in which net returns are calculated. While each endowment in this study provided performance on a net-of-fees basis, the types of fees deducted in the net return calculation differ among participants. Most endowments (85%) reported returns net solely of external manager fees in fiscal year 2023 (Figure 10). Another 13% of respondents deduct external manager fees plus all or most of investment oversight expenses. The main drivers of these costs tend to be staff compensation for those institutions that have internal investment offices or consultant/advisor fees for those that rely heavily on external investment advisors. The remaining 2% of respondents deduct external manager fees plus some additional costs but are gross of the major oversight expense categories.

Smaller endowments are much less likely to deduct oversight costs compared to larger endowments. Only one endowment that is less than \$500 million in this study deducts investment oversight costs in their net return calculation. In contrast, a significant portion of endowments with asset sizes greater than \$3 billion reported returns net of some or all/most oversight expenses, with 35% netting out the major cost drivers. Past CA surveys show that most endowments have total oversight costs that fall within a range of 10 bps to 25 bps. However, the scale of assets is an important factor as costs in basis points tend to be lower for larger endowments compared to smaller endowments.

FIGURE 10 TYPES OF FEES DEDUCTED IN FY 2023 NET RETURN CALCULATION

As of June 30, 2023 • Percent (%)



Source: Endowment data as reported to Cambridge Associates LLC.

Notes: Institutions in the All/Most Oversight Costs category net out all or the majority of oversight costs, including the major cost drivers (e.g., investment staff compensation and consultant/advisor fees). Institutions in the Some Oversight Costs category deduct external manager fees and some investment oversight costs, but are gross of the major cost drivers.

RELATIONSHIP BETWEEN ASSET ALLOCATION AND PERFORMANCE IN FISCAL YEAR 2023

Asset allocation has traditionally been a key factor that helps explain the dispersion in returns reported among participating endowments. Our analysis on this topic begins with an overview of the capital market environment for fiscal year 2023. On the public side, global developed equities fared the best, with the Russell 3000® and MSCI EAFE (Net) indexes both returning 19% (Figure 11). Poor returns from Chinese equities weighed down on the MSCI Emerging Markets (Net) Index, which returned just 1.7%. Indexes for bonds, real estate, and commodities produced negative returns for the fiscal year.

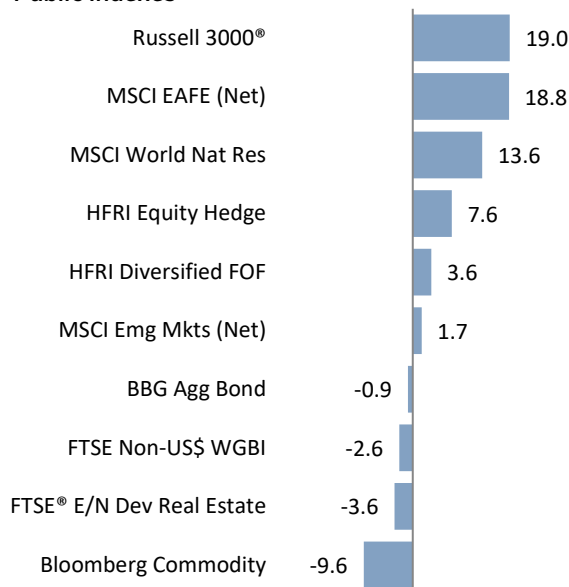
Returns for private indexes were substantially lower than the mPME benchmarks in almost every category. The CA US Private Equity Index produced the highest return among the private strategies at 6.5% but was still far lower than the Russell 3000 mPME (19.6%). Venture capital produced the lowest returns, with the US index down more than 10%.

The market backdrop provides important context as we explore the differences in asset allocation structures among endowments. The heat map analysis in Figure 12 breaks the participant group into four quartiles based on fiscal year 2023 performance and displays the average allocation across the one-year period for the endowments within each quartile. We typically find that the top-performing endowments had the highest allocations to the strategies that produced the best returns.

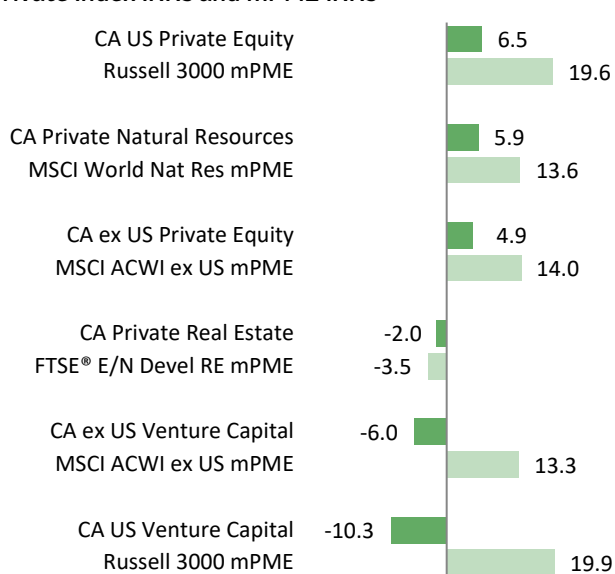
FIGURE 11 1-YR INDEX RETURNS

As of June 30, 2023 • Percent (%)

Public Indexes



Private Index IRRs and mPME IRRs



Sources: 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.

FIGURE 12 1-YR MEAN ASSET ALLOCATION BY PERFORMANCE QUARTILE

Percent (%) • n = 317

| Quartile | Marketable Assets | | | | | | Private Investments | | | | | |
|-----------------|--------------------|---------------|-------------|--------------------|--------------|--------------|---------------------|-----------------|----------------|----------|---------------------|----------------|
| | Total Mktbl Assets | Public Equity | Hedge Funds | Public Real Assets | Fixed Income | Cash & Other | Total Private Inv | Venture Capital | Non-Venture PE | Other PI | Private Real Assets | Private Credit |
| Top Quartile | 90.2 | 56.4 | 16.7 | 2.2 | 10.7 | 4.3 | 9.8 | 1.4 | 3.2 | 2.2 | 1.8 | 1.2 |
| 2nd Quartile | 77.2 | 44.2 | 17.3 | 1.6 | 10.3 | 3.8 | 22.8 | 5.8 | 9.0 | 2.3 | 3.9 | 1.9 |
| 3rd Quartile | 67.4 | 36.1 | 17.4 | 2.0 | 7.3 | 4.6 | 32.6 | 10.2 | 10.3 | 3.8 | 5.7 | 2.7 |
| Bottom Quartile | 57.0 | 25.7 | 17.8 | 1.9 | 6.2 | 5.3 | 43.0 | 17.7 | 11.9 | 2.6 | 8.7 | 2.0 |
| All End Mean | 73.0 | 40.6 | 17.3 | 1.9 | 8.6 | 4.5 | 27.0 | 8.7 | 8.6 | 2.7 | 5.0 | 1.9 |

Divergence of Asset Allocation From All Endowment Mean



Sources: Endowment data as reported to Cambridge Associates LLC.

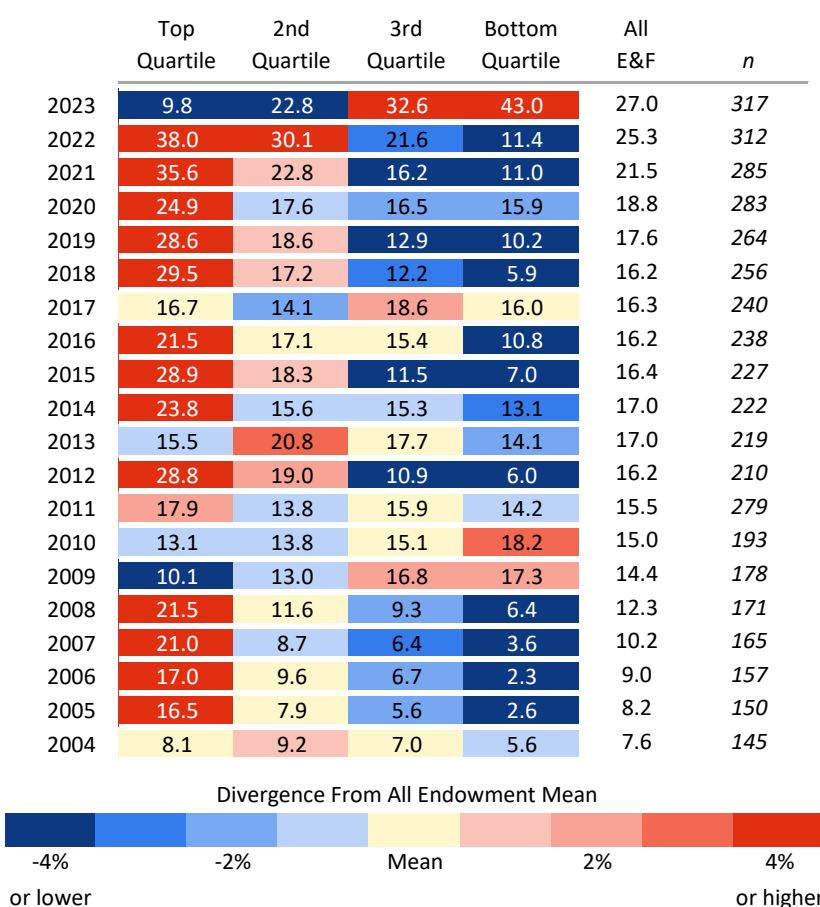
Note: Asset allocation is averaged across the two June 30 periods from 2022 to 2023 for each institution in this analysis.

This relationship held true in fiscal year 2023 as top performers had the highest allocations to public equities. On average, the top quartile of endowments allocated 56.4% to long-only public equities, more than double what the average was for the bottom quartile (25.7%). On the flip side, top performers had the lowest average allocation to private investments (9.8%), while the bottom quartile had nearly half of their portfolios (43.0%) allocated to these strategies. Allocations to venture capital stood out the most as the bottom quartile had 17.7% allocated to the asset class, on average. In contrast, the average venture allocation for top performers was just 1.4%.

The results from the 2023 heat map analysis were strikingly different than the performance story of most years. Strong performance from private investments, particularly PE/VC, has led to portfolios with the highest private allocations reporting the best returns more often than not. In 14 of the last 20 fiscal years, the top quartile of performers reported the highest average allocation to private investments (Figure 13). The rolling heat map analysis also illustrates just how wide the gap in private allocations was in 2023 compared to prior years. Despite the fact that private allocations have increased substantially across the entire peer group in recent years, the differential in allocations between top and bottom performers has never been greater than it was in 2023.

FIGURE 13 ROLLING 1-YR HEAT MAP: MEAN PRIVATE INVESTMENT ALLOCATIONS

Trailing One-Year Periods as of June 30



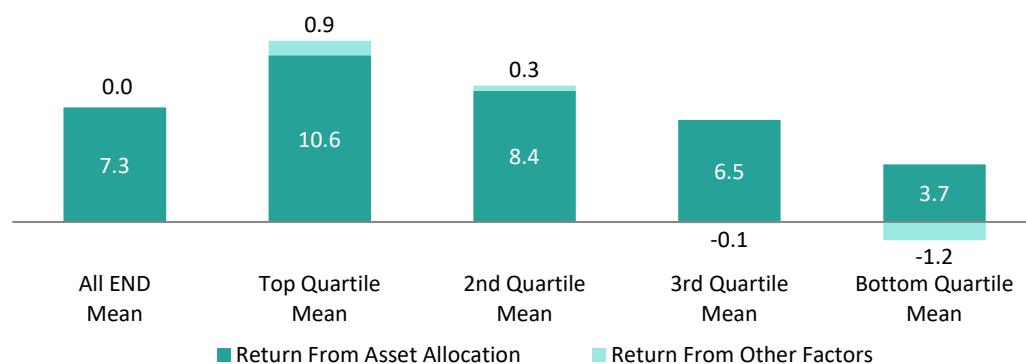
Source: Endowment data as reported to Cambridge Associates LLC.

Note: Performance quartiles are calculated separately for each one-year period.

Our attribution analysis in Figure 14 estimates the performance impact in 2023 of the different asset allocation structures among endowments. This analysis assigns a specific index return to represent each asset class in our framework. For each endowment in our universe, we have calculated a blended index return based on the portfolio’s beginning fiscal year asset allocation.² The result of this calculation is the “Return From Asset Allocation” and represents what the endowment would have earned if it was managed passively throughout the year. For fiscal year 2023, high public equity allocations propelled the top quartile of performers to an average asset allocation return of 10.6%. This was considerably stronger than the experience of the bottom quartile, which reported an average of just 3.7%.

FIGURE 14 1-YR ATTRIBUTION ANALYSIS

Trailing 1-Yr as of June 30, 2023 • Percent (%) • n = 317



Source: Endowment data as reported to Cambridge Associates LLC.

Note: For more information, see page 46 in the Appendix.

Our attribution model also estimates the performance impact from the implementation of the asset allocations across endowments. Implementation can be driven by a few factors such as active managements, or alpha. In addition, this category will capture the effects of style tilts that result in asset class exposure that is meaningfully different than the broad market benchmarks we use in the model. Finally, performance is impacted if an asset allocation structure is altered or rebalanced in the middle of the fiscal year. Our attribution analysis aggregates these effects into the “Return From Other Factors” category in Figure 14. The analysis estimates that the top quartile of performers added an average of 0.9% to their returns from these other factors in fiscal year 2023. In contrast, the average for the bottom quartile of performers was -1.2%. While the other factors do contribute to overall performance, the main takeaway from the attribution analysis is that asset allocation was the dominant factor that explains the variation in endowment returns in fiscal year 2023.

ASSET CLASS RETURNS IN FISCAL YEAR 2023

Figure 15 shows the range of returns reported by participating institutions across various asset class categories. As is typically the case, the range of returns varies widely in several categories. However, the median returns largely align with the index

² See the Appendix of this report for a list of asset class indexes used and an example of how the analysis is conducted using the participant group’s mean asset allocation.

returns we summarized earlier in the capital markets overview. The best returns were reported in public equities, with the highest median being in US equity (19.1%). The lowest median return reported among respondents was -9.5% in venture capital.

The attribution analysis from the previous section establishes that there are differentials among endowments in the performance impact from implementation. A key driver of these differentials is the returns that endowments earn for the asset class strategies in their portfolios. Since the top quartile of performers had a higher implementation return compared to the rest of the universe, it stands to reason that this group also reported higher returns across most of the asset class composites. This was the case in 2023, with the median return of top performers being higher than the median return of the overall participant universe across most of the marketable asset class categories. This was particularly impactful, given that the top quartile of performers allocated 90% of their portfolio, on average, to marketable assets. Top performers also had a higher median return in the total PE/VC composite, which makes up the bulk of private allocations for most institutions.

FIGURE 15 1-YR ASSET CLASS RETURNS

As of June 30, 2023 • Percent (%) • By Percentile Ranking



Source: Endowment data as reported to Cambridge Associates LLC.

Notes: The top quartile of performers are based on the total portfolio return for fiscal year 2023. Marketable asset classes are reported as time-weighted returns, while private investments are horizon IRRs. For more information, including the number of participants, see pages 47 and 48 in the Appendix.

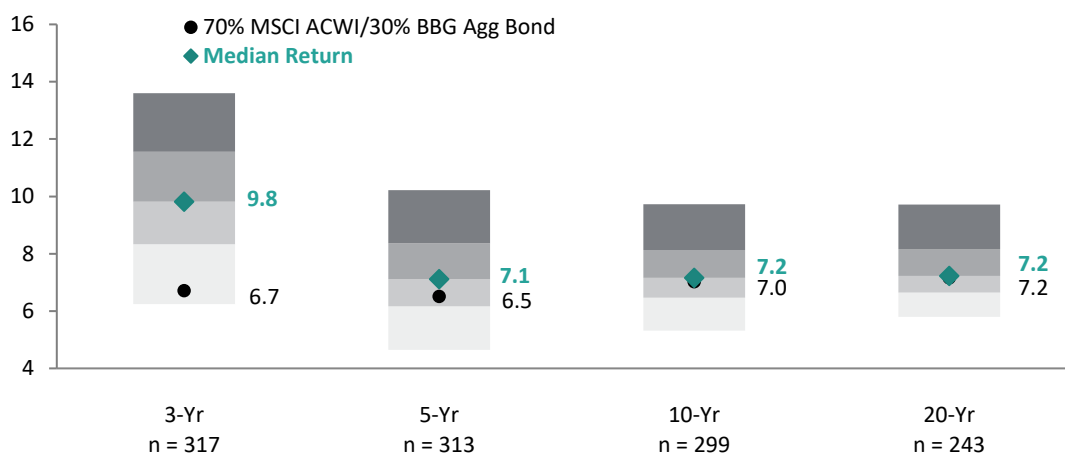
LONGER-TERM RETURNS

Despite the underperformance that most endowments experienced versus a blended 70% global equity/30% bond index in fiscal year 2023, most endowments have fared well versus the simple benchmark over the longer term. The outperformance of private investments versus public markets over the prior two fiscal years helped endowments by and large trounce the benchmark by margins that more than made up for the underperformance from 2023. As a result, the median endowment return (9.8%) over the trailing three-year period was significantly higher than the simple benchmark return of 6.7% (Figure 16). The vast majority of participants (92%) in this study outperformed the benchmark over this period.

The median participant return (7.1%) for the trailing five-year period outperformed the simple benchmark by 60 bps. The margin of outperformance for the median was smaller over the trailing ten years at 20 bps. The endowment median equaled the simple benchmark return for the trailing 20-year period.

FIGURE 16 TOTAL RETURNS SUMMARY: TRAILING 3-, 5-, 10-, AND 20-YR

Years Ended June 30, 2023 • Percent (%)



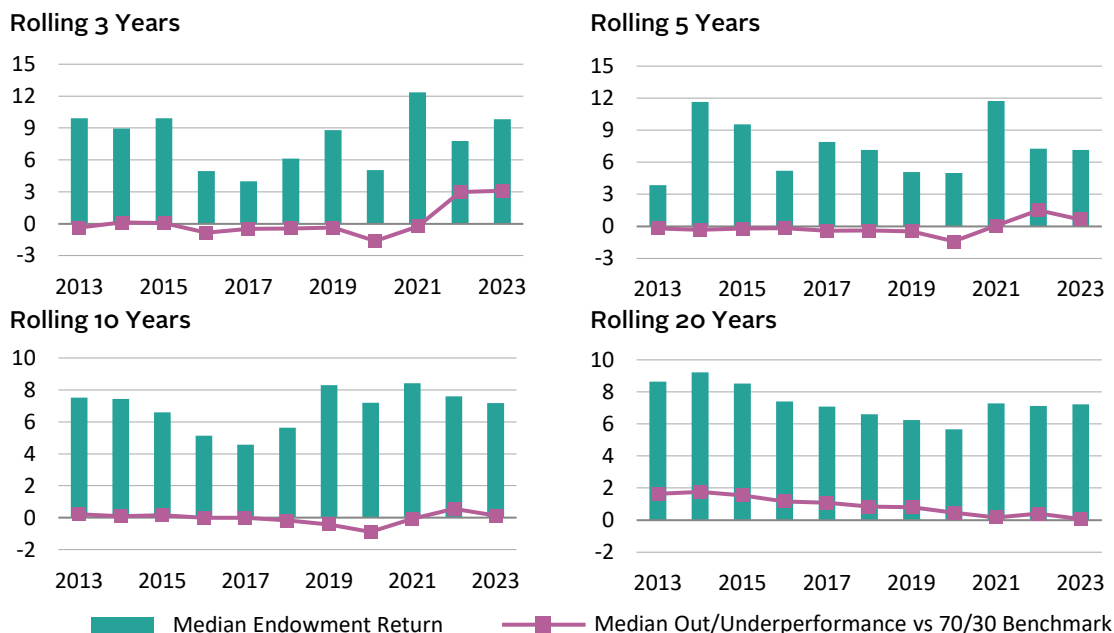
Sources: Endowment data as reported to Cambridge Associates LLC. Index data are provided by Bloomberg Index Services Limited and MSCI Inc. MSCI data provided "as is" without any express or implied warranties.

Note: For more information, please see page 49 in the Appendix.

Figure 17 shows the trend in the endowment median return across multiyear trailing periods since 2013. Also displayed is the spread between the median and the simple benchmark return for each respective period. The value add of the endowment median over the simple benchmark for the most recent three-year period was the largest spread from the last decade. Similarly, the value add for the five-year period ended 2023 was the second largest for those rolling periods over the last decade. This contrasts with the relative experience for the trailing 20-year period, as the median's value add over the benchmark as of 2023 was the lowest from the last decade.

FIGURE 17 ROLLING MEDIAN RETURNS AND OUT/UNDERPERFORMANCE VS 70/30 BENCHMARK

Years Ended June 30 • Percent (%)



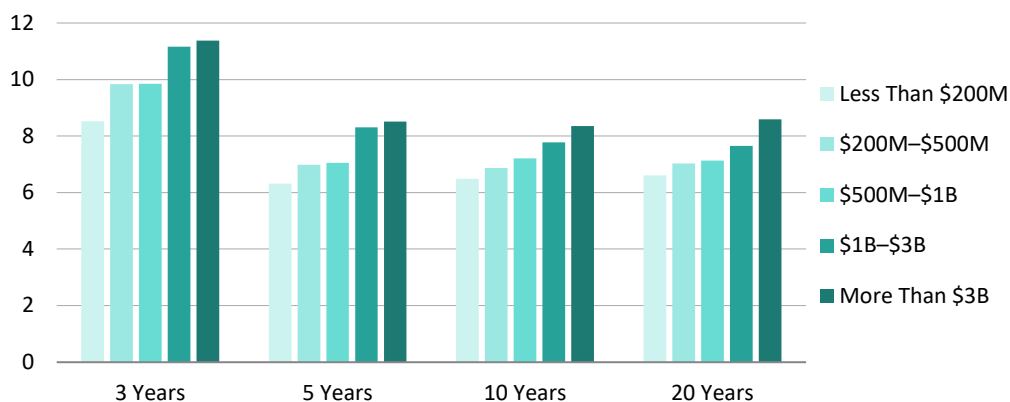
Source: Endowment data as reported to Cambridge Associates LLC.

Note: The number of institutions included in the median calculation varies by period and is smaller in earlier years.

Although smaller endowments outperformed other peers in fiscal year 2023, the largest endowments reported the highest returns over longer-term trailing periods (Figure 18). The differentials were largest for the trailing three-year period, where the median return for endowments more than \$3 billion (11.4%) was 290 bps higher than the median of endowments less than \$200 million (8.5%).

FIGURE 18 MEDIAN TRAILING 3-, 5-, 10-, AND 20-YR RETURNS BY ASSET SIZE

Years Ended June 30, 2023 • Percent (%)



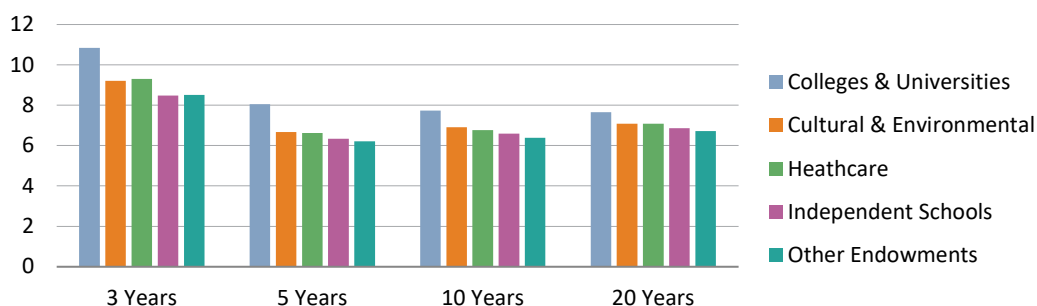
Source: Endowment data as reported to Cambridge Associates LLC.

Note: For more information, please see page 49 in the Appendix.

Even over the trailing 20-year period, the spread between these two cohorts was a considerable 200 bps. For the various institution types in this study, colleges and universities led the pack with the highest median return across each of these trailing periods (Figure 19).

FIGURE 19 MEDIAN TRAILING 3-, 5-, 10-, AND 20-YR RETURNS BY INSTITUTION TYPE

Years Ended June 30, 2023 • Percent (%)



Source: Endowment data as reported to Cambridge Associates LLC.

Note: For more information, please see page 50 in the Appendix.

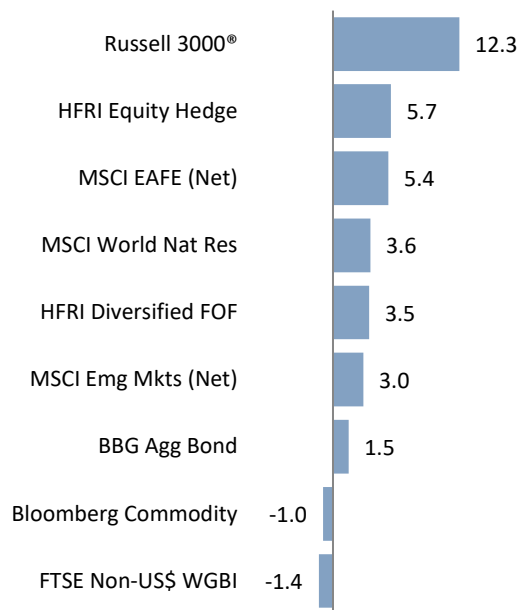
PERFORMANCE DRIVERS FOR THE TEN-YEAR PERIOD

The market backdrop for the trailing ten-year period shows that most private investment strategies outperformed their public market counterparts by very large margins. Among the indexes listed in Figure 20, venture capital strategies performed the best, with the ex US version returning just shy of 20% and the US version not far behind. The private equity and private real estate indexes posted returns that were in excess of 10% as well. Among public indexes, the US stock market, as represented by the Russell 3000® Index, was by far the top-performing strategy. Meanwhile, the return environment over much of the last decade has been dismal for bonds, with the Bloomberg Aggregate Bond Index returning just 1.5% on an annualized basis.

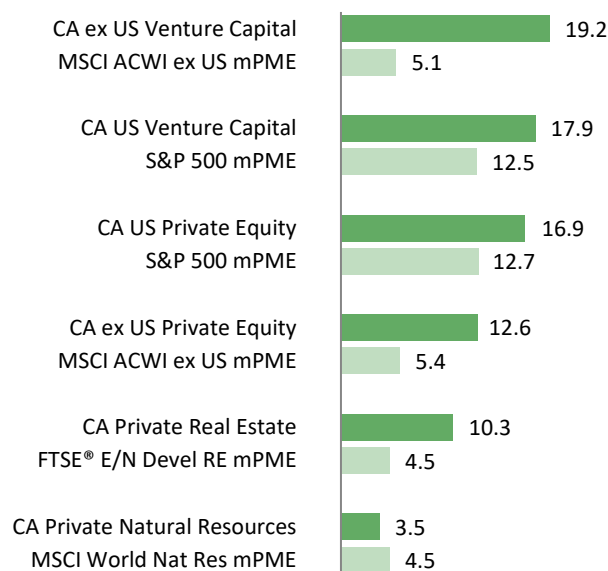
FIGURE 20 10-YR INDEX RETURNS

As of June 30, 2023 • Percent (%)

Public Indexes



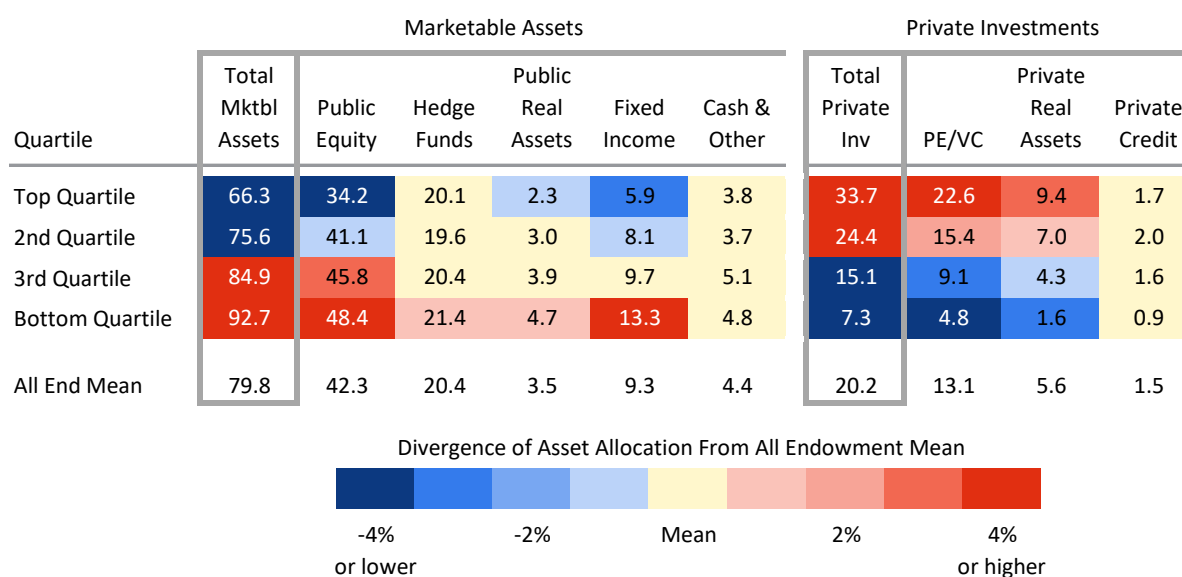
Private Index IRRs and mPME IRRs



Sources: 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.

The analysis of peer asset allocation structures over the last ten years aligns with the takeaways from the index comparisons. The heat map analysis in Figure 21 averages asset allocation data of participating endowments across the 11 June 30 periods from 2013 to 2023 and places each endowment into the performance quartile that aligns with their ten-year total return ranking. The top quartile of performers had the highest average allocation across the past decade to private investments (33.7%). The average allocations gradually decline when stepping down the quartile categories, with the bottom quartile reporting the lowest allocations to private investments (7.3%). Top performers also had the highest average allocation to hedge funds on the marketable side. The inverse was true in traditional bonds and equities, with top performers reporting the lowest combined average allocation to these strategies at just 40.1%.

FIGURE 21 10-YR MEAN ASSET ALLOCATION BY PERFORMANCE QUARTILE
Percent (%) • n = 217



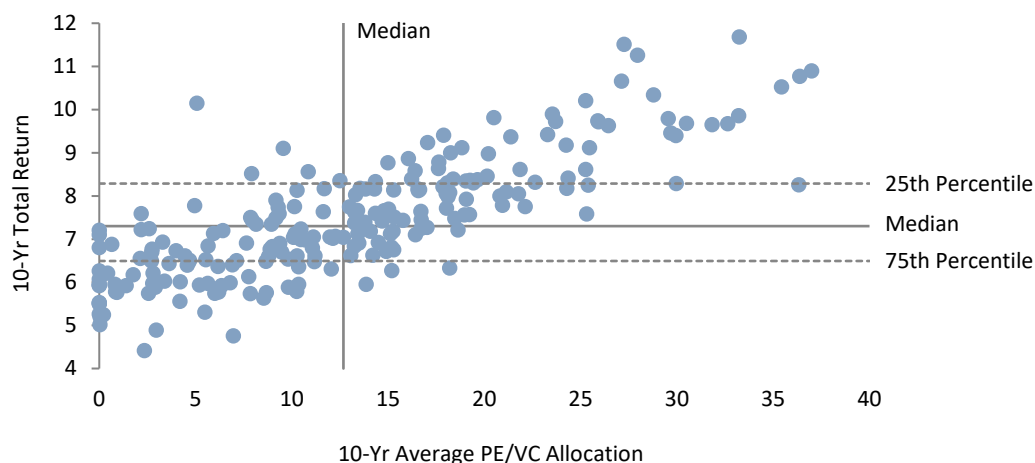
Source: Endowment data as reported to Cambridge Associates LLC.

Note: Asset allocation is averaged across the 11 June 30 periods from 2013 to 2023 for each institution in this analysis.

Of all the categories listed in the heat map table, venture capital and non-venture private equity are the asset classes that had the strongest relationship with total portfolio performance for the trailing ten-year period. A simple way to visualize this is by plotting data from endowments onto a scatterplot. For Figure 22, we have calculated a total PE/VC allocation that includes the two aforementioned asset classes and the Other PI category, which mainly consists of multi-strategy secondaries and fund-of-funds. Each endowment that reported data over the last decade is represented by a dot based on where its ten-year average allocation to PE/VC intersects with its trailing ten-year return. There are very few outlier institutions in terms of the relationship between PE/VC allocations and long-term total portfolio performance. More than 90% (50 of 55) of the endowments in the top quartile on this chart had a ten-year PE/VC allocation that was above the median of the participant universe. When isolating the bottom quartile of performers, just three had a ten-year PE/VC allocation that was above the peer group median.

FIGURE 22 10-YR PE/VC ALLOCATION VS TOTAL RETURN

As of June 30, 2023 • n = 217

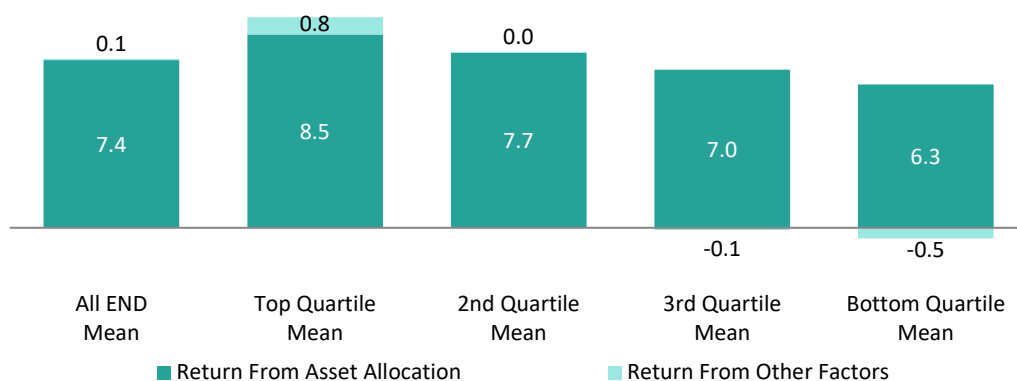


Source: Endowment data as reported to Cambridge Associates LLC.

The attribution model further illustrates the impact of different asset allocation structures on the trailing ten-year return. The average asset allocation return over this period for the top quartile of performers was 8.5% (Figure 23). For the bottom quartile of performers, the average asset allocation return was 220 bps lower at 6.3%. This was slightly wider than the gap in the portion of return that is explained by other factors, such as implementation. The model estimates the average return from other factors for top performers was 0.8%, which was 130 bps higher than the average of the bottom quartile (-0.5%).

FIGURE 23 10-YR ATTRIBUTION ANALYSIS BY PERFORMANCE QUARTILE

As of June 30, 2023 • Percent (%) • n = 217

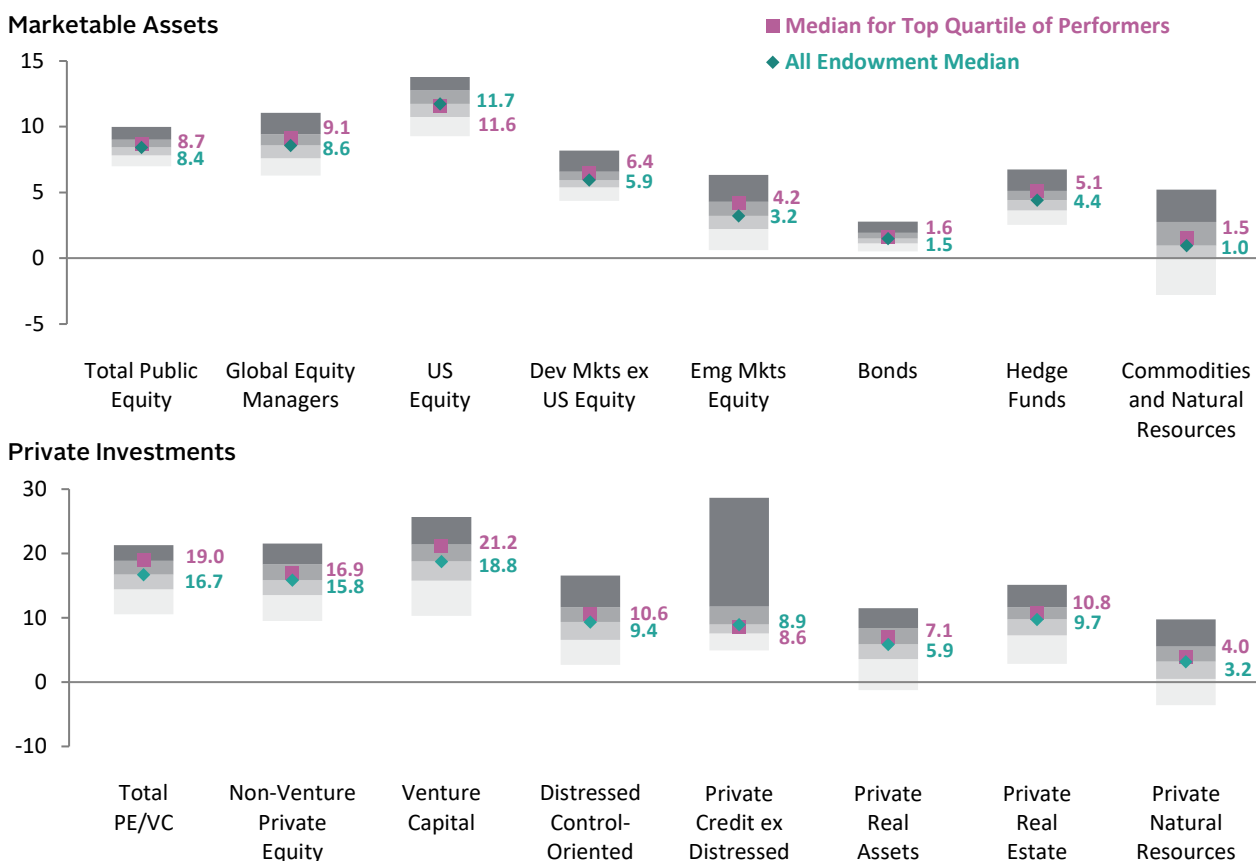


Source: Endowment data as reported to Cambridge Associates LLC.

The endowments that reported the highest total returns over the past decade not only had the largest allocations to private investments, but they also reported performance that was higher than the overall universe median returns in most of these strategies. This stood out the most in venture capital where the median internal rate of return (IRR) for the top quartile of endowments was 21.2% over the trailing ten-year period, approximately 240 bps higher than the median for the overall endowment universe (Figure 24).

FIGURE 24 10-YR ASSET CLASS RETURNS

As of June 30, 2023 • Percent (%) • By Percentile Ranking



Source: Endowment data as reported to Cambridge Associates LLC.

Notes: The top quartile of performers are based on the total portfolio return for the trailing ten-year period. Marketable asset classes are reported as time-weighted returns while private investments are horizon IRRs. For more information, including the number of participants, see pages 51 through 54 in the Appendix.

INFLATION-ADJUSTED RETURNS

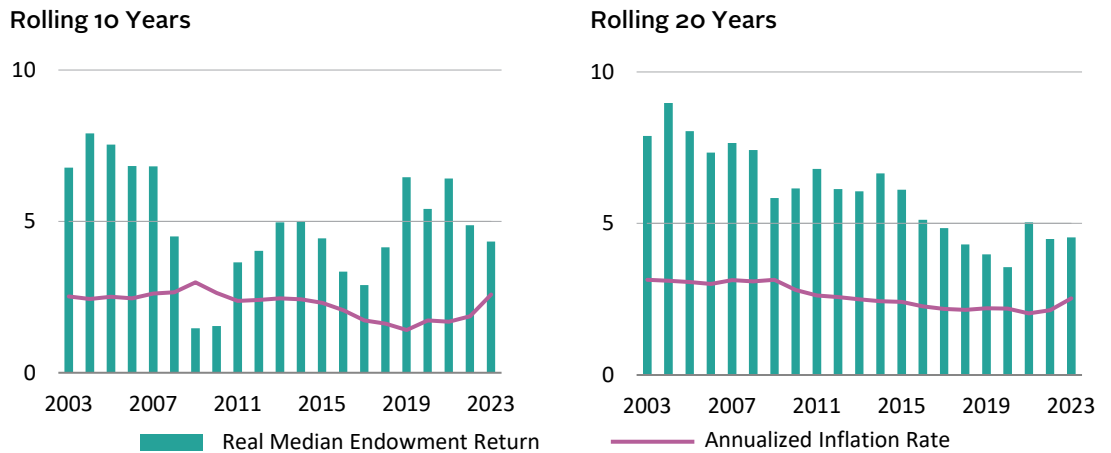
The rate of inflation slowed down significantly in fiscal year 2023 compared to the prior two years. The Consumer Price Index – All Urban Consumers rose 3.0% in 2023 versus 9.1% in 2022. When adjusting nominal returns to account for inflation, the real median return for participating endowments was 4.6% in fiscal year 2023. While this was slightly lower than the real return target that endowments aim for over the long term, it was a vast improvement over the prior year when the median real return was -15.4%.

A primary objective when managing an endowment is to preserve, and perhaps even grow, the purchasing power of its assets. The volatile nature of investment markets makes this task impossible to achieve on a year-to-year basis, so institutions establish return targets that they aim to meet over the long term. Most endowments have targeted a 5% real, or inflation-adjusted, return in pursuit of this goal. Meeting the return target allows an endowment to offset the erosion of purchasing power caused by inflation and replenish the annual spending that is drawn from the portfolio.³

³ See the Investment Policy section of this report, and Figure 28 specifically, for more information on this topic. While 5% has traditionally been the most common real return target, the exact percentage depends on an institution's specific objectives.

The task of earning 5% on a real basis became much more challenging with the onset of the Global Financial Crisis (GFC) in the late 2000s. By 2008, the median ten-year real return for endowments had fallen below 5% and it stayed below this level for much of the ensuing decade (Figure 25). The median 20-year return also took a hit post-GFC and ultimately fell below the 5% level in 2017. While the extraordinary returns of fiscal year 2021 helped the ten- and 20-year median returns surge to their highest levels in several years, these figures trended back down the last couple of years and were below 5% as of the end of fiscal year 2023.

FIGURE 25 ROLLING MEDIAN REAL RETURNS: TRAILING 10- AND 20-YR
Years Ended June 30 • Percent (%)



Source: Endowment data as reported to Cambridge Associates LLC.

Notes: The number of institutions included in the median calculation varies by period and is smaller in earlier years. The inflation rate is represented by the Consumer Price Index - All Urban Consumers.

Of the endowments that provided spending rate data for the last ten years, three-quarters (75%) reported a real return after spending that was above 0% for this historical period. The significance of surpassing 0% is that an endowment experienced asset growth even after the effects of inflation and spending were removed from the equation. The median real return after spending for the trailing ten-year period was 0.8% (Figure 26). For the trailing 20-year period, 82% of respondents reported a real return after spending that was above 0% with the median at 1.0%.

RISK-ADJUSTED RETURNS

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

FIGURE 26 10- AND 20-YR REAL RETURNS AFTER SPENDING

As of June 30, 2023 • Percent (%) • By Percentile Ranking



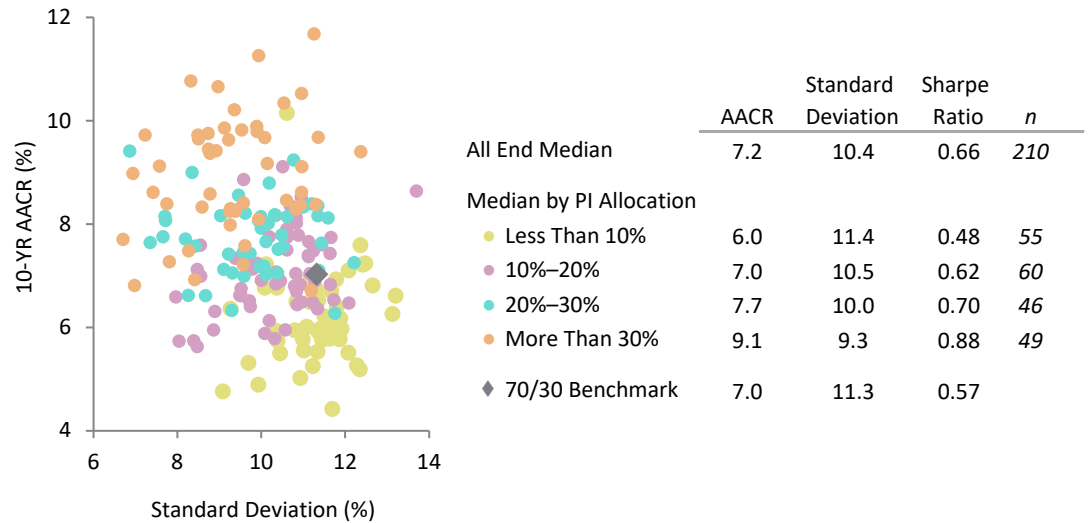
Source: Endowment data as reported to Cambridge Associates LLC.

Note: For more information, see page 54 in the Appendix.

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 dampen the standard deviation for the returns of these assets. Thus, a portfolio with high allocations to private investments can yield a lower volatility statistic relative to portfolios that have higher public equity allocations. For this reason, we have split endowments into subcategories in Figure 27 based on their average allocations to private investments over the trailing ten-year period.

FIGURE 27 10-YR STANDARD DEVIATION AND SHARPE RATIO

Periods Ended June 30, 2023



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

The median Sharpe ratio was 0.88 for endowments that had an allocation of 30% or more to private investments. In comparison, the median Sharpe ratio was just 0.48 for endowments that had less than 10% allocated to private investments. The better Sharpe ratio for the group with the highest private allocations is mostly a function of this group’s higher median return, but it is also partly attributable to their lower median standard deviation.

Section 2: Investment Policy

An investment policy provides guidelines for trustees, investment committee members, investment staff, advisors, and other relevant parties involved in the endowment's investment management and governance processes. The investment policy statement (IPS) is the formal document that outlines the important components of this policy. Some institutions may have additional informal guidelines that are considered in the investment management process but are not documented in the IPS.

ROLE OF THE ENDOWMENT

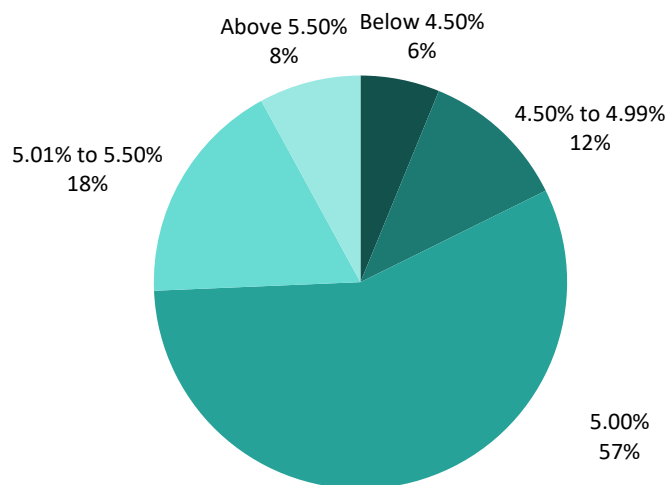
A key issue for any investor to consider is the purpose and role of its investment assets. Most nonprofits don't generate enough revenue to cover the expenses incurred to operate their institutions and rely upon donations and endowed funds to provide additional financial support to their annual budgets. Institutions must balance their annual reliance on endowment spending and the commitment to provide support for their missions in perpetuity.

One term often associated with endowment management is intergenerational equity. The concept of intergenerational equity is that future generations should receive financial support from the endowment that is equitable to what is received by today's students and programs. To meet this objective, an endowment must earn a return over the long term that replenishes both the spending withdrawals from the portfolio and the purchasing power lost because of inflation.

Participants provided their real return objective for the endowment if one was used. Since endowment returns are volatile from year to year, return objectives should be evaluated from the long-term perspective instead of a goal that must be met every year. As has been the case historically, the most common real return objective is 5%, which was cited by 57% of endowments (Figure 28). Approximately 26% of respondents have an objective above 5%, while 18% reported an objective of less than 5%.

FIGURE 28 REAL TOTAL PORTFOLIO RETURN OBJECTIVES

As of June 30, 2023 • n = 113



Source: Endowment data as reported to Cambridge Associates LLC.

ASSET ALLOCATION POLICY

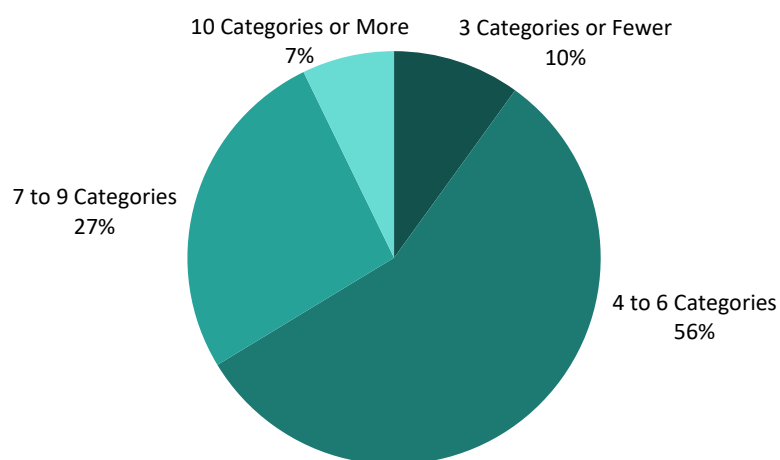
The asset allocation component of the investment policy specifies the asset classes allowed in the portfolio and assigns target allocations and/or ranges for those asset class categories. The categories and targets chosen are based on the portfolio's risk tolerance, liquidity needs, and performance objectives. Survey respondents provided the asset class categories used in their endowment's asset allocation policy.

There are differences in the policy frameworks reported among respondents, with some endowments having more detailed policies than others. Most endowments use separate categories in their framework to distinguish between equities, hedge funds (or diversifying strategies), real assets, and fixed income. For equities, it is the most common practice to have separate targets that split public and private assets into different categories. In addition, some endowments further break out their policy allocations to public equities by separate geographic regions. Similarly, there are often multiple categories used to account for real assets based on the public versus private split and/or to distinguish between the various types of substrategies (e.g., natural resources versus real estate).

Figure 29 shows the distribution of the number of categories that endowments cited in their overall asset allocation policy. The greatest concentration was within a range of four to six categories, with just over one-half (56%) of respondents falling within this range. More than one-quarter (27%) of respondents reported using seven to nine categories, while 7% of endowments use ten or more categories. Just 10% of endowments use three categories or fewer in their policy framework.

FIGURE 29 NUMBER OF CATEGORIES IN THE POLICY ALLOCATION FRAMEWORK

As of June 30, 2023 • n = 291



Source: Endowment data as reported to Cambridge Associates LLC.

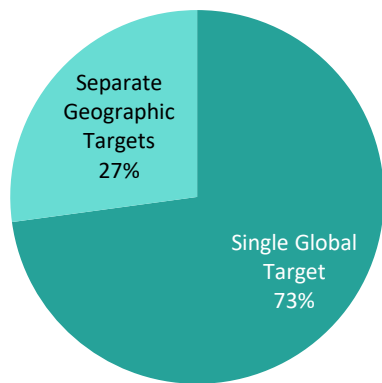
A broad policy approach is most common for public equities, with 73% of respondents reporting a single category that captures their entire public equity allocation (Figure 30). The remaining 27% of respondents assign multiple targets that are based on geographic regions, although there are various combinations of regions used across endowments. The single-category approach provides the investment management team more flexibility, while the multi-category approach puts more constraints on how the public allocations are implemented.

A relatively small percentage (17%) of respondents roll PE/VC together with public equity into a single category in their policy framework. In these instances, a name such as “Growth” or simply “Equity” is used to capture the combined exposure. However, most endowments separate categories for public and private equity when constructing their asset allocation policy. The most common approach, cited by 50% of respondents, is to have either a dedicated target for PE/VC or break out non-venture private equity and venture capital into separate categories. Another 32% of endowments include PE/VC together with other private strategies into a single category called “Private Investments” in their framework.

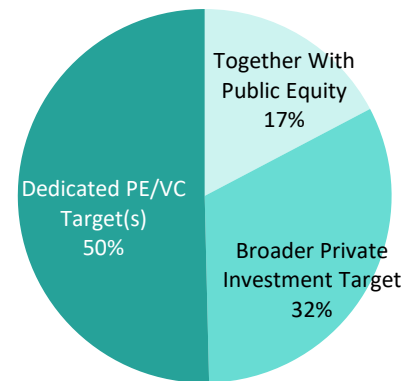
FIGURE 30 CAPTURING EQUITIES IN THE ASSET ALLOCATION POLICY

As of June 30, 2023

Public Equity (*n* = 291)



PE/VC (*n* = 266)



Source: Endowment data as reported to Cambridge Associates LLC.

BENCHMARKING

Benchmarking investment performance is an essential piece of a well-functioning governance process for an endowment. The purpose of benchmarking is to answer the question, “How are we doing?” in ways that are both accurate and relevant to the objectives of the portfolio being measured. No single benchmark can answer every aspect of that question, so institutions may use a variety of benchmarks in this process.

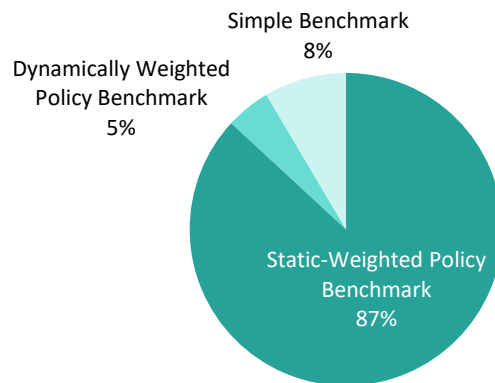
Participants provided the components of what they consider to be their policy portfolio benchmark. The vast majority (87%) of respondents use a static-weighted policy benchmark that matches or aligns closely with the categories and target weightings in the asset allocation policy framework (Figure 31). This approach can help an endowment evaluate whether it has outperformed a mix of indexes that represents its default

or normative position. Such an evaluation not only captures the impact of manager selection decisions, but also the effect of differences between the portfolio's actual asset allocation and the policy targets. A much smaller percentage (5%) of respondents use a dynamically weighted policy benchmark, where the weightings of the indexes update frequently (e.g., monthly) to match the actual asset allocation of the portfolio. This type of benchmark is intended to focus solely on manager selection decisions and neutralizes the effect of over/underweights of asset allocation versus policy targets.

The remaining 8% of respondents use a simple benchmark that incorporates a blend of a broad-based equity benchmark and a bond index. Assuming that a portfolio has diversified into alternative asset classes, a simple benchmark evaluates whether the decision to diversify and actively manage the portfolio paid off for the endowment. The MSCI ACWI was used for the equity component by 23 of the 24 endowments that cited this type of benchmark. Similarly, the Bloomberg Aggregate Bond Index was the most common index reported for the bond component (17 of 24 respondents).

FIGURE 31 TYPES OF POLICY PORTFOLIO BENCHMARKS

As of June 30, 2023 • n = 282

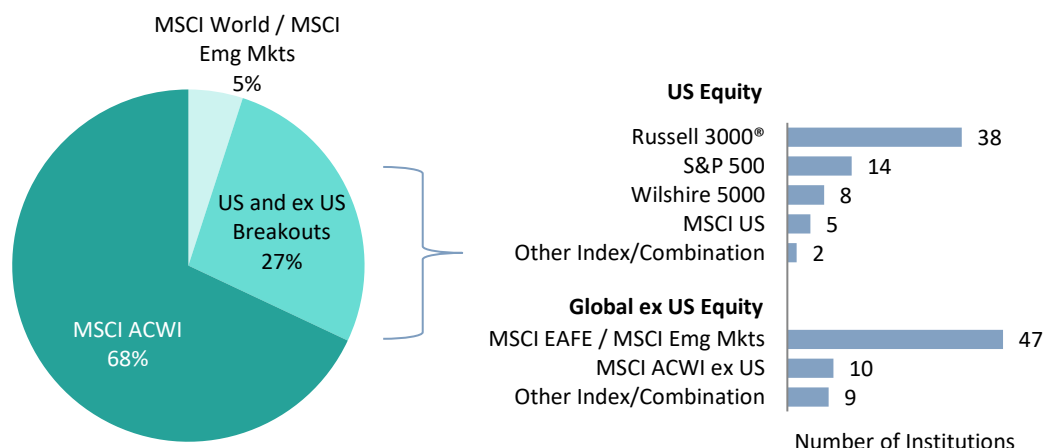


Source: Endowment data as reported to Cambridge Associates LLC.

Figure 32 narrows the universe to the respondents that cited a static-weighted policy benchmark and shows the indexes most frequently used to represent public equity. More than two-thirds (68%) of this group used a version of the MSCI ACWI, which tracks stocks across developed and emerging market countries worldwide. Another 5% of respondents use a blend of the MSCI World Index, which tracks stocks in developed countries, and the MSCI Emerging Markets Index. The remaining 27% of respondents use separate indexes to benchmark exposure to US and global ex US categories. The Russell 3000® Index was overwhelmingly the most common benchmark for those that cited a US-specific index. Similarly, a combination of the MSCI EAFE and MSCI Emerging Markets indexes was by far the most prevalent practice used to represent global ex US equity.

FIGURE 32 COMPONENTS OF THE POLICY PORTFOLIO BENCHMARK: PUBLIC EQUITY

As of June 30, 2023 • n = 245



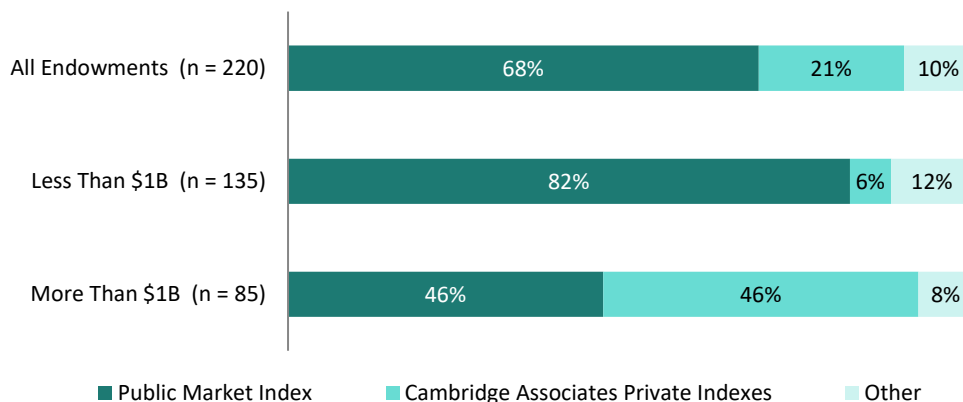
Source: Endowment data as reported to Cambridge Associates LLC.

Accounting for private equity in the policy benchmark can be challenging because there is no single index that meets all of the standards of a valid benchmark. Hence, we see different approaches used across endowments in this study. For the overall respondent group, the use of a public index is the most common approach, as 68% of respondents use this method (Figure 33). The public index is most prevalent among endowments less than \$1 billion, as it was cited by 82% of this group. The rationale for using this approach is that the capital would have been invested in public equity markets if it was not invested in private equity. Therefore, the public index can help evaluate whether the decision to invest in private equity paid off for the endowment. The use of a public index can also be a straightforward approach when a portfolio is still in a phase of building its private program and there is an underweight in current private allocations versus the long-term target.

While the use of a public equity index in this way can capture the opportunity cost of investing in private equity, it does not evaluate how well those private allocations are implemented. Approximately 21% use the CA private investment indexes, which are calculated by pooling together all of the cash flows and valuation changes for the underlying private funds included in a specific strategy's index. Among endowments greater than \$1 billion, there was an even split between the percentage of respondents (46%) that used this approach versus those that used a public market index. The private indexes are not investable nor is there transparency into the names and weightings of the private companies included, and, consequently, they don't satisfy the requirements sought for an ideal benchmark. However, these indexes can be custom weighted by vintage year and provide a better evaluation of private investment fund selection compared to what a public index offers.

FIGURE 33 COMPONENTS OF THE POLICY PORTFOLIO BENCHMARK: PRIVATE EQUITY

As of June 30, 2023

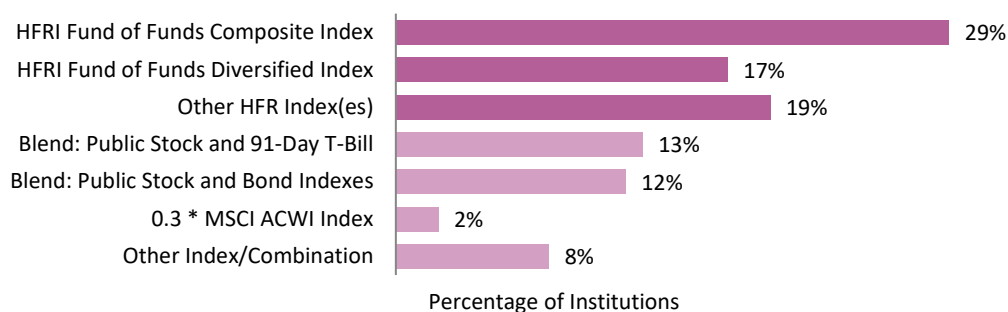


Source: Endowment data as reported to Cambridge Associates LLC.

Endowments also face similar challenges of selecting an appropriate index when accounting for hedge fund allocations in the policy benchmark. Hedge Fund Research® (HFR) produces indexes that broadly track hedge fund managers that report to their database. The HFR indexes may be defined more granularly by investment substrategies, geographic regions, and other criteria. While endowments may use this approach to evaluate their own manager selection versus a broad universe of hedge funds, these indexes lack some of the desired qualities of a valid benchmark, such as being investable and transparent. Still, about two-thirds of the respondent group use one or more of the indexes calculated by HFR. The HFRI Fund of Funds (FOF) Composite Index was used by 29% of endowments, while the HFRI FOF Diversified Index was the next most commonly cited (17%). Another 19% of respondents use a different index or a combination of indexes provided by HFR. As shown in Figure 34, most of the remaining respondents apply some beta adjustment to a public equity index, although the exact method varies across a few different options.

FIGURE 34 COMPONENTS OF THE POLICY PORTFOLIO BENCHMARK: HEDGE FUNDS

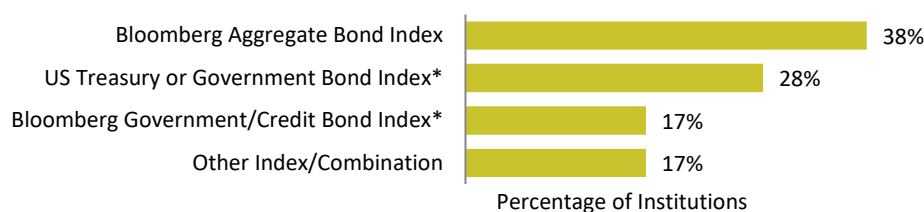
As of June 30, 2023 • n = 227



Source: Endowment data as reported to Cambridge Associates LLC.

The Bloomberg Aggregate Bond Index was the most common benchmark for fixed income but was cited by just 38% of endowments (Figure 35). A US Treasury or US government bond index was the next most commonly cited benchmark (28%), followed by the Bloomberg Government/Credit Bond Index (17%). There are different versions for each of these indexes based on range of maturity, and many endowments use the specific version that reflects their portfolio's underlying fixed income exposure. The remaining 17% of respondents use some other type of index or a combination of multiple indexes. For real assets, benchmark combinations are even more unique across the participant group due to the wide variety of strategies employed under this category.

FIGURE 35 COMPONENTS OF THE POLICY PORTFOLIO BENCHMARK: FIXED INCOME
As of June 30, 2023



*Includes subindexes of the overall strategy that have various ranges of maturity.
Source: Endowment data as reported to Cambridge Associates LLC.

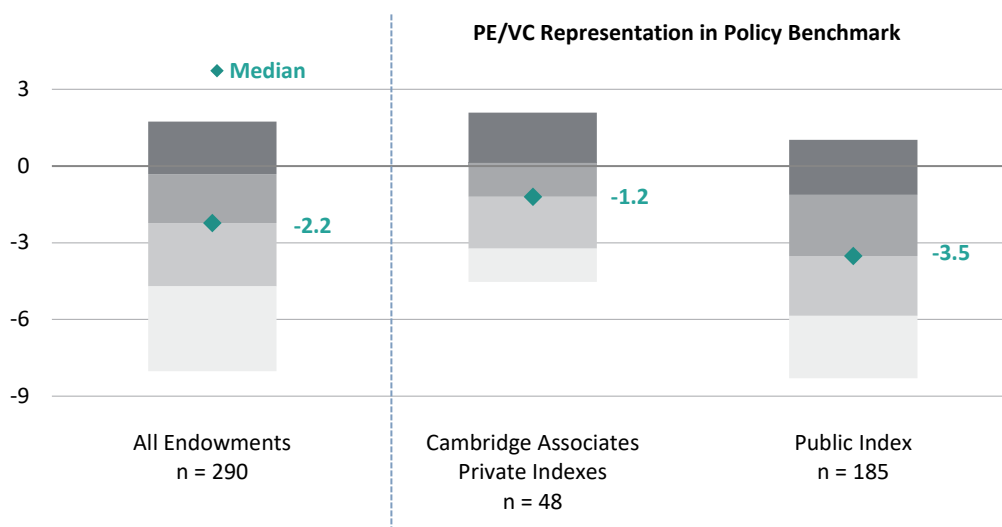
INVESTMENT PERFORMANCE VERSUS POLICY PORTFOLIO BENCHMARKS

The various approaches to benchmarking we have covered in this section are important to keep in mind when analyzing endowment performance relative to policy benchmarks. This is most evident with the benchmarking of PE/VC. As we detailed in the Investment Portfolio Returns section of this report, public equity indexes performed substantially better compared to the returns of the CA PE/VC indexes in fiscal year 2023. Endowments that use the public indexes calculated a policy benchmark return that was considerably higher compared to what it would have been if the CA indexes were used to represent PE/VC, thus making it harder to outperform the benchmark.

The impacts of those benchmarking decisions are displayed in Figure 36. Among all respondents, the median spread between the actual return and the policy benchmark return was -2.2 ppts in fiscal year 2023. The median spread for the subgroup of endowments that used the CA indexes in their benchmark was still negative at -1.2 ppts. However, it was considerably better in relative terms compared to the subgroup of respondents that used a public equity index to represent PE/VC in the benchmark. For that cohort of institutions, the median value add versus the policy benchmark was -3.5 ppts.

FIGURE 36 RANGE OF OUT/UNDERPERFORMANCE OF TOTAL RETURN VS POLICY PORTFOLIO BENCHMARK: FISCAL YEAR 2023

As of June 30, 2023 • Percentage Points • By Percentile Ranking



Source: Endowment data as reported to Cambridge Associates LLC.

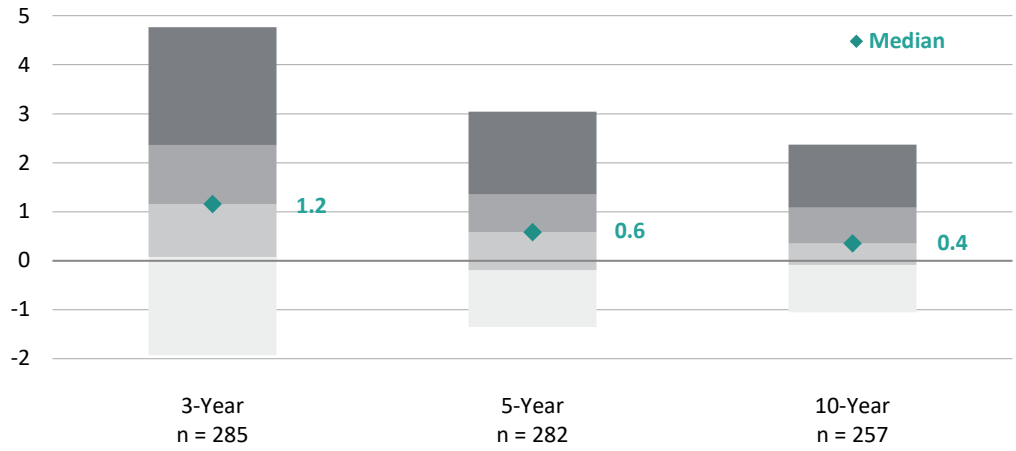
Notes: Data points represent the difference between the total portfolio return and the policy portfolio benchmark return. The subgroups on the right side of the graph capture the endowments that used the two most common approaches for representing PE/VC in the policy benchmark. Excluded are subgroups that used some other method for benchmarking PE/VC, as well as those that did not provide detail on the components of the policy benchmark.

It was a tough year as far as relative performance for most institutions regardless of how PE/VC was represented in the policy benchmark. Just 19% of respondents earned a return that outperformed their benchmark in 2023. Even among those using the CA indexes, less than one-third (14 of 48) outperformed. This was a stark contrast to what most endowments experienced the prior two fiscal years, which were periods where private investments performed significantly better than public markets. Among the overall endowments universe, 61% outperformed their policy benchmarks in 2022 and a whopping 88% outperformed in 2021.

Despite the poor relative results from 2023, strong performance from private investments in prior years—including the once-in-a-generation level of returns from 2021—has led to most endowments outperforming their benchmarks over longer-term trailing periods (Figure 37). Among all respondents, the median spread between the actual return and the policy benchmark return was 1.2 ppts over the trailing three years, with 76% of respondents outperforming the benchmark over this period. The median value add was a bit smaller over the five- and ten-year periods. However, outperformance was still common, with 70% of endowments exceeding the benchmark for each trailing period.

FIGURE 37 RANGE OF OUT/UNDERPERFORMANCE OF TOTAL RETURN VS POLICY PORTFOLIO BENCHMARK: TRAILING 3-, 5-, AND 10-YR

Years Ended June 30, 2023 • Percentage Points • By Percentile Ranking



Source: Endowment data as reported to Cambridge Associates LLC.

Note: Data points represent the difference between the total portfolio return and the policy portfolio benchmark return.

Section 3: Portfolio Asset Allocation

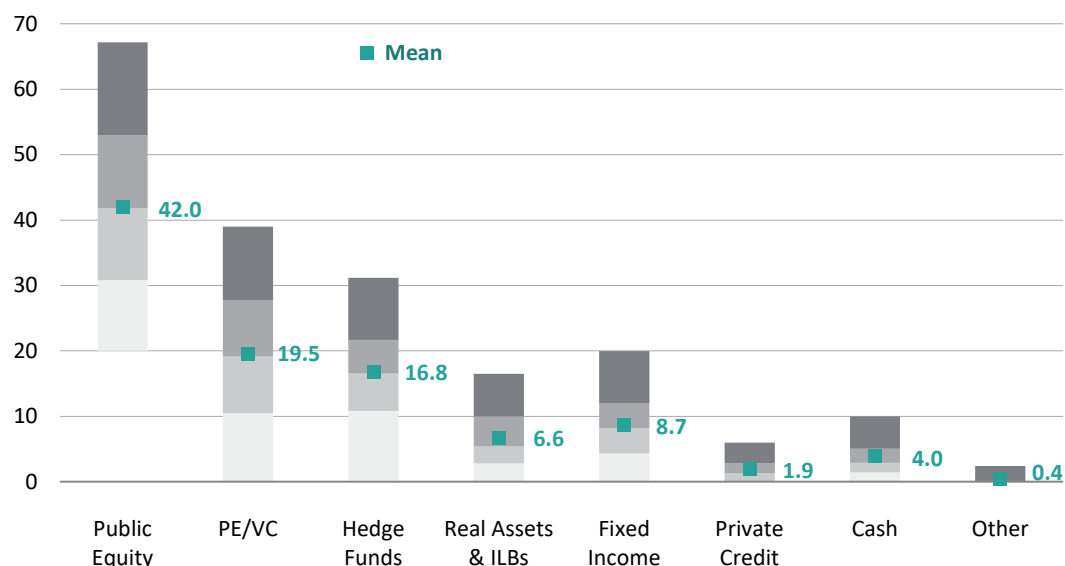
2023 ASSET ALLOCATION

Most nonprofits aim to carry out their missions over a long-term time horizon, if not in perpetuity. This allows the endowments that support these institutions to take on risk in their portfolios. At the same time, exposure to assets that generate asset growth is necessary to replenish the annual spending from portfolios and make up for the loss in purchasing power from inflation. For these reasons, endowments tend to allocate most of their portfolios to equity-oriented strategies.

On average, 42.0% of the long-term investment portfolio (LTIP) was invested in long-only public equities and 19.5% was allocated to PE/VC at the end of fiscal year 2023 (Figure 38). However, the range in allocations reported across respondents was extremely wide within these categories. Even after removing the top and bottom 5% of outliers, public equity allocations were as high as 67% at the top end of the universe and as low as 20% at the bottom end. For PE/VC, allocations ranged from 39% at the 5th percentile to 0% at the 95th percentile.

FIGURE 38 SUMMARY ASSET ALLOCATION DISTRIBUTION

As of June 30, 2023 • Percent (%) • n = 322 • By Percentile Ranking



Source: Endowment data as reported to Cambridge Associates LLC.

Note: For more information, see page 55 in the Appendix.

Figure 39 shows the breakdown of detailed categories that fall under public equity and PE/VC in our asset allocation framework. On the public side, we collect data based on the primary geographic region that each fund/manager is invested.⁴ The highest allocations among the public categories tend to be in US-focused funds, with 19.7% of the average LTIP invested in these strategies. Endowments have meaningful allocations to

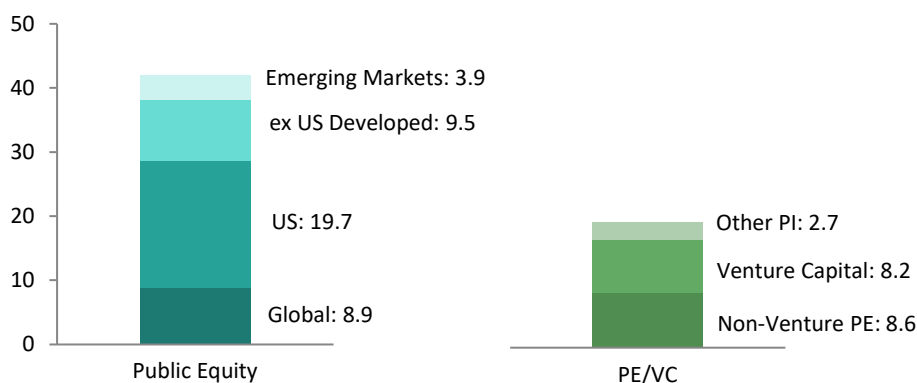
⁴ We reference investment managers and their funds in our review of asset allocations in this section. However, some endowments gain exposure to these asset classes via internally managed holdings or derivatives. The Investment Manager Structures section of this report contains analysis on how asset allocations are implemented across various strategies.

equities outside of the United States, with an average of 9.5% allocated to funds that primarily invested in global ex US developed regions and another 3.9% invested with dedicated emerging markets funds. Funds that are invested across multiple geographic regions are included in our global category and make up 8.9% of the average LTIP.

The largest average allocation on the private side was to non-venture private equity (8.6%), while the average allocation to venture capital was slightly lower at 8.2%. Non-venture private equity in our framework consists of buyouts and growth equity, which is aligned with the way these strategies are combined in the CA Private Equity indexes. There “Other PI” category is reserved for multi-strategy fund-of-funds, secondaries, and other private funds that can’t be allocated solely to either of the aforementioned categories. The average allocation to other private investments was just 2.7%.

FIGURE 39 MEAN ASSET ALLOCATION: PUBLIC EQUITY AND PE/VC

As of June 30, 2023 • Percent (%) • n = 322



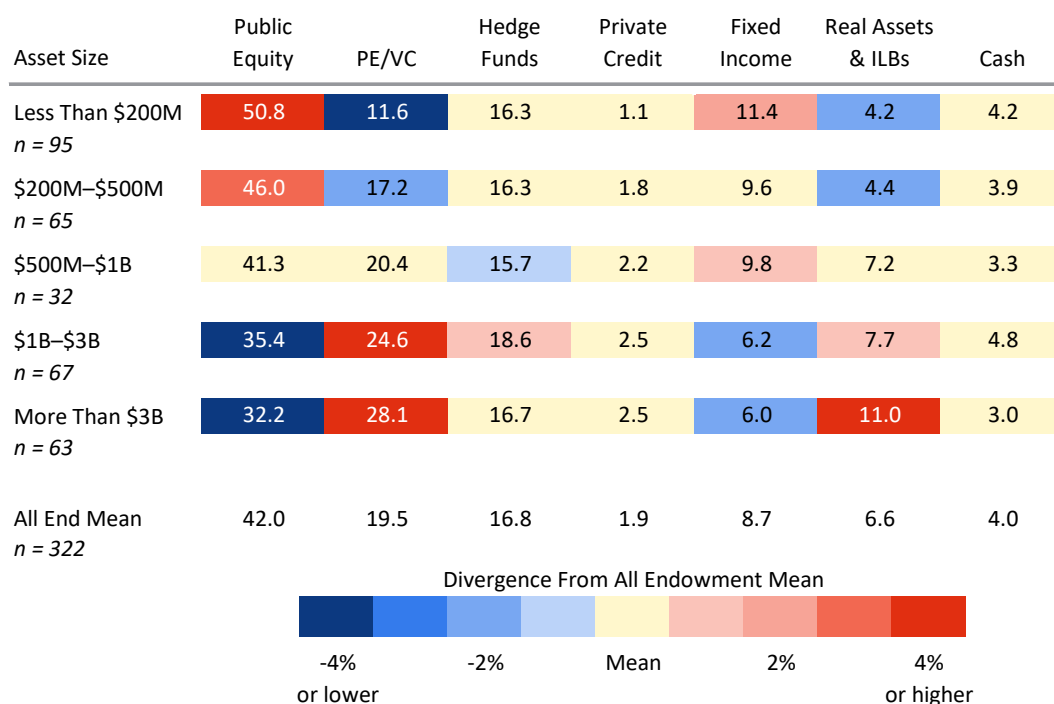
Source: Endowment data as reported to Cambridge Associates LLC.

Elsewhere in the reporting framework, the average allocation to hedge funds was 16.8% (Figure 38), with a little more than one-third of that total coming from long/short equity funds. Real assets, which consist of a diversified group of public and private assets, made up 6.6% of portfolios, on average. Fixed income made up 8.7% of the average LTIP, while private credit accounted for just 1.9%. Rounding out the average asset allocation among participants, 4.0% was allocated to cash and 0.4% was allocated to other miscellaneous assets. Average allocations for the more granular asset classes that fall under these broader categories are included in the appendix of this report.

The total asset size of the LTIP has long been a key factor in the variation of asset allocations among endowments. Smaller endowments continue to maintain higher allocations to fixed income and public equities, while larger endowments have the highest allocations to alternative assets. The differences are most noticeable in the breakdown of public equity versus private equity. Endowments with assets less than \$200 million had an average allocation of 50.8% to public equity, while those with assets greater than \$3 billion had an average of 32.2% (Figure 40). For PE/VC, the largest endowments had an average allocation of 28.1%, while the smallest endowments had an average of 11.6%.

FIGURE 40 MEAN ASSET ALLOCATION BY ASSET SIZE

As of June 30, 2023 • Percent (%)



Source: Endowment data as reported to Cambridge Associates LLC.

Note: For more information, see pages 55 and 56 in the Appendix.

CHANGES TO ASSET ALLOCATION IN FISCAL YEAR 2023

Endowments report some degree of change to their actual asset allocations each fiscal year. Some of the changes can be attributed to how the various asset class strategies perform in relation to each other. Asset classes that earned the best performance over the course of a fiscal year often see their piece of the asset allocation pie get bigger, and vice versa for the categories that produce the lowest returns. Beyond market movements, some asset allocation changes can be attributed to rebalancing activity or annual spending draws from the portfolio. Further, changes can be sparked by shifts in a portfolio’s long-term asset allocation policy.

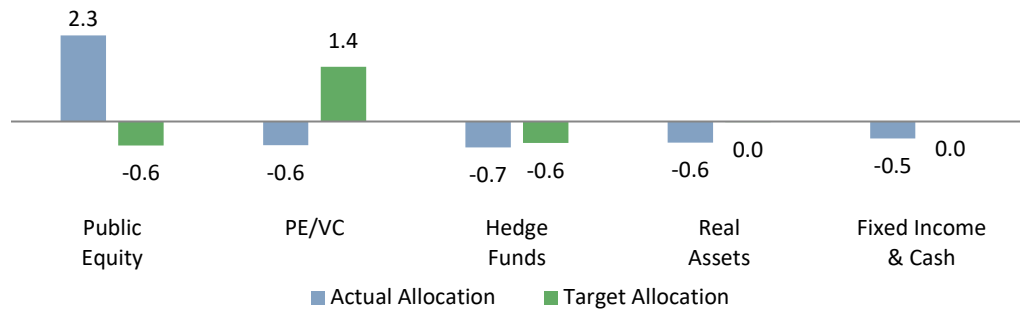
The asset allocation changes that the respondent group reported in fiscal year 2023 were more muted compared to what we reported on in last year’s study, but still noteworthy in a couple of categories. Among the 317 respondents that provided data for the last two fiscal years, the largest overall change was in public equity, which increased by an average of 2.3 ppts. As shown in Figure 41, each of the other summary asset class categories saw a decrease in their average allocations year-over-year.

Our analysis compares these average changes in actual allocations for fiscal year 2023 to the average changes that were reported in target asset allocations. As covered in the Investment Policy section of this report, target asset allocation frameworks vary among endowments and not all respondents have a dedicated target to each category. Still, these comparisons provide some insight into what role asset allocation policy changes and other factors played in the trend in actual allocations over the last fiscal year.

Despite the increase in actual public equity allocations, the average target allocation to these strategies declined slightly in fiscal year 2023. This indicates that other factors, such as strong performance from global public stock markets, were responsible for the increase in actual allocations over the last year. Conversely, the decrease in average PE/VC allocations were probably driven by the lower returns from these strategies in fiscal year 2023, as the average target allocation to these strategies increased over the last year.

FIGURE 41 1-YR CHANGES IN MEAN ACTUAL AND TARGET ASSET ALLOCATION

June 30, 2022, to June 30, 2023 • Percentage-Point Increase or Decrease



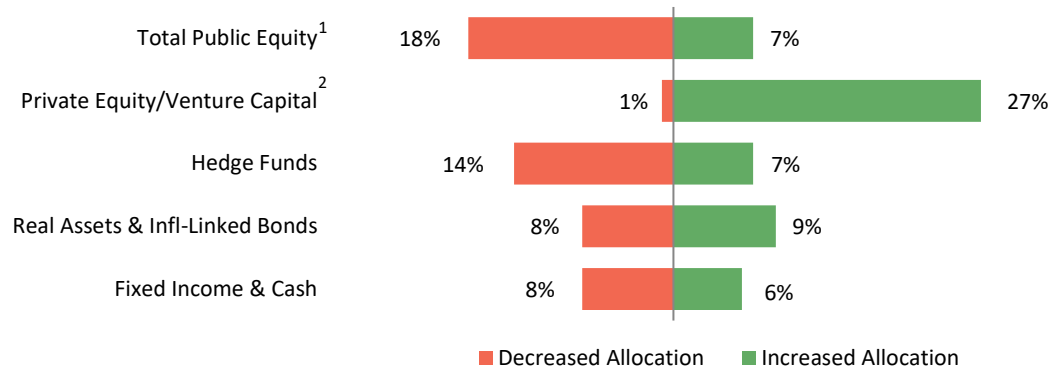
Source: Endowment data as reported to Cambridge Associates LLC.

Notes: The actual allocation statistics are based on 317 respondents that provided data for each of the last two fiscal years. The number of respondents for the target allocation statistics varies across each category. PE/VC includes institutions that combine these strategies with other private investments in a single category.

Figure 42 shows the percentage of endowments that increased or decreased their target allocations in fiscal year 2023 across the main asset class strategies. PE/VC continues to be the category where endowments are overwhelmingly most likely to increase their policy allocations. More than one-quarter (27%) of respondents reported an increase to their target, while just 1% reported a decrease. For real assets, 9% of respondents increased their target, while 8% decreased their target. It was the first time since 2013 that there were more endowments increasing their real assets target compared to those decreasing their target. Elsewhere, public equity was the category that saw the most decreases, with 18% of respondents lowering their target in fiscal year 2023.

FIGURE 42 CHANGES IN TARGET ASSET ALLOCATION

June 30, 2022 – June 30, 2023 • Percentage of Institutions Increasing or Decreasing Targets



¹ Total public equity excludes institutions that combine public equity together with PE/VC in a single equity category.

² Private equity/venture capital includes institutions that include PE/VC together with other private investments in a single category.

Source: Endowment data as reported to Cambridge Associates LLC.

LONG-TERM ASSET ALLOCATION TRENDS

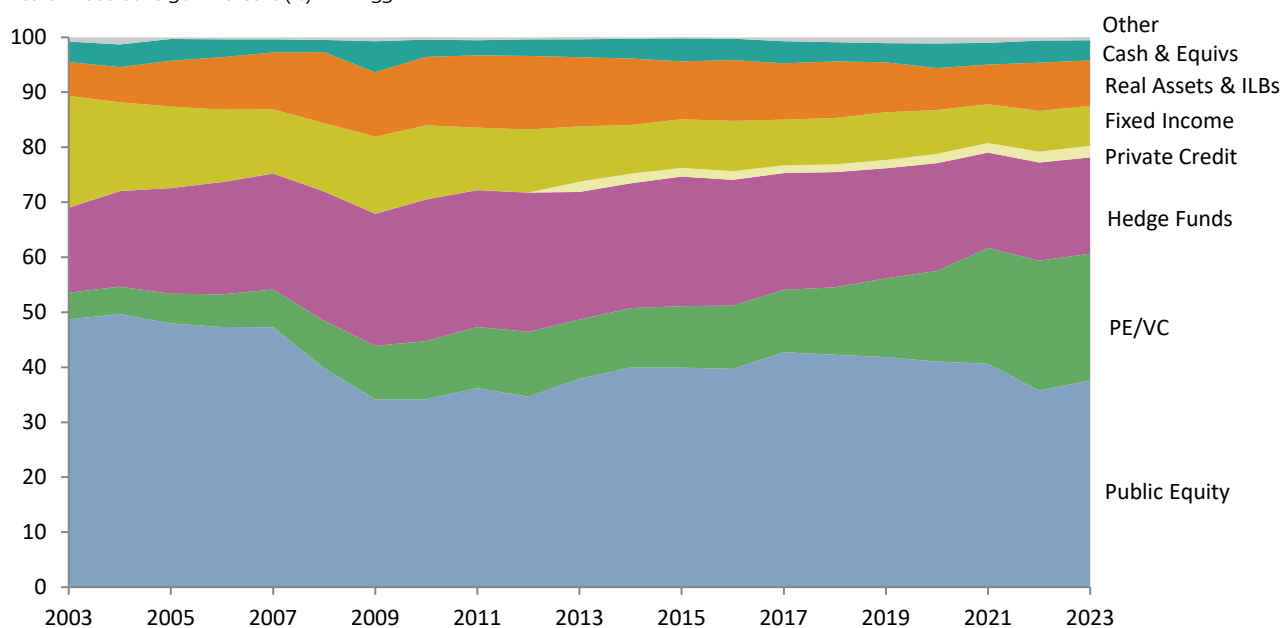
Institutional investors that have adopted the endowment model of investing have seen significant shifts in their asset allocation policies over the last few decades. Exposure to bonds has decreased substantially, while the equity allocation—which was once invested overwhelmingly in US public equities—has become more diversified. The largest endowments pioneered this transition in the 1980s, with the trend spreading among other institutions in the 1990s and early 2000s. Looking back to 2003, the seeds of those diversification trends had already sprouted for many institutions in this study’s universe. There have been several notable trends to highlight as asset allocations have evolved over the ensuing 20 years (Figure 43).

For a constant group of 133 endowments that provided data each year, the trends in allocations to public equity and PE/VC have diverged over much of the last two decades. Although there were a few years post-GFC where allocations to public equities increased, these assets made up a much smaller percentage of the portfolio in 2023 than they did 20 years ago. In contrast, PE/VC allocations have steadily trended up over the last two decades, with the average allocation increasing in 17 of the last 20 years. Among this constant universe of endowments, the average PE/VC allocation at the end of fiscal year 2023 was almost five times higher than it was at the beginning of the historical period.

The combined allocations to public equity and PE/VC are much higher today than they were over most of the last two decades. The average allocation these strategies totaled 54% in 2003 and actually dropped to as low as 44% in 2009. By the end of fiscal year 2023, that average stood at 61%, which was slightly lower than the peak of 62% from two years prior.

FIGURE 43 HISTORICAL MEAN ASSET ALLOCATION TRENDS

Years Ended June 30 • Percent (%) • n = 133



Source: Endowment data as reported to Cambridge Associates LLC.

Note: For more information, see page 57 in the Appendix.

Elsewhere, trends in hedge funds and real assets allocations have followed a similar path to each other over the historical period in Figure 43. In both instances, the average allocation for fiscal year 2023 was just a couple of percentage points higher than 20 years ago. However, comparing just the beginning and ending points on the graph glosses over the activity that took place in between. Both strategies saw steady increases in allocations throughout the first decade of the 2000s, with hedge fund allocations peaking in 2010 and real assets a couple of years later in 2012. Those allocations have declined in most of the years since their respective peaks.

Traditional fixed income strategies still made up a significant percentage of the average portfolio 20 years ago. In fact, it was the second largest piece of the asset allocation pie at that time. However, these allocations have trended downward over most of the last two decades. The average allocation in 2023 was approximately one-third of what it was in 2003. Allocations to private credit and distressed strategies continue to represent a small percentage of the portfolio and have not changed much at all since we started tracking them in 2013.

UNCALLED CAPITAL COMMITMENTS TO PRIVATE INVESTMENTS

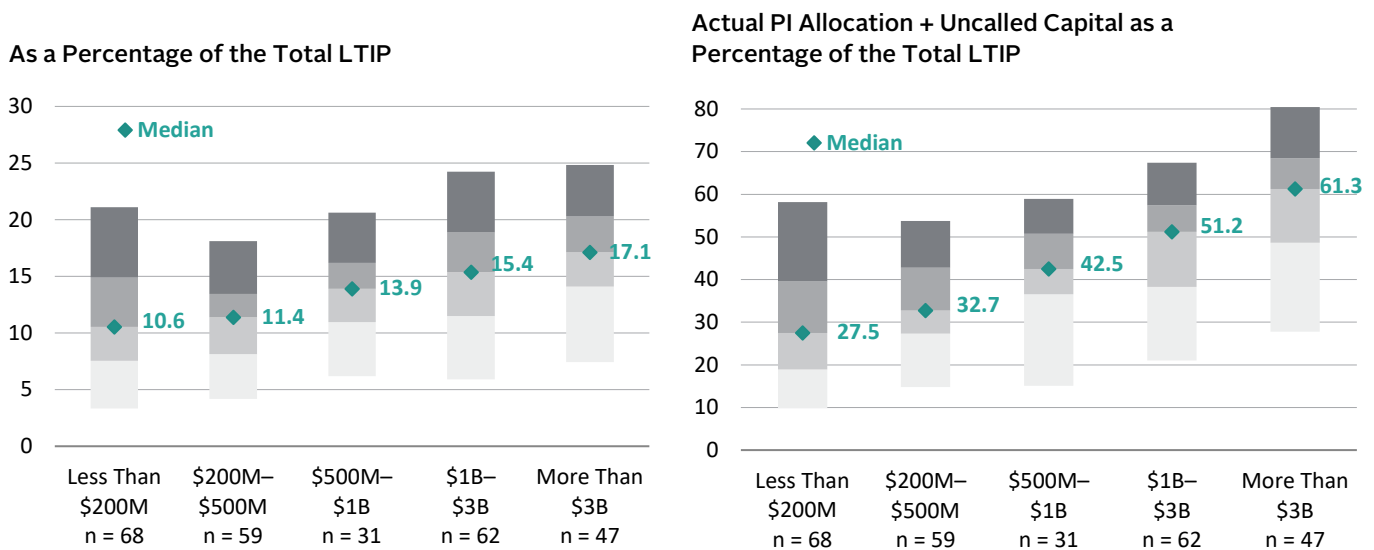
One of the core principles of the endowment model is the use of private investments that, in part due to their illiquid nature, offer the potential for higher long-term returns than those of public or marketable assets. As our analysis in this section has shown, endowments allocate a significant portion of their portfolios to private investments. As of the end of fiscal year 2023, the average total private investment allocation for the overall participant group was 26%. For endowments greater than \$3 billion, the average allocation was even larger at 40%.

Uncalled capital commitments represent the amount of capital that endowments have agreed to pay into private investment funds in the future. While annual spending distributions have traditionally made up the biggest liquidity need for endowments, growing allocations to private assets have resulted in uncalled capital also representing an important piece of the liquidity picture. Whether an endowment is ramping up private allocations or simply maintaining an already high allocation, the amount of uncalled capital is significant when measured versus the total value of the portfolio for most participants in this study.

Uncalled capital commitments as a percentage of the total LTIP tends to be higher for larger endowments than it is for smaller endowments. The median ratio for endowments greater than \$3 billion was 17.1%, while the median ratio calculated for endowments less than \$200 million was 10.6% (Figure 44). The difference was even more stark when combining the amount of uncalled capital with the actual private investment allocation and expressing that as a percentage of the LTIP. For endowments greater than \$3 billion, the median ratio for this equation was 61.3%. In contrast, the median ratio was 27.5% for endowments less than \$200 million.

FIGURE 44 UNCALLED CAPITAL COMMITTED TO PRIVATE INVESTMENT FUNDS

As of June 30, 2023 • Percent (%) • By Percentile Ranking

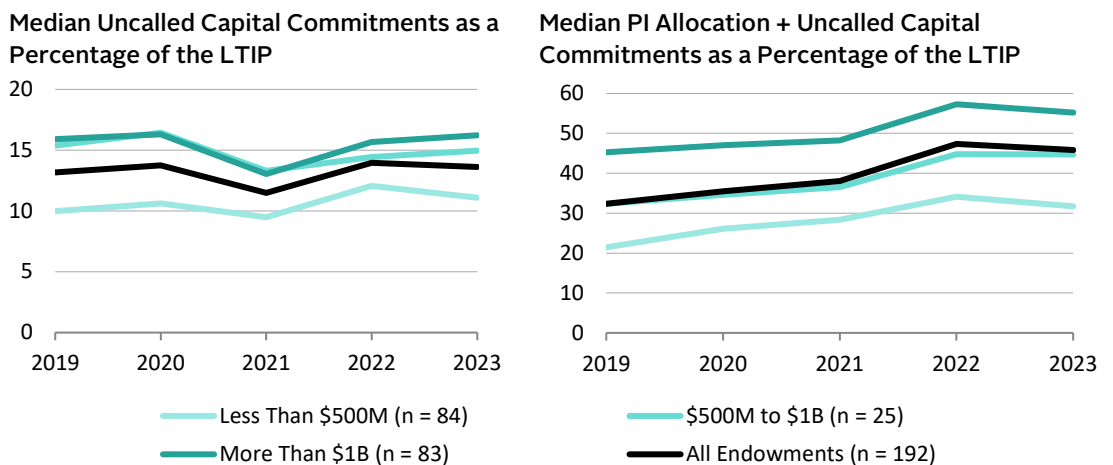


Source: Endowment data as reported to Cambridge Associates LLC.
 Note: For more information, see page 58 in the Appendix.

Figure 45 shows the trend in these two ratios for the group of endowments that reported data over the last five fiscal years. For the overall endowment universe, volatility in portfolio values drove the ratio of uncalled capital-to-LTIP down in 2021 and back up in 2022. Outside of that there was relatively little change, as the ratio in 2023 was just slightly higher than it was in 2019. This was attributable to the fact that the median cumulative growth rates in the amount of uncalled capital commitments (33%) and portfolio values (28%) were similar over this period.

FIGURE 45 TREND IN UNCALLED CAPITAL COMMITMENTS TO PRIVATE INVESTMENT FUNDS

Years Ended June 30 • Percent (%)



Source: Endowment data as reported to Cambridge Associates LLC.

The ratio that combines the actual private investment allocation saw a steady increase over much of this period. For most endowments, the actual private allocations make up the majority of the combined amount that represents the numerator in the ratio equation. The boom in illiquid allocations in the prior few years continued to push this

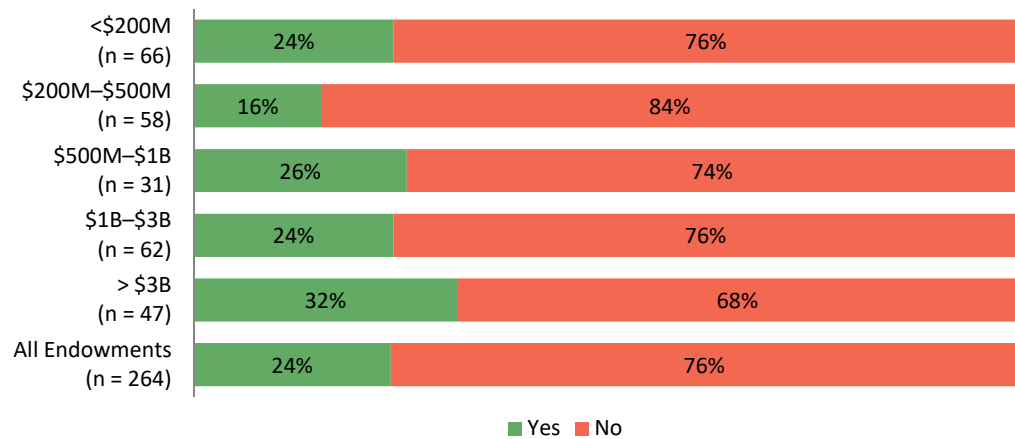
ratio higher, with the exception of this most recent year when it dropped slightly. The reverse in the trend in 2023 was attributable to a small decline that most endowments experienced in their illiquid allocations over this past year.

A large percentage of respondents (76%) reported their private investment program was cash flow negative in 2023, meaning that the amount of distributions from private funds was not enough to offset the amount of new capital paid in (Figure 46). The experience was similar for larger and smaller endowments alike. A majority of respondents within each of the asset size cohorts reported that their programs were cash flow negative for this most recent fiscal year.

FIGURE 46 PRIVATE INVESTMENT PROGRAM CASH FLOW BY ASSET SIZE

As of June 30, 2023

Was Your Private Investment Program Cash Flow Positive in 2023?



Source: Endowment data as reported to Cambridge Associates LLC.

Note: Private investment fund programs were considered cash flow positive if fund distributions were higher than paid-in capital calls in fiscal year 2023.

Section 4: Investment Manager Structures

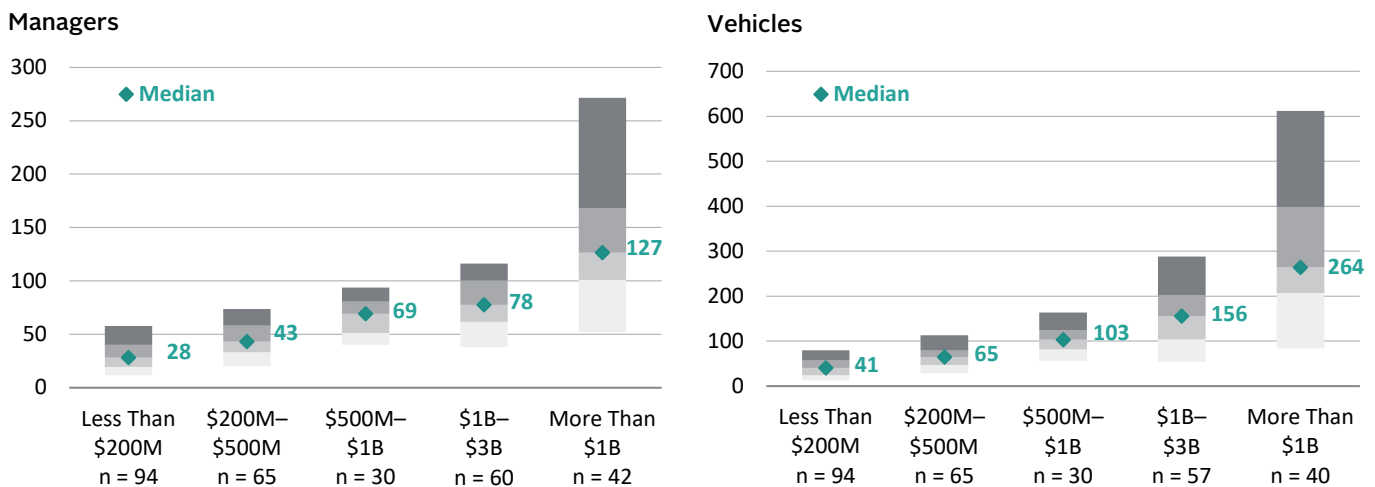
NUMBER OF EXTERNAL MANAGERS

Most of the assets under management at endowments are invested via external investment managers. There are multiple factors that contribute to the number of managers employed within an endowment's portfolio. The scale of total assets under management is the primary factor, as larger endowments generally spread their assets across a greater number of managers compared to smaller endowments. Among endowments greater than \$3 billion, the median number of investment managers was 127 (Figure 47). At the opposite end of the asset size spectrum, the median for endowments less than \$200 million was just 28 managers.

Our survey also asked about the number of vehicles invested in by endowments. For the purposes of our analysis, an investment vehicle represents a fund, product, or separate account that is managed by an investment manager. Endowments often invest in multiple investment vehicles of the same manager, particularly when it comes to private investment funds. Therefore, the number of vehicles endowments are invested in is much higher than the number of managers. The median number of vehicles ranged dramatically from 264 for endowments greater than \$3 billion to 41 for endowments less than \$200 million.

FIGURE 47 NUMBER OF EXTERNAL MANAGERS AND INVESTMENT VEHICLES

As of June 30, 2023 • By Percentile Ranking



Source: Endowment data as reported to Cambridge Associates LLC.

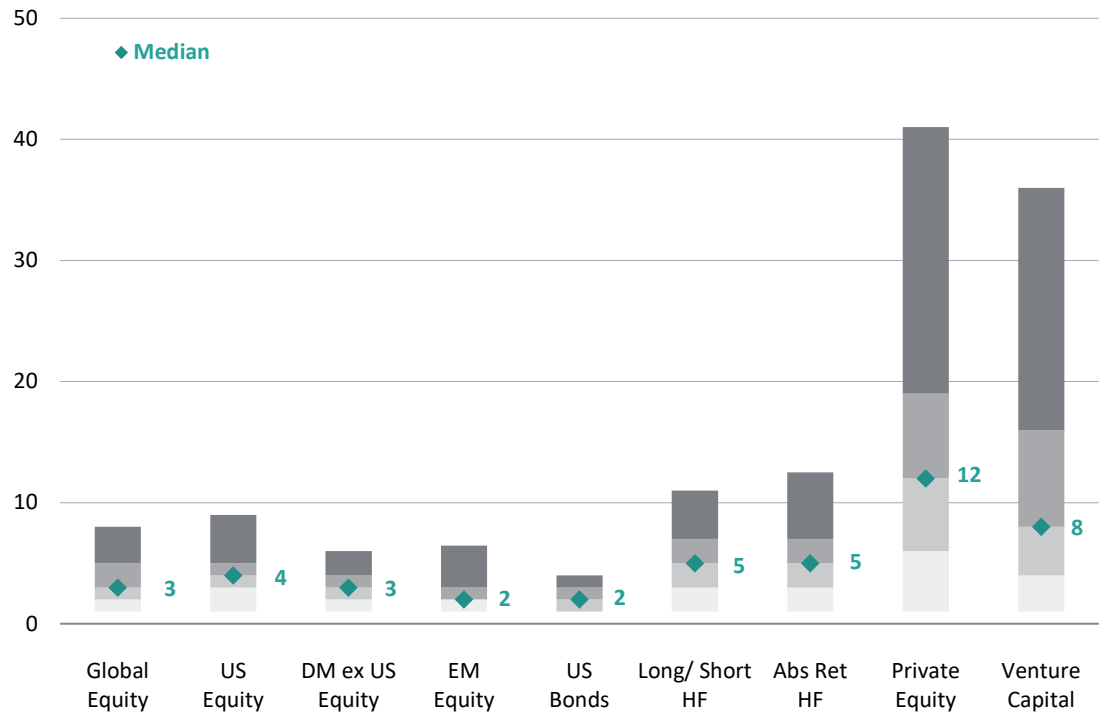
Note: For more information, see page 59 in the Appendix.

Even within the broad asset size groups, the range of managers employed can be wide. Among the smallest endowments, the number of managers employed at the 25th percentile (40) was double the number used at the 75th percentile (19). For portfolios greater than \$3 billion, 272 managers are employed at the 5th percentile, compared to just 52 at the 95th percentile. Much of the variation can be attributed to the management of alternative asset classes. Figure 48 shows the range in number of managers across endowments for a several asset classes. The dispersion in the number of alternative asset managers employed, particularly within private investments, is much wider

than that of the more traditional equity and bond asset classes. Further detail on these and other asset classes is provided for the five broad asset size groups in the Appendix of this report.

FIGURE 48 DISPERSION IN NUMBER OF MANAGERS FOR SELECTED ASSET CLASSES

As of June 30, 2023 • By Percentile Ranking



Source: Endowment data as reported to Cambridge Associates LLC.

Notes: Only those institutions with an allocation to the specific asset class have been included. Funds-of-funds are counted as one manager. For more information, see page 59 in the Appendix.

ASSET CLASS IMPLEMENTATION

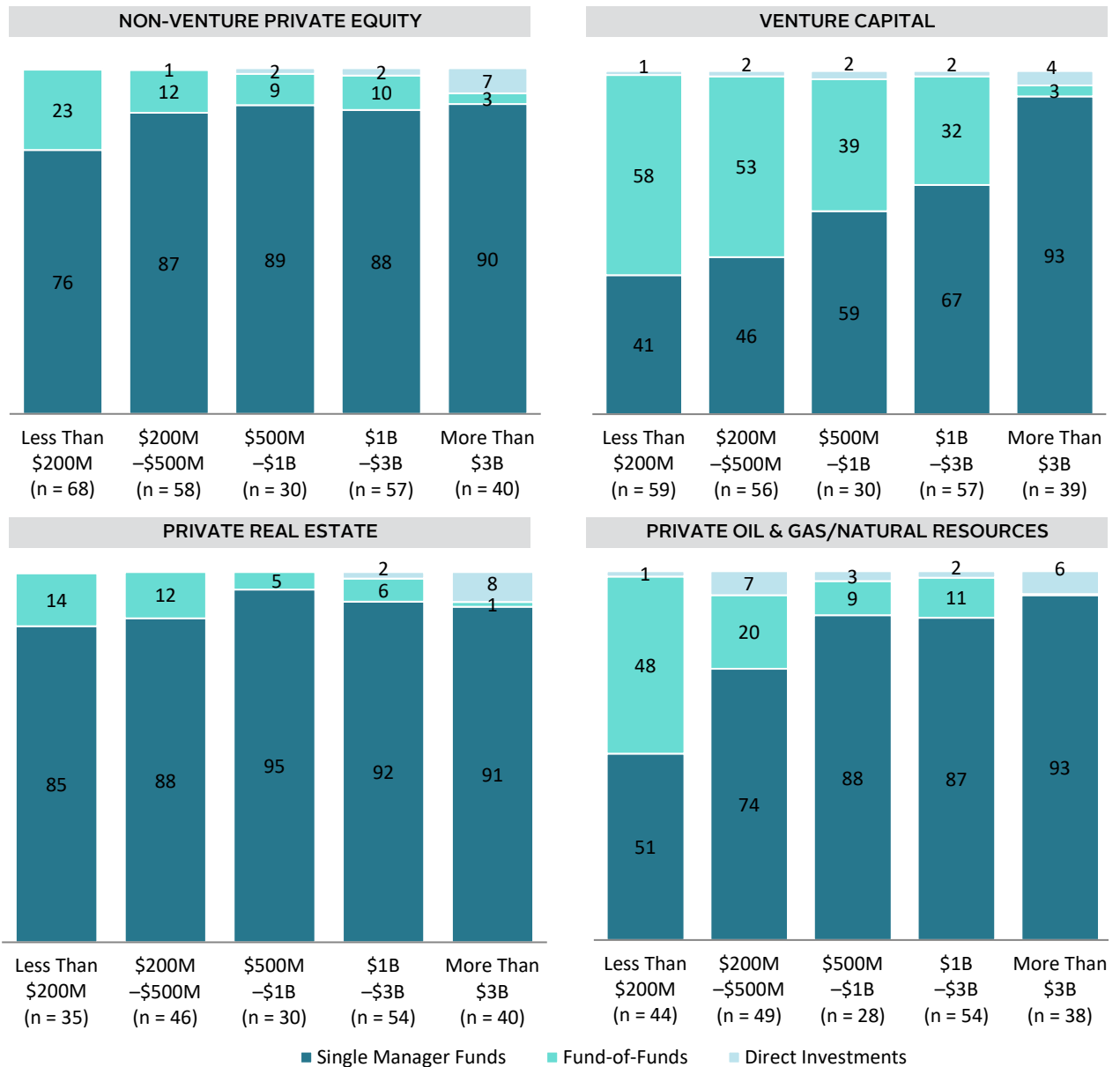
HEDGE FUNDS. There are two primary types of investment vehicles that endowments use when implementing their hedge fund allocations. A single manager fund is a type of investment vehicle where the investment manager makes the decisions for the securities and assets held within the fund. In contrast, a fund-of-funds is a type of strategy where the investment manager invests in a collection of other investment funds. On average, more than 90% of the average hedge fund allocation is implemented via single manager funds. The implementation approach for hedge funds varies little across the various asset sizes, as both larger and smaller endowments alike overwhelmingly use single manager hedge funds.

PRIVATE INVESTMENTS. Endowments also have single manager funds and fund-of-funds at their disposal when implementing private investment allocations. In addition, some endowments make direct investments in private strategies. Direct investments can take the form of co-investments that are made alongside a general partner or solo investments that are originated by the endowment itself.

Compared to hedge funds, implementation practices are a little more varied across private investment asset classes. This is most evident in venture capital and private natural resources, where fund-of-funds are more common among smaller endowments. On average for endowments less than \$200 million, 58% of the average venture capital and 48% of the average natural resources allocations are implemented via fund-of-funds. In contrast, fund-of-funds make up just a tiny percentage of the average allocations for endowments greater than \$3 billion. Figure 49 shows the average breakdown of allocations by implementation category for other private strategies. Private credit strategies are not included in this exhibit, as endowments across all asset sizes rely almost exclusively on single manager funds to implement these allocations.

FIGURE 49 PORTFOLIO IMPLEMENTATION: PRIVATE INVESTMENTS

As of June 30, 2023 • Equal-Weighted Means (%)



Source: Endowment data as reported to Cambridge Associates LLC.

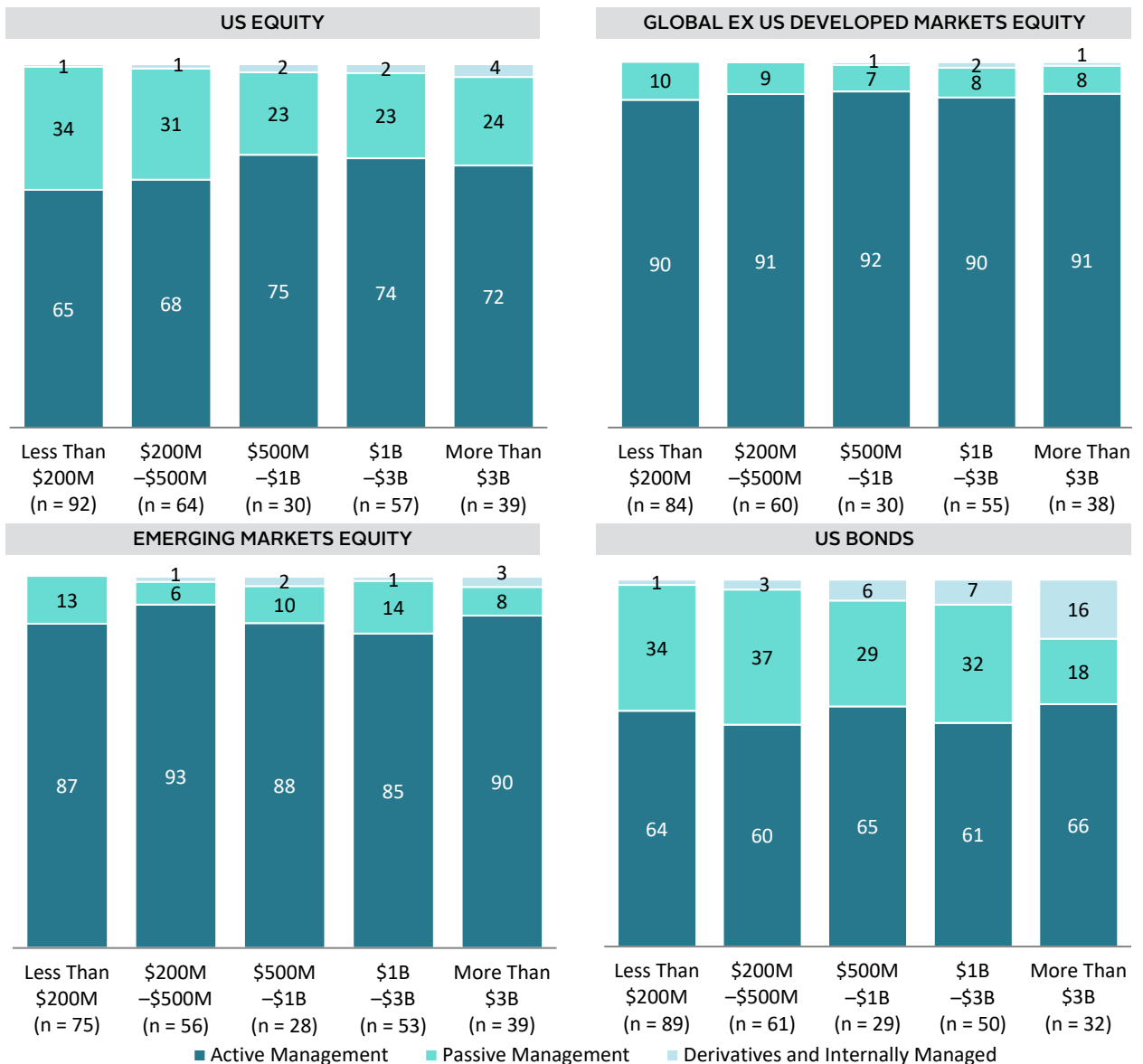
Note: Analysis shows the average allocation of assets across the implementation categories for each peer group.

PUBLIC EQUITIES AND BONDS. For traditional bonds and equities, endowments primarily use external managers to implement their allocations. These assets are invested either through active or passively managed investment vehicles. Some endowments also manage assets internally or use derivatives to achieve desired exposures.

When considering the average breakdown of US equity allocations, the majority of assets are invested via active managers (Figure 50). The proportion of US allocations invested through active managers is similar across all asset size groups. For global ex US equities, the average proportion of allocations invested through active managers is higher. In US bonds, the percentage of assets invested via active management was similar across all of the asset size cohorts. Endowments greater than \$3 billion stood out from the rest of the universe in that they had the lowest percentage of assets implemented through passive vehicles (18%) and the highest percentage of assets internally managed (16%).

FIGURE 50 PORTFOLIO IMPLEMENTATION: TRADITIONAL EQUITIES AND BONDS

As of June 30, 2023 • Equal-Weighted Means (%)



Source: Endowment data as reported to Cambridge Associates LLC.

Note: Analysis shows the average allocation of assets across the implementation categories for each peer group.

Notes on the Data

The notation of n denotes the number of institutions included in each analysis.

Returns for periods greater than one-year are annualized.

The simple portfolio benchmark consisting of 70% MSCI ACWI Index/30% Bloomberg Aggregate Bond Index is calculated assuming rebalancing occurs on the final day of each quarter.

The MSCI indexes contained in this report are net of dividend taxes for global ex US securities unless otherwise noted.

Private indexes are pooled horizon IRRs, net of fees, expenses, and carried interest.

Hedge Fund Research data are preliminary for the preceding five months.

PROFILE OF RESPONDENTS

This report includes data for 322 endowed institutions. When the overall group is broken out by industry type, 160 are colleges and universities, 53 are cultural and environmental institutions, 34 are hospitals, 32 are independent schools, and 43 are other endowed institutions. All participants provided investment pool data as of June 30, 2023.

The 322 participants in this study reported long-term investment portfolio (LTIP) assets totaling \$909 billion as of June 30, 2023. The mean LTIP size was \$2.8 billion, and the median was \$531.2 million. The breakdown of institutions by LTIP size is: 130 institutions with more than \$1 billion, 97 between \$200 million and \$1 billion, and 95 with less than \$200 million. The participants with LTIP sizes greater than \$1 billion controlled 94% of the aggregate LTIP assets.

CALCULATION OF THE SHARPE RATIO

The Sharpe ratio shows how much return above the risk-free rate (T-bills) the investor has earned per unit of risk (defined as standard deviation of returns). The higher the Sharpe ratio, the more the investor has been compensated for each unit of risk taken. The ratio is a measure of reward relative to total volatility. The formula is:

Where:

$$\frac{R_p - R_f}{S_p} = \text{Sharpe Ratio}$$

- R_p is the arithmetic average of composite quarterly returns,
- R_f is the arithmetic average of T-bill (risk-free) quarterly returns, and
- S_p is the quarterly standard deviation of composite quarterly returns.

MODIFIED PUBLIC MARKET EQUIVALENT (MPME) INDEXES

Under Cambridge Associates' 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 NAV is a function of mPME cash flows. The mPME analysis evaluates what return would have been earned had the dollars invested in private investments been invested in the public market instead.

Appendix: Investment Portfolio Returns

CA PE/VC INDEX VS MSCI ACWI

Fiscal Years Ended June 30 • Percent (%)

| Fiscal Year | CA PE/VC Index | MSCI ACWI | | Endowment | |
|-------------|----------------|-----------|-----------|------------------|----------|
| | | mPME | Value Add | PE/VC Allocation | <i>n</i> |
| 2003 | -1.9 | 1.3 | -3.3 | 4.6 | 154 |
| 2004 | 19.1 | 25.0 | -5.9 | 5.0 | 155 |
| 2005 | 26.5 | 11.8 | 14.7 | 5.2 | 161 |
| 2006 | 29.2 | 18.4 | 10.7 | 5.6 | 171 |
| 2007 | 36.3 | 25.8 | 10.5 | 6.3 | 175 |
| 2008 | 4.7 | -9.4 | 14.1 | 7.9 | 184 |
| 2009 | -24.2 | -26.9 | 2.8 | 8.6 | 196 |
| 2010 | 16.5 | 11.1 | 5.3 | 9.2 | 206 |
| 2011 | 29.8 | 30.6 | -0.8 | 9.4 | 212 |
| 2012 | 2.5 | -5.6 | 8.2 | 9.8 | 221 |
| 2013 | 13.9 | 17.4 | -3.5 | 9.0 | 224 |
| 2014 | 24.3 | 23.8 | 0.6 | 9.0 | 227 |
| 2015 | 12.2 | 1.1 | 11.1 | 9.2 | 239 |
| 2016 | 4.5 | -3.3 | 7.8 | 9.5 | 241 |
| 2017 | 16.4 | 19.4 | -3.0 | 9.0 | 257 |
| 2018 | 19.4 | 11.4 | 8.0 | 9.9 | 264 |
| 2019 | 13.3 | 6.5 | 6.8 | 11.5 | 286 |
| 2020 | 8.9 | 2.9 | 6.1 | 13.6 | 287 |
| 2021 | 63.5 | 39.8 | 23.7 | 17.4 | 312 |
| 2022 | 2.7 | -15.7 | 18.5 | 20.4 | 317 |
| 2023 | 2.2 | 17.7 | -15.5 | 19.5 | 322 |

Source: Endowment data as reported to Cambridge Associates LLC. Index data are provided by Cambridge Associates LLC.

FISCAL YEAR 2023 TOTAL RETURN PERCENTILES

Trailing 1-Yr as of June 30, 2023 • Percent (%) • By Percentile Ranking

| | All Endowments | Less Than \$200M | \$200M–\$500M | \$500M–\$1B | \$1B–\$3B | More Than \$3B |
|-----------|----------------|------------------|---------------|-------------|-----------|----------------|
| 5th %ile | 12.2 | 12.6 | 12.2 | 10.3 | 11.3 | 10.5 |
| 25th %ile | 10.1 | 11.3 | 10.9 | 8.5 | 8.9 | 6.2 |
| Median | 7.7 | 9.6 | 8.4 | 7.7 | 6.9 | 4.0 |
| 75th %ile | 5.0 | 7.3 | 6.8 | 6.5 | 4.3 | 1.9 |
| 95th %ile | 1.3 | 3.1 | 4.3 | 4.8 | 1.0 | -1.9 |
| Mean | 7.3 | 9.0 | 8.6 | 7.6 | 6.5 | 4.1 |
| <i>n</i> | 322 | 95 | 65 | 32 | 67 | 63 |

Sources: Endowment 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.

FISCAL YEAR 2023 TOTAL RETURN PERCENTILES

Trailing 1-Yr as of June 30, 2023 • Percent (%)

| | Colleges & Universities | Cultural & Environmental | Independent Schools | Healthcare | Other Endowments |
|-----------|-------------------------|--------------------------|---------------------|------------|------------------|
| 5th %ile | 11.7 | 12.2 | 12.4 | 12.1 | 13.0 |
| 25th %ile | 8.5 | 11.1 | 10.7 | 10.1 | 11.3 |
| Median | 6.7 | 8.1 | 8.9 | 7.7 | 10.4 |
| 75th %ile | 4.2 | 6.4 | 7.1 | 4.9 | 7.6 |
| 95th %ile | 0.5 | 1.7 | 4.2 | 0.0 | 2.4 |
| Mean | 6.3 | 8.1 | 8.7 | 7.3 | 9.2 |
| <i>n</i> | 160 | 53 | 32 | 34 | 43 |

Sources: Endowment 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.

EXAMPLE OF 1-YR ATTRIBUTION ANALYSIS: ALL ENDOWMENT MEAN

As of June 30, 2023 • Percent (%) • n = 317

| Asset Class | Breakdown of Return From Asset Allocation | | | |
|--|--|------------------|--------------------|--------------------------|
| | Beginning Year | Asset Class | Contribution to | |
| | Mean Asset Allocation | Benchmark Return | Asset Class Return | Index |
| US Equity | 17.8 | 19.0 | 3.4 | Russell 3000 |
| Global ex US Equity-Developed Mkts | 8.9 | 18.8 | 1.7 | MSCI EAFE (N) |
| Global Equity | 8.3 | 16.9 | 1.4 | MSCI ACWI |
| Long/Short Hedge Funds | 6.9 | 7.6 | 0.5 | HFRI Equity Hedge |
| Non-Venture Private Equity | 8.4 | 6.4 | 0.4 | CA US Private Equity |
| Absolute Return (ex Distressed) | 9.7 | 3.6 | 0.3 | HFRI FOF Diversified |
| Private Oil & Gas / Natural Resources | 2.7 | 5.7 | 0.2 | CA Natural Resources |
| Cash & Equivalents | 4.2 | 3.6 | 0.2 | 91-Day T-Bill |
| Public Energy / Natural Resources | 0.8 | 13.6 | 0.1 | MSCI World Nat Res (N) |
| Private Credit | 1.3 | 8.4 | 0.1 | CA Private Credit |
| Global ex US Equity-Emerging Mkts | 4.4 | 1.7 | 0.1 | MSCI Emg Mkts (N) |
| Other | 0.4 | 11.4 | 0.0 | 70% Global Eq/30% Bond |
| Other Private Investments | 2.8 | 1.9 | 0.0 | CA US PE/VC |
| Distressed-Private Equity Structure | 0.6 | 4.9 | 0.0 | CA Distressed Securities |
| Distressed-Hedge Fund Structure | 1.0 | 1.6 | 0.0 | HFRI ED: Dist/Rest |
| High-Yield Bonds | 0.2 | 9.1 | 0.0 | BBG High Yield |
| Global ex US Bonds | 0.1 | -2.6 | 0.0 | FTSE Non-US\$ WGBI |
| Global Bonds | 0.3 | -2.5 | 0.0 | FTSE WGBI |
| Inflation-Linked Bonds | 0.6 | -1.4 | 0.0 | BBG Barc US TIPS |
| Public Real Estate | 0.4 | -3.6 | 0.0 | FTSE NAREIT Composite |
| Commodities | 0.4 | -9.6 | 0.0 | Bloomberg Commodity |
| Private Real Estate | 2.4 | -2.0 | 0.0 | CA Real Estate |
| US Bonds | 8.2 | -0.9 | -0.1 | BBG Agg Bond |
| Venture Capital | 9.2 | -10.4 | -1.0 | CA US Venture Capital |
| <i>Return From Asset Allocation (Sum of Contributions)</i> | | | 7.3 | |
| <i>+/- Return From Other Factors</i> | | | 0.0 | |
| Mean Total Portfolio Return | | | 7.3 | |

Sources: Endowment 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., 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.

Note: 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 horizon returns.

PARTICIPANTS' 1-YR ASSET CLASS RETURNS: MARKETABLE INVESTMENTS

Trailing 1-Yr as of June 30, 2023 • Percent (%) • By Percentile Ranking

| | Total Public Equity | Global Equity Managers | US Equity | Dev Mkts ex US Equity | Emg Mkts Equity | Bonds | Hedge Funds | Commodities and Natural Resources | Public Real Estate |
|---|---------------------------|------------------------------|--------------|-----------------------------|--------------------|-------|----------------|---|-----------------------|
| All Endowments | | | | | | | | | |
| 5th %ile | 19.1 | 24.6 | 22.3 | 26.8 | 10.8 | 3.6 | 13.9 | 23.6 | 2.5 |
| 25th %ile | 17.0 | 20.4 | 20.5 | 17.9 | 6.1 | 1.0 | 8.8 | 13.5 | -1.5 |
| Median | 16.2 | 17.8 | 19.1 | 16.0 | 2.7 | -0.2 | 7.1 | 6.1 | -3.9 |
| 75th %ile | 14.9 | 15.2 | 17.7 | 14.6 | -0.8 | -1.2 | 5.1 | -0.8 | -4.0 |
| 95th %ile | 11.8 | 10.4 | 13.6 | 10.0 | -7.8 | -3.1 | 1.9 | -9.6 | -8.0 |
| Mean | 15.9 | 17.7 | 18.8 | 16.9 | 2.3 | -0.1 | 7.2 | 7.3 | -2.6 |
| <i>n</i> | 269 | 204 | 265 | 249 | 252 | 265 | 269 | 92 | 47 |
| Median by Asset Size | | | | | | | | | |
| Less Than \$200M | 16.1 | 17.1 | 18.9 | 15.8 | 3.6 | -0.4 | 7.0 | 7.5 | -3.9 |
| <i>n</i> | 91 | 67 | 89 | 80 | 82 | 88 | 84 | 35 | 11 |
| \$200M–\$500M | 16.5 | 18.4 | 19.3 | 16.4 | 2.5 | -0.1 | 7.7 | 8.6 | -3.9 |
| <i>n</i> | 65 | 52 | 64 | 60 | 61 | 61 | 63 | 17 | 9 |
| \$500M–\$1B | 16.2 | 18.0 | 19.2 | 15.1 | 3.3 | 0.2 | 6.4 | 5.3 | -1.5 |
| <i>n</i> | 27 | 21 | 28 | 28 | 27 | 29 | 29 | 16 | 7 |
| \$1B–\$3B | 16.6 | 17.8 | 19.6 | 16.0 | 1.8 | -0.1 | 7.4 | 7.1 | -3.0 |
| <i>n</i> | 49 | 37 | 48 | 46 | 46 | 47 | 54 | 12 | 11 |
| More Than \$3B | 15.3 | 18.1 | 18.9 | 18.3 | 0.3 | 0.1 | 5.9 | 2.1 | -3.7 |
| <i>n</i> | 37 | 27 | 36 | 35 | 36 | 40 | 39 | 12 | 9 |
| Median by Total Performance Quartile | | | | | | | | | |
| Top Quartile | 16.7 | 18.0 | 19.0 | 16.0 | 3.8 | -0.1 | 7.3 | 8.1 | -3.9 |
| <i>n</i> | 74 | 53 | 75 | 73 | 70 | 73 | 69 | 27 | 9 |
| 2nd Quartile | 16.2 | 18.0 | 19.0 | 15.8 | 1.8 | 0.1 | 7.5 | 6.3 | -2.7 |
| <i>n</i> | 75 | 57 | 72 | 68 | 70 | 72 | 73 | 25 | 12 |
| 3rd Quartile | 15.8 | 16.7 | 19.3 | 16.6 | 4.0 | -0.3 | 7.1 | 5.7 | -2.9 |
| <i>n</i> | 67 | 50 | 63 | 58 | 60 | 66 | 68 | 22 | 16 |
| Bottom Quartile | 14.6 | 16.9 | 19.2 | 16.4 | 1.4 | -0.2 | 6.1 | 3.4 | -3.9 |
| <i>n</i> | 53 | 44 | 55 | 50 | 52 | 54 | 59 | 18 | 10 |

Source: Endowment data as reported to Cambridge Associates LLC.

Note: Institutions are assigned to performance quartiles based on their fiscal year 2023 total portfolio return.

PARTICIPANTS' 1-YR ASSET CLASS IRRs: PRIVATE INVESTMENTS

Trailing 1-Yr as of June 30, 2023 • Percent (%) • By Percentile Ranking

| | Total Private Equity | Non- Venture Private Equity | Venture Capital | Distressed Control- Oriented | Private Credit ex Distressed | Total Private Real Assets | Private Real Estate | Private Natural Resources |
|---|----------------------------|--------------------------------------|--------------------|------------------------------------|------------------------------------|---------------------------------|------------------------|---------------------------------|
| All Endowments | | | | | | | | |
| 5th %ile | 6.7 | 11.3 | 3.1 | 24.8 | 18.3 | 14.5 | 10.6 | 18.7 |
| 25th %ile | 1.7 | 6.3 | -5.9 | 17.0 | 9.9 | 4.1 | 3.1 | 7.2 |
| Median | -2.3 | 2.3 | -9.5 | 10.4 | 6.5 | 0.2 | -1.2 | 1.3 |
| 75th %ile | -5.0 | -1.9 | -12.6 | 5.3 | 3.4 | -4.0 | -6.8 | -4.4 |
| 95th %ile | -10.8 | -7.0 | -19.3 | -2.3 | -12.9 | -15.5 | -22.9 | -16.3 |
| Mean | -1.6 | 2.5 | -9.1 | 10.8 | 5.8 | -0.3 | -3.1 | 1.6 |
| <i>n</i> | 240 | 235 | 219 | 110 | 170 | 197 | 181 | 193 |
| Median by Asset Size | | | | | | | | |
| Less Than \$200M | -2.8 | 1.2 | -11.3 | 14.0 | 6.6 | -1.3 | -2.2 | -1.3 |
| <i>n</i> | 68 | 68 | 54 | 20 | 42 | 48 | 29 | 38 |
| \$200M–\$500M | -2.5 | 1.9 | -9.2 | 9.5 | 5.9 | 1.5 | -2.5 | 2.5 |
| <i>n</i> | 59 | 59 | 55 | 26 | 44 | 50 | 41 | 46 |
| \$500M–\$1B | -0.4 | 2.8 | -8.0 | 8.0 | 7.1 | 0.7 | -1.0 | 0.2 |
| <i>n</i> | 28 | 26 | 26 | 21 | 22 | 26 | 28 | 27 |
| \$1B–\$3B | -2.2 | 3.4 | -9.2 | 10.5 | 5.8 | 0.6 | -0.2 | 2.1 |
| <i>n</i> | 48 | 47 | 48 | 28 | 36 | 44 | 46 | 46 |
| More Than \$3B | -3.3 | 3.5 | -9.6 | 7.1 | 7.7 | -0.1 | -1.4 | 0.6 |
| <i>n</i> | 37 | 35 | 36 | 15 | 26 | 29 | 37 | 36 |
| Median by Total Performance Quartile | | | | | | | | |
| Top Quartile | 2.1 | 2.5 | -5.2 | 12.3 | 6.1 | 2.4 | -4.0 | 3.8 |
| <i>n</i> | 56 | 55 | 39 | 20 | 34 | 42 | 28 | 37 |
| 2nd Quartile | -0.7 | 3.2 | -9.2 | 10.1 | 7.0 | 0.6 | 0.1 | 0.9 |
| <i>n</i> | 65 | 65 | 64 | 36 | 54 | 59 | 53 | 54 |
| 3rd Quartile | -3.0 | 1.9 | -9.9 | 12.8 | 6.9 | 0.6 | -1.9 | 2.0 |
| <i>n</i> | 66 | 63 | 63 | 37 | 49 | 52 | 51 | 53 |
| Bottom Quartile | -5.6 | 0.7 | -10.5 | 6.9 | 5.0 | -1.6 | -1.4 | -1.6 |
| <i>n</i> | 53 | 52 | 53 | 17 | 33 | 44 | 49 | 49 |

Source: Endowment data as reported to Cambridge Associates LLC.

Notes: Institutions are assigned to performance quartiles based on their fiscal year 2023 total portfolio return. Private investment return statistics are reported as horizon IRRs.

TOTAL RETURNS SUMMARY: TRAILING 3-, 5-, 10-, AND 20-YR

Years Ended June 30, 2023 • Percent (%)

| | Nominal AACRs | | | |
|-------------------------|---------------|------|-------|-------|
| | 3 Yr | 5 Yr | 10 Yr | 20 Yr |
| All Endowments | | | | |
| 5th %ile | 13.6 | 10.2 | 9.7 | 9.7 |
| 25th %ile | 11.6 | 8.4 | 8.1 | 8.2 |
| Median | 9.8 | 7.1 | 7.2 | 7.2 |
| 75th %ile | 8.3 | 6.2 | 6.5 | 6.6 |
| 95th %ile | 6.2 | 4.7 | 5.3 | 5.8 |
| Mean | 9.9 | 7.3 | 7.3 | 7.5 |
| <i>n</i> | 317 | 313 | 299 | 243 |
| Less Than \$200M | | | | |
| 5th Percentile | 11.1 | 8.0 | 7.9 | 7.6 |
| 25th Percentile | 9.7 | 7.0 | 7.0 | 7.1 |
| Median | 8.5 | 6.3 | 6.5 | 6.6 |
| 75th Percentile | 7.2 | 5.4 | 5.9 | 6.2 |
| 95th Percentile | 5.3 | 4.0 | 5.0 | 5.2 |
| Mean | 8.5 | 6.2 | 6.5 | 6.6 |
| <i>n</i> | 90 | 90 | 86 | 55 |
| \$200M–\$500M | | | | |
| 5th Percentile | 12.4 | 9.0 | 8.4 | 8.5 |
| 25th Percentile | 10.9 | 7.9 | 7.5 | 7.6 |
| Median | 9.8 | 7.0 | 6.9 | 7.0 |
| 75th Percentile | 8.0 | 5.9 | 6.2 | 6.6 |
| 95th Percentile | 6.1 | 4.9 | 5.5 | 6.1 |
| Mean | 9.5 | 6.9 | 6.9 | 7.1 |
| <i>n</i> | 65 | 65 | 60 | 51 |
| \$500M–\$1B | | | | |
| 5th Percentile | 12.9 | 8.8 | 8.1 | 8.4 |
| 25th Percentile | 11.2 | 8.0 | 7.5 | 7.5 |
| Median | 9.8 | 7.1 | 7.2 | 7.1 |
| 75th Percentile | 8.6 | 6.3 | 6.6 | 6.7 |
| 95th Percentile | 7.3 | 5.4 | 5.8 | 6.3 |
| Mean | 10.0 | 7.1 | 7.0 | 7.2 |
| <i>n</i> | 32 | 32 | 32 | 27 |
| \$1B–\$3B | | | | |
| 5th Percentile | 13.9 | 10.8 | 9.7 | 9.1 |
| 25th Percentile | 12.2 | 9.1 | 8.6 | 8.5 |
| Median | 11.2 | 8.3 | 7.8 | 7.7 |
| 75th Percentile | 9.5 | 6.8 | 7.0 | 7.2 |
| 95th Percentile | 6.9 | 5.5 | 6.0 | 6.5 |
| Mean | 10.9 | 8.1 | 7.9 | 7.7 |
| <i>n</i> | 67 | 64 | 61 | 55 |
| More Than \$3B | | | | |
| 5th Percentile | 14.2 | 11.0 | 10.8 | 10.6 |
| 25th Percentile | 12.9 | 9.7 | 9.6 | 9.5 |
| Median | 11.4 | 8.5 | 8.4 | 8.6 |
| 75th Percentile | 9.5 | 7.2 | 7.4 | 7.9 |
| 95th Percentile | 8.3 | 6.0 | 6.7 | 6.7 |
| Mean | 11.2 | 8.5 | 8.5 | 8.6 |
| <i>n</i> | 63 | 62 | 60 | 55 |

Sources: Endowment data as reported to Cambridge Associates LLC.

TOTAL RETURNS SUMMARY: TRAILING 3-, 5-, 10-, AND 20-YR

Years Ended June 30, 2023 • Percent (%)

| | Nominal AACRs | | | |
|-------------------------------------|---------------|------|-------|-------|
| | 3 Yr | 5 Yr | 10 Yr | 20 Yr |
| Colleges & Universities | | | | |
| 5th %ile | 14.0 | 10.7 | 10.3 | 10.0 |
| 25th %ile | 12.4 | 9.1 | 8.5 | 8.5 |
| Median | 10.8 | 8.1 | 7.7 | 7.7 |
| 75th %ile | 9.6 | 6.9 | 7.0 | 7.0 |
| 95th %ile | 7.6 | 5.9 | 6.3 | 6.3 |
| Mean | 10.9 | 8.1 | 7.9 | 7.8 |
| <i>n</i> | 158 | 155 | 151 | 135 |
| Cultural & Environmental | | | | |
| 5th Percentile | 12.6 | 9.4 | 8.8 | 8.5 |
| 25th Percentile | 10.3 | 7.6 | 7.6 | 7.7 |
| Median | 9.2 | 6.7 | 6.9 | 7.1 |
| 75th Percentile | 7.1 | 5.5 | 6.1 | 6.4 |
| 95th Percentile | 6.0 | 4.4 | 5.3 | 5.6 |
| Mean | 8.9 | 6.7 | 6.9 | 7.2 |
| <i>n</i> | 53 | 53 | 51 | 37 |
| Independent Schools | | | | |
| 5th Percentile | 12.3 | 8.1 | 7.9 | 8.9 |
| 25th Percentile | 10.4 | 7.4 | 7.0 | 7.6 |
| Median | 9.3 | 6.6 | 6.8 | 7.1 |
| 75th Percentile | 7.9 | 6.1 | 6.3 | 6.6 |
| 95th Percentile | 4.6 | 3.9 | 5.1 | 6.4 |
| Mean | 9.3 | 6.8 | 6.8 | 7.2 |
| <i>n</i> | 30 | 30 | 29 | 21 |
| Healthcare | | | | |
| 5th Percentile | 12.2 | 9.0 | 8.5 | 8.5 |
| 25th Percentile | 9.5 | 7.1 | 7.2 | 7.3 |
| Median | 8.5 | 6.3 | 6.6 | 6.9 |
| 75th Percentile | 7.8 | 5.7 | 6.0 | 6.5 |
| 95th Percentile | 5.8 | 4.9 | 5.5 | 5.8 |
| Mean | 8.6 | 6.3 | 6.4 | 6.7 |
| <i>n</i> | 33 | 33 | 30 | 24 |
| Other Endowments | | | | |
| 5th Percentile | 11.4 | 7.9 | 8.0 | 8.4 |
| 25th Percentile | 9.8 | 7.2 | 7.1 | 7.2 |
| Median | 8.5 | 6.2 | 6.4 | 6.7 |
| 75th Percentile | 7.5 | 5.4 | 5.6 | 6.3 |
| 95th Percentile | 6.4 | 4.5 | 5.0 | 5.6 |
| Mean | 8.9 | 6.6 | 6.8 | 7.1 |
| <i>n</i> | 43 | 42 | 38 | 26 |

Sources: Endowment data as reported to Cambridge Associates LLC.

PARTICIPANTS' 3-YR ASSET CLASS RETURNS: MARKETABLE INVESTMENTS

Trailing 3-Yr as of June 30, 2023 • Percent (%) • By Percentile Ranking

| | Total Public Equity | Global Equity Managers | US Equity | Dev Mkts ex US Equity | Emg Mkts Equity | Bonds | Hedge Funds | Commodities and Natural Resources | Public Real Estate |
|-----------------------|---------------------------|------------------------------|--------------|-----------------------------|--------------------|-------|----------------|---|-----------------------|
| All Endowments | | | | | | | | | |
| 5th %ile | 12.8 | 15.1 | 16.5 | 12.8 | 9.5 | 0.8 | 10.4 | 29.2 | 10.7 |
| 25th %ile | 11.3 | 12.1 | 14.4 | 10.6 | 6.4 | -1.4 | 7.7 | 22.6 | 6.8 |
| Median | 10.4 | 9.6 | 13.2 | 9.0 | 3.9 | -2.5 | 6.3 | 18.7 | 5.9 |
| 75th %ile | 9.1 | 4.6 | 12.0 | 7.1 | 2.1 | -3.4 | 4.5 | 16.4 | 3.7 |
| 95th %ile | 6.0 | -0.3 | 7.4 | 3.6 | -2.5 | -5.6 | 1.1 | 2.1 | 2.6 |
| Mean | 10.0 | 8.3 | 12.8 | 8.7 | 4.0 | -2.3 | 6.0 | 19.0 | 6.1 |
| <i>n</i> | 251 | 178 | 249 | 234 | 236 | 248 | 253 | 78 | 35 |

Median by Asset Size

| | | | | | | | | | |
|------------------|------|-----|------|-----|-----|------|-----|------|-----|
| Less Than \$200M | 10.4 | 9.8 | 13.0 | 9.1 | 3.9 | -2.9 | 5.9 | 18.0 | 5.9 |
| <i>n</i> | 84 | 56 | 83 | 74 | 75 | 83 | 78 | 32 | 9 |
| \$200M–\$500M | 10.8 | 9.7 | 13.6 | 9.0 | 4.7 | -2.4 | 6.4 | 21.9 | 5.9 |
| <i>n</i> | 59 | 46 | 58 | 55 | 57 | 54 | 57 | 14 | 5 |
| \$500M–\$1B | 10.5 | 9.7 | 13.8 | 8.0 | 5.0 | -2.1 | 5.6 | 17.2 | 3.8 |
| <i>n</i> | 26 | 18 | 27 | 27 | 26 | 28 | 28 | 11 | 6 |
| \$1B–\$3B | 10.3 | 9.1 | 13.2 | 8.5 | 3.8 | -2.5 | 6.7 | 19.9 | 7.8 |
| <i>n</i> | 46 | 34 | 46 | 44 | 43 | 45 | 52 | 9 | 7 |
| More Than \$3B | 9.0 | 9.1 | 12.1 | 9.1 | 2.5 | -1.9 | 7.0 | 22.5 | 4.8 |
| <i>n</i> | 36 | 24 | 35 | 34 | 35 | 38 | 38 | 12 | 8 |

Source: Endowment data as reported to Cambridge Associates LLC.

PARTICIPANTS' 5-YR ASSET CLASS RETURNS: MARKETABLE INVESTMENTS

Trailing 5-Yr as of June 30, 2023 • Percent (%) • By Percentile Ranking

| | Total Public Equity | Global Equity Managers | US Equity | Dev Mkts ex US Equity | Emg Mkts Equity | Bonds | Hedge Funds | Commodities and Natural Resources | Public Real Estate |
|-----------------------|---------------------------|------------------------------|--------------|-----------------------------|--------------------|-------|----------------|---|-----------------------|
| All Endowments | | | | | | | | | |
| 5th %ile | 9.3 | 10.9 | 13.5 | 7.2 | 5.0 | 2.6 | 7.6 | 10.5 | 7.9 |
| 25th %ile | 7.9 | 8.3 | 12.1 | 5.3 | 3.2 | 1.5 | 5.5 | 5.8 | 4.4 |
| Median | 7.1 | 7.0 | 10.7 | 4.2 | 2.0 | 1.1 | 4.5 | 4.3 | 2.3 |
| 75th %ile | 6.4 | 5.2 | 9.5 | 3.2 | 0.6 | 0.7 | 3.5 | 2.3 | 0.7 |
| 95th %ile | 4.9 | 1.7 | 6.7 | 0.4 | -1.9 | -0.3 | 1.0 | -3.6 | -0.8 |
| Mean | 7.2 | 6.7 | 10.6 | 4.1 | 1.8 | 1.2 | 4.4 | 4.5 | 2.9 |
| <i>n</i> | 242 | 152 | 241 | 224 | 223 | 235 | 244 | 71 | 29 |

Median by Asset Size

| | | | | | | | | | |
|------------------|-----|-----|------|-----|-----|-----|-----|-----|-----|
| Less Than \$200M | 7.1 | 6.6 | 10.6 | 4.5 | 2.0 | 0.8 | 4.5 | 4.3 | 4.4 |
| <i>n</i> | 79 | 44 | 78 | 67 | 66 | 74 | 72 | 28 | 9 |
| \$200M–\$500M | 7.5 | 6.8 | 11.2 | 4.0 | 2.0 | 1.2 | 4.4 | 3.6 | 4.6 |
| <i>n</i> | 59 | 37 | 58 | 55 | 57 | 54 | 57 | 14 | 2 |
| \$500M–\$1B | 7.2 | 7.4 | 10.9 | 3.2 | 2.3 | 1.1 | 4.4 | 4.6 | 0.7 |
| <i>n</i> | 25 | 16 | 26 | 26 | 25 | 26 | 27 | 10 | 5 |
| \$1B–\$3B | 7.2 | 7.1 | 10.9 | 4.1 | 1.6 | 1.0 | 4.8 | 3.3 | 2.7 |
| <i>n</i> | 43 | 32 | 44 | 42 | 40 | 43 | 50 | 7 | 6 |
| More Than \$3B | 6.1 | 7.4 | 9.8 | 4.6 | 2.0 | 1.4 | 5.1 | 4.6 | 2.3 |
| <i>n</i> | 36 | 23 | 35 | 34 | 35 | 38 | 38 | 12 | 7 |

Source: Endowment data as reported to Cambridge Associates LLC.

PARTICIPANTS' 10-YR ASSET CLASS RETURNS: MARKETABLE INVESTMENTS

Trailing 10-Yr as of June 30, 2023 • Percent (%) • By Percentile Ranking

| | Total Public Equity | Global Equity Managers | US Equity | Dev Mkts ex US Equity | Emg Mkts Equity | Bonds | Hedge Funds | Commodities and Natural Resources | Public Real Estate |
|---|---------------------------|------------------------------|--------------|-----------------------------|--------------------|-------|----------------|---|-----------------------|
| All Endowments | | | | | | | | | |
| 5th %ile | 10.0 | 11.0 | 13.8 | 8.2 | 6.3 | 2.8 | 6.7 | 5.2 | 6.9 |
| 25th %ile | 9.0 | 9.4 | 12.8 | 6.6 | 4.3 | 1.9 | 5.1 | 2.8 | 5.4 |
| Median | 8.4 | 8.6 | 11.7 | 5.9 | 3.2 | 1.5 | 4.4 | 1.0 | 4.5 |
| 75th %ile | 7.8 | 7.6 | 10.7 | 5.4 | 2.2 | 1.1 | 3.6 | -0.1 | 3.4 |
| 95th %ile | 7.0 | 6.3 | 9.3 | 4.4 | 0.6 | 0.5 | 2.5 | -2.8 | 1.8 |
| Mean | 8.4 | 8.7 | 11.6 | 6.1 | 3.4 | 1.6 | 4.5 | 1.2 | 4.4 |
| <i>n</i> | 220 | 83 | 214 | 192 | 185 | 203 | 211 | 57 | 12 |
| Median by Asset Size | | | | | | | | | |
| Less Than \$200M | 8.4 | 8.2 | 11.8 | 5.9 | 3.0 | 1.5 | 4.0 | 1.2 | 4.4 |
| <i>n</i> | 68 | 19 | 65 | 52 | 46 | 60 | 55 | 22 | 2 |
| \$200M–\$500M | 8.5 | 8.2 | 12.2 | 5.9 | 3.5 | 1.4 | 4.2 | 0.4 | 6.1 |
| <i>n</i> | 54 | 17 | 53 | 50 | 51 | 46 | 52 | 12 | 1 |
| \$500M–\$1B | 8.4 | 8.9 | 11.7 | 5.9 | 3.0 | 1.3 | 3.9 | 1.4 | 4.0 |
| <i>n</i> | 25 | 7 | 25 | 25 | 24 | 24 | 25 | 9 | 3 |
| \$1B–\$3B | 8.4 | 9.0 | 11.8 | 5.9 | 3.3 | 1.5 | 4.8 | 1.0 | 5.1 |
| <i>n</i> | 40 | 25 | 40 | 37 | 34 | 39 | 46 | 7 | 2 |
| More Than \$3B | 8.0 | 8.4 | 11.2 | 6.6 | 3.3 | 1.9 | 5.1 | 0.2 | 3.6 |
| <i>n</i> | 33 | 15 | 31 | 28 | 30 | 34 | 33 | 7 | 4 |
| Median by Total Performance Quartile | | | | | | | | | |
| Top Quartile | 8.7 | 9.1 | 11.6 | 6.4 | 4.2 | 1.6 | 5.1 | 1.5 | 3.6 |
| <i>n</i> | 46 | 25 | 50 | 46 | 47 | 46 | 52 | 13 | 5 |
| 2nd Quartile | 8.8 | 8.6 | 12.1 | 5.9 | 3.0 | 1.7 | 4.3 | 0.8 | 6.1 |
| <i>n</i> | 56 | 24 | 55 | 50 | 48 | 53 | 55 | 14 | 3 |
| 3rd Quartile | 8.4 | 8.0 | 11.8 | 5.9 | 3.1 | 1.5 | 4.2 | 0.5 | 4.0 |
| <i>n</i> | 53 | 15 | 49 | 44 | 43 | 47 | 47 | 11 | 3 |
| Bottom Quartile | 8.1 | 8.1 | 11.6 | 5.9 | 2.9 | 1.4 | 4.1 | 1.5 | 6.2 |
| <i>n</i> | 61 | 18 | 58 | 52 | 46 | 55 | 56 | 19 | 1 |

Source: Endowment data as reported to Cambridge Associates LLC.

Note: Institutions are assigned to performance quartiles based on their trailing ten-year total portfolio return.

DISPERSION OF PARTICIPANTS' 3-YR ASSET CLASS IRRs: PRIVATE INVESTMENTS

Trailing 3-Yr as of June 30, 2023 • Percent (%) • By Percentile Ranking

| | Total Private Equity | Non-Venture Private Equity | Venture Capital | Distressed Control- Oriented | Private Credit ex Distressed | Total Private Real Assets | Private Real Estate | Private Natural Resources |
|-----------------------------|----------------------------|----------------------------------|--------------------|------------------------------------|------------------------------------|---------------------------------|---------------------------|---------------------------------|
| All Endowments | | | | | | | | |
| 5th %ile | 30.4 | 32.8 | 36.5 | 31.1 | 24.1 | 29.5 | 28.7 | 32.2 |
| 25th %ile | 24.3 | 25.2 | 25.6 | 25.2 | 15.7 | 20.2 | 16.1 | 24.8 |
| Median | 21.4 | 21.6 | 20.8 | 17.5 | 11.7 | 16.0 | 11.1 | 19.0 |
| 75th %ile | 18.2 | 18.3 | 16.6 | 11.3 | 10.0 | 11.8 | 6.9 | 13.7 |
| 95th %ile | 12.1 | 9.9 | 6.6 | 0.8 | 3.9 | 4.9 | -8.0 | 5.9 |
| Mean | 21.5 | 21.9 | 21.4 | 17.7 | 13.4 | 16.6 | 10.4 | 20.0 |
| <i>n</i> | 232 | 227 | 205 | 96 | 152 | 193 | 179 | 192 |
| Median by Asset Size | | | | | | | | |
| Less Than \$200M | 20.8 | 21.6 | 22.5 | 24.5 | 13.3 | 13.6 | 7.9 | 15.1 |
| <i>n</i> | 63 | 63 | 47 | 13 | 34 | 46 | 27 | 38 |
| \$200M–\$500M | 21.5 | 21.9 | 21.3 | 18.2 | 13.8 | 17.9 | 9.9 | 19.0 |
| <i>n</i> | 58 | 57 | 51 | 24 | 39 | 50 | 41 | 46 |
| \$500M–\$1B | 21.1 | 22.5 | 19.9 | 16.5 | 11.6 | 15.4 | 10.8 | 20.0 |
| <i>n</i> | 28 | 26 | 25 | 19 | 21 | 26 | 28 | 27 |
| \$1B–\$3B | 21.4 | 21.6 | 19.1 | 17.3 | 11.0 | 16.7 | 12.2 | 20.4 |
| <i>n</i> | 46 | 46 | 46 | 25 | 34 | 42 | 46 | 45 |
| More Than \$3B | 21.4 | 21.0 | 22.2 | 11.4 | 11.0 | 15.3 | 11.0 | 20.4 |
| <i>n</i> | 37 | 35 | 36 | 15 | 24 | 29 | 37 | 36 |

Source: Endowment data as reported to Cambridge Associates LLC.

Note: Private investment return statistics are reported as horizon IRRs.

DISPERSION OF PARTICIPANTS' 5-YR ASSET CLASS IRRs: PRIVATE INVESTMENTS

Trailing 5-Yr as of June 30, 2023 • Percent (%) • By Percentile Ranking

| | Total Private Equity | Non-Venture Private Equity | Venture Capital | Distressed Control- Oriented | Private Credit ex Distressed | Total Private Real Assets | Private Real Estate | Private Natural Resources |
|-----------------------------|----------------------------|----------------------------------|--------------------|------------------------------------|------------------------------------|---------------------------------|---------------------------|---------------------------------|
| All Endowments | | | | | | | | |
| 5th %ile | 25.2 | 25.4 | 29.2 | 25.4 | 14.8 | 15.4 | 16.6 | 16.3 |
| 25th %ile | 21.2 | 21.0 | 24.0 | 14.6 | 10.9 | 8.5 | 10.8 | 7.8 |
| Median | 18.6 | 18.1 | 20.6 | 10.5 | 8.9 | 5.8 | 7.7 | 4.3 |
| 75th %ile | 15.6 | 14.4 | 15.7 | 6.5 | 6.5 | 2.9 | 3.9 | 1.0 |
| 95th %ile | 10.0 | 7.1 | 9.0 | -2.0 | 0.9 | -5.2 | -7.1 | -5.2 |
| Mean | 18.3 | 17.6 | 19.9 | 10.4 | 8.2 | 5.6 | 6.4 | 4.4 |
| <i>n</i> | 225 | 220 | 195 | 77 | 134 | 189 | 171 | 189 |
| Median by Asset Size | | | | | | | | |
| Less Than \$200M | 17.8 | 17.5 | 21.1 | 10.9 | 10.3 | 4.2 | 4.4 | 3.2 |
| <i>n</i> | 59 | 58 | 42 | 8 | 27 | 44 | 24 | 38 |
| \$200M–\$500M | 18.6 | 18.8 | 20.4 | 12.5 | 9.8 | 5.9 | 6.3 | 5.4 |
| <i>n</i> | 55 | 55 | 47 | 16 | 33 | 48 | 37 | 43 |
| \$500M–\$1B | 18.6 | 18.9 | 20.0 | 10.2 | 10.4 | 4.9 | 7.7 | 2.9 |
| <i>n</i> | 28 | 26 | 24 | 16 | 21 | 26 | 27 | 27 |
| \$1B–\$3B | 18.8 | 18.7 | 19.6 | 10.9 | 7.8 | 6.2 | 8.6 | 5.0 |
| <i>n</i> | 46 | 46 | 46 | 22 | 33 | 42 | 46 | 45 |
| More Than \$3B | 19.2 | 17.3 | 22.2 | 8.3 | 7.9 | 7.4 | 7.9 | 4.5 |
| <i>n</i> | 37 | 35 | 36 | 15 | 20 | 29 | 37 | 36 |

Source: Endowment data as reported to Cambridge Associates LLC.

Note: Private investment return statistics are reported as horizon IRRs.

DISPERSION OF PARTICIPANTS' 10-YR ASSET CLASS IRRs: PRIVATE INVESTMENTS

Trailing 10-Yr as of June 30, 2023 • Percent (%) • By Percentile Ranking

| | Total Private Equity | Non-Venture Private Equity | Venture Capital | Distressed Control-Oriented | Private Credit ex Distressed | Total Private Real Assets | Private Real Estate | Private Natural Resources |
|---|----------------------|----------------------------|-----------------|-----------------------------|------------------------------|---------------------------|---------------------|---------------------------|
| All Endowments | | | | | | | | |
| 5th %ile | 21.3 | 21.5 | 25.7 | 16.6 | 28.6 | 11.5 | 15.1 | 9.7 |
| 25th %ile | 18.9 | 18.3 | 21.4 | 11.6 | 11.7 | 8.4 | 11.6 | 5.5 |
| Median | 16.7 | 15.8 | 18.8 | 9.4 | 8.9 | 5.9 | 9.7 | 3.2 |
| 75th %ile | 14.4 | 13.5 | 15.8 | 6.6 | 7.6 | 3.6 | 7.2 | 0.5 |
| 95th %ile | 10.5 | 9.5 | 10.3 | 2.7 | 4.9 | -1.3 | 2.9 | -3.6 |
| Mean | 16.4 | 15.7 | 18.2 | 9.6 | 11.3 | 5.7 | 9.3 | 3.1 |
| <i>n</i> | 196 | 195 | 156 | 46 | 73 | 166 | 146 | 157 |
| Median by Asset Size | | | | | | | | |
| Less Than \$200M | 15.0 | 14.0 | 16.4 | 8.0 | 6.5 | 4.2 | 6.3 | 2.7 |
| <i>n</i> | 44 | 44 | 24 | 3 | 7 | 33 | 18 | 24 |
| \$200M–\$500M | 16.3 | 16.0 | 18.0 | 9.9 | 9.0 | 5.1 | 8.7 | 3.4 |
| <i>n</i> | 47 | 47 | 33 | 5 | 17 | 41 | 27 | 34 |
| \$500M–\$1B | 16.9 | 16.7 | 18.2 | 9.5 | 9.9 | 4.6 | 9.2 | 1.8 |
| <i>n</i> | 27 | 25 | 21 | 6 | 11 | 24 | 23 | 25 |
| \$1B–\$3B | 16.8 | 16.3 | 18.7 | 9.1 | 9.0 | 6.4 | 10.6 | 3.5 |
| <i>n</i> | 44 | 44 | 44 | 18 | 23 | 39 | 43 | 40 |
| More Than \$3B | 17.9 | 15.9 | 21.0 | 8.9 | 8.1 | 8.3 | 10.0 | 4.4 |
| <i>n</i> | 34 | 35 | 34 | 14 | 15 | 29 | 35 | 34 |
| Median by Total Performance Quartile | | | | | | | | |
| Top Quartile | 19.0 | 16.9 | 21.2 | 10.6 | 8.6 | 7.1 | 10.8 | 4.0 |
| <i>n</i> | 51 | 55 | 52 | 18 | 24 | 43 | 51 | 48 |
| 2nd Quartile | 16.9 | 16.6 | 17.8 | 9.4 | 12.6 | 6.2 | 10.6 | 3.0 |
| <i>n</i> | 54 | 53 | 46 | 13 | 21 | 47 | 45 | 44 |
| 3rd Quartile | 16.4 | 14.9 | 17.7 | 6.4 | 8.7 | 4.8 | 7.4 | 3.0 |
| <i>n</i> | 44 | 42 | 34 | 9 | 17 | 40 | 31 | 35 |
| Bottom Quartile | 14.4 | 13.3 | 14.8 | 8.0 | 8.2 | 4.9 | 8.7 | 2.0 |
| <i>n</i> | 41 | 41 | 21 | 3 | 10 | 33 | 16 | 26 |

Source: Endowment data as reported to Cambridge Associates LLC.

Notes: Institutions are assigned to performance quartiles based on their trailing ten-year total portfolio return. Private investment return statistics are reported as horizon IRRs.

REAL RETURNS AFTER SPENDING: TRAILING 3-, 5-, 10-, AND 20-Yr

Years Ended June 30, 2023 • Percent (%) • By Percentile Ranking

| | 3-Yr | 5-Yr | 10-Yr | 20-Yr |
|-----------------------|------|------|-------|-------|
| All Endowments | | | | |
| 5th %ile | 4.0 | 2.8 | 3.4 | 3.1 |
| 25th %ile | 2.2 | 1.1 | 1.9 | 1.5 |
| Median | 1.2 | 0.0 | 0.8 | 1.0 |
| 75th %ile | -0.4 | -0.9 | 0.0 | 0.1 |
| 95th %ile | -2.7 | -2.5 | -1.3 | -1.0 |
| Mean | 0.9 | 0.1 | 0.9 | 0.9 |
| <i>n</i> | 94 | 86 | 75 | 67 |

Source: Endowment data as reported to Cambridge Associates LLC.

Appendix: Portfolio Asset Allocation

SUMMARY ASSET ALLOCATION DISTRIBUTION

As of June 30, 2023 • Percent (%) • n = 322

| | Public Equity | PE/VC | Hedge Funds | Real Assets | Fixed Income | Private Credit | Cash | Other |
|-----------|------------------|-------|----------------|----------------|-----------------|-------------------|------|-------|
| 5th %ile | 67.2 | 39.0 | 31.2 | 16.5 | 20.0 | 6.0 | 10.0 | 2.4 |
| 25th %ile | 53.0 | 27.8 | 21.7 | 10.0 | 12.0 | 2.8 | 5.1 | 0.0 |
| Median | 41.9 | 19.2 | 16.6 | 5.4 | 8.2 | 1.3 | 2.9 | 0.0 |
| 75th %ile | 30.8 | 10.5 | 10.8 | 2.8 | 4.3 | 0.0 | 1.4 | 0.0 |
| 95th %ile | 20.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Mean | 42.0 | 19.5 | 16.8 | 6.6 | 8.7 | 1.9 | 4.0 | 0.4 |

Source: Endowment data as reported to Cambridge Associates LLC.

MEAN ASSET ALLOCATION BY ASSET SIZE

As of June 30, 2023 • Percent (%)

| | Asset Size | | | | | |
|-------------------------------|-------------------|---------------------|-------------------|-----------------|---------------|-------------------|
| | All Endowments | Less Than \$200M | \$200M– \$500M | \$500M– \$1B | \$1B– \$3B | More Than \$3B |
| | (n = 322) | (n = 95) | (n = 65) | (n = 32) | (n = 67) | (n = 63) |
| Public Equity | 42.0 | 50.8 | 46.0 | 41.3 | 35.4 | 32.2 |
| Global | 8.9 | 11.2 | 9.5 | 6.7 | 8.0 | 6.8 |
| US | 19.7 | 24.3 | 22.4 | 20.4 | 16.1 | 13.6 |
| Global ex US Developed | 9.5 | 11.9 | 10.2 | 10.3 | 8.0 | 6.5 |
| Emerging Markets | 3.9 | 3.5 | 3.9 | 3.9 | 3.3 | 5.2 |
| PE/VC | 19.5 | 11.6 | 17.2 | 20.4 | 24.6 | 28.1 |
| Non-Venture Private Equity | 8.6 | 3.9 | 7.0 | 10.1 | 11.8 | 13.2 |
| Venture Capital | 8.2 | 4.0 | 6.0 | 7.4 | 11.6 | 13.4 |
| Other Private Investments | 2.7 | 3.6 | 4.2 | 2.9 | 1.3 | 1.5 |
| Hedge Funds | 16.8 | 16.3 | 16.3 | 15.7 | 18.6 | 16.7 |
| Long/Short | 6.5 | 6.0 | 6.5 | 5.1 | 7.5 | 6.8 |
| Absolute Return | 8.9 | 9.2 | 8.4 | 8.6 | 9.0 | 8.8 |
| Distressed | 1.5 | 1.1 | 1.4 | 2.0 | 2.1 | 1.1 |
| Private Credit | 1.9 | 1.1 | 1.8 | 2.2 | 2.5 | 2.5 |
| Distressed - Control Oriented | 0.6 | 0.2 | 0.4 | 1.0 | 0.7 | 0.9 |
| Private Credit ex Distressed | 1.3 | 0.9 | 1.4 | 1.2 | 1.7 | 1.6 |
| Fixed Income | 8.7 | 11.4 | 9.6 | 9.8 | 6.2 | 6.0 |
| Global | 0.2 | 0.3 | 0.2 | 0.5 | 0.3 | 0.0 |
| US | 8.2 | 11.0 | 9.4 | 9.0 | 5.7 | 5.2 |
| Global ex US | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.4 |
| High-Yield Bonds | 0.2 | 0.1 | 0.0 | 0.2 | 0.2 | 0.4 |
| Real Assets & ILBs | 6.6 | 4.2 | 4.4 | 7.2 | 7.7 | 11.0 |
| Private Real Estate | 2.5 | 0.6 | 1.3 | 2.9 | 3.3 | 5.5 |
| Public Real Estate | 0.3 | 0.4 | 0.3 | 0.6 | 0.3 | 0.3 |
| Commodities | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 | 0.5 |
| Inflation-Linked Bonds | 0.5 | 0.9 | 0.6 | 0.6 | 0.1 | 0.4 |
| Private O&G/Nat Resources | 2.4 | 1.1 | 1.7 | 2.4 | 3.2 | 4.1 |
| Public Energy/Nat Resources | 0.6 | 0.9 | 0.5 | 0.5 | 0.6 | 0.3 |
| Cash & Equivalents | 4.0 | 4.2 | 3.9 | 3.3 | 4.8 | 3.0 |
| Other Assets | 0.4 | 0.5 | 0.8 | 0.2 | 0.2 | 0.5 |

Source: Endowment data as reported to Cambridge Associates LLC.

MEAN ASSET ALLOCATION BY INSTITUTION TYPE

As of June 30, 2023 • Percent (%)

| | Institution Type | | | | |
|-------------------------------|--------------------------|------------------------|-------------------------|------------------------|-----------------------|
| | Coll & Univ (n = 160) | Cult & Env (n = 53) | Ind Schools (n = 34) | Healthcare (n = 32) | Other End (n = 43) |
| Public Equity | 38.2 | 44.6 | 47.5 | 42.0 | 48.5 |
| Global | 7.9 | 8.1 | 14.0 | 8.7 | 9.4 |
| US | 17.6 | 22.1 | 19.3 | 19.9 | 25.0 |
| Global ex US Developed | 8.7 | 10.7 | 9.8 | 9.5 | 10.8 |
| Emerging Markets | 4.1 | 3.8 | 4.4 | 3.9 | 3.2 |
| PE/VC | 24.4 | 14.8 | 12.7 | 17.5 | 14.6 |
| Non-Venture Private Equity | 10.9 | 6.4 | 5.3 | 7.7 | 6.3 |
| Venture Capital | 10.9 | 5.5 | 4.7 | 7.5 | 5.6 |
| Other Private Investments | 2.6 | 2.9 | 2.6 | 2.2 | 2.7 |
| Hedge Funds | 15.7 | 17.5 | 17.4 | 20.6 | 16.2 |
| Long/Short | 5.9 | 5.9 | 7.5 | 8.7 | 6.8 |
| Absolute Return | 8.4 | 10.0 | 8.7 | 10.0 | 8.1 |
| Distressed | 1.4 | 1.6 | 1.2 | 2.0 | 1.3 |
| Private Credit | 2.3 | 1.9 | 1.3 | 1.6 | 1.5 |
| Distressed - Control Oriented | 0.8 | 0.4 | 0.3 | 0.6 | 0.4 |
| Private Credit ex Distressed | 1.5 | 1.4 | 1.0 | 1.0 | 1.2 |
| Fixed Income | 7.5 | 10.3 | 10.3 | 9.0 | 9.9 |
| Global | 0.1 | 0.5 | 0.2 | 0.2 | 0.6 |
| US | 7.0 | 9.6 | 10.0 | 8.8 | 9.1 |
| Global ex US | 0.1 | 0.0 | 0.0 | 0.1 | 0.1 |
| High-Yield Bonds | 0.2 | 0.1 | 0.1 | 0.0 | 0.2 |
| Real Assets & ILBs | 7.9 | 6.5 | 4.2 | 5.0 | 5.4 |
| Private Real Estate | 3.2 | 1.9 | 1.1 | 1.7 | 2.2 |
| Public Real Estate | 0.3 | 0.4 | 0.5 | 0.1 | 0.4 |
| Commodities | 0.3 | 0.5 | 0.1 | 0.4 | 0.1 |
| Inflation-Linked Bonds | 0.4 | 0.9 | 0.8 | 0.5 | 0.5 |
| Private O&G/Nat Resources | 3.2 | 1.8 | 1.2 | 1.6 | 1.6 |
| Public Energy/Nat Resources | 0.5 | 0.9 | 0.6 | 0.7 | 0.6 |
| Cash & Equivalents | 3.4 | 4.2 | 6.1 | 4.0 | 3.7 |
| Other Assets | 0.6 | 0.3 | 0.5 | 0.3 | 0.1 |

Source: Endowment data as reported to Cambridge Associates LLC.

HISTORICAL MEAN ASSET ALLOCATION TRENDS

Years Ended June 30, • Percent (%)

| | Constant Universe (n = 133) | | | | | | | |
|------|-----------------------------|-------|----------------|--------------------------|-----------------|-------------------|------|-------|
| | Public Equity | PE/VC | Hedge Funds | Real Assets & ILBs | Fixed Income | Private Credit | Cash | Other |
| 2003 | 48.7 | 4.8 | 15.5 | 6.1 | 20.3 | -- | 3.8 | 0.7 |
| 2004 | 49.7 | 5.0 | 17.4 | 6.4 | 16.1 | -- | 4.2 | 1.3 |
| 2005 | 47.9 | 5.4 | 19.2 | 8.3 | 14.8 | -- | 3.9 | 0.3 |
| 2006 | 47.3 | 5.9 | 20.4 | 9.5 | 13.2 | -- | 3.3 | 0.3 |
| 2007 | 47.3 | 6.9 | 21.1 | 10.4 | 11.6 | -- | 2.4 | 0.3 |
| 2008 | 39.8 | 8.7 | 23.5 | 13.0 | 12.4 | -- | 2.2 | 0.5 |
| 2009 | 34.2 | 9.7 | 24.0 | 11.7 | 14.0 | -- | 5.6 | 0.7 |
| 2010 | 34.2 | 10.5 | 25.8 | 12.4 | 13.4 | -- | 3.1 | 0.5 |
| 2011 | 36.2 | 11.1 | 24.9 | 13.1 | 11.4 | -- | 2.7 | 0.6 |
| 2012 | 34.6 | 11.8 | 25.3 | 13.4 | 11.5 | -- | 3.0 | 0.3 |
| 2013 | 37.9 | 10.8 | 23.2 | 12.6 | 10.0 | 1.9 | 3.2 | 0.4 |
| 2014 | 39.9 | 10.8 | 22.7 | 12.1 | 8.8 | 1.7 | 3.6 | 0.3 |
| 2015 | 39.9 | 11.2 | 23.6 | 10.5 | 8.9 | 1.5 | 4.1 | 0.2 |
| 2016 | 39.7 | 11.5 | 22.9 | 11.0 | 9.1 | 1.6 | 3.9 | 0.2 |
| 2017 | 42.7 | 11.3 | 21.3 | 10.2 | 8.3 | 1.4 | 4.0 | 0.7 |
| 2018 | 42.2 | 12.3 | 20.9 | 10.3 | 8.5 | 1.4 | 3.5 | 0.9 |
| 2019 | 41.8 | 14.3 | 20.0 | 9.1 | 8.7 | 1.5 | 3.5 | 1.1 |
| 2020 | 41.1 | 16.4 | 19.6 | 7.6 | 8.0 | 1.7 | 4.5 | 1.1 |
| 2021 | 40.6 | 21.1 | 17.4 | 7.2 | 7.1 | 1.7 | 4.0 | 1.0 |
| 2022 | 35.8 | 23.6 | 17.9 | 8.8 | 7.4 | 2.0 | 4.0 | 0.6 |
| 2023 | 37.6 | 23.0 | 17.6 | 8.3 | 7.3 | 2.1 | 3.6 | 0.6 |

Source: Endowment data as reported to Cambridge Associates LLC.

Note: Analysis is based on a constant universe that includes 133 institutions that provided asset allocation data for each year from 2003 to 2023.

UNCALLED CAPITAL COMMITTED TO PRIVATE INVESTMENT FUNDS

As of June 30, 2023 • Percent (%) • By Percentile Ranking

Uncalled Capital Commitments as a Percentage of the Total LTIP

| | Less Than \$200M | \$200M–\$500M | \$500M–\$1B | \$1B–\$3B | More Than \$3B |
|-----------|------------------|---------------|-------------|-----------|----------------|
| 5th %ile | 21.1 | 18.1 | 20.6 | 24.2 | 24.8 |
| 25th %ile | 14.9 | 13.4 | 16.2 | 18.9 | 20.3 |
| Median | 10.6 | 11.4 | 13.9 | 15.4 | 17.1 |
| 75th %ile | 7.6 | 8.1 | 11.0 | 11.5 | 14.1 |
| 95th %ile | 3.3 | 4.2 | 6.2 | 5.9 | 7.4 |
| Mean | 11.7 | 11.5 | 13.8 | 15.1 | 17.8 |
| <i>n</i> | 68 | 59 | 31 | 62 | 47 |

Actual PI Allocation + Uncalled Capital Commitments as a Percentage of the Total LTIP

| | Less Than \$200M | \$200M–\$500M | \$500M–\$1B | \$1B–\$3B | More Than \$3B |
|-----------|------------------|---------------|-------------|-----------|----------------|
| 5th %ile | 58.2 | 53.7 | 58.9 | 67.4 | 80.4 |
| 25th %ile | 39.6 | 42.8 | 50.8 | 57.4 | 68.5 |
| Median | 27.5 | 32.7 | 42.5 | 51.2 | 61.3 |
| 75th %ile | 18.9 | 27.4 | 36.6 | 38.3 | 48.6 |
| 95th %ile | 9.8 | 14.8 | 15.1 | 21.0 | 27.8 |
| Mean | 30.4 | 35.4 | 41.5 | 48.2 | 58.3 |
| <i>n</i> | 68 | 59 | 31 | 62 | 47 |

Source: Endowment data as reported to Cambridge Associates LLC.

Note: Uncalled capital is the amount committed, but not yet paid in, to private investment funds.

Appendix: Investment Manager Structures

NUMBER OF EXTERNAL MANAGERS AND INVESTMENT VEHICLES

As of June 30, 2023 • By Percentile Ranking

Number of External Managers

| | Less Than \$200M | \$200M–\$500M | \$500M–\$1B | \$1B–\$3B | More Than \$3B |
|-----------|------------------|---------------|-------------|-----------|----------------|
| 5th %ile | 58 | 74 | 94 | 116 | 272 |
| 25th %ile | 40 | 58 | 81 | 100 | 168 |
| Median | 28 | 43 | 69 | 78 | 127 |
| 75th %ile | 19 | 33 | 51 | 62 | 101 |
| 95th %ile | 12 | 20 | 40 | 38 | 52 |
| Mean | 31 | 45 | 68 | 78 | 138 |
| <i>n</i> | 94 | 65 | 30 | 60 | 42 |

Number of Investment Vehicles

| | Less Than \$200M | \$200M–\$500M | \$500M–\$1B | \$1B–\$3B | More Than \$3B |
|-----------|------------------|---------------|-------------|-----------|----------------|
| 5th %ile | 79 | 113 | 164 | 288 | 612 |
| 25th %ile | 57 | 79 | 124 | 202 | 399 |
| Median | 41 | 65 | 103 | 156 | 264 |
| 75th %ile | 24 | 47 | 82 | 104 | 207 |
| 95th %ile | 13 | 29 | 56 | 54 | 84 |
| Mean | 43 | 65 | 105 | 158 | 309 |
| <i>n</i> | 94 | 65 | 30 | 57 | 40 |

Source: Endowment data as reported to Cambridge Associates LLC.

DISPERSION IN NUMBER OF MANAGERS FOR SELECTED ASSET CLASSES

As of June 30, 2023 • By Percentile Ranking

| | Ab Return | | | | | | | | |
|-----------|---------------|-----------|-----------------|-----------|----------|------------------------|-------------|----------------|-----------------|
| | Global Equity | US Equity | DM ex US Equity | EM Equity | US Bonds | Long/Short Hedge Funds | Hedge Funds | Private Equity | Venture Capital |
| 5th %ile | 8 | 9 | 6 | 6 | 4 | 11 | 13 | 41 | 36 |
| 25th %ile | 5 | 5 | 4 | 3 | 3 | 7 | 7 | 19 | 16 |
| Median | 3 | 4 | 3 | 2 | 2 | 5 | 5 | 12 | 8 |
| 75th %ile | 2 | 3 | 2 | 2 | 1 | 3 | 3 | 6 | 4 |
| 95th %ile | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mean | 4 | 4 | 3 | 3 | 2 | 5 | 6 | 15 | 12 |
| <i>n</i> | 233 | 282 | 267 | 252 | 255 | 249 | 271 | 257 | 245 |

Source: Endowment data as reported to Cambridge Associates LLC.

Notes: Only those institutions with an allocation to the specific asset class have been included. Funds-of-funds are counted as one manager.

APPENDIX EXTERNAL MANAGERS AND VEHICLES BY STRATEGY

As of June 30, 2023

| Strategy | Median Number of Managers | | | | | Median Number of Vehicles | | | | |
|-------------------------------|---------------------------|---------------|-------------|-----------|----------------|---------------------------|---------------|-------------|-----------|----------------|
| | Less Than \$200M | \$200M–\$500M | \$500M–\$1B | \$1B–\$3B | More Than \$3B | Less Than \$200M | \$200M–\$500M | \$500M–\$1B | \$1B–\$3B | More Than \$3B |
| Traditional Equity | | | | | | | | | | |
| Global Equity | 3 | 3 | 3 | 4 | 5 | 3 | 3 | 3 | 4 | 5 |
| US Equity | 3 | 3 | 4 | 4 | 6 | 3 | 3 | 5 | 5 | 6 |
| Developed ex US Equity | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 3 | 3 | 5 |
| Emerging Markets Equity | 2 | 2 | 3 | 2 | 5 | 2 | 2 | 3 | 3 | 6 |
| Traditional Bonds | | | | | | | | | | |
| Global Bonds | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 2 |
| US Bonds | 2 | 2 | 3 | 1 | 2 | 2 | 2 | 3 | 2 | 2 |
| Global ex US Bonds | 1 | -- | 2 | 2 | 1 | 1 | -- | 2 | 2 | 1 |
| High-Yield Bonds | 1 | 2 | 1 | 1 | 3 | 1 | 2 | 1 | 1 | 3 |
| Hedge Funds | | | | | | | | | | |
| Long/Short Hedge Funds | 3 | 4 | 4 | 6 | 8 | 3 | 4 | 4 | 6 | 8 |
| Absolute Return | 4 | 5 | 6 | 6 | 8 | 4 | 5 | 6 | 6 | 9 |
| Distressed Securities | 1 | 2 | 2 | 2 | 3 | 1 | 2 | 2 | 2 | 4 |
| Private Credit | | | | | | | | | | |
| Distressed - Control Oriented | 1 | 1 | 2 | 2 | 5 | 1 | 1 | 2 | 4 | 8 |
| Private Credit ex Distressed | 2 | 2 | 3 | 5 | 8 | 2 | 3 | 3 | 8 | 11 |
| Private Equity | | | | | | | | | | |
| Non-Venture Private Equity | 5 | 7 | 14 | 17 | 34 | 7 | 12 | 23 | 33 | 63 |
| Venture Capital | 3 | 6 | 9 | 14 | 28 | 7 | 10 | 20 | 35 | 102 |
| Other Private Investments | 3 | 3 | 4 | 3 | 5 | 5 | 5 | 6 | 5 | 10 |
| Real Assets & ILBs | | | | | | | | | | |
| Private Real Estate | 1 | 2 | 6 | 7 | 15 | 2 | 3 | 8 | 11 | 28 |
| Public Real Estate | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 2 |
| Commodities | 1 | 1 | 1 | 1 | 3 | 1 | 1 | 1 | 1 | 4 |
| Inflation-Linked Bonds (TIPS) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Private Oil & Gas/Nat Res | 2 | 3 | 5 | 6 | 12 | 3 | 5 | 8 | 10 | 25 |
| Public Energy/Nat Res | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cash | | | | | | | | | | |
| | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| Other | | | | | | | | | | |
| | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 2 |

Source: Endowment data as reported to Cambridge Associates LLC.

Notes: Only those institutions with an allocation to the specific asset class are included in each category. As a result, the sum of the individual asset classes should not be assumed to equal the total number of managers or vehicles.

PARTICIPANTS

COLLEGES AND UNIVERSITIES

University of Alaska Foundation
Allegheny College
American Coll of Greece & American Univ of Greece
Amherst College
University of Arkansas Foundation Inc.
College of The Atlantic
Bard College
Bentley University
Berkeley Endowment Management Company
Boston College
Boston University
Bowdoin College
Brown University
Bryn Mawr College
Buena Vista University
University at Buffalo Foundation
University of California
California Institute of Technology
The UCLA Foundation
University of California, San Francisco
Canisius College
Carleton College
Carnegie Mellon University
Case Western Reserve University
Centenary College of Louisiana
Chapman University
The University of Chicago
University of Cincinnati
Claremont McKenna College
Clemson University Foundation
The Colburn School
Colby College
Colgate University
Columbia University
Connecticut College
Cooper Union for the Advancement of Science & Art
Cornell University
College For Creative Studies
Curry College
Dartmouth College
Davidson College
University of Delaware
Denison University
Duke University
East Carolina University Foundation, Inc.
Emory University
Florida State University Foundation Inc.
University of Florida Investment Corporation
Georgia Tech Foundation Inc.
Gettysburg College
Goucher College
Grinnell College
Hampton University
Harvard Management Company, Inc.
University of Hawaii Foundation
Hollins University
Hope College
University of Houston System
Howard University
University of Idaho Foundation, Inc.
University of Illinois Foundation
Indiana University Foundation
Iowa State University Foundation
Jewish Theological Seminary of America
Johns Hopkins University
Kalamazoo College
KU Endowment
Kentucky, University of
Lafayette College
University of Louisiana at Lafayette Foundation
Lebanese American University
Lehigh University
Lewis and Clark College
Louisiana State University Foundation
Loyola University of Chicago
Luther Seminary
Lycoming College
Macalester College
The University of Maryland Foundation
MIT Investment Management Company
Mercy College
University of Michigan
Mount Holyoke College
Mount St. Mary's University
National University
University of Nevada, Reno Foundation
Nevada System of Higher Education
New York University
Northeastern University
Northwestern University
Norwich University
University of Notre Dame
Oberlin College
Occidental College
Ohio State University
Ohio Wesleyan University
The University of Oklahoma Foundation, Inc.
Pace University
University of the Pacific
University of Pennsylvania
Pennsylvania State University
Pepperdine University
University of Pittsburgh
Pomona College
Princeton University
Providence College
Purdue Research Foundation
Reed College
Rensselaer Polytechnic Institute
University of Rhode Island Foundation
Rice University
University of Rochester
The Rockefeller University
University of San Diego
San Francisco State University Foundation
Santa Clara University
Scripps College
Seattle University
Simmons University
Smith College
Soka University of America
University of Southern California
Southern Methodist University
Southern New Hampshire University
Spelman College
Stanford University
St. Lawrence University
University of St. Thomas
Swarthmore College
University of Tennessee
Texas Christian University
Texas Lutheran University
Texas State Univ. Dev. Fdn.

The University of Texas Investment Management Co.
 University of Toronto Asset Management Company
 Trinity University
 Tufts University
 Tulane University
 UNC Management Company, Inc.
 UNCG Endowment Partners, LP
 Union Theological Seminary
 Vanderbilt University
 Villanova University
 University of Virginia Investment Management Co.
 Virginia Tech Foundation
 Washburn University Foundation
 University of Washington
 Washington College
 Washington and Jefferson College
 Washington University in St. Louis
 Wellesley College
 Wesleyan University
 Western New England University
 Wichita State University Foundation
 William & Mary Foundation
 Williams College
 University of Wisconsin Foundation
 Wittenberg University
 Yale University
 Yeshiva University

CULTURAL AND ENVIRONMENTAL

American Red Cross
 Animal Rescue League of Boston
 Appalachian Mountain Club
 The Vivian Beaumont Theater, Inc.
 Boston Symphony Orchestra Inc.
 The Brookings Institution
 Carnegie Institution for Science
 The Children's Museum of Indianapolis
 Conner Prairie Foundation
 Conservation International Foundation
 Council on Foreign Relations
 Cypress Lawn Endowment Care Trust
 Dallas Museum of Art
 The Edison Institute
 The Evergreens Cemetery
 Fallon Paiute-Shoshone Tribe
 The Frick Collection
 Isabella Stewart Gardner Museum
 GBH Educational Foundation
 The J. Paul Getty Trust
 Jeremy and Hannelore Grantham Environmental Trust
 Huntington Library and Art Gallery
 Institute for Advanced Study
 Linda Hall Library Trusts
 Longwood Gardens, Inc.
 Lyric Opera of Chicago
 Mashantucket Pequot Tribal Nation Endowment Trust
 Minnesota Orchestral Association
 Massachusetts Society for Prevention of Cruelty to Animals
 Museum of Contemporary Art Chicago
 Museum of Contemporary Art, Los Angeles
 Museum of Fine Arts, Boston
 Museum of Fine Arts, Houston
 Museum of Science, Boston
 National Audubon Society
 National Gallery of Art
 National Geographic Society
 NPR Foundation
 National Wildlife Federation
 The Nature Conservancy

New York Philharmonic
 The New York Public Library
 New York Public Radio
 Peabody Essex Museum
 Philadelphia Museum of Art
 Ravinia Festival Association
 Scenic Hudson Land Trust Inc.
 Seattle Art Museum
 Smithsonian Institution
 Indianapolis Symphony Orchestra Foundation, Inc.
 The Trustees of Reservations
 Two River Theatre Company Inc.
 Wildlife Conservation Society

HOSPITALS

Baylor Scott & White Health
 Beth Israel Lahey Health Investment Partnership, LLP
 Blythedale Children's Hospital
 Cedars-Sinai Medical Center
 Children's HealthCare of Atlanta, Inc.
 The Children's Hospital of Philadelphia
 The Children's Institute Foundation
 Children's Medical Center
 Cleveland Clinic Fdn;The
 W. I. Cook Foundation, Inc.
 Dana-Farber Cancer Institute Inc.
 Essentia Health
 Exeter Health Resources Inc.
 Franciscan Missionaries of Our Lady Health System
 Hawaii Pacific Health
 Holy Redeemer Health System Inc.
 Huntington Hospital
 Inova Health System
 Lifespan Corporation
 Maine Medical Center
 Main Line Health Foundations
 Mayo Clinic
 Memorial Hermann Health System
 Children's Mercy Hospital Foundation
 Mount Sinai School of Medicine
 New York Presbyterian Hospital
 Northwestern Memorial HealthCare
 Ochsner-LSU Health System of Northern Louisiana
 Partners HealthCare System, Inc.
 Phoebe Putney Health System
 Saint Francis Foundation
 Shore Regional Health
 University Hospitals Health System
 Virginia Hospital Center

INDEPENDENT SCHOOLS

Auditory Learning Foundation
 The Blake School
 Boston College High School
 The Brearley School
 Buckingham Browne & Nichols School
 Castilleja School
 Collegiate School
 Emma Willard School
 The Episcopal School of Dallas
 The Fessenden School
 Greenwich Country Day School
 Groton School
 Milton Hershey School Trust
 Hockaday School
 The Hotchkiss School
 Kamehameha Schools
 Lakeside School
 The Lawrenceville School

The Loomis Institute
McCallie School
Park Tudor Trust
Pembroke Hill School
Phillips Exeter Academy
Punahou School
The Roxbury Latin School
Saint Ignatius College Prep
St. Mark's School of Texas
Salisbury School
St. Bernard's School
Western Reserve Academy
The Winsor School
Xaverian Brothers High School

OTHER NONPROFITS

Aircraft Owners and Pilots Association
American College of Surgeons
The American Society of Hematology
The Boston Home Inc.
Catholic Church Extension Society
Catholic Education Scholarship Trust
Catholic Investment Trust of Washington
Archdiocese of Chicago
Children's Investment Fund Foundation
Christ Church Cathedral Foundation
The Church Pension Fund
Claremont University Consortium
Episcopal Society of Christ Church
Episcopal Divinity School

Ex-Students' Association of the University of Texas
Greater New York Hospital Association
Howard Hughes Medical Institute
The Ignatius Fund
Isidore and Van Gerwen Charitable Trusts
Jewish Child Care Association
Maine Coast Heritage Trust
Mission Diocese Fund
Lucile Packard Foundation for Children's Health
The PGA of America, LP
Diocese of Providence
The REACH Healthcare Foundation
Robin Hood Foundation
The Rose Hills Foundation
The Sealy & Smith Foundation
Soka University of America EEF
Southern Poverty Law Center
Southwest Research Institute
Spastic Children's Endowment Foundation
Sunflower Foundation Health Care for Kansans
Texas Biomedical Research Institute
Trinity Church Wall Street
United Methodist Health Ministry Fund
United Negro College Fund
United States Tennis Association
Willett Advisors
Catholic Diocese of Wilmington
Woodward Hines Education Foundation
Xaverian Brothers USA

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